APPENDIX A CONNECTION ASSESSMENT

Engineering Connection Assessment

P2396 Georgetown Solar Project Connection

Georgetown Solar Inc.

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NOTE:

The conclusions and recommendations in this report are based on the results presented in *Attachment A: Engineering Connection Assessment: Study Results*, which was prepared by a third party consultant in accordance with the AESO Connection Process.

The AESO has reviewed the *Engineering Connection Assessment: Study Results*, and finds it acceptable for the purpose of assessing the potential impacts of the proposed connection on the performance of the Alberta interconnected electric system.

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Attachments

Attachment A: Engineering Connection Assessment Results

1 Introduction

This AESO Engineering Connection Assessment describes the engineering studies that were completed to assess the impact of the Project (as defined below) on the performance of the Alberta interconnected electric system (AIES). This report also provides the AESO's conclusions and recommendations based on the results of the engineering studies.

Attached to this Engineering Connection Assessment are the results of the engineering studies (see Attachment A) and the scope and methodology used to perform the studies (see Attachment A1 to Attachment A). These attachments provide details regarding the technical criteria, assumptions, and methods for performing these engineering studies, and the results of the engineering studies.

1.1 Project Overview

Georgetown Solar Inc. (Market Participant) has submitted a request for system access service to the Alberta Electric System Operator (AESO) to connect its approved Georgetown Solar Project (Facility) to the AIES.

The Facility includes an approved collector substation, designated Mossleigh 1051S Substation.

The Market Participant's request includes: a request for a new system access service in the area, with a Rate STS, *Supply Transmission Service*, contract capacity of 230 MW and a Rate DTS, *Demand Transmission Service*, contract capacity of 1 MW; and a request for transmission development (collectively, the Project).

The scheduled in-service date (ISD) for the Project is April 30, 2025.

2 Assessment Scope

2.1 Objectives

The objectives of the AESO Engineering Connection Assessment are as follows:

- Assess the impact of the Project on the performance of the AIES.
- Evaluate Project connection alternatives and identify the AESO's preferred alternative.
- Recommend mitigation measures, if required, to reliably connect the Project to the AIES.
- Identify Project dependencies, including any TFO projects or AESO plans to expand or enhance the transmission system that must be completed prior to connection.

2.2 Existing System

Geographically, the Project is located in the AESO planning area of Strathmore/Blackie (Area 45) , which is part of the AESO South planning region. Strathmore/Blackie (Area 45) is surrounded by the planning areas of Calgary (Area 6), Airdrie (Area 57), Hanna (Area 42), Sheerness (Area 43), Brooks (Area 47), High River (Area 46), and Stavely (Area 49).

From a transmission system perspective, Strathmore/Blackie (Area 45) consists primarily of a 240 kV and 138 kV transmission system. Strathmore/Blackie (Area 45) is connected to Calgary (Area 6) through a 138 kV transmission line and two 240 kV transmission lines, connected to High River (Area 46) through two 138 kV transmission lines, connected to Brooks (Area 47) through a 138 kV transmission line and two 240 kV transmission lines, and connected to Stavely (Area 49) through a 138 kV transmission line.

Existing constraints in the South planning region are managed in accordance with the procedures set out in Section 302.1 of the ISO rules, Real Time Transmission Constraint Management (TCM Rule).

2.3 Study Area

The Study Area for the Project consists of the AESO Planning area of Strathmore/Blackie Planning Area (Area 45), Calgary (Area 6), Stavely (Area 49), Brooks (Area 47), and High River (Area 46), including the tie lines connecting these planning areas to the rest of the AIES. All transmission facilities within the Study Area will be studied and monitored for violations of the Reliability Criteria (defined in Section 3.1 of Attachment A1).

3 Connection Alternatives

3.1 Overview

The AESO, in consultation with the TFO in the Study Area and the Market Participant, examined nine transmission alternatives to meet the Market Participant's request for system access service, as detailed in Section 3.2.

3.2 Connection Alternatives Examined

Below is a description of the developments associated with the transmission alternatives that were examined for the Project.

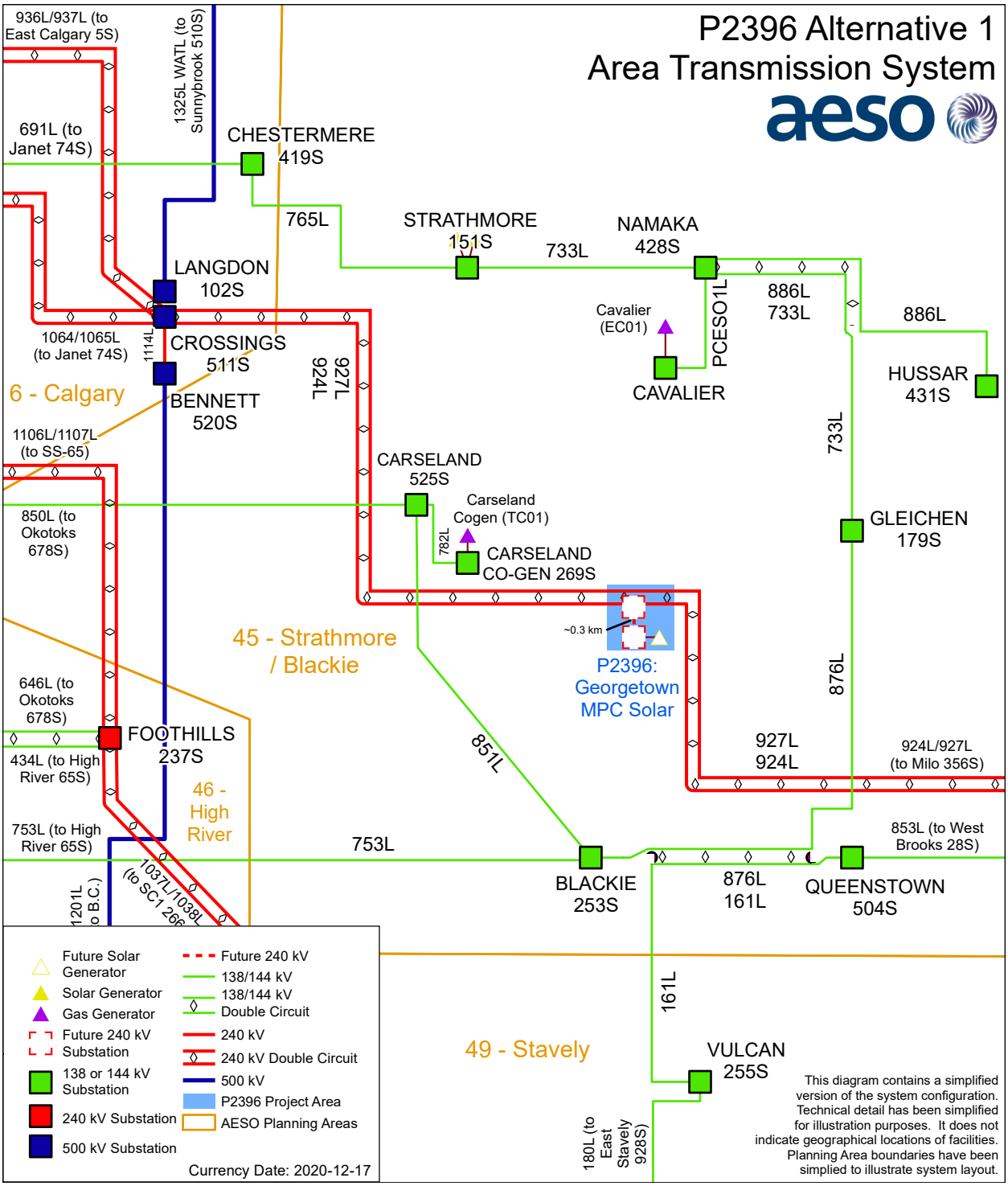
Alternative 1 –In-and-Out connection to 240 kV Transmission Line 924L

This alternative included the following developments:

- Add a new 240 kV substation including three (3) 240 kV circuit breakers, connected to the existing 240 kV transmission line 924L (between Milo 356S and Langdon 102S substations) using an in-and-out configuration;
- Add a 240 kV circuit, approximately 0.3 km, to connect the Facility to the proposed 240 kV substation; and
- Add or modify associated equipment as required for the above transmission developments.

The proposed connection configuration is shown in Figure 3-1.

Figure 3-1: Connection Alternative 1



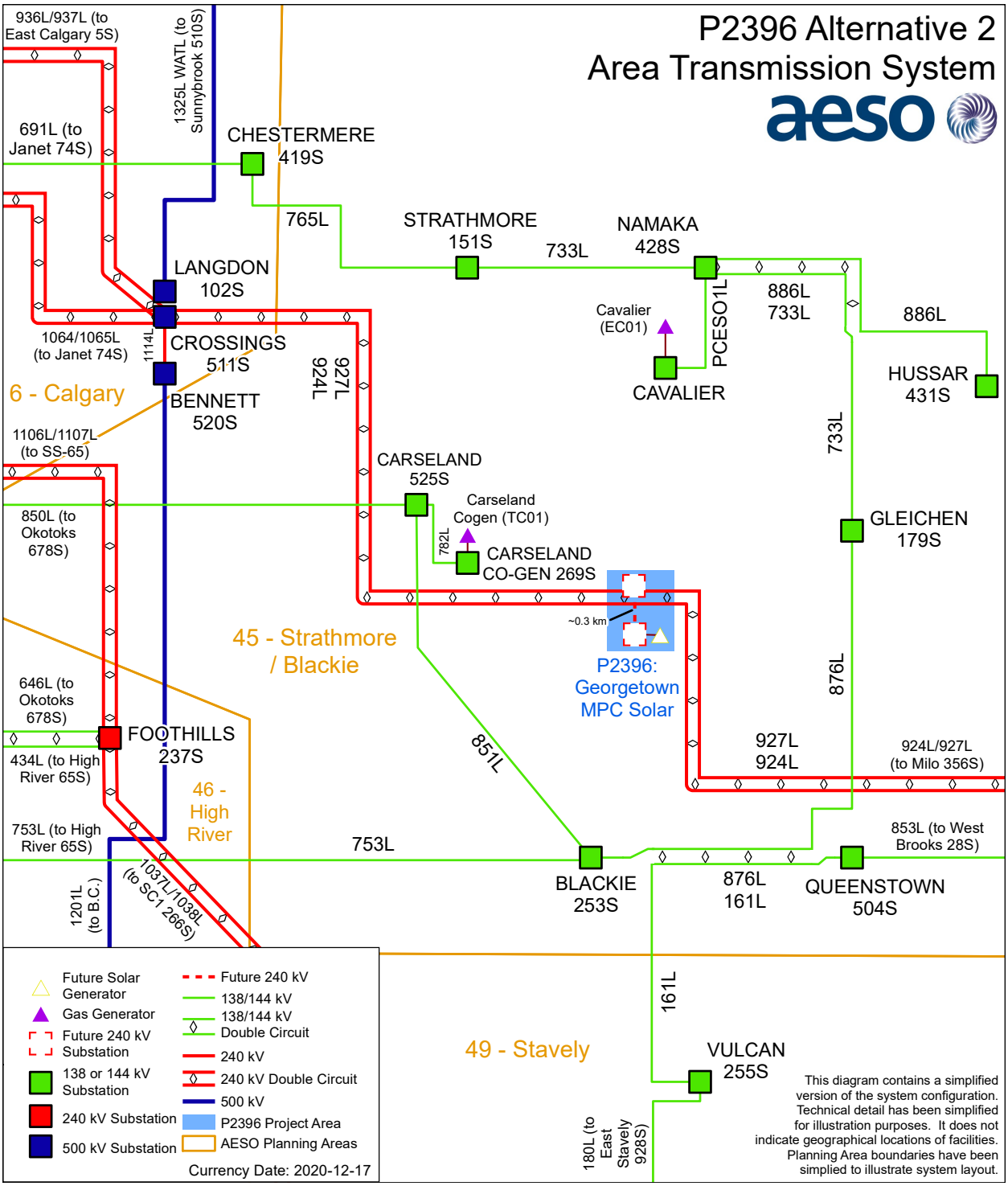
Alternative 2 –In-and-Out connection to 240 kV transmission Line 927L

This alternative included the following developments:

- Add a new 240 kV substation including three (3) 240 kV circuit breakers, connected to the existing 240 kV transmission line 927L (between Milo 356S and Langdon 102S substations) using an in-and-out configuration;
- Add a 240 kV circuit, approximately 0.3 km, to connect the Facility to the proposed 240 kV substation; and
- Add or modify associated equipment as required for the above transmission developments.

The proposed connection configuration is shown in Figure 3-2.

Figure 3-2: Connection Alternative 2



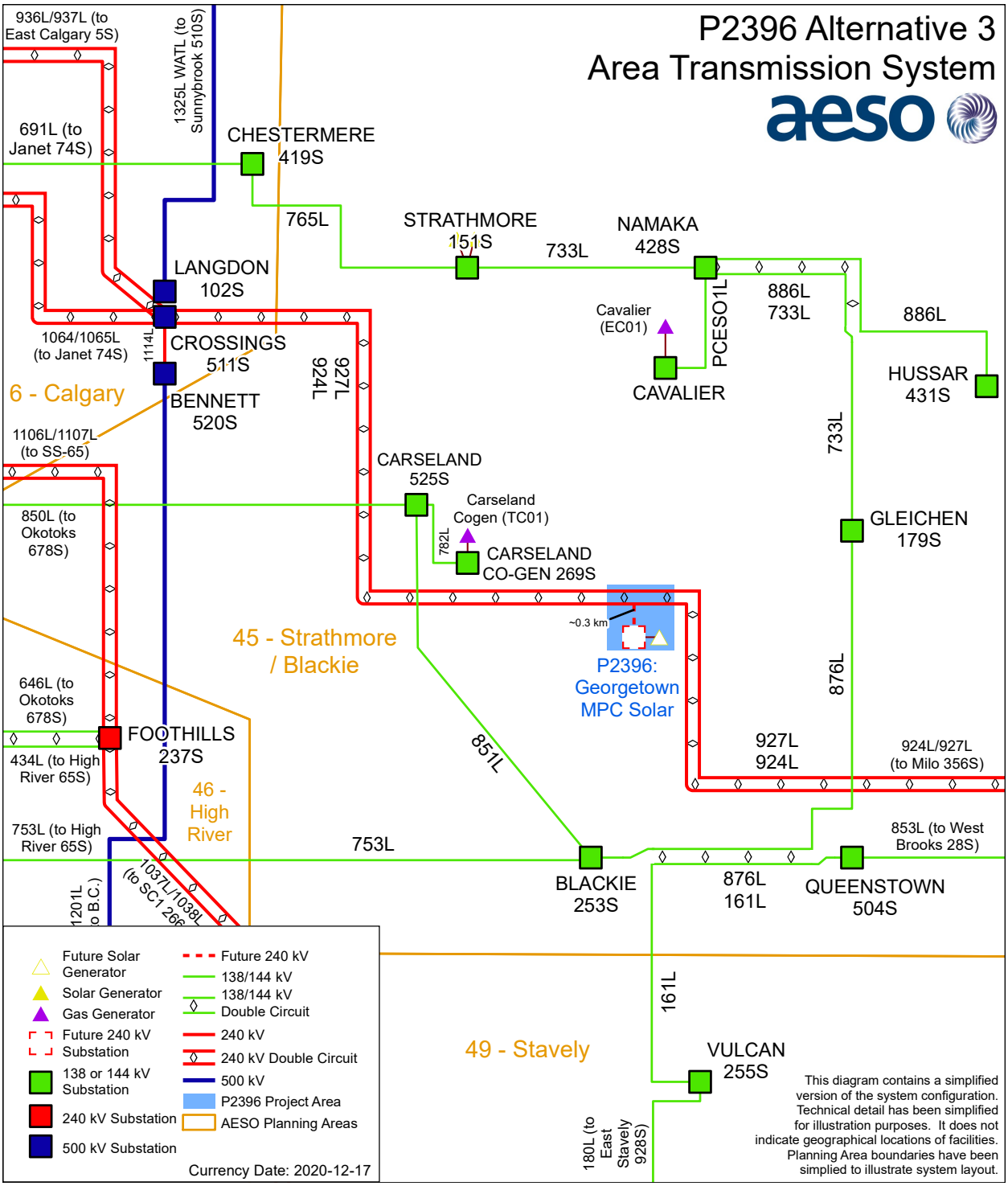
Alternative 3 –T-Tap Connection to the 240 kV transmission Line 924L

This alternative included the following developments:

- Connect the Facility to the existing 240 kV transmission line 924L through a T-tap configuration between Milo 356S and Langdon 102S;
- Add a 240 kV circuit, approximately 0.3 km, to connect the Facility to 924L; and
- Add or modify associated equipment as required for the above transmission developments.

The proposed connection configuration is shown in Figure 3-3.

Figure 3-3: Connection Alternative 3



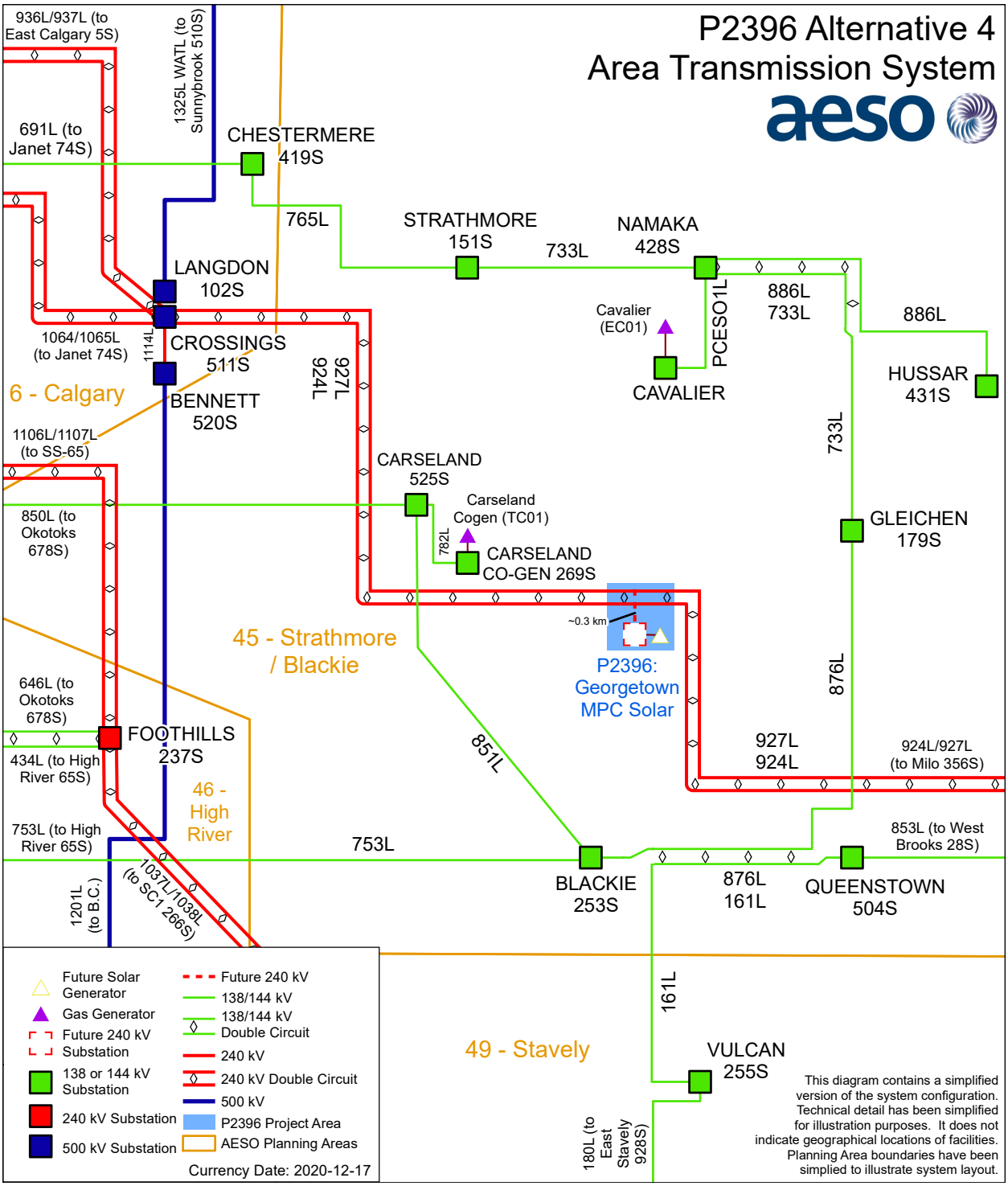
Alternative 4 –T-Tap Connection to the 240 kV transmission Line 927L

This alternative included the following developments:

- Connect the Facility to the existing 240 kV transmission line 927L through a T-Tap configuration between Milo 356S and Langdon 102S;
- Add a 240 kV circuit, approximately 0.3 km, to connect the Facility to 927 and a line crossing of 924L; and
- Add or modify associated equipment as required for the above transmission developments.

The proposed connection configuration is shown in Figure 3-4

Figure 3-4: Connection Alternative 4



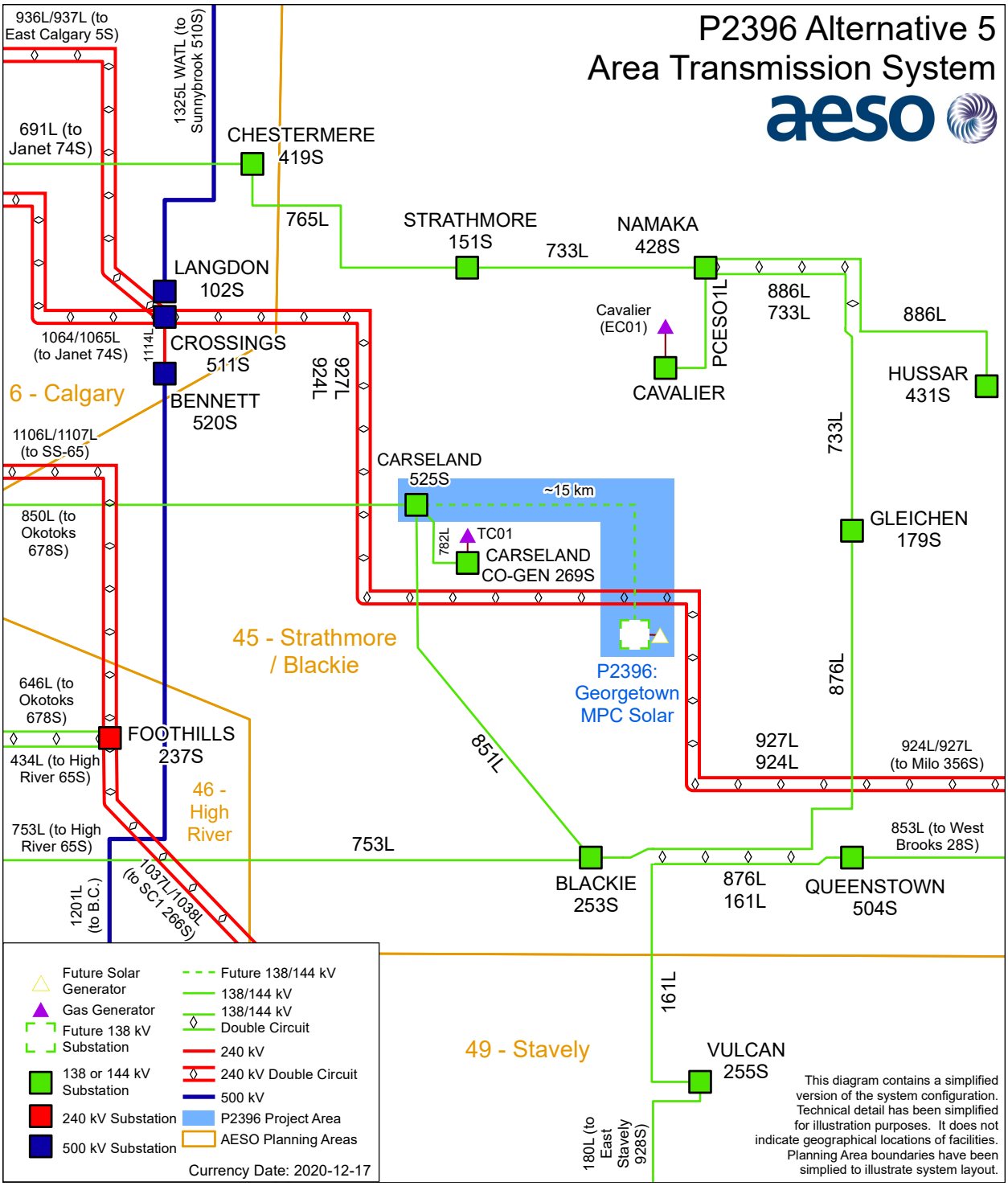
Alternative 5 –Radial 138 kV connection to Carseland 525S

This alternative included the following developments:

- Modify the existing Carseland 525S substation, including adding one 138 kV circuit breaker;
- Add a 138 kV circuit, approximately 15 km, to connect the Facility to the existing Carseland 525S substation using a radial configuration; and
- Add or modify associated equipment as required for the above transmission developments.

The proposed connection configuration is shown in Figure 3-5.

Figure 3-5: Connection Alternative 5



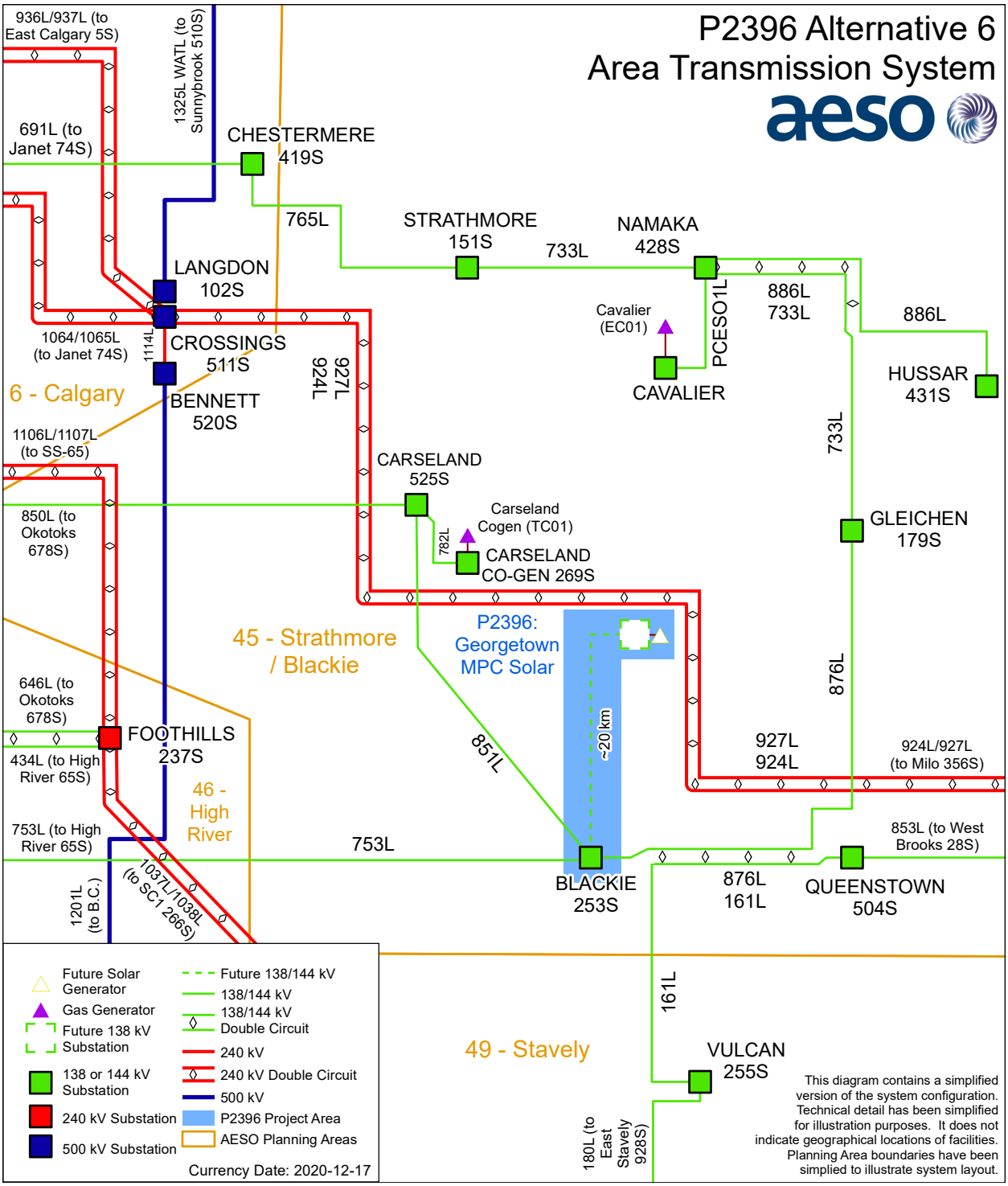
Alternative 6 – Radial 138 kV connection to Blackie 253S

This alternative included the following developments:

- Modify the existing Blackie 253S substation, including adding one 138 kV circuit breaker;
- Add a 138 kV circuit, approximately 20 km, to connect the Facility to the existing Blackie 253S substation using a radial configuration; and
- Add or modify associated equipment as required for the above transmission developments.

The proposed connection configuration is shown in Figure 3-6.

Figure 3-6: Connection Alternative 6



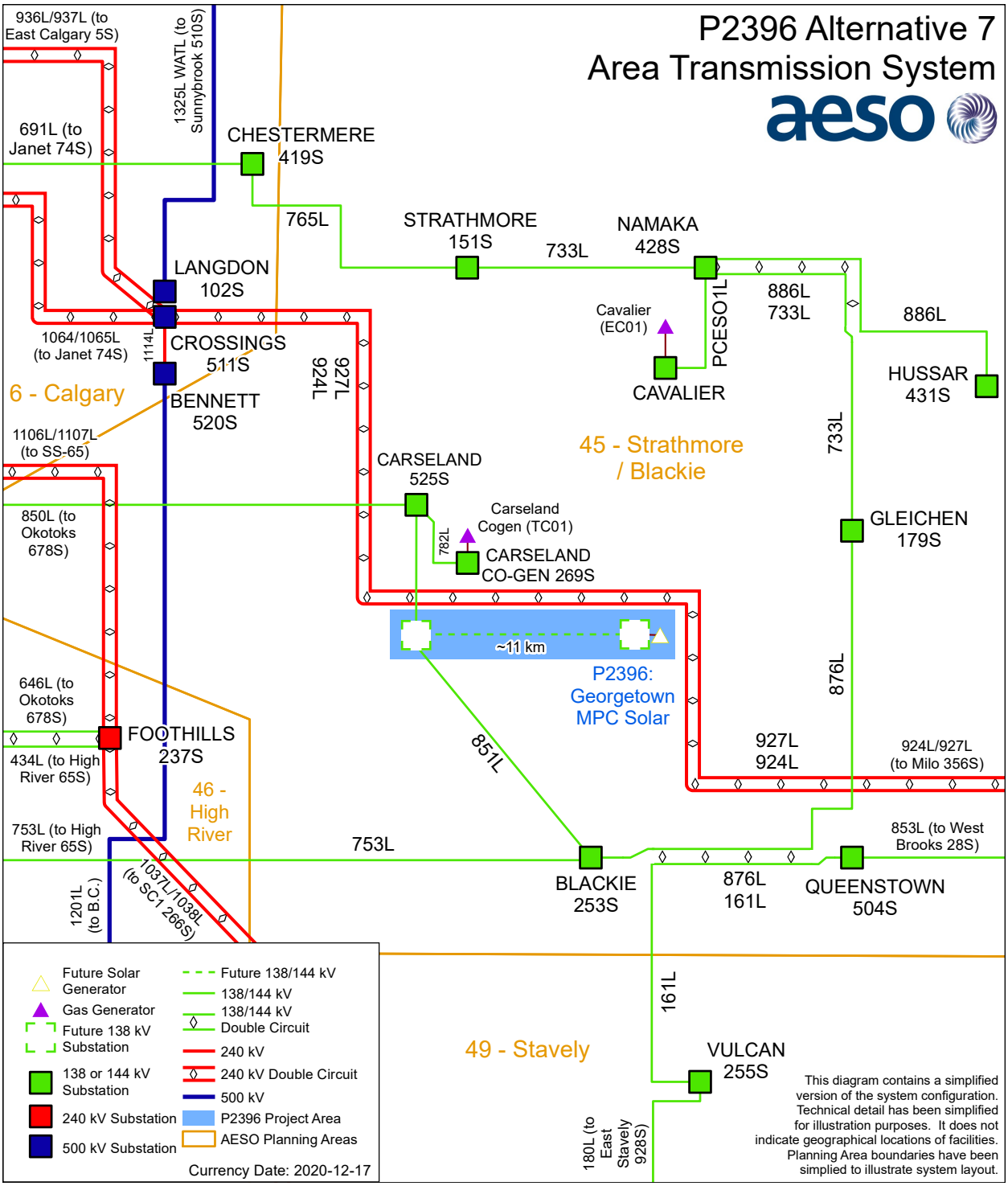
Alternative 7 –In-and-Out connection to the 138 kV Transmission Line 851L

This alternative included the following developments:

- Add a new 138 kV substation including three (3) 138 kV circuit breakers, connected to the existing 138 kV transmission line 851L (between Blackie 253S and Carseland 525S substations) using an in-and-out configuration;
- Add a 138 kV circuit, approximately 11 km, to connect the Facility to the proposed 138 kV substation;
- Add or modify associated equipment as required for the above transmission developments.

The proposed connection configuration is shown in Figure 3-7.

Figure 3-7: Connection Alternative 7



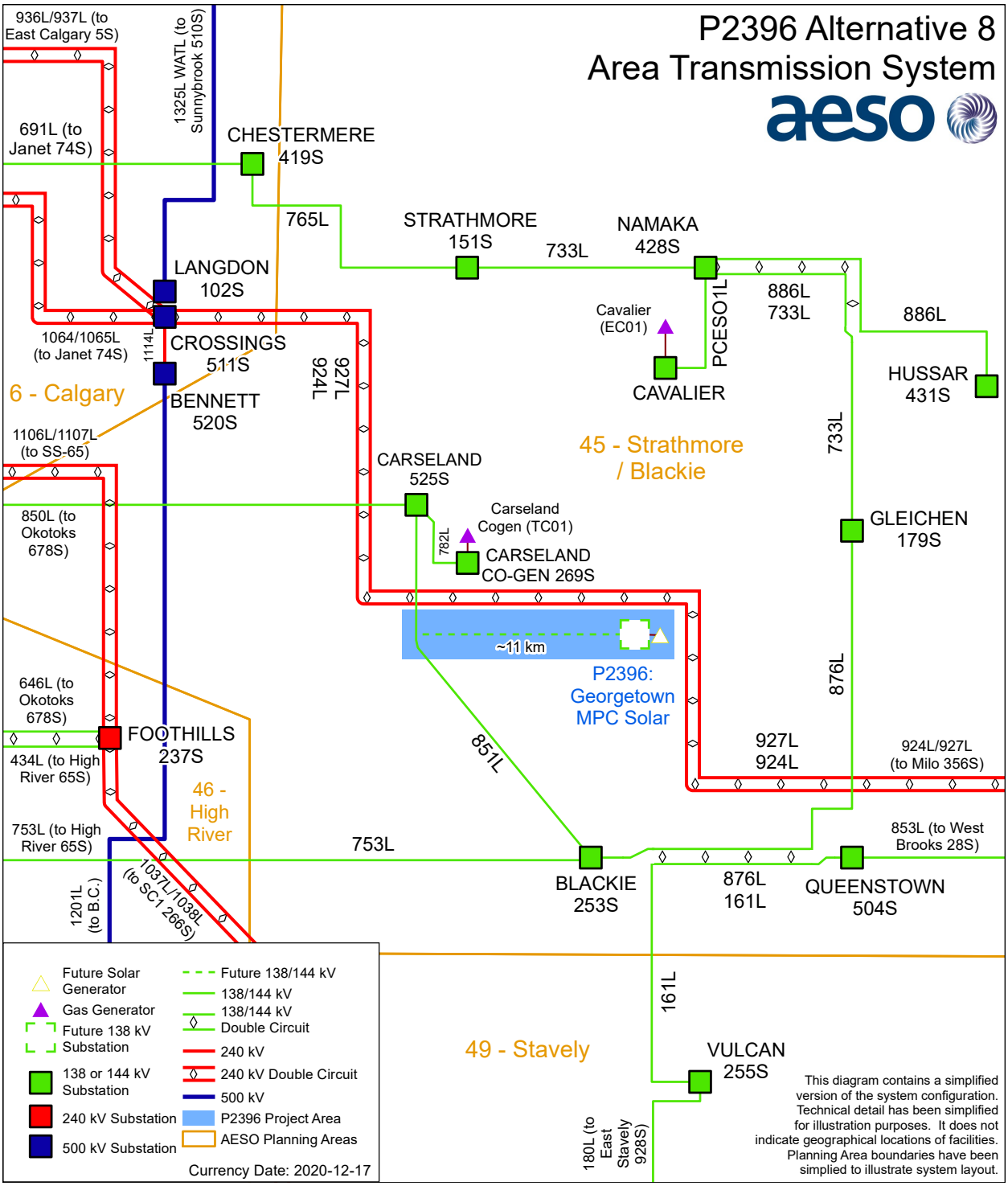
Alternative 8 – T-Tap Connection to the 138 kV Transmission Line 851L

This alternative included the following developments:

- Connect the Facility to the existing 138 kV transmission line 851L through a T-Tap configuration between the Blackie 253S and Carseland 525S substations;
- Add a 138 kV circuit, approximately 11 km, to connect the Facility to 851L; and
- Add or modify associated equipment as required for the above transmission developments.

The proposed connection configuration is shown in Figure 3-8.

Figure 3-8: Connection Alternative 8



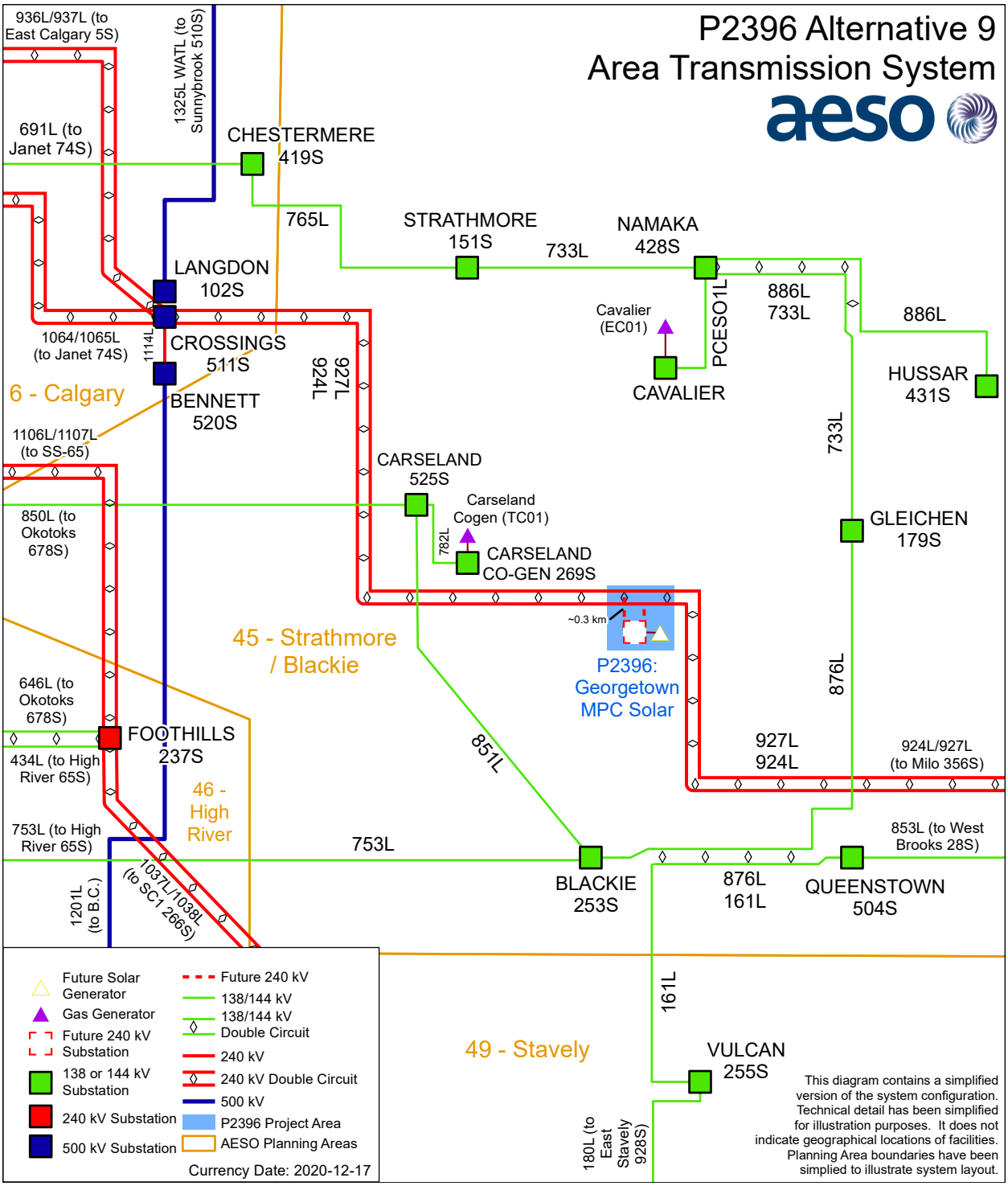
Alternative 9 –Double T-Tap Connection to the 240 kV transmission Lines 924L and 927L

This alternative included the following developments:

- Connect the Facility to the existing 240 kV transmission lines 924L and 927L through a double T-tap configuration between the existing Milo 356S and Langdon 102S substations;
- Add two 240 kV circuits, approximately 0.3 km each, to connect the Facility to the double T-Tap junction; and
- Add or modify associated equipment as required for the above transmission developments.

The proposed connection configuration is shown in Figure 3-9.

Figure 3-9: Connection Alternative 9



3.3 Connection Alternatives Selected for Further Study

Alternatives 3 is considered technically feasible and was selected for further study.

3.4 Connection Alternatives Not Selected for Further Study

Alternatives 5, 6, 7, and 8 were ruled out as the available capacity on the 138 kV system would not accommodate an additional 230 MW. Alternatives 1, 2, 4 and 9 would have similar system impacts and technical performance to Alternative 3; however, Alternatives 1, 2, 4 and 9 involve increased transmission development and hence, increased cost, compared to Alternative 3. Therefore, Alternatives 1, 2, 4 and 9 were not selected for further study.

4 Assessment Approach

4.1 Standards, Criteria and Assumptions

A detailed description of the standards, criteria, and assumptions that were used for the connection assessment is provided in Attachment A (see Attachment A1).

4.2 Studies Performed

At the time of study, the scheduled ISD for the Project was August 1, 2023. A change proposal was submitted to change the ISD to October 31, 2023. The new ISD was approved by the AESO and the studies performed using the August 1, 2023 are valid for the new ISD. Studies were performed using scenarios for 2023 Summer Light (SL) and 2023 Summer Peak (SP).

In addition to studying the main scenarios (scenarios 1 to 4), , the AESO also chose to run sensitivity studies to include three additional connection projects in the Study Area (scenarios 6 to 9). One of those projects – Buffalo Plains Wind[1] (P2247) has reached project inclusion criteria prior to the studies. Due to this, this project (i.e., Buffalo Plains Wind) is included in all scenarios (scenarios 1 to 9).

Short-circuit studies were performed using the 2023 SP pre-Project scenario, 2023 SP and 2031 WP post-Project scenarios.

Table 4-1 lists the study scenarios. Post-Project scenarios reflect the final requested Rate STS contract capacity of 230 MW at the Mossleigh 1051S substation.

Table 4-1: Connection Study Scenarios

Scenario No.	Year/Season	System Generation Dispatch Conditions	Scenario Name	Project Load (MW)	Project Generation (MW)
Pre-Project					
1	2023 Summer Peak (SP)	High Generation	2023 SP Pre-Project	0	0
2	2023 Summer Light (SL)	High Generation	2023 SL Pre-Project	0	0
Post-Project					
3	2023 SP	High Generation	2023 SP Post-Project	0	230
4	2023 SL	High Generation	2023 SL Post-Project	0	230
5	2031 WP	All machines in study area in service	2031 WP Post-Project	0	230
Pre-Project Sensitivity-with P2247, P2373, and P2378					
6	2023 SP	High Generation	2023 SP Sensitivity Pre-Project	0	0

[1] Buffalo Plain Wind Farm approved by the AUC in Decision 26214-D01-2022 on February 10, 2022.

Scenario No.	Year/Season	System Generation Dispatch Conditions	Scenario Name	Project Load (MW)	Project Generation (MW)
7	2023 SL	High Generation	2023 SL Sensitivity Pre-Project	0	0
Post-Project Sensitivity with P2247, P2373, and P2378					
8	2023 SP	High Generation	2023 SP Sensitivity Post-Project	0	230
9	2023 SL	High Generation	2023 SL Sensitivity Post-Project	0	230

The AESO Planning Region load forecasts used for the connection studies were based on the AESO's 2021 Long-term Outlook (2021 LTO).

4.2.1 Power Flow Studies

The purpose of the power flow studies is to identify and quantify any thermal and voltage criteria violations in the Study Area.

In addition, power flow studies are also used to identify POD low voltage bus voltage deviations beyond the limits listed in Table 3-1 of Attachment A1.[2]

Power flow studies were performed for 2023 Summer Light (SL) and 2023 Summer Peak (SP) pre-Project scenarios, and for 2023 SL and 2023 SP post-Project scenarios.

4.2.2 Transient Stability Studies

The purpose of the transient stability studies is to assess the post-Project stability of the transmission system after three-phase to ground faults are applied on select transmission lines in the Study Area.

Transient stability studies were performed for 2023 SL and 2023 SP post-Project scenarios.

4.2.3 Short-Circuit Current Level Studies

The purpose of short-circuit current level studies is to determine the expected system short-circuit current levels in the vicinity of the Project.

Short circuit studies were performed for the 2023 SP pre-Project scenario, 2023 SP and 2031 WP post-Project scenarios.

[2] The AESO's desired post-contingency voltage deviations for low voltage busses represent guidelines rather than criteria. A POD bus voltage deviation that exceeds the desired limits shown in Table 3-1 of Attachment A1 does not represent a Reliability Criteria violation. Mitigation measures would not be developed to specifically address POD bus voltage deviations that exceed the desired values in Table 3-1 of Attachment A1.

4.3 Mitigation Measure Development and Evaluation

As explained in Section 6 of Attachment A1, mitigation measures were developed to address system performance issues that were identified in the post-Project scenarios. Studies performed to assess the effectiveness of mitigation measures are briefly outlined below.

4.3.1 Post-Mitigation Studies

Power flow and transient stability studies were performed to assess the impact of the Project on the performance of the AIES following implementation of the AESO's proposed mitigation measures.

4.3.2 Constraint Effective Factor Studies

Constraint effective factor studies were used to determine the generator and load constraint effective factors and to identify the most effective generators or loads to manage thermal criteria violations that were observed under Category B conditions.

5 Interpretation of Results

5.1 Results Overview

This section provides an assessment of the impact of the Project on the performance of the AIES. The Reliability Criteria violations observed during the connection assessment studies, and the proposed mitigation measures are summarized in Table 5-1.

- Section 5.2 includes an overview of the pre-Project studies results.
- Section 5.3 includes an overview of the post-Project studies results.
- Section 5.4 includes a description of the proposed mitigation measures to address observed Reliability Criteria violations.
- Section 5.5 includes an overview of the post-mitigation studies results.

Detailed study results are provided in Attachment A.

Table 5-1: Summary of Reliability Criteria Violations, Project Impact and Mitigation Measures

Scenario	Type of Reliability Criteria Violation		Contingency (System Element Lost)	Details of Violation	Project Impact	Pre-Project Mitigation Measures	Post-Project Mitigation Measures
	Pre-Project	Post-Project					
2023 Summer Peak (SP)	None	Thermal - above emergency rating	System Normal (N-0)	924L (Langdon 102S - P2396 Tap)	New violation	None	Real-time operational practices (RTOPs)
	Thermal - above emergency rating	Thermal - above emergency rating	1088L (Newell 2075S - Cassils 324S)	1087L (Newell 2075S - Cassils 324S)	Materially reduces violation	Planned RAS 197	Planned RAS 197
	None	Thermal - below emergency rating	WATL HVDC	916L (Sarcee 42S - East Calgary 5S)	New violation	None	RTOPs
	None	Thermal - below emergency rating	1037L (FOOTHILLS 237S - WINDY FLATS 138S)	924L (Langdon 102S - P2396 Tap)	New violation	None	RTOPs
	None	Thermal - below emergency rating	1038L (FOOTHILLS 237S - WINDY FLATS 138S)	924L (Langdon 102S - P2396 Tap)	New violation	None	RTOPs
	None	Thermal - below emergency rating	1106L (SS-65 - Foothills 237S)	924L (Langdon 102S - P2396 Tap)	New violation	None	RTOPs
	None	Thermal - below emergency rating	1107L (SS-65 - Foothills 237S)	924L (Langdon 102S - P2396 Tap)	New violation	None	RTOPs
	None	Thermal - below emergency rating	940L (North Lethbridge 370S – Picture Butte 120S)	924L (Langdon 102S - P2396 Tap)	New violation	None	RTOPs
	Thermal - below emergency rating	Thermal - above emergency rating	927L (Langdon 102S - Milo 356S)	924L (Langdon 102S - P2396 Tap)	Materially increases violation	RAS 175	Modified RAS 175
	None	Thermal - below emergency rating	EATL HVDC	916L (Sarcee 42S - East Calgary 5S)	New violation	RTOPs	RTOPs
	Thermal - below emergency rating	Thermal - above emergency rating		924L (Langdon 102S - P2396 Tap)	Materially increases violation		
	Thermal - below emergency rating	Thermal - below emergency rating		927L (Langdon 102S - Milo 356S)	Marginally increases violation		
2023 Summer Light (SL)	None	Thermal - below emergency rating	System Normal (N-0)	924L (Langdon 102S - P2396 Tap)	New violation	None	RTOPs
	Transient Stability	Transient Stability	924L (3-phase fault at Langdon 102S)	Transient instability	No impact	Revised RAS 175	Modified Revised RAS 175
	Transient Stability	Transient Stability	927L (3-phase fault at Langdon 102S)	Transient instability	No impact	Revised RAS 175	Modified Revised RAS 175
	Voltage	Voltage	EATL HVDC	Voltage Collapse	No impact	RTOPs	RTOPs
	Thermal - below emergency rating	Thermal - below emergency rating	1109L (SS-65 - Shepard SS-25)	1080L (SS-65 - Shepard SS-25)	Marginally increases violation	RTOPs	RTOPs
	Thermal - below emergency rating	Thermal - below emergency rating	1088L (Newell 2075S - Cassils 324S)	1087L (Newell 2075S - Cassils 324S)	Materially reduces violation	RTOPs	RTOPs
	Thermal - below emergency rating	Thermal - below emergency rating	1080L (SS-65 - Shepard SS-25)	1109L (SS-65 - Shepard SS-25)	Marginally increases violation	RTOPs	RTOPs
	None	Thermal - below emergency rating	WATL HVDC	901L (Janet 74S - Crossings 511S)	New violation	RTOPs	RTOPs
	Thermal - above emergency rating	Thermal - above emergency rating		916L (Sarcee 42S - East Calgary 5S)	Materially increases violation		
	None	Thermal - below emergency rating		918L (Beddington 281S - Johnson SS 162)	New violation		
	None	Thermal - below emergency rating	1037L (FOOTHILLS 237S - WINDY FLATS 138S)	924L (Langdon 102S - P2396 Tap)	New violation	None	RTOPs
	None	Thermal - below emergency rating	1038L (FOOTHILLS 237S - WINDY FLATS 138S)	924L (Langdon 102S - P2396 Tap)	New violation	None	RTOPs
	None	Thermal - below emergency rating	1106L (SS-65 - Foothills 237S)	924L (Langdon 102S - P2396 Tap)	New violation	None	RTOPs
	None	Thermal - below emergency rating	1107L (SS-65 - Foothills 237S)	924L (Langdon 102S - P2396 Tap)	New violation	None	RTOPs
	None	Thermal - below emergency rating	940L (North Lethbridge 370S – Picture Butte 120S)	924L (Langdon 102S - P2396 Tap)	New violation	None	RTOPs
	Thermal - below emergency rating	Thermal - above emergency rating	927L (Langdon 102S - Milo 356S)	924L (Langdon 102S - P2396 Tap)	Materially increases violation	RAS 175	Modified RAS 175
2023 Summer Peak (SP) Sensitivity	None	Thermal - above emergency rating	System Normal (N-0)	924L (Langdon 102S - P2396 Tap)	New violation	None	RTOPs
	Thermal - below emergency rating	Thermal - below emergency rating	System Normal (N-0)	927L (Langdon 102S - P2378 Tap)	Marginally increases violation	RTOPs	RTOPs
	Thermal - above emergency rating	Thermal - above emergency rating	985L (Janet 74S - SS-25)	1003L (Janet 74S - SS-25)	Marginally reduces violation	Planned RAS 193	Planned RAS 193
	Thermal - above emergency rating	Thermal - above emergency rating	1003L (Janet 74S - SS-25)	985L (Janet 74S - SS-25)	Marginally reduces violation	Planned RAS 193	Planned RAS 193
	Thermal - below emergency rating	Thermal - below emergency rating	924L (Langdon 102S - Milo 356S)	927L (Langdon 102S - Milo 356S)	Marginally reduces violation	RTOPs	RTOPs
	Thermal - below emergency rating	Thermal - above emergency rating	EATL HVDC	927L (Langdon 102S - Milo 356S)	Marginally increases violation	RTOPs	RTOPs
	Thermal - below emergency rating	Thermal - below emergency rating		916L (Sarcee 42S - East Calgary 5S)	Materially increases violation		
	Thermal - below emergency rating	Thermal - above emergency rating	WATL HVDC	916L (Sarcee 42S - East Calgary 5S)	Materially increases violation	RTOPs	RTOPs
	None	Thermal - below emergency rating	1038L (FOOTHILLS 237S - WINDY FLATS 138S)	924L (Langdon 102S - P2396 Tap)	New violation	None	RTOPs
	None	Thermal - above emergency rating	927L (Langdon 102S - Milo 356S)	924L (Langdon 102S - P2396 Tap)	New violation	None	Modified RAS 175
	None	Thermal - below emergency rating	1037L (FOOTHILLS 237S - WINDY FLATS 138S)	924L (Langdon 102S - P2396 Tap)	New violation	None	RTOPs
	None	Thermal - below emergency rating	1107L (SS-65 - Foothills 237S)	924L (Langdon 102S - P2396 Tap)	New violation	None	RTOPs
	None	Thermal - below emergency rating	940L (North Lethbridge 370S – Picture Butte 120S)	924L (Langdon 102S - P2396 Tap)	New violation	None	RTOPs
	None	Thermal - below emergency rating	1106L (SS-65 - Foothills 237S)	924L (Langdon 102S - P2396 Tap)	New violation	None	RTOPs
	Thermal - below emergency rating	Thermal - above emergency rating	EATL HVDC	924L (Langdon 102S - P2396 Tap)	Materially increases violation	RTOPs	RTOPs
	Thermal - above emergency rating	Thermal - above emergency rating	1088L (Newell 2075S - Cassils 324S)	1087L (Newell 2075S - Cassils 324S)	Materially reduces violation	Planned RAS 197	Planned RAS 197
2023 Summer Light (SL) Sensitivity	None	Thermal - below emergency rating	System Normal (N-0)	924L (Langdon 102S - P2396 Tap)	New violation	None	RTOPs
	Transient Stability	Transient Stability	924L (3-phase fault at Langdon 102S)	Transient instability	No impact	Revised RAS 175	Modified Revised RAS 175
	Transient Stability	Transient Stability	927L (3-phase fault at Langdon 102S)	Transient instability	No impact	Revised RAS 175	Modified Revised RAS 175
	Thermal - below emergency rating	Thermal - below emergency rating	1109L (SS-65 - Shepard SS-25)	1080L (SS-65 - Shepard SS-25)	Marginally reduces violation	RTOPs	RTOPs

	Thermal - below emergency rating	Thermal - below emergency rating	1088L (Newell 2075S - Cassils 324S)	1087L (Newell 2075S - Cassils 324S)	Marginally reduces violation	RTOPs	RTOPs
	Thermal - below emergency rating	Thermal - below emergency rating	1080L (SS-65 - Shepard SS-25)	1109L (SS-65 - Shepard SS-25)	Marginally reduces violation	None	RTOPs
	None	Thermal - below emergency rating	WATL HVDC	901L (Janet 74S - 901AL Tap)	New violation	RTOPs	RTOPs
	Thermal - above emergency rating	Thermal - above emergency rating		916L (Sarcee 42S - East Calgary 5S)	Materially increases violation		
	None	Thermal - below emergency rating		918L (Beddington 281S - Johnson SS 162)	New violation		
	None	Thermal - below emergency rating	1037L (FOOTHILLS 237S - WINDY FLATS 138S)	924L (Langdon 102S - P2396 Tap)	New violation	None	RTOPs
	None	Thermal - below emergency rating	1107L (SS-65 - Foothills 237S)	924L (Langdon 102S - P2396 Tap)	New violation	None	Modified RAS 175
	None	Thermal - above emergency rating	927L (Langdon 102S - Milo 356S)	924L (Langdon 102S - P2396 Tap)	New violation	None	RTOPs
	None	Thermal - below emergency rating	940L (North Lethbridge 370S – Picture Butte 120S)	924L (Langdon 102S - P2396 Tap)	New violation	RTOPs	RTOPs
	Voltage	Voltage	EATL HVDC	Voltage Collapse	No impact	RTOPs	RTOPs
	None	Thermal - below emergency rating	1038L (FOOTHILLS 237S - WINDY FLATS 138S)	924L (Langdon 102S - P2396 Tap)	New violation	None	RTOPs
	None	Thermal - below emergency rating	1106L (SS-65 - Foothills 237S)	924L (Langdon 102S - P2396 Tap)	New violation	RTOPs	RTOPs
	Thermal - below emergency rating	Thermal - below emergency rating	924L (Langdon 102S - Milo 356S)	927L (Langdon 102S - Milo 356S)	Marginally reduces violation	RTOPs	RTOPs

Notes:

- Marginally increased (or marginally decreased) refers to a percent loading difference (post-Project percent loading minus pre-Project percent loading) between 0% and 3% (or -3%).
- Materially increased (or materially decreased) refers to a percent loading difference (post-Project percent loading minus pre-Project percent loading) above or equal to 3% (or below or equal to -3%).
- RAS No. 197 was proposed for the approved Solar Kraft Brooks in the Brooks Solar Farm Connection Needs Identification Document Checklist . This RAS is referred to herein as “Planned 197”.
- RAS No. 175 is an existing RAS.
- In this table, “Modify” refers to adding the Project to the logic of the respective RAS

5.2 Pre-Project Study Results

5.2.1 Category A Conditions

No Reliability Criteria violations were observed under the Category A conditions (i.e., all elements in service) for the pre-Project scenarios (i.e., scenarios 1 and 2). The short-circuit fault levels were found to be within the typical capabilities of the nearby facilities.

5.2.2 Category B Conditions

The pre-Project power flow studies identified a number of thermal and voltage violations under Category B conditions (i.e., loss of a single system element).

Results indicate transient instability for faults on the transmission lines 924L or 927L at Langdon 102S for the SL pre-project scenario.

5.3 Post-Project Study Results

5.3.1 Category A Conditions

Thermal Reliability Criteria violations under Category A conditions were observed on the 240 kV transmission line 924L for the Post-project scenarios (i.e. scenario 3 and 4). Post-Project short-circuit fault levels were not significantly higher than pre-Project levels. The long-term short circuit levels were found to be within the designed capabilities of the nearby facilities.

5.3.2 Category B Conditions

Post-Project power flow studies identified a number of system performance issues under Category B conditions, namely: thermal and voltage criteria violations.

Results indicate transient instability for faults on the transmission lines 924L or 927L at Langdon 102S for the SL post-project scenario.

5.4 Post-Project Sensitivity Study Results

5.4.1 Category A Conditions

Thermal Reliability Criteria violations under Category A conditions were observed on the 240 kV transmission line 924L for Summer Peak Post-project sensitivity scenario, and Summer Light Post-project sensitivity scenario. In addition, a Thermal Reliability Criteria violation under the Category A condition was observed on the 240 kV transmission line 927L for the SP Post-project sensitivity scenario.

5.4.2 Category B Conditions

Post-Project power flow studies identified a number of system performance issues under Category B conditions, namely: thermal and voltage criteria violations.

Results indicate transient instability for faults on the transmission lines 924L or 927L at Langdon 102S for the SL post-project sensitivity scenario.

5.5 Mitigation Measures

This section discusses the AESO's proposed mitigation measures to address the system performance issues that were identified in the pre-Project and post-Project scenarios.

5.5.1 Pre-Project

Prior to connection of the Project, voltage criteria violations can be managed using RTOPs and most of the observed thermal criteria violations can be managed using RTOPs. The remaining thermal criteria violations can be mitigated with the existing RAS 175, planned RAS 193, and planned RAS 197. The transient stability concerns can be mitigated using a revised RAS 175 that trips the projects assigned to RAS 175 with no time delay.

5.5.2 Post-Project

Under Category A conditions, thermal criteria violations are being observed on the 240 kV transmission line 924L in the post-Project scenarios, following the inclusion of a number of projects planning to connect in the South region. These thermal criteria violations can be managed by applying the TCM Rule to curtail generation as required until such a time that system projects are in place to alleviate congestion. If the AESO determines congestion is likely to occur, the AESO will file an application for an "exception" under Section 15(2) of the *Transmission Regulation*.

After connection of the Project, some of the thermal criteria violations observed under Category B conditions can be mitigated by using RTOPs and planned RAS 197.

The remaining thermal criteria violations can be mitigated by modification of RAS 175 by including the Project in the RAS logic. With the addition of the Project, the total amount of generation tied to modified planned RAS 175 exceeds the Most Severe Single Contingency (MSSC) limit of 466 MW. The post-Project studies indicate that in order to mitigate the thermal violations following certain contingencies (927L) the combined actions of RAS 175 may result in generation curtailment in excess of the MSSC limit. Pre-contingency generation curtailment under normal conditions may be required using RTOPs to prevent generation curtailment by RAS action above the MSSC level. The probability of pre-curtailment being required would be dependent on generation profiles and operating conditions. If the AESO determines that pre-contingency curtailment is likely to occur resulting in congestion, then the AESO will file an application for an exception under Section 15(2) of the *Transmission Regulation*, until such a time that system projects are in place to alleviate congestion.

The transient stability concerns can be mitigated using a revised modified RAS 175 that trips the projects assigned to modified RAS 175 with no time delay.

5.5.3 Post-Project Sensitivity

Under Category A conditions, thermal criteria violations are being observed on the 240 kV transmission lines 924L and 927L in the post-Project Sensitivity scenarios, following the inclusion of additional projects planning to connect in the South region. These thermal criteria violations can be managed by applying the TCM Rule to curtail generation as required until such a time that system projects are in place to alleviate congestion. If the AESO determines congestion is likely to occur, the AESO will file an application for an "exception" under Section 15(2) of the *Transmission Regulation*.

After the connection of the Project, some of the thermal criteria violations observed under Category B conditions can be mitigated by using RTOPs, planned RAS 193, and planned RAS 197.

The remaining thermal criteria violations can be mitigated by modification of RAS 175 by including the Project in the RAS logic. With the addition of the Project, the total amount of generation tied to modified planned RAS 175 exceeds the Most Severe Single Contingency (MSSC) limit of 466 MW. The post-Project studies indicate that in order to mitigate the thermal violations following certain contingencies (927L) the combined actions of RAS 175 may result in generation curtailment in excess of the MSSC limit. Pre-contingency generation curtailment under normal conditions may be required using RTOPs to prevent generation curtailment by RAS action above the MSSC level. The probability of pre-curtailment being required would be dependent on generation profiles and operating conditions. If the AESO determines that pre-contingency curtailment is likely to occur resulting in congestion, then the AESO will file an application for an exception under Section 15(2) of the *Transmission Regulation*, until such a time that system projects are in place to alleviate congestion.

The transient stability concerns can be mitigated using a revised modified RAS 175 that trips the projects assigned to modified RAS 175 with no time delay.

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6 Project Dependencies

The Project does not require the completion of any other AESO plans to expand or enhance the transmission system prior to connection.

7 Conclusions and Recommendations

Based on the study results, Alternative 3 is technically viable. The connection assessment identified a number of pre-Project and post-Project system performance issues.

The identified system performance issues can be mitigated through modified RAS 175, planned RAS 197, planned RAS 193, and RTOPs, alone or in combination, as appropriate. The use of modified RAS 175 may result in generation curtailment during the Category A condition. With implementation of these mitigation measures, connecting the project with the preferred alternative does not adversely affect the performance of the AIES.

The connection assessment uses credible worst-case conditions to assess the impact of the Facility connecting on the Alberta interconnected electric system. Category A thermal criteria violations were observed under these credible worst-case load and generation forecast conditions. The probability of Category A thermal criteria violations materializing is highly dependent upon the production profile of the Facility and other generation facilities in the area.

The total amount of generation tied to modified RAS 175 exceeds the MSSC limit of 466 MW. The post-Project studies indicate that in order to mitigate the thermal violations following certain contingencies including 927L, the actions of RAS 175 may result in generation curtailment in excess of the MSSC limit. Pre-contingency generation curtailment under the Category A condition may be required using real-time operational practices to prevent generation curtailment by RAS action above the MSSC level. The probability of pre-curtailment being required would be dependent on generation profiles and operating conditions.

Closer to the ISD, if the AESO determines that congestion will arise under Category A conditions, the AESO may make an application to the AUC to obtain approval for an “exception” under Section 15(2) of the *Transmission Regulation*.

The AESO recommends proceeding with the Project using Alternative 3 as the preferred alternative to respond to the Market Participant’s request for system access service. RTOPs and the RASs mentioned above are recommended to mitigate the identified system performance issues.

Alternative 3 involves adding a 240 kV circuit, approximately 0.3 km in length, to connect the Facility to the existing 240 kV transmission line 924L (between Milo 356S and Langdon 102S) through a T-tap configuration. The conductor used for the 240 kV circuit shall have the minimum normal rating no less than 256 MVA which is based on the proposed MARP in this project.

Attachment A:
Engineering Connection Assessment Results

Engineering Connection Assessment: Study Results

P2396 Georgetown Solar Project Connection

Georgetown Solar Inc.

Date: March 6, 2023

Version: V1

Role	Name	Date	Signature
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Engineering Stamp



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DATE: March 30, 2023
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1 Introduction

This report presents the results of the engineering studies that were completed by CF Power Ltd. (the Studies Consultant) to assess the impact of the Project (as defined in Attachment A1: AESO Engineering Connection Assessment Scope) on the performance of the Alberta interconnected electric system (AIES). The studies were performed in accordance with Attachment A1: AESO Engineering Connection Assessment: Study Scope, which was prepared by the AESO.

The power system network analysis tool that was used for the studies in this connection assessment was PSSE 33.

2 Pre-Project Study Results

This section describes the results of the pre-Project power flow studies.

2.1 Power Flow Studies

Power flow diagrams illustrating the pre-Project power flow studies results for Category A and Category B conditions are provided in Attachment A2.

2.1.1 Scenario 1: 2023 Summer Peak High Wind Pre-Project

Category A Conditions

No Reliability Criteria (as defined in Section 3.1 of Attachment A1) violations were observed under Category A conditions.

To keep generation level consistent between the pre- and post-project scenarios, the generation from Blackspring Ridge wind, Travers Solar, P1927 Solar Krafte Brooks, and P2247 Buffalo Plains MPC wind was reduced to 118.9 MW, 108.4 MW, 83.9 MW, and 184.7 MW from the levels required by the Attachment A1: AESO Engineering Connection Assessment: Study Scope.

Category B Conditions

Thermal Criteria Violations

Thermal criteria violations were observed under certain Category B conditions as shown in Table 2-1.

Table 2-1: Thermal Criteria Violations under Category B Conditions for Scenario 1

Contingency (System Element Lost)	Violation Location Details	Thermal Ratings[a] (MVA)		Pre-Project Results	
		Normal Rating	Emergency Rating	Power Flow[b] (MVA)	% Loading[c]
1088L (Newell 2075S - Cassils 324S)	1087L (Newell 2075S - Cassils 324S)	547.0	676.0	721.3	131.9
927L (Langdon 102S - Milo 356S)	924L (Langdon 102S - P2396 Tap)	547.0	656.0	565.1	103.3
EATL HVDC	927L (Langdon 102S - Milo 356S)	576.0	691.0	602.2	104.5
EATL HVDC	924L (Langdon 102S - P2396 Tap)	547.0	656.0	600.0	109.7

Notes:

[a] The facility ratings shown in Attachment A1 have been adjusted from a 72/144 kV voltage base to a 69/138 kV voltage base, as is used by the power system network analysis tool.

[b] Power flow (MVA) is current expressed as MVA (i.e., S = $\sqrt{3}$ x V_{base} x I_{actual})

[c] Reported as a percentage of the power flow (in MVA, i.e., S = $\sqrt{3}$ x V_{base} x I_{actual}) relative to the transmission line's Normal Rating (also in MVA), as shown in Attachment A1.

Voltage Criteria Violations

No voltage criteria violations were observed under Category B conditions.

POD Bus Voltage Deviations

No POD bus voltage deviations were observed.

2.1.2 Scenario 2: 2023 Summer Light High Wind Pre-Project

Category A Conditions

No Reliability Criteria (as defined in Section 3.1 of Attachment A1) violations were observed under Category A conditions.

To keep generation level consistent between the pre- and post-project scenarios, the generation from Blackspring Ridge wind and P2247 Buffalo Plains MPC wind was reduced to 225.1 MW and 349.6 MW from the levels required by the Attachment A1: AESO Engineering Connection Assessment: Study Scope.

Category B Conditions

Thermal Criteria Violations

Thermal criteria violations were observed under certain Category B conditions as shown in Table 2- 1.

Table 2- 2: Thermal Criteria Violations under Category B Conditions for Scenario 2

Contingency (System Element Lost)	Violation Location Details	Thermal Ratings[a] (MVA)		Pre-Project Results	
		Normal Rating	Emergency Rating	Power Flow[b] (MVA)	% Loading[c]
1080L (SS-65 - Shepard SS-25)	1109L (SS-65 - Shepard SS-25)	487.0	604.0	530.6	109.0
1109L (SS-65 - Shepard SS-25)	1080L (SS-65 - Shepard SS-25)	487.0	604.0	530.2	108.9
927L (Langdon 102S - Milo 356S)	924L (Langdon 102S - P2396 Tap)	547.0	656.0	564.4	103.2
WATL HVDC	916L (Sarcee 42S - East Calgary 5S)	408.0	494.0	559.9	137.2
1088L (Newell 2075S - Cassils 324S)	1087L (Newell 2075S - Cassils 324S)	547.0	676.0	613.9	112.2

Voltage Criteria Violations

Voltage collapse was observed following the contingency of EATL HVDC line.

POD Bus Voltage Deviations

No POD bus voltage deviations were observed.

2.1.3 Scenario 6: 2023 Summer Peak High Wind Pre-Project - Sensitivity

Category A Conditions

Thermal Reliability Criteria (as defined in Section 3.1 of Attachment A1) violations on 927L were observed under Category A conditions.

To mitigate the thermal overload, the generation from P1927 Solar Krafte Brooks and P2247 Buffalo Plains MPC wind was reduced to 65.6 MW and 144.4 MW, to be consistent with the corresponding post-project scenario which requires further generation reduction compared to the required for the pre-project scenario.

Table 2- 3: Thermal Criteria Violations under Category A Condition for Scenario 6

Details of Violation (Violation Observed On)	Seasonal Continuous Rating (MVA)	Pre-Project Results		Post-Curtailment Results	
		Power Flow (MVA)	% Loading	Power Flow (MVA)	% Loading
927L (927AL T-tap - Langdon 102S)	576	620.2	107.7	472.8	82.1

Category B Conditions

Thermal Criteria Violations

Thermal criteria violations were observed under certain Category B conditions as shown in Table 2- 4.

Table 2- 4: Thermal Criteria Violations under Category B Conditions for Scenario 6

Contingency (System Element Lost)	Violation Location Details	Thermal Ratings[a] (MVA)		Pre-Project Results	
		Normal Rating	Emergency Rating	Power Flow[b] (MVA)	% Loading[c]
1003L (Janet 74S - SS-25)	985L (Janet 74S - SS-25)	973.1	1017.0	1084.8	111.5
985L (Janet 74S - SS-25)	1003L (Janet 74S - SS-25)	973.0	1017.0	1083.9	111.4
1088L (Newell 2075S - Cassils 324S)	1087L (Newell 2075S - Cassils 324S)	547.0	676.0	704	128.7
924L (Langdon 102S - Milo 356S)	927L (927AL T-tap - Langdon 102S)	576.0	691.0	653	113.4
EATL HVDC	916L (Sarcee 42S - East Calgary 5S)	408.0	494.0	415.9	101.9
EATL HVDC	924L (Langdon 102S - Milo 356S)	547.0	656.0	598.7	109.5
EATL HVDC	927L (927AL T-tap - Langdon 102S)	576.0	691.0	689.2	119.7

WATL HVDC	916L (Sarcee 42S - East Calgary 5S)	408.0	494.0	450	110.3

Voltage Criteria Violations

No voltage criteria violations were observed under Category B conditions.

POD Bus Voltage Deviations

No POD bus voltage deviations were observed.

2.1.4 Scenario 7: 2023 Summer Light High Wind Pre-Project - Sensitivity

Category A Conditions

No Reliability Criteria (as defined in Section 3.1 of Attachment A1) violations were observed under Category A conditions.

To keep generation level consistent between the pre- and post-project scenarios, the generation from P2247 Buffalo Plains MPC wind was reduced to 300 MW.

Category B Conditions

Thermal Criteria Violations

Thermal criteria violations were observed under certain Category B conditions as shown in Table 2-5.

Table 2-5: Thermal Criteria Violations under Category B Conditions for Scenario 7

Contingency (System Element Lost)	Violation Location Details	Thermal Ratings[a] (MVA)		Pre-Project Results	
		Normal Rating	Emergency Rating	Power Flow[b] (MVA)	% Loading[c]
1109L (SS-65 - Shepard SS-25)	1080L (SS-65 - Shepard SS-25)	487.00	604.00	531.1	109
1080L (SS-65 - Shepard SS-25)	1109L (SS-65 - Shepard SS-25)	487.00	604.00	531.4	109.1
1088L (Newell 2075S - Cassils 324S)	1087L (Newell 2075S - Cassils 324S)	547.00	676.00	611.8	111.9
WATL HVDC	916L (Sarcee 42S - East Calgary 5S)	408.00	494.00	574.4	140.8
924L (Langdon 102S - Milo 356S)	927L (927AL T-tap - Langdon 102S)	576.00	691.00	647.4	112.4

Voltage Criteria Violations

Voltage collapse was observed following the contingency of EATL HVDC line.

POD Bus Voltage Deviations

No POD bus voltage deviations were observed.

3 Post-Project Study Results

This section describes the results of the post-Project power flow studies and transient stability studies.

As described in Section 2 of Attachment A1, the post-Project studies were performed using Alternative 3.

3.1 Power Flow Studies

Power flow diagrams illustrating the post-Project power flow studies results for Category A and Category B conditions are included in Attachment A3.

3.1.1 Scenario 3: 2023 Summer Peak High Wind Post-Project

Category A Conditions

Thermal Reliability Criteria violations on 924L were observed under Category A conditions.

To mitigate the thermal overload, the total generation from Blackspring Ridge wind, Travers Solar, P1927 Solar Krafte Brooks, and P2247 Buffalo Plains MPC wind was reduced to 118.9 MW, 108.4 MW, 83.9 MW, and 184.7 MW from the levels as required by the Attachment A1: AESO Engineering Connection Assessment: Study Scope.

Table 3-1: Thermal Criteria Violations under Category A Condition for Scenario 3

Details of Violation (Violation Observed On)	Normal Rating (MVA)	Pre-Project Results		Post-Project Results		% Loading Difference (Post-Pre)	Post-Curtailment Results	
		Power Flow (MVA)	%	Power Flow (MVA)	%		Power Flow (MVA)	%
924L (Langdon 102S - P2396 Tap)	547	517.8	94.7	669.1	122.3	27.6	533.8	97.6

Category B Conditions

Thermal criteria violations were observed under certain Category B conditions as shown in Table 3-2.

Table 3- 2: Thermal Criteria Violations under Category B Conditions for Scenario 3

Contingency (System Element Lost)	Details of Violation (Violation Observed On)	Normal Rating (MVA)	Emergency Rating (MVA)	Pre-Project Results		Post-Project Results		% Loading Difference (Post-Pre)
				Power Flow (MVA)	%	Power Flow (MVA)	%	
1037L (FOOTHILLS 237S - WINDY FLATS 138S)	924L (Langdon 102S - P2396 Tap)	547.0	656.0	432.1	79.0	584.4	106.8	27.8
1038L (FOOTHILLS 237S - WINDY FLATS 138S)	924L (Langdon 102S - P2396 Tap	547.0	656.0	432.1	79.0	584.5	106.9	27.9
1106L (SS-65 - Foothills 237S)	924L (Langdon 102S - P2396 Tap	547.0	656.0	410.3	75.0	559.8	102.3	27.3
1107L (SS-65 - Foothills 237S)	924L (Langdon 102S - P2396 Tap	547.0	656.0	410.3	75.0	559.8	102.3	27.3
940L (North Lethbridge 370S – Picture Butte 120S)	924L (Langdon 102S - P2396 Tap	547.0	656.0	410.3	75.0	558.4	102.1	27.1
927L (Langdon 102S - Milo 356S)	924L (Langdon 102S - P2396 Tap	547.0	656.0	565.1	103.3	720.2	131.7	28.3
EATL HVDC	924L (Langdon 102S - P2396 Tap)	547.0	656.0	600.0	109.7	756.9	138.4	28.7
EATL HVDC	927L (Langdon 102S - Milo 356S)	576.0	691.0	602.2	104.5	613.0	106.4	1.9
EATL HVDC	916L (Sarcee 42S - East Calgary 5S)	408.0	494.0	367.2	90.0	431.3	105.7	15.7
WATL HVDC	916L (Sarcee 42S - East Calgary 5S)	408.0	494.0	403.9	99.0	462.3	113.3	14.3
1088L (Newell 2075S - Cassils 324S)	1087L (Newell 2075S - Cassils 324S)	547.0	676.0	721.3	131.9	704.4	128.8	-3.1

Voltage Criteria Violations

No voltage criteria violations were observed under Category B conditions.

POD Bus Voltage Deviations

No POD bus voltage deviations were observed.

3.1.2 Scenario 4: 2023 Summer Light High Wind Post-Project

Category A Conditions

Thermal Reliability Criteria (as defined in Section 3.1 of Attachment A1) violations on 924L were observed under Category A conditions.

To mitigate the thermal overload, the generation from Blackspring Ridge wind and P2247 Buffalo Plains MPC wind was reduced to 225.1 MW and 349.6 MW from the levels as required by the Attachment A1: AESO Engineering Connection Assessment: Study Scope.

Table 3- 3: Thermal Criteria Violations under Category A Condition for Scenario 4

Details of Violation (Violation Observed On)	Normal Rating (MVA)	Pre-Project Results		Post-Project Results		% Loading Difference (Post-Pre)	Post-Curtailment Results	
		Power Flow (MVA)	%	Power Flow (MVA)	%		Power Flow (MVA)	%
924L (Langdon 102S - P2396 Tap)	547	417.4	76.3	570.3	104.3	28	538.2	98.4

Category B Conditions

Thermal criteria violations were observed under certain Category B conditions as shown in Table 3- 4.

Table 3-4: Thermal Criteria Violations under Category B Conditions for Scenario 4

Contingency (System Element Lost)	Details of Violation (Violation Observed On)	Normal Rating (MVA)	Emergency Rating (MVA)	Pre-Project Results		Post-Project Results		% Loading Difference (Post-Pre)
				Power Flow (MVA)	%	Power Flow (MVA)	%	
1037L (FOOTHILLS 237S - WINDY FLATS 138S)	924L (Langdon 102S - P2396 Tap)	547.0	656.0	437.6	80.0	594.1	108.6	28.6
1038L (FOOTHILLS 237S - WINDY FLATS 138S)	924L (Langdon 102S - P2396 Tap)	547.0	656.0	437.6	80.0	594.2	108.6	28.6
1106L (SS-65 - Foothills 237S)	924L (Langdon 102S - P2396 Tap)	547.0	656.0	415.7	76.0	568.2	103.9	27.9
1107L (SS-65 - Foothills 237S)	924L (Langdon 102S - P2396 Tap)	547.0	656.0	415.7	76.0	568.2	103.9	27.9
940L (North Lethbridge 370S – Picture Butte 120S)	924L (Langdon 102S - P2396 Tap)	547.0	656.0	399.3	73.0	550.9	100.7	27.7
927L (Langdon 102S - Milo 356S)	924L (Langdon 102S - P2396 Tap)	547.0	656.0	564.4	103.2	723.8	132.3	29.1
1080L (SS-65 - Shepard SS-25)	1109L (SS-65 - Shepard SS-25)	487.0	604.0	530.6	109.0	537.7	110.4	1.5
1109L (SS-65 - Shepard SS-25)	1080L (SS-65 - Shepard SS-25)	487.0	604.0	530.2	108.9	537.4	110.3	1.5
WATL HVDC	901L (Janet 74S - Crossings 511S)	337.0	407.0	323.5	96.0	369.6	109.7	13.7
WATL HVDC	916L (Sarcee 42S - East Calgary 5S)	408.0	494.0	559.9	137.2	637.3	156.2	19.0
WATL HVDC	918L (Beddington 281S - Johnson SS 162)	340.0	553.0	316.2	93.0	359.8	105.8	12.8
1088L (Newell 2075S - Cassils 324S)	1087L (Newell 2075S - Cassils 324S)	547.0	676.0	613.9	112.2	597.4	109.2	-3.0

Voltage Criteria Violations

Voltage collapse was observed following the contingency of EATL HVDC line.

POD Bus Voltage Deviations

No POD bus voltage deviations were observed.

3.1.3 Scenario 8: 2023 Summer Peak High Wind Post-Project - Sensitivity

Category A Conditions

Thermal Reliability Criteria violations on 924L and 927L were observed under Category A conditions.

To mitigate the thermal overload, the generation from P1927 Solar Krafte Brooks and P2247 Buffalo Plains MPC wind was reduced to 65.6 MW and 144.4 MW.

Table 3- 5: Thermal Criteria Violations under Category A Condition for Scenario 8

Details of Violation (Violation Observed On)	Normal Rating (MVA)	Pre-Project Results		Post-Project Results		% Loading Difference (Post-Pre)	Post-Curtailment Results	
		Power Flow (MVA)	%	Power Flow (MVA)	%		Power Flow (MVA)	%
924L (Langdon 102S - P2396 Tap)	547	533.3	97.5	685.3	125.3	27.8	536.6	98.1
927L (927AL T-tap - Langdon 102S)	576	620.2	107.7	633.5	110.0	2.3	485.7	84.3

Category B Conditions

Thermal criteria violations were observed under certain Category B conditions as shown in Table 3- 6.

Table 3- 6: Thermal Criteria Violations under Category B Conditions for Scenario 8

Contingency (System Element Lost)	Details of Violation (Violation Observed On)	Normal Rating (MVA)	Emergency Rating (MVA)	Pre-Project Results		Post-Project Results		% Loading Difference (Post-Pre)
				Power Flow (MVA)	%	Power Flow (MVA)	%	
985L (Janet 74S - SS-25)	1003L (Janet 74S - SS-25)	973.0	1017.0	1083.9	111.4	1082.2	111.2	-0.2
1088L (Newell 2075S - Cassils 324S)	1087L (Newell 2075S - Cassils 324S)	547.0	676.0	704.0	128.7	687.3	125.6	-3.1
EATL HVDC	916L (Sarcee 42S - East Calgary 5S)	408.0	494.0	415.9	101.9	481.4	118.0	16.1
WATL HVDC	916L (Sarcee 42S - East Calgary 5S)	408.0	494.0	450.0	110.3	509.7	124.9	14.6
1038L (FOOTHILLS 237S - WINDY FLATS 138S)	924L (Langdon 102S - P2396 Tap)	547.0	656.0	423.9	77.5	574.2	105.0	27.5
927L (Langdon 102S - Milo 356S)	924L (Langdon 102S - P2396 Tap)	547.0	656.0	545.5	99.7	700.5	128.1	28.3
1037L (FOOTHILLS 237S - WINDY FLATS 138S)	924L (Langdon 102S - P2396 Tap)	547.0	656.0	436.6	79.8	586.4	107.2	27.4
1107L (SS-65 - Foothills 237S)	924L (Langdon 102S - P2396 Tap)	547.0	656.0	417.1	76.2	566.3	103.5	27.3
940L (North Lethbridge 370S – Picture Butte 120S)	924L (Langdon 102S - P2396 Tap)	547.0	656.0	408.6	74.7	558.8	102.2	27.5
1106L (SS-65 - Foothills 237S)	924L (Langdon 102S - P2396 Tap)	547.0	656.0	417.1	76.3	566.4	103.5	27.3
EATL HVDC	924L (Langdon 102S - P2396 Tap)	547.0	656.0	598.7	109.5	755.5	138.1	28.7
924L (Langdon 102S - Milo 356S)	927L (927AL T-tap - Langdon 102S)	576.0	691.0	653.0	113.4	639.2	111.0	-2.4
EATL HVDC	927L (927AL T-tap - Langdon 102S)	576.0	691.0	689.2	119.7	701.9	121.9	2.2
1003L (Janet 74S - SS-25)	985L (Janet 74S - SS-25)	973.1	1017.0	1084.8	111.5	1083.1	111.3	-0.2

Voltage Criteria Violations

No voltage criteria violations were observed under Category B conditions.

POD Bus Voltage Deviations

No POD bus voltage deviations were observed.

3.1.4 Scenario 9: 2023 Summer Light High Wind Post-Project - Sensitivity

Category A Conditions

Thermal Reliability Criteria (as defined in Section 3.1 of Attachment A1) violations on 924L were observed under Category A conditions.

To mitigate the thermal overload, the generation from P2247 Buffalo Plains MPC wind was reduced to 300 MW.

Table 3- 7: Thermal Criteria Violations under Category A Condition for Scenario 9

Details of Violation (Violation Observed On)	Normal Rating (MVA)	Pre-Project Results		Post-Project Results		% Loading Difference (Post-Pre)	Post-Curtailment Results	
		Power Flow (MVA)	%	Power Flow (MVA)	%		Power Flow (MVA)	%
924L (Langdon 102S - P2396 Tap)	547	427.2	78.1	580.5	106.1	28	536.8	98.1

Category B Conditions

Thermal criteria violations were observed under certain Category B conditions as shown in Table 3- 8.

Table 3- 8: Thermal Criteria Violations under Category B Conditions for Scenario 9

Contingency (System Element Lost)	Details of Violation (Violation Observed On)	Normal Rating (MVA)	Emergency Rating (MVA)	Pre-Project Results		Post-Project Results		% Loading Difference (Post-Pre)
				Power Flow (MVA)	%	Power Flow (MVA)	%	
1109L (SS-65 - Shepard SS-25)	1080L (SS-65 - Shepard SS-25)	487.0	604.0	531.1	109.0	528.1	108.4	-0.6
1088L (Newell 2075S - Cassils 324S)	1087L (Newell 2075S - Cassils 324S)	547.0	676.0	611.8	111.9	596.3	109.0	-2.8
1080L (SS-65 - Shepard SS-25)	1109L (SS-65 - Shepard SS-25)	487.0	604.0	531.4	109.1	528.5	108.5	-0.6
WATL HVDC	901L (Janet 74S - 901AL Tap)	337.0	404.0	330.9	98.2	367.0	108.9	10.7
WATL HVDC	916L (Sarcee 42S - East Calgary 5S)	408.0	494.0	574.4	140.8	639.0	156.6	15.8
WATL HVDC	918L (Beddington 281S - Johnson SS 162)	340.0	553.0	321.3	94.5	358.6	105.5	11.0
1037L (FOOTHILLS 237S - WINDY FLATS 138S)	924L (Langdon 102S - P2396 Tap)	547.0	656.0	438.5	80.2	592.8	108.4	28.2
1107L (SS-65 - Foothills 237S)	924L (Langdon 102S - P2396 Tap)	547.0	656.0	413.5	75.6	566.8	103.6	28.0
927L (Langdon 102S - Milo 356S)	924L (Langdon 102S - P2396 Tap)	547.0	656.0	539.1	98.6	699.0	127.8	29.2
940L (North Lethbridge 370S – Picture Butte 120S)	924L (Langdon 102S - P2396 Tap)	547.0	656.0	396.0	72.4	550.1	100.6	28.2
1038L (FOOTHILLS 237S - WINDY FLATS 138S)	924L (Langdon 102S - P2396 Tap)	547.0	656.0	439.1	80.3	593.5	108.5	28.2
1106L (SS-65 - Foothills 237S)	924L (Langdon 102S - P2396 Tap)	547.0	656.0	413.5	75.6	566.8	103.6	28.0
924L (Langdon 102S - Milo 356S)	927L (927AL T-tap - Langdon 102S)	576.0	691.0	647.4	112.4	632.5	109.8	-2.6

Voltage Criteria Violations

Voltage collapse was observed following the contingency of EATL HVDC line.

POD Bus Voltage Deviations

No POD bus voltage deviations were observed.

3.2 Transient Stability Studies

Transient stability studies were completed for Scenario 3, 4, 8 and 9.

The results indicated transient stability concerns following the Category B contingencies of 924L or 927L with a 3-phase fault at the Langdon 102S substation. The results did not indicate any transient stability concerns for the other studied contingencies, and the system showed acceptable dynamic response to all Category B conditions studied for the other studied contingencies, as shown in Table 3- 9, Table 3- 10,

Table 3- 12 and Table 3- 13. The post-Project transient stability plots are provided in Attachment A4. The dynamic data and assumptions of all equipment proposed for the Facility are provided in Attachment A5.

Table 3- 9: Transient Stability Study Results under Category B Conditions for Scenario 3

Studied Contingency	Fault Description and Location	Results
924L (Milo 356S - Langdon 102S)	3-phase fault at Langdon 102S	Stable
	3-phase fault at Milo 356S	Stable
927L (Milo 356S - Langdon 102S)	3-phase fault at Langdon 102S	Stable
	3-phase fault at Milo 356S	Stable
1005L (Milo 356S- Picture Butte 120S)	3-phase fault at Milo 356S	Stable
	3-phase fault at Picture Butte 120S	Stable
1036L (Milo 356S – Travers 554S)	3-phase fault at Milo 356S	Stable
	3-phase fault at Travers 554S	Stable
923L (Milo 356S - Newell 2075S)	3-phase fault at Milo 356S	Stable
	3-phase fault at Newell 2075S	Stable
935L (Milo 356S – Cassils 324S)	3-phase fault at Milo 356S	Stable
	3-phase fault at Cassils 324S	Stable
1064L (Langdon 102S- Janet 74S)	3-phase fault at Langdon 102S	Stable
1065L (Langdon 102S- Janet 74S)	3-phase fault at Langdon 102S	Stable
936L (East Calgary 5S- Langdon 102S)	3-phase fault at Langdon 102S	Stable
937L (East Calgary 5S- Langdon 102S)	3-phase fault at Langdon 102S	Stable

Table 3- 10: Transient Stability Study Results under Category B Conditions for Scenario 4

Studied Contingency	Fault Description and Location	Results
924L (Milo 356S - Langdon 102S)	3-phase fault at Langdon 102S	Unstable
	3-phase fault at Milo 356S	Stable
927L (Milo 356S - Langdon 102S)	3-phase fault at Langdon 102S	Unstable
	3-phase fault at Milo 356S	Stable
1005L (Milo 356S- Picture Butte 120S)	3-phase fault at Milo 356S	Stable
	3-phase fault at Picture Butte 120S	Stable
1036L (Milo 356S – Travers 554S)	3-phase fault at Milo 356S	Stable
	3-phase fault at Travers 554S	Stable
923L (Milo 356S - Newell 2075S)	3-phase fault at Milo 356S	Stable
	3-phase fault at Newell 2075S	Stable
935L (Milo 356S – Cassils 324S)	3-phase fault at Milo 356S	Stable

	3-phase fault at Cassils 324S	Stable
1064L (Langdon 102S- Janet 74S)	3-phase fault at Langdon 102S	Stable
1065L (Langdon 102S- Janet 74S)	3-phase fault at Langdon 102S	Stable
936L (East Calgary 5S- Langdon 102S)	3-phase fault at Langdon 102S	Stable
937L (East Calgary 5S- Langdon 102S)	3-phase fault at Langdon 102S	Stable

Table 3- 11: Transient Stability Study Results under Category B Conditions for Scenario 2

Studied Contingency	Fault Description and Location	Results
924L (Milo 356S - Langdon 102S)	3-phase fault at Langdon 102S	Unstable
927L (Milo 356S - Langdon 102S)	3-phase fault at Langdon 102S	Unstable

Table 3- 12: Transient Stability Study Results under Category B Conditions for Scenario 8

Studied Contingency	Fault Description and Location	Results
924L (Milo 356S - Langdon 102S)	3-phase fault at Langdon 102S	Stable
	3-phase fault at Milo 356S	Stable
927L (Milo 356S - Langdon 102S)	3-phase fault at Langdon 102S	Stable
	3-phase fault at Milo 356S	Stable
1005L (Milo 356S- Picture Butte 120S)	3-phase fault at Milo 356S	Stable
	3-phase fault at Picture Butte 120S	Stable
1036L (Milo 356S – Travers 554S)	3-phase fault at Milo 356S	Stable
	3-phase fault at Travers 554S	Stable
923L (Milo 356S - Newell 2075S)	3-phase fault at Milo 356S	Stable
	3-phase fault at Newell 2075S	Stable
935L (Milo 356S – Cassils 324S)	3-phase fault at Milo 356S	Stable
	3-phase fault at Cassils 324S	Stable
1064L (Langdon 102S- Janet 74S)	3-phase fault at Langdon 102S	Stable
1065L (Langdon 102S- Janet 74S)	3-phase fault at Langdon 102S	Stable
936L (East Calgary 5S- Langdon 102S)	3-phase fault at Langdon 102S	Stable
937L (East Calgary 5S- Langdon 102S)	3-phase fault at Langdon 102S	Stable

Table 3- 13: Transient Stability Study Results under Category B Conditions for Scenario 9

Studied Contingency	Fault Description and Location	Results
924L (Milo 356S - Langdon 102S)	3-phase fault at Langdon 102S	Unstable

	3-phase fault at Milo 356S	Stable
927L (Milo 356S - Langdon 102S)	3-phase fault at Langdon 102S	Unstable
	3-phase fault at Milo 356S	Stable
1005L (Milo 356S- Picture Butte 120S)	3-phase fault at Milo 356S	Stable
	3-phase fault at Picture Butte 120S	Stable
1036L (Milo 356S – Travers 554S)	3-phase fault at Milo 356S	Stable
	3-phase fault at Travers 554S	Stable
923L (Milo 356S - Newell 2075S)	3-phase fault at Milo 356S	Stable
	3-phase fault at Newell 2075S	Stable
935L (Milo 356S – Cassils 324S)	3-phase fault at Milo 356S	Stable
	3-phase fault at Cassils 324S	Stable
1064L (Langdon 102S- Janet 74S)	3-phase fault at Langdon 102S	Stable
1065L (Langdon 102S- Janet 74S)	3-phase fault at Langdon 102S	Stable
936L (East Calgary 5S- Langdon 102S)	3-phase fault at Langdon 102S	Stable
937L (East Calgary 5S- Langdon 102S)	3-phase fault at Langdon 102S	Stable

Table 3- 14: Transient Stability Study Results under Category B Conditions for Scenario 7

Studied Contingency	Fault Description and Location	Results
924L (Milo 356S - Langdon 102S)	3-phase fault at Langdon 102S	Unstable
927L (Milo 356S - Langdon 102S)	3-phase fault at Langdon 102S	Unstable

4 Short Circuit Studies

4.1 Pre-Project Results

Pre-Project short-circuit current levels are provided in Table 4-1[1].

Table 4-1: Pre-Project Short-Circuit Current Levels for Scenario 1

Substation Name and Number	Base Voltage (kV)	Pre-Fault Voltage (kV)	3-Φ Fault (kA)	Positive Sequence Thevenin Source Impedance (R1+jX1) (pu)	1-Φ Fault (kA)	Zero Sequence Thevenin Source Impedance (R0+jX0) (pu)
Milo 356	240	247.3	14.3	0.00394+0.01954j	11.1	0.00775+0.03644j
Langdon 102S	240	251.4	22	0.00269+0.01235j	22.1	0.00183+0.0126j
Cassils 324S	240	246.6	14.1	0.00439+0.02036j	13.9	0.0029+0.02141j
Newell 2075S	240	246.2	13.3	0.00463+0.02187j	12.5	0.00434+0.02637j
Picture Butte 120S	240	242.9	9.6	0.00506+0.02787j	7.2	0.01092+0.05456j
Travers 554S	240	241.5	8.9	0.00518+0.03015j	5.5	0.01961+0.08493j
Janet 74S	240	251.4	25.6	0.00237+0.01041j	25.6	0.00181+0.01068j
East Calgary 5S	240	248.8	17.2	0.00355+0.01536j	15.6	0.00308+0.02067j

4.2 Post-Project Results

4.2.1 Scenario 3: 2023 SP HW Post-Project

Post-Project short-circuit current levels for Scenario 3 are provided in Table 4-2.

Table 4-2: Post-Project Short-Circuit Current Levels for Scenario 3

Substation Name and Number	Base Voltage (kV)	Pre-Fault Voltage (kV)	3-Φ Fault (kA)	Positive Sequence Thevenin Source Impedance (R1+jX1) (pu)	1-Φ Fault (kA)	Zero Sequence Thevenin Source Impedance (R0+jX0) (pu)
P2396 POI	240	247.7	10.3	0.00508+0.02644j	10.1	0.00382+0.02866j
Milo 356	240	247.1	14.4	0.00386+0.01936j	11.4	0.0073+0.03446j
Langdon 102S	240	249.7	22.1	0.00261+0.01216j	22.5	0.00175+0.01186j
Cassils 324S	240	246.6	14.2	0.00436+0.02029j	14	0.00289+0.02127j

[1] Short-circuit current studies were based on modeling information provided to the AESO by third parties. The authenticity of the modeling information has not been validated. Fault levels could change as a result of system developments, new customer connections, or additional generation in the area. It is recommended that these changes be monitored and fault levels reviewed to ensure that the fault levels are within equipment operating limits. The information provided in this study should not be used as the sole source of information for electrical equipment specifications or for the design of safety-grounding systems.

Newell 2075S	240	246.1	13.3	0.0046+0.02178j	12.5	0.00433+0.02619j
Picture Butte 120S	240	242.5	9.6	0.00502+0.02778j	7.2	0.01092+0.05447j
Travers 554S	240	240.9	8.9	0.00513+0.03001j	5.5	0.01943+0.08407j
Janet 74S	240	249.9	25.6	0.00232+0.01029j	25.6	0.00182+0.01062j
East Calgary 5S	240	246.4	17.2	0.00346+0.01518j	15.5	0.00303+0.02044j

4.2.2 Scenario 5: 2031 WP HW Post-Project

Post-Project short-circuit current levels for Scenario 5 are provided in Table 4-3.

Table 4-3: Post-Project Short-Circuit Current Levels for Scenario 5

Substation Name and Number	Base Voltage (kV)	Pre-Fault Voltage (kV)	3-Φ Fault (kA)	Positive Sequence Thevenin Source Impedance (R1+jX1) (pu)	1-Φ Fault (kA)	Zero Sequence Thevenin Source Impedance (R0+jX0) (pu)
P2396 POI	240	253	9.9	0.00459+0.02542j	9.6	0.00382+0.02855j
Milo 356	240	252.4	13.9	0.00324+0.01827j	11	0.00701+0.03257j
Langdon 102S	240	253	23	0.00205+0.0109j	22.9	0.0016+0.01125j
Cassils 324S	240	251.3	14.4	0.00307+0.01776j	15.6	0.00172+0.01379j
Newell 2075S	240	251.2	13.5	0.00321+0.01897j	13.8	0.00276+0.01779j
Picture Butte 120S	240	249.8	8.8	0.00479+0.02832j	6.9	0.01035+0.05215j
Travers 554S	240	250.3	8.5	0.00478+0.02975j	5.3	0.01848+0.0808j
Janet 74S	240	252.2	26.8	0.00186+0.0093j	26.3	0.0017+0.01012j
East Calgary 5S	240	248.7	17.4	0.00294+0.01414j	15.3	0.00293+0.02009j

5 Mitigation Measure Development and Evaluation

The Studies Consultant, in consultation with the AESO, developed mitigation measures to address the system performance issues that were identified in the post-Project scenarios. Existing remedial action schemes (RASs) are described in Section 1.2.2 of Attachment A1.

5.1 Pre-Project

Pre-Project mitigation measures are summarized in Table 5-1.

Table 5-1: Pre-Project Mitigation Measures

Mitigation Measure	Location of Observed Violation	Contingency
Real Time Generation Curtailment	927L (927AL T-tap - Langdon 102S)	No contingency (N-0)
Real Time Operation Practice	1109L (SS-65 - Shepard SS-25)	1080L (SS-65 - Shepard SS-25)
	1080L (SS-65 - Shepard SS-25)	1109L (SS-65 - Shepard SS-25)
	924L (Langdon 102S - P2396 Tap)	927L (Langdon 102S - Milo 356S)
	916L (Sarcee 42S - East Calgary 5S)	WATL HVDC
	927L (Langdon 102S - Milo 356S)	EATL HVDC
	924L (Langdon 102S - P2396 Tap)	EATL HVDC
	Voltage Collapse	EATL HVDC
Planned RAS 175[a]	924L (Langdon 102S - P2396 Tap)	927L (Langdon 102S - Milo 356S)
Planned RAS 197[b]	1087L (Newell 2075S - Cassils 324S)	1088L (Newell 2075S - Cassils 324S)
Planned RAS 193[c] (Sensitivity Scenarios only)	985L (Janet 74S - SS-25)	1003L (Janet 74S - SS-25)
	1003L (Janet 74S - SS-25)	985L (Janet 74S - SS-25)

Notes:

Planned RAS 175 is a RAS proposed for the planned P1927 Solar Krafte Brooks, P2247 Buffalo Plains MPC wind, P2378 RESC Nova Solar and P2341 Greengate Travers Solar Phase 2.

[b] Planned RAS 197 is a RAS proposed for the planned P1927 Solar Krafte Brooks.

[c] Planned RAS 193 is a RAS proposed for the planned P2373 Kirkcaldy MPC Solar.

5.2 Post-Project

Post-Project mitigation measures are summarized in Table 5-2.

Table 5-2: Post-Project Mitigation Measures

Mitigation Measure	Location of Observed Violation	Contingency
Real Time Generation Curtailment	924L (Langdon 102S - P2396 Tap)	No contingency (N-0)
Real Time Generation Curtailment	927L (927AL T-tap - Langdon 102S)	No contingency (N-0)

Mitigation Measure	Location of Observed Violation	Contingency
Real Time Operation Practice	924L (Langdon 102S - P2396 Tap)	1037L (FOOTHILLS 237S - WINDY FLATS 138S)
		1038L (FOOTHILLS 237S - WINDY FLATS 138S)
		1106L (SS-65 - Foothills 237S)
		1107L (SS-65 - Foothills 237S)
		940L (North Lethbridge 370S – Picture Butte 120S)
	1109L (SS-65 - Shepard SS-25)	1080L (SS-65 - Shepard SS-25)
	1080L (SS-65 - Shepard SS-25)	1109L (SS-65 - Shepard SS-25)
	901L (Janet 74S - Crossings 511S)	WATL HVDC
	916L (Sarcee 42S - East Calgary 5S)	WATL HVDC
	918L (Beddington 281S - Johnson SS 162)	WATL HVDC
	927L (Langdon 102S - Milo 356S)	EATL HVDC
	916L (Sarcee 42S - East Calgary 5S)	EATL HVDC
	Voltage Collapse	EATL HVDC
	924L (Langdon 102S - P2396 Tap)	EATL HVDC
Modified Planned RAS 175[a]	924L (Langdon 102S - P2396 Tap)	927L (Langdon 102S - Milo 356S)
Planned RAS 197	1087L (Newell 2075S - Cassils 324S)	1088L (Newell 2075S - Cassils 324S)
Planned RAS 193 (Sensitivity Scenarios only)	985L (Janet 74S - SS-25)	1003L (Janet 74S - SS-25)
	1003L (Janet 74S - SS-25)	985L (Janet 74S - SS-25)
Revised RAS 175 for 924L or 927L transient instability[b]	Transient Instability	927L (Langdon 102S - Milo 356S)
	Transient Instability	924L (Langdon 102S - Milo 356S)

Notes:

[a] "Modify" refers to adding the Project to the logic of the planned RAS 175. Planned RAS 175 is a RAS proposed for the planned P1927 Solar Krafte Brooks, P2247 Buffalo Plains MPC wind, P2378 RESC Nova Solar and P2341 Greengate Travers Solar Phase b.

Revised RAS 175 is to trip P2396, P2247, P1927, P2378 and P2341 under the contingency of 924L or 927L

5.3 Evaluation of Mitigation Measures

This section describes the results of the power flow studies that were performed to assess the impact of the Project on the performance of the AIES following the implementation of proposed mitigation measures.

The post-mitigation measures studies were performed under Category B conditions for Scenario 3 and 4 using Alternative 3 and the RASs described in the previous section.

The post-mitigation power flow diagrams for selected Category B conditions are provided in Attachment A6. Post-mitigation power flow diagrams present only those post-Project contingencies that result in thermal criteria violations that require RAS mitigation. Post-Project contingencies that result in thermal

criteria violations that can be mitigated by real-time operational practices or TFO capital maintenance projects were not studied.

5.3.1 Scenario 3: 2023 Summer Peak High Wind Post-Project

Category B Conditions

Thermal stability criteria violations observed under certain Category B conditions in the post-Project studies were mitigated by RASs as shown in Table 5-3.

After RAS actions were complete, real-time operational practices are required to fully alleviate certain thermal criteria violations observed on 1087L.

Table 5-3: Post-RAS Power Flow Study Results for Scenario 3

Contingency (System Element Lost)	Details of Violation (Violation Observed On)	Seasonal Continuous Rating (MVA)	Short-term (Emergency) Rating (MVA)	Post-Project Results		Post-RAS Action Results	
				Power Flow (MVA)	% Loading	Power Flow (MVA)	% Loading
1088L (Newell 2075S - Cassils 324S)	1087L (Newell 2075S - Cassils 324S)	547.0	676.0	704.4	128.8	676.6	123.7[a]
927L (Langdon 102S - Milo 356S)	924L (Langdon 102S - P2396 Tap)	547.0	656.0	720.2	131.7	471.5	86.2

Notes:

[a] Thermal violation on 1087L remained after RAS actions were complete, and mention that real-time operational practices will mitigate the overload.

5.3.2 Scenario 4: 2023 Summer Light High Wind Post-Project

Category B Conditions

The thermal and transient stability criteria violations observed under certain Category B conditions in the post-Project studies were mitigated by RASs as shown in Table 5-4 and Table 5-5.

Table 5-4: Post-RAS Power Flow Study Results for Scenario 4

Contingency (System Element Lost)	Details of Violation (Violation Observed On)	Seasonal Continuous Rating (MVA)	Short-term (Emergency) Rating (MVA)	Post-Project Results		Post-RAS Action Results	
				Power Flow (MVA)	% Loading	Power Flow (MVA)	% Loading
927L (Langdon 102S - Milo 356S)	924L (Langdon 102S - P2396 Tap)	547.0	656.0	723.8	132.3	473.2	86.5

Table 5- 5: Post-RAS Transient Stability Study Results for Scenario 4

Studied Contingency	Fault Description and Location	Results
924L (Milo 356S - Langdon 102S)	3-phase fault at Langdon 102S	Stable
927L (Milo 356S - Langdon 102S)	3-phase fault at Langdon 102S	Stable

5.3.3 Scenario 8: 2023 Summer Peak High Wind Post-Project - Sensitivity

Category B Conditions

Thermal stability criteria violations observed under certain Category B conditions in the post-Project studies were mitigated by RASs as shown in Table 5- 6 .

After RAS actions were complete, real-time operational practices are required to fully alleviate certain thermal criteria violations observed on 1087L, 1003L and 985L.

Table 5- 6: Post-RAS Power Flow Study Results for Scenario 8

Contingency (System Element Lost)	Details of Violation (Violation Observed On)	Seasonal Continuous Rating (MVA)	Short-term (Emergency) Rating (MVA)	Post-Project Results		Post-RAS Action Results	
				Power Flow (MVA)	% Loading	Power Flow (MVA)	% Loading
1088L (Newell 2075S - Cassils 324S)	1087L (Newell 2075S - Cassils 324S)	547.0	676.0	687.3	125.6	665.1	121.6[a]
927L (Langdon 102S - Milo 356S)	924L (Langdon 102S - P2396 Tap)	547.0	656.0	700.5	128.1	528.4	96.6
985L (Janet 74S - SS-25)	1003L (Janet 74S - SS-25)	973.0	1017.0	1082.2	111.2	994.4	102.2[b]
1003L (Janet 74S - SS-25)	985L (Janet 74S - SS-25)	973.1	1017.0	1083.1	111.3	994.4	102.2[b]

Notes:

[a] Thermal violation on 1087L remained after RAS actions were complete, and mention that real-time operational practices will mitigate the overload.

[b] Thermal violation on 1003L/985L remained after RAS actions were complete, and mention that real-time operational practices will mitigate the overload.

5.3.4 Scenario 9: 2023 Summer Light High Wind Post-Project - Sensitivity

Category B Conditions

The thermal and transient stability criteria violations observed under certain Category B conditions in the post-Project studies were mitigated by RASs as shown in Table 5- 7 and Table 5- 8.

Table 5- 7: Post-RAS Power Flow Study Results for Scenario 9

Contingency (System Element Lost)	Details of Violation (Violation Observed On)	Seasonal Continuous Rating (MVA)	Short-term (Emergency) Rating (MVA)	Post-Project Results		Post-RAS Action Results	
				Power Flow (MVA)	% Loading	Power Flow (MVA)	% Loading
927L (Langdon 102S - Milo 356S)	924L (Langdon 102S - P2396 Tap)	547.0	656.0	699.0	127.8	522.4	95.5

Table 5- 8: Post-RAS Transient Stability Study Results for Scenario 9

Studied Contingency	Fault Description and Location	Results
924L (Milo 356S - Langdon 102S)	3-phase fault at Langdon 102S	Stable
927L (Milo 356S - Langdon 102S)	3-phase fault at Langdon 102S	Stable

5.4 Constraint Effective Factor Studies

Constraint effective factor studies were conducted for all post-Project scenarios. The constraint effective factors were calculated for all Category B conditions when the loadings of the monitored transmission elements in the Study Area exceeded 100% (i.e., for all of the contingencies that resulted in thermal criteria violations). The results of the constraint effective factor studies are provided in Attachment A7.

Attachment A1
Engineering Connection Assessment: Study Scope

Study Scope

P2396 Georgetown Solar Project Connection

Georgetown Solar Inc.

Date: June 16, 2022

Version: V1

Classification: Public

Company Name	Name and Credentials	Date	Signature
CF Power Ltd. (Study Consultant)	Feng Chen, P.Eng.	Jun 16, 2022	
AESO	Mahmoud Ahmed, P. Eng.	June 16, 2022	
Market Participant (Georgetown Solar Inc.)	Margaret McKenna	June 16, 2022	

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Attachment A: Transmission Planning Criteria – Basis and Assumptions

1 Introduction

This Study Scope provides an overview of the engineering studies to be completed by CF Power Ltd. (the Studies Consultant) to assess the impact of the Project (as defined in section 1.1) on the performance of the Alberta interconnected electric system (AIES). Technical criteria, assumptions and methods for performing these engineering studies are provided in this document.

1.1 Project Overview

Georgetown Solar Inc. (Market Participant) has submitted a request for system access service to the Alberta Electric System Operator (AESO) to connect its proposed Georgetown Solar (Facility) to the AIES.

The Market Participant's request includes: a request for a new system access service in the area, with a Rate STS, *Supply Transmission Service*, contract capacity of 230 MW and a Rate DTS, *Demand Transmission Service*, contract capacity of 1 MW; and a request for transmission development (collectively, the Project).

The Project in-service date (ISD) used for the purpose of the studies is August 1st, 2023.

Load and generation components of the Project are listed in Table 1-1.

Table 1-1: Project Load and Generation Details

Project Component		Description
Load	Existing Rate DTS, *Demand Transmission Service,* contract capacity	No existing contract
	Requested Rate DTS	1 MW
	Type	Station service
	Motors (number and size)	Not applicable
	Power factor	Not applicable
	Future load expansion plans	No
Generation	Generation type	Solar PV
	Existing Rate STS, *Supply Transmission Service,* contract capacity	No existing contract
	Requested Rate STS	230 MW
	Number and size of generating units	TBD
	Maximum authorized real power (MARP)	230 MW
	Maximum capability (MC)	230 MW
	Reactive power capability	0.95 pf absorbing
		0.9 pf producing
	Future generation expansion plans	No

Note:

Project Component	Description

MARP and MC are defined in the AESO's *Consolidated Authoritative Document Glossary*, which can be found on the AESO's website.

1.2 Existing System Overview

1.2.1 Study Area

Geographically, the Project is located in the AESO planning area of Strathmore/Blackie (Area 45).

The Study Area consists of the AESO planning areas of the Strathmore/Blackie Planning Area (Area 45), Calgary (Area 6), Stavely (Area 49), Brooks (Area 47), and High River (Area 46), including the tie lines connecting these planning areas to the rest of the AIES.

The existing transmission system in the Study Area is shown in Figure 1-1.

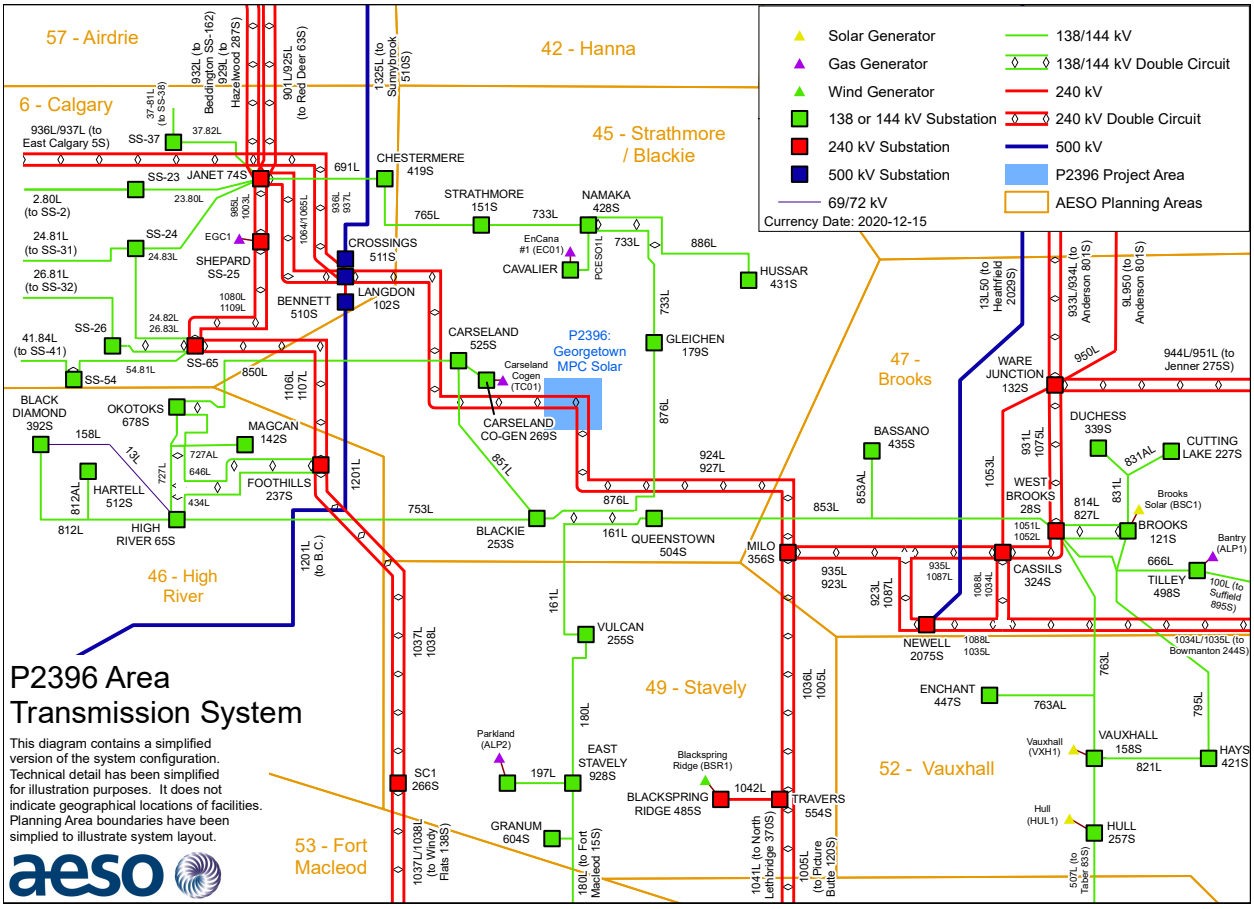
1.2.2 Existing Constraints

Existing constraints in the Study Area are managed in accordance with the procedures set out in Section 302.1 of the ISO rules, *Real Time Transmission Constraint Management* (TCM Rule).

There are a number of constraints in the Study Area that are mitigated by existing remedial action schemes (RASs) and/or other protection schemes. The following existing RASs and/or other protection schemes are used to manage constraints in the area:

- RAS 133: Beddington 162s Overload Mitigation Scheme
- RAS 136: Direct Transfer Trip to MATL on Loss of 1201L
- RAS 145: Shepard RAS - Mitigation of 138 kV Thermal Constraints on ENMAX System
- RAS 150: WATL HVDC
- RAS 153: Mitigation of 138 kV Thermal Constraints on ENMAX System at SS-65
- RAS 157: Chestermere 419S Overload and Voltage Stability Mitigation
- RAS 141: 498S Voltage Instability Mitigation
- RAS 149: EATL HVDC

Figure 1-1: Transmission System in the Study Area



2 Connection Alternatives

The following alternative will be studied:

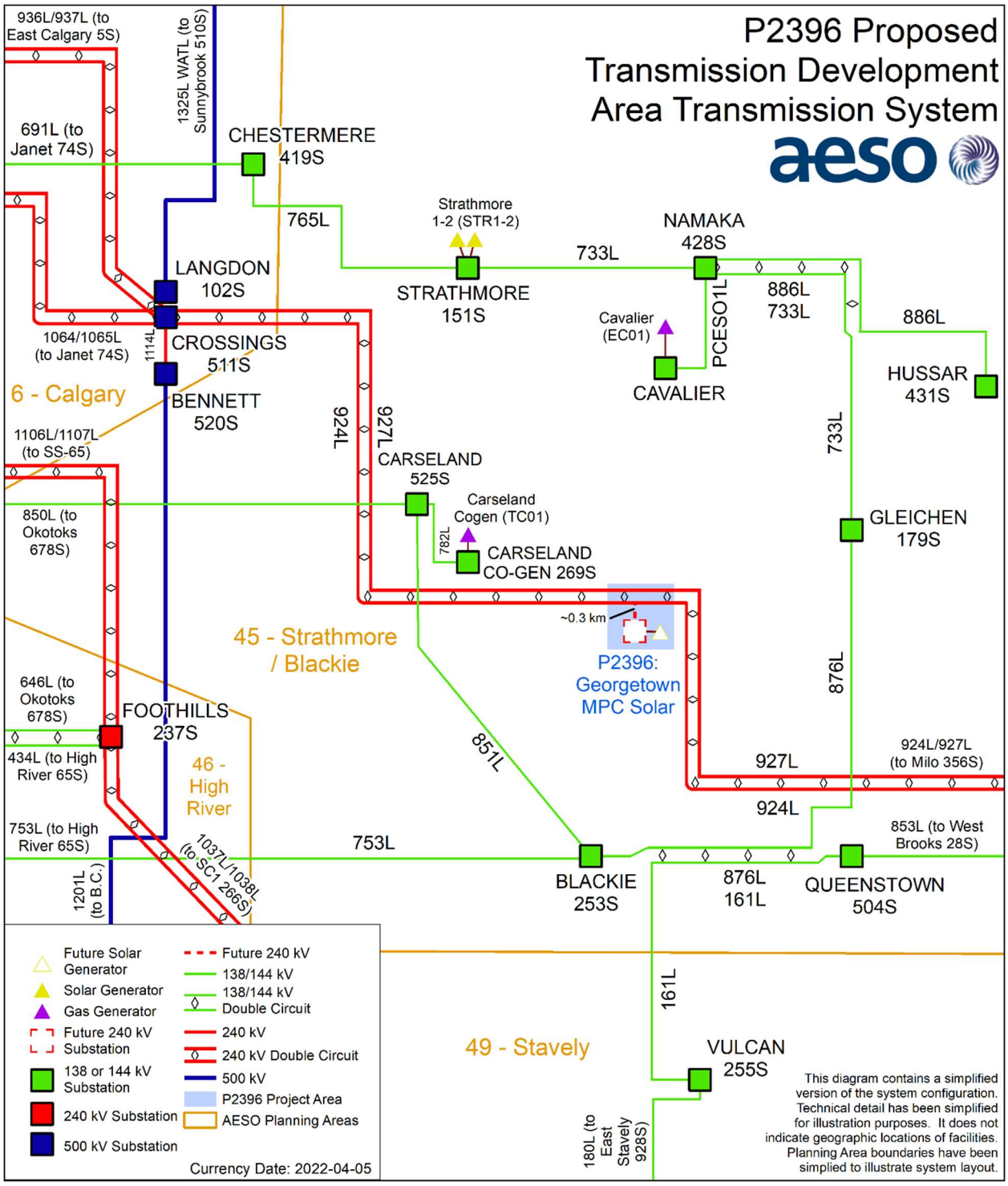
2.1 Alternative 3 – T-Tap Connection to the 240 kV transmission Line 924L

This alternative included the following developments:

- Connect the Facility to the existing 240 kV transmission line 924L through a T-Tap configuration between Milo 356S and Langdon 102S;
- Add a 240 kV circuit, approximately 0.3 km, to connect facility to the T-Tap junction; and
- Add or modify associated equipment as required for the above transmission developments.

The proposed connection configuration is shown in Figure 2-1

Figure 2-1: Connection Alternative 3



3 Criteria, Standards and Requirements

3.1 AESO Reliability Criteria

The Transmission Planning (TPL) Standards, which are included in the Alberta Reliability Standards, and *Transmission Planning Criteria – Basis and Assumptions (see Attachment A),* (collectively, the Reliability Criteria) will be applied to evaluate system performance under Category A system conditions (i.e., all elements in-service) and following Category B contingencies (i.e., single element outage), prior to and following the studied alternatives. Below is a summary of Category A and Category B system conditions.

Category A, often referred to as the N-0 condition, represents a normal system with no contingencies and all facilities in service. Under this condition, the system must be able to supply all firm load and firm transfers to other areas. All equipment must operate within its applicable rating, voltages must be within their applicable range, and the system must be stable with no cascading outages.

Category B events, often referred to as an N-1 or N-G-1 with the most critical generator out of service, result in the loss of any single specified system element under specified fault conditions with normal clearing. These elements are a generator, a transmission circuit, a transformer, or a single pole of a DC transmission line. The acceptable impact on the system is the same as Category A. Planned or controlled interruptions of electric supply to radial customers or some local network customers, connected to or supplied by the faulted element or by the affected area, may occur in certain areas without impacting the overall reliability of the interconnected transmission systems. To prepare for the next contingency, system adjustments are permitted, including curtailments of contracted firm (non-recallable reserved) transmission

The TPL standards, TPL-001-AB-0 and TPL-002-AB1-0 have referenced Applicable Ratings when specifying the required system performance under Category A and Category B events. For the purpose of applying the TPL standards to the studies documented in this report, Applicable Ratings are defined as follows:

- Normal thermal rating of the line's loading limits for each season;
- The highest specified loading limits for transformers;
- For Category A conditions: Voltage range under normal operating condition per AESO Information Document #2010-007RS, *General Operating Practices – Voltage Control* (ID #2010-007RS). For the busses not listed in ID #2010-007RS, Table 2-1 in the *Transmission Planning Criteria – Basis and Assumptions* applies;
- For Category B conditions: The extreme voltage range values per Table 2-1 in the *Transmission Planning Criteria – Basis and Assumptions; and*
- Desired post-contingency voltage deviation limits for three defined post-event timeframes as provided in Table 3-1.

Table 3-1: Post-Contingency Voltage Deviation Guidelines for Low Voltage Busses

Parameter and reference point	Time Period		
	Post Transient (up to 30 sec)	Post Auto Control (30 sec to 5 min)	Post Manual Control (Steady State)
Voltage deviation from steady state at point of delivery (POD) low voltage bus.	±10%	±7%	±5%

3.2 ISO Rules and Information Documents

ID #2010-007RS will be used to establish system normal (i.e., pre-contingency) voltage profiles for the Study Area.

The TCM Rule will be followed to set up the study scenarios and assess the impact of the Project. In addition, due regard will be given to the following:

- The AESO's *Connection Study Requirements*;
- Section 502.1 of the ISO rules, *Aggregated Generating Facilities Technical Requirements*;
- Section 502.16 of the ISO rules, *Aggregated Generating Facilities Operating Requirements*;
- Section 502.5 of the ISO rules *Generating Unit Technical Requirements*;
- Section 502.6 of the ISO rules *Generating Unit Operating Requirements*;

4 Scenarios and Assumptions

4.1 Scenarios

The following section describes the scenarios to be studied and the assumptions to be used in the studies.

Connection scenarios must be studied as outlined in Table 4-1.

Table 4-1: Connection Study Scenarios

Scenario No.	Year/Season	System Generation Dispatch Conditions	Scenario Name	Project Load (MW)	Project Generation (MW)
Pre-Project					
1	2023 Summer Peak (SP)	High Generation	2023 SP Pre-Project	0	0
2	2023 Summer Light (SL)	High Generation	2023 SL Pre-Project	0	0
post-Project					
3	2023 SP	High Generation	2023 SP Post-Project	0	230
4	2023 SL	High Generation	2023 SL Post-Project	0	230
5	2031 WP	All machines in study area in service	2031 WP Post-Project	0	230
Pre-Project Sensitivity with P2247, P2373, and P2378					
6	2023 SP	High Generation	2023 SP Sensitivity Pre-Project	0	0
7	2023 SL	High Generation	2023 SL Sensitivity Pre-Project	0	0
Post-Project Sensitivity with P2247, P2373, and P2378					
8	2023 SP	High Generation	2023 SP Sensitivity Post-Project	0	230
9	2023 SL	High Generation	2023 SL Sensitivity Post-Project	0	230

4.2 Assumptions

4.2.1 System Project Assumptions

The pre-Project and post-Project connection assessment will not include any system transmission projects because there are no planned system transmission developments in the Study Area that are expected to be in service before the scheduled Project ISD.

4.2.2 Connection Project Assumptions

In addition to the planned renewable projects, Table 4-2 summarizes the connection projects in the Study Area that should be included in the studies.

Table 4-2: Planned Connection Projects Included in the Studies

AESO Project No.	AESO Project Name	AESO Planning Area No.	Generation (MW)	Load (MW)	Scheduled ISD
P1927	Solar Krafte Brooks	47-Brooks	360	1	Feb 1, 2023
P2247	Buffalo Plains MPC Wind	47-Brooks	466	2	April 17, 2023
P2373	Kirkcaldy MPC Solar	49-Stavely	350	2	November 1, 2022
P2378	RESC Nova Solar	45- Strathmore	150	1	July 14th, 2023

4.2.3 Load Assumptions

The load forecast to be used for the studies is shown in Table 4-3 and is a forecast for the AESO South Planning Region peak based on the AESO 2021 Long-term Outlook (2021 LTO) [1] with modifications to incorporate the latest forecast intelligence. For the post-Project studies, when the Study Area loads are modified to align with the regional load forecast, the active power to reactive power ratio in the base case scenarios shall be maintained.

Table 4-3: Forecast Load at AESO South Planning Region Peak

AESO Planning Region Name	Forecast Peak Load by Year/Season (MW)	
	2023 SP	2023 SL
South Planning Region[1]	1,579	862

Note:
[1] The South Region comprises the following AESO planning areas: 4, 43 ,44 ,45 ,46 ,47, 48, 49, 52,53 ,54, and 55

4.2.4 Generation Assumptions

The generation forecast to be used for the studies is based on the 2021 LTO with modifications to incorporate the latest forecast intelligence. The generation assumptions for the studies will assume high generation dispatch conditions. Additional studies may be required in the event of changes to the AESO's corporate forecast.

The existing generation (excluding wind and solar) dispatch conditions for the study scenarios are described in Table 4-4.

[1] The 2021 LTO is available on the AESO website.

Table 4-4: Existing Generation (excluding Wind and Solar) Dispatch Conditions

Facility Name	Bus No.	MC (MW)	AESO Planning Area No.	Unit Net Generation (MW) by Scenario	
				2023 SP	2023 SL
Bantry (ALP1)	4275	7	47	5	0
Parkland (ALP2)	4235	10	49	9	0
Carseland Cogen (TC01)	3251, 4251	95	45	71	74
Cavalier (EC01)	3247, 4247	120	45	85	62

The wind and solar generation facilities will be dispatched to the high wind dispatch scenario presented in Table 4-5, Table 4-6, Table 4-7, and Table 4-8 . The Pre-Project dispatch scenarios for the existing wind and solar generation facilities are shown in Table 4-5 and Table 4-6.

Table 4-5: Dispatch Conditions for Existing and Under Construction Wind Generation Facilities

Facility Name and Code	Bus No.	AESO Planning Area No.	MC (MW)	Unit Net Generation Dispatch (MW)	
				SL HW	SP HW
Ardenville Wind (ARD1)	4735, 4740	53	68	62.6	57.8
Fortis Bull Creek Phases 1 and 2 (BUL1 & BUL2)	550003, 550004	37	29	26.7	24.7
Blackspring Ridge (BSR1)	61736, 61737	49	300	276	255
Blue Trail Wind (BTR1)	66328, 67328	53	66	60.7	56.1
Castle River #1 (CR1)	2234, 3234	53	39	35.9	33.2
Castle Rock Ridge 2 (CRR2)	567221	53	30.6	28.2	26
Castle Rock Wind Farm (CRR1)	67221	53	77	70.8	65.5
Cowley Ridge (CRE3)	4264	53	20	18.4	17
Enmax Taber (TAB1)	15343, 16343	52	81	74.5	68.9
Ghost Pine (NEP1)	2621, 2622, 2623, 2624, 2625	42	82	75.4	69.7
Halkirk (HAL1)	66435, 67435	42	150	138	127.5
Kettles Hill (KHW1)	2402, 3402	53	63	58	53.6

McBride Lake Windfarm (AKE1)	2901, 3901, 4901	53	73	67.2	62.1
Old Man River Wind (OWF1)	61543	53	46	42.3	39.1
Rattlesnake Ridge Wind (RTL1)	60873	4	130	119.6	110.5
Riverview Wind (RIV1)	69221	53	115	105.8	97.8
Soderglen Wind (GWW1)	12358, 13358	53	71	65.3	60.4
Summerview 1 (IEW1)	2338, 3338	53	66	60.7	56.1
Summerview 2 (IEW2)	4339, 5337	53	66	60.7	56.1
Suncor Chin Chute (SCR3)	2389	54	30	27.6	25.5
Suncor Magrath (SCR2)	11002	53	30	27.6	25.5
Capital Power Whitla Wind Power Facility Phase 1 (WHT1)	60990	4	201.6	185.5	171.4
Capital Power Whitla Wind Power Facility Phase 2 (WHT2)	61990, 64990	4	151	138.9	128.4
TransAlta Windrise (WRW1)	567031	53	207	190.4	176
Suncor Wintering Hills (SCR4)	60789, 60791, 60793, 60846, 60848, 60850	43	88	81	74.8

Table 4-6: Dispatch Conditions for Existing and Under Construction Solar Generation Facilities

Facility Name and Code	Bus No.	AESO Planning Area No.	MC (MW)	Unit Net Generations (MW)	
				SL	SP
Burdett (BRD1)	2269	52	10.5	0	5.25
Burdett (BUR1)	557269	52	20	0	10
Brooks Solar (BSC1)	553257	47	15	0	7.5
Claresholm 1 (CLR1)	60894	49	58	0	29
Claresholm 2 (CLR2)	61894	49	75	0	37.5
Hays (HYS1)	554401	52	24	0	12
Hull (HUL1)	2401	52	24.5	0	12.25
Innisfail Solar (INF1)	557120	39	22	0	11
Jenner (JER1)	554986	48	21	0	10.5
Strathmore 1 (STR1)	557259	45	18	0	9
Strathmore 2 (STR2)	558259	45	23	0	11.5
Suffield (SUF1)	3270	52	23	0	11.5
Travers (TVS1)	560026, 561026, 562026	49	400	0	200
Vauxhall Solar (VXH1)	4274	52	22	0	11

Westfield Yellow Lake (WEF1)	557277	52	19	0	9.5

Table 4-7 and Table 4-8 list the pre-Project dispatch levels for the planned wind and solar generation projects in the AESO South and Central planning regions that are included in the study scenarios.

Table 4-7: Dispatch Conditions for Planned Wind Generation Projects

Project Number	Project Name	Planned ISD	Bus No.	AESO Planning Area No.	MC (MW)	Unit Net Generation Dispatch (MW)	
						SL	SP
P1250	Wild Run Grizzly Bear Wind	1-Oct-2022	67308	13	120	110.4	102.0
P1533	Joss MPC WAGF	30-Jun-2022	60798	47	122.4	112.6	104.0
P1698	Joss Jenner WAGF - Phase 2	30-Jun-2022	61798	47	71.4	65.7	60.7
P1718	Wheatland WAGF	30-Sep-2022	61632, 60632	43	120	110.4	102.0
P1719	Stirling WAGF Project	30-Jun-2023	61630	54	113	104.0	96.1
P1812	Suncor Forty Mile Granlea WAGF	2-May-2022	61994, 62994	4	200	184.0	170.0
P1853	Fortis Buffalo Atlee Cluster 1 WAGF	1-Sep-2022	553260	47	17.25	15.9	14.7
P1892	Fortis Buffalo Atlee Cluster 3 WAGF	1-Sep-2022	552260	47	17.25	15.9	14.7
P1898	Pattern Lanfine North Wind	30-Sep-2022	60996	42	145	133.4	123.3
P1909	TransAlta Garden Plain Wind	30-Jun-2022	565002	42	130	119.6	110.5
P2122	EDF Cypress Wind	1-Nov-2022	560003	4	201.6	185.5	171.4
P2199	Buffalo Atlee Wind Farm 2	1-Sep-2022	557261	47	13.8	12.7	11.7
P2234	Joss Jenner WAGF - Phase 3	30-Jun-2022	61799	48	48	44.2	40.8

Project Number	Project Name	Planned ISD	Bus No.	AESO Planning Area No.	MC (MW)	Unit Net Generation Dispatch (MW)	
						SL	SP
P2263	BER Hand Hills MPC Wind	1-Sep-2022	560045	42	145	133.4	123.3

Table 4-8: Dispatch Conditions for Planned Solar Generation Projects

Project Number	Project Name	Planned ISD	Bus No.	AESO Planning Area No.	MC (MW)	Unit Net Generation Dispatch (MW)	
						SL	SP
P1831	Fortis 255S Vulcan Faribault Farms DG PV	1-Sep-2022	4244	49	22	0.0	11.0
P1850	Fortis Coaldale 254S DER Solar 3	24-May-2021	554691	54	22	0.0	11.0
P1851	Fortis Monarch 492S DER Solar	24-May-2021	2005	54	23.6	0.0	11.8
P1862	Fortis Spring Coulee 385S Solar DG	15-Oct-2021	553246, 554246	55	29.5	0.0	14.8
P1870	Fortis Stavely 349S DER Solar	24-May-2021	2004	49	16.5	0.0	8.3
P1918	FortisAlberta Conrad DER Solar 1	15-Aug-2021	554291	52	23.4	0.0	11.7
P1932	FortisAlberta Namaka DER Solar	15-Jul-2021	552340	45	20.1	0.0	10.1
P1959	FortisAlberta Conrad DER Solar 2	15-Aug-2021	553291	52	22.5	0.0	11.3
P1978	ATCO Michichi DER Solar	1-Nov-2022	552448, 553448, 552450	42	75	0.0	37.5
P1982	EDTI DG Solar BTF	31-Mar-2022	995214, 995220	60	12	0.0	6.0
P2059	ATCO Three Hills 770S DER Solar	1-May-2022	552433	42	25	0.0	12.5
P2061	ATCO Michichi Creek	1-May-2022	554448	42	25	0.0	12.5

	802S DER Solar						
P2092	FortisAlberta Brooks 121S DER Solar	16-Mar-2022	554257	47	12	0.0	6.0
P2194	FortisAlberta East Crossifield 64S DER Solar	1-Apr-2022	994312	42	5.65	0.0	2.8
P2195	FortisAlberta Bassano 435S DER Solar	1-Feb-2023	557399	47	9.25	0.0	4.6
P2249	FortisAlberta Empress 394S DER Solar 1	1-May-2022	558316	48	22.5	0.0	11.3
P2250	FortisAlberta Empress 394S DER Solar 2	1-May-2022	558016	48	16	0.0	8.0
P2300	RESC Enterprise MPC Solar	1-Apr-2022	563070	49	65	0.0	32.5
P2335	FortisAlberta Vulcan 255S DER Solar	1-May-2022	990003	52	15	0.0	7.5
P2337	Dunmore Solar	1-Apr-2023	560044	4	216	0.0	108.0
P2341	Greengate Travers Solar Phase 2	24-Mar-2022	560026, 561026, 562026	49	65	0.0	32.5
P2362	FortisAlberta Enchant 447S DER Solar	8-Jul-2022	993287	52	23	0.0	11.5
P2363	FortisAlberta Enchant 447S DER Solar	17-Jun-2022	993289	52	17.9	0.0	9.0
P2364	FortisAlberta Enchant 447S DER Solar	17-Jun-2022	994287	52	10	0.0	5.0
P2365	FortisAlberta Enchant 447S DER Solar	17-Jun-2022	994289	52	24	0.0	12.0
P2424	ATCO Oyen 767S DER Solar	1-Dec-2022	88888	42	15	0.0	7.5
P1927	Solar Krafte Brooks	Feb 1, 2022	60434, 61434	47	360	0	180

The post-Project scenario wind and solar generation dispatch levels were identical to the pre-Project scenario dispatch levels shown in Table 4-5, Table 4-6, Table 4-7, and Table 4-8. The Facility is dispatched to 230 MW in all post-Project scenarios. In the sensitivity studies, projects included for sensitivity will be dispatched to their coincidence factor in all pre- and post-Project scenarios as shown in Table 4-9 .

Table 4-9: Dispatch Conditions for Sensitivity Generation Projects

Project Number	Project Name	Planned ISD	MC (MW)	AESO Planning Area No.	Unit Net Generation Dispatch (MW)	
					SL	SP
P2247	Buffalo Plains MPC Wind	April 17, 2023	466	47	428.7	396.1
P2373	Kirkcaldy MPC Solar	November 1, 2022	350	49	0	175
P2378	RESC Nova Solar	July 14th, 2023	150	45	150	150

4.2.5 Intertie Flow Assumptions

The intertie flow assumptions for the Alberta-British Columbia (AB-BC), Alberta-Saskatchewan (AB-SK), and Alberta-Montana (MATL) interties are shown in Table 4-10.

For the 2031 WP Post-Project scenario, the intertie flow values should be set to the AESO planning base cases.

Table 4-10: Intertie Flows by Scenario

Scenario Number	Scenario Name	Import (-) / Export (+) (MW) by Intertie		
		AB-BC	AB-SK	MATL
1	2023 SL Pre-Project	-602	0	-300
2	2023 SP Pre-Project	-181	0	-300
3	2023 SL Post-Project	-602	0	-300
4	2023 SP Post-Project	-181	0	-300
6	2023 SL Pre-Project Sensitivity	-602	0	-300
7	2023 SP Pre-Project Sensitivity	-181	0	-300
8	2023 SL Post-Project Sensitivity	-602	0	-300
9	2023 SP Post-Project Sensitivity	-181	0	-300

4.2.6 HVDC Power Order Assumptions

The Western Alberta Transmission Line (WATL) and the Eastern Alberta Transmission Line (EATL) are high-voltage direct current (HVDC) transmission lines. The HVDC power order assumptions for the studies will be set to minimize losses for the pre-Project and post-Project study scenarios as shown in Table 4-11. For the 2031 WP scenario, the HVDC power order should be as per the AESO base cases and will not be adjusted.

Table 4-11: HVDC Power Order by Scenario

Scenario Number	Scenario Name	WATL (MW)*	EATL (MW)*
1	2023 SL Pre-Project	TBD	TBD
2	2023 SP Pre-Project	TBD	TBD
3	2023 SL Post-Project	TBD	TBD
4	2023 SP Post-Project	TBD	TBD
6	2023 SL Pre-Project Sensitivity	TBD	TBD
7	2023 SP Pre-Project Sensitivity	TBD	TBD
8	2023 SL Post-Project Sensitivity	TBD	TBD
9	2023 SP Post-Project Sensitivity	TBD	TBD

N → S: HVDC flow direction is North to South
S → N: HVDC flow direction is South to North

The reactive power limits of the MVAr exchanges between the HVDC terminals (WATL and EATL) and the connected alternating current (AC) transmission systems are shown in Table 4-12. These limits must be maintained when performing the studies.

Table 4-12: HVDC to Adjacent AC System MVAr Exchange Limits

HVDC Facility	North Terminal Reactive Power Limit (MVAr)	South Terminal Reactive Power Limit (MVAr)
EATL	-85 to 75	-35 to 35
WATL	-75 to 75	-35 to 35

4.2.7 Transmission Facility Ratings

The legal owner of transmission facilities TFO provided the thermal ratings assumptions for the existing transmission lines in the Study Area. Table 4-13 shows the normal ratings and emergency ratings for the key transmission lines in the Study Area, which will be used to perform the engineering studies.

Table 4-13: Thermal Rating Assumptions for Key Transmission Lines in the Study Area

Line ID	Line Description	Voltage Class (kV)	Summer Normal Rating (MVA)	Summer Emergency Rating (MVA)
924L	Milo 356S - Langdon 102S	240	547	656
927L	Milo 356S - Langdon 102S	240	576	691
876L	Blackie 253S-Gleichen 179S	138	110	121
161L	Vulcan 255S - Queenstown 504S	138	117	129
733L	Gleichen 179S-Namaka 428S	138	112 TD-L	123
733L	Namaka 428S-Strathmore 151S	138	120	132

Line ID	Line Description	Voltage Class (kV)	Summer Normal Rating (MVA)	Summer Emergency Rating (MVA)
851L	Blackie 253S-Carseland 525S	138	85	94
1042L	Travers 554S - Blackspring Ridge 485S	240	488	586
935L	Milo 356S - Cassils 324S	240	547	656
923L	Milo 356S - Newell 2075S	240	547	656
727L	High River 65S-Magcan 142S	138	119	131
727AL	Magcan 142S-Okotoks 678S	138	94 TD-L	103 TD-L
434L	Foothills 237S-High River 65S	138	279	307
180L	Vulcan 255S - East Stavely 928S	138	118	130
892L	Suffield 895S - Bowmanton 244S	138	80	88
814L	Brooks 121S - West Brooks 28S	138	167M	184M
1087L	Cassils 324S - Newell 2075S	240	547	656
197L	East Stavely 928S to Stavely 349S	138	112M	124M
666L	West Brooks 28 S - Tilley 498S	138	120CT	133
1053L	Cassils 324S - Ware Junction 132S	240	831CT	1047M
931L	West Brooks 28S - Ware Junction 132S	240	592	654M
1075L	West Brooks 28S - Ware Junction 132S	240	592	654M
850 L	Okotoks 678S- Carseland 525S	138	89	98
691 L	CHESTERMERE 419S- Janet 74S	138	85	94
646L	Okotoks 678S- Foothills 237S	138	280	308
753L	HIGH RIVER 65S - Blackie 253S	138	121	133
765L	Chestermere 419S-Strathmore 151S	138	85	94
936L	EAST CALGARY- Langdon 102S	240	487	584
937L	EAST CALGARY- Langdon 102S	240	487	584
985L	Janet 74S - (ENMAX #25 SUB)	240	973	1017
1003L	Janet 74S - (ENMAX #25 SUB)	240	973	1017
1064L	Langdon 102S- Janet 74S	240	974	1039
1065L	Langdon 102S- Janet 74S	240	974	1169
1106L	Foothills 237S- (ENMAX #65 SUB)	240	971	1071
1107L	Foothills 237S - (ENMAX #65 SUB)	240	971	1071

Note:
"CT" indicates that the transmission line is limited by current transformer.

"L" indicates that the transmission line rating is limited by the line

"M" indicates that the transmission line rating is limited for reasons other than protection equipment, transformer, current transformer, line, ganged switch, circuit breaker, or regulator.

"TD-L" temporarily derated

The TFO provided the details of the substation transformers in the Study Area. The key transformers in the Study Area are shown in Table 4-14.

Table 4-14: Summary of Key Transformer Ratings in the Study Area

Substation Name and Number	Transformer ID	Transformer Voltages (kV)	Transformer Rating (MVA)
Janet 74S	T1	240/138	341.8
Janet 74S	T2	240/138	341.8
Foothills 237S	T1	240/138	400
Foothills 237S	T2	240/138	400
East Calgary 5S	T1	240/138	400
East Calgary 5S	T2	240/138	400
WEST BROOK 28S	T1	240/138	400
WEST BROOK 28S	T2	240/138	400

The TFO provided the details of the shunt elements in the Study Area. The key shunt elements in the Study Area are shown in Table 4-15.

Table 4-15: Summary of Key Shunt Elements in the Study Area

Substation Name and Number	Voltage Class (kV)	Capacitors		Reactors	
		Number of Switched Shunt Blocks	Total at Nominal Voltage (MVAr)	Number of Switched Shunt Blocks	Total at Nominal Voltage (MVAr)
Strathmore 151S	138	1	24.46		
Hussar 431S	138	1	9.17		
Blackie 253S	138	1	24.46		
Magcan 142S	138	1	24.46		
Enmax #2 SUB	138	2	160		
Janet 74S	240	2	268.8		
Janet 74S	138	2	146.74		
West Brooks 28S	240			1	50
Tilley 498S	138	1	27.17		
Langdon 102S	240	SVC (Continous)	2x(108.14 to -148.1)		
Sarcee 42S	240	2	201.6		

Substation Name and Number	Voltage Class (kV)	Capacitors		Reactors	
		Number of Switched Shunt Blocks	Total at Nominal Voltage (MVAr)	Number of Switched Shunt Blocks	Total at Nominal Voltage (MVAr)
Sarcee 42S	138	1	48.92		

4.2.8 Protection Fault Clearing Times

The transient stability studies will be performed using the actual fault clearing times for the selected contingencies, as provided by the TFO and as shown in Table 4-16. Only those contingencies shown in Table 4-16 will be studied for transient stability studies. If the TFO did not specify the fault clearing times (e.g. for new transmission lines) for a selected contingency, then the studies for that contingency will be performed using the standard fault clearing times that are specified in Table 2-3 of the AESO's *Transmission Planning Criteria – Basis and Assumptions*.

Table 4-16: Protection Fault Clearing Times

Contingency (System Element Lost)	Fault Location	Clearing Times (Cycles)	
		Near End	Far End
924L (Milo 356S - Langdon 102S)	Langdon 102S	5.5	6.5
924L (Langdon 102S - Milo 356S)	Milo 356S	5.5	6.5
927L (Milo 356S - Langdon 102S)	Langdon 102S	5.5	6.5
927L (Langdon 102S - Milo 356S)	Milo 356S	5.5	6.5
1005L (Milo 356S- Picture Butte 120S)	Milo 356S	5	6
1005L (Milo 356S- Picture Butte 120S)	Picture Butte 120S	5	6
1036L (Milo 356S – Travers 554S)	Milo 356S	5	6
1036L (Milo 356S – Travers 554S)	Travers 554S	5	6
923L (Milo 356S and Newell 2075S)	Milo 356S	5	6
923L (Milo 356S and Newell 2075S)	Newell 2075S	5	6
935L (Milo 356S – Cassils 324S)	Milo 356S	5	6
935L (Milo 356S – Cassils 324S)	Cassils 324S	5	6
1064L (Langdon 102S- Janet 74S)	Langdon 102S	5	6
1065L (Langdon 102S- Janet 74S)	Langdon 102S	5	6
936L (East Calgary 5S- Langdon 102S)	Langdon 102S	5	6
937L (East Calgary 5S- Langdon 102S)	Langdon 102S	5	6

4.2.9 Project Dynamic Data

Dynamic data for the Project can be found in Attachment A7.

4.2.10 Voltage Profile Assumption

ID #2010-007RS will be used to establish system normal (i.e., pre-contingency) voltage profiles for key area busses prior to commencing any studies. Table 2-1 of the *Transmission Planning Criteria – Basis and Assumptions* applies for the busses not included in ID #2010-007RS. These voltages will be used to set the voltage profile for the study base cases prior to the power flow studies.

5 Study Methodology

The studies to be performed for this connection assessment are identified in Table 5-1.

Table 5-1: Summary of the Studies to be Performed

Scenario No. and Name		Power Flow		Voltage Stability		Transient Stability		Motor Starting		Short Circuit
		Category		Category		Category		Category		Category A
		A	B	A	B	A	B	A	B	
Pre-Project										
1	2023 SP Pre-Project	X	X			X*	X*			
2	2023 SL Pre-Project	X	X			X*	X*			X
Post-Project										
3	2023 SP Post-Project	X	X			X	X			
4	2023 SL Post-Project	X	X			X	X			X
5	2031 WP Post-Project									X
Pre-Project Sensitivity										
6	2023 SP Sensitivity Pre-Project	X	X			X*	X*			
7	2023 SL Sensitivity Pre-Project	X	X			X*	X*			
Post-Project Sensitivity										
8	2023 SP Sensitivity Post-Project	X	X			X	X			
9	2023 SL Sensitivity Post-Project	X	X			X	X			

*Only required if post-Project studies show potential transient stability issues

For the engineering studies, all transmission facilities 69 kV and above, within the Study Area and the transmission lines connecting these planning areas to neighboring planning areas will be studied and monitored to assess the impact of the Project on the performance of the AIES, including any violations of the Reliability Criteria (as defined in Section 3.1).

5.1 Power Flow Studies

Power flow studies will be performed to identify thermal and voltage criteria violations as per the Reliability Criteria, and any deviations from the limits listed in Table 3-1.

For information purposes, the Studies Consultant must also provide, as a separate file, a list of any transmission elements where the thermal loading exceeds 95% of the element's normal rating under Category A and Category B conditions.

For the Category B power flow studies, the transformer taps and switched shunt reactive compensating devices such as shunt capacitors and reactors will be locked and continuous shunt devices will be enabled.

Voltage deviations at point-of-delivery (POD) low voltage busses will also be assessed for both the pre-Project and post-Project networks by first locking all tap changers and area shunt reactive compensating devices to identify any post-transient voltage deviations above 10%. Second, tap changers will be allowed to move while shunt reactive compensating devices remained locked to determine if any voltage deviations above 7% would occur in the area. Third, all the taps and shunt reactive compensating devices will be allowed to adjust, and voltage deviations above 5% will be reported.

The scenarios to be studied are shown in Table 5-1.

5.1.1 Contingencies to be Studied

Power flow studies will be performed for the Category A and all Category B in the Study Area. EATL and WATL outage will be carried out as well.

5.2 Transient Stability Studies

The Genesee generating unit 3 in Wabamun (Area 40) will be used as the reference for the studies.

The report presenting the results of the transient stability studies must provide response plots for several variables, including rotor angle, and active and reactive power output for the study area generating units. The results report must also provide the 500 kV, 240 kV and 138 kV bus voltage levels for substations near the point of connection. Other busses will be monitored and will be reported as determined by the results. The results report must also provide the key branch active and reactive power flow surrounding the Facility.

Transient stability studies will be performed for the post-Project scenarios as shown in Table 5-1. If any transient stability issues are observed, transient stability analysis will be performed for the corresponding pre-Project scenarios.

5.2.1 Contingencies to be Studied

Transient stability studies will be performed for the contingencies shown in Table 4-16

5.3 Short-Circuit Current Level Studies

A maximum fault level must be provided for the substations in the vicinity of the Project assuming normal system operation with all transmission elements in service and generation dispatched. Three-phase faults and single line-to-ground faults will be simulated. Polar coordinates and per-unit values will be used for reporting the results.

Winter peak scenarios will be used for the short-circuit studies because winter peak scenarios generally produce higher short-circuit current levels than summer peak scenarios.

Estimated maximum three-phase faults and single line-to-ground short-circuit current levels will be reported for the following substations:

- The proposed collector substation of the Facility (P2396)

- Milo 356S
- Langdon 102S
- Cassils 324S
- Newell 2075S
- Picture Buttle 120S
- Travers 554S
- Janet 74S
- East Calgary 5S

Further sensitivity studies, in consultation with the TFO, may be required if the primary short-circuit analysis indicates a potential to exceed or approach the existing fault rating of the transmission facilities.

The scenarios to be studied are as shown in Table 5-1.

6 Mitigation Measures

6.1 Development

Mitigation measures may be required if the post-Project study results identify system performance issues. Mitigation measures for the Project may involve modifying or adding real-time operational practices and/or remedial action schemes (RASs).

The Studies Consultant must notify the AESO of any system performance issues in a timely manner, following which the AESO Studies Engineer may instruct the Studies Consultant as follows:

- Develop tables showing the constraint effective factors[2] for generation or load based on thermal criteria violations that are observed.
- Collaborate with the AESO to propose changes, if any, to the connection alternatives that could remove the requirement for a RAS.
- Collaborate with the AESO to study modifications to existing and/or planned RASs, proposed by the AESO, to ensure the coordination of existing protection schemes with the addition of any proposed protection schemes.
- Collaborate with the AESO to identify and study new RASs, if any, that may be required to ensure system reliability is maintained after connecting the Project to the AIES.

The AESO Studies Engineer will work closely with the Studies Consultant and guide the development and/or modifications of the proposed mitigation measures to ensure system reliability, security and compliance with AESO ID #2018-018T, *Provision of System Access Service and the Connection Process*.

6.2 Evaluation

6.2.1 Post-Mitigation Studies

Studies to evaluate the effectiveness of mitigation measures, if required, will be performed in accordance with the technical criteria, assumptions, and methods provided in this Study Scope and in accordance with further instructions from the AESO.

6.2.2 Constraint Effective Factor Studies

Constraint effective factor analysis are used to determine the generator- and load- constraint effective factors and to identify the most effective generators or loads to manage the thermal criteria violations, if any, that are observed under Category B conditions.

[2] Constraint effective factor studies are performed to determine the generator- and load- constraint effective factors. Constraint effective factors are used to estimate the ability of generators and loads to manage transmission constraints. A generator's or load's constraint effective factor is defined as the change in power flow over a specific transmission line following a change in the generator's energy production or in the load's energy consumption. The greater the constraint effective factor, the more effective a generator or load can be in managing a thermal criteria violation on the specific transmission line.

7 Changes to Study Assumptions

This study will utilize the AESO's planning base cases, which are based on the AESO's current corporate forecast (2021 LTO) with modifications to incorporate the latest forecast intelligence. Sensitivity studies or restudy may be required in the event of revisions to the AESO's corporate forecast, forecast intelligence, or other study assumptions. Additional engineering studies may also be required to assess new connection alternatives, changes to project ISD, or delays in proposed system developments. Any additional or revised study requirements shall be captured in a signed Study Scope Amendment document.

Attachment A: Transmission Planning Criteria – Basis and Assumptions

Attachment A

AESO TRANSMISSION PLANNING CRITERIA – BASIS AND ASSUMPTIONS

Transmission Planning Criteria – Basis and Assumptions

Date: July 9, 2019

Version: V1.2

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1. Introduction

This document presents the reliability standards, criteria, and assumptions to be used as the basis for planning the Alberta Transmission System. The criteria, standards and assumptions identified in this document supersede those previously established.

2. Transmission Reliability Standards and Criteria[1]

The AESO applies the following Alberta Reliability Standards to ensure that the transmission system is planned to meet applicable performance requirements under a defined set of system conditions and contingencies. A brief description of each of these standards is given below:

1. **TPL-001-AB-0: System Performance Under Normal Conditions**

   Category A represents a normal system condition with all elements in service (N-0). All equipment must be within its applicable rating, voltages must be within their applicable ratings and the system must be stable with no cascading outages. Under Category A, electric supply to load cannot be interrupted and generating units cannot be removed from service.

2. **TPL-002-AB1-0: System Performance Following Loss of a Single BES Element**

   Category B events result in the loss of any single element (N-1) under specified fault conditions with normal clearing. The specified elements are a generating unit, a transmission circuit, a transformer or a single pole of a direct current transmission line. The acceptable impact on the system is the same as Category A with the exception that radial customers or some local network customers, including loads or generating units, are allowed to be disconnected from the system if they are connected through the faulted element. The loss of opportunity load or opportunity interchanges is allowed. No cascading can occur.

3. **TPL-003-AB-0: System Performance Following Loss of Two or More BES Elements**

   Category C events result in the loss of two or more bulk electric system elements (sequential, N-1-1 or concurrent, N-2) under specified fault conditions and include both normal and delayed fault clearing. All of the system limits for Category A and B events apply with the exception that planned and controlled loss of firm load, firm transfers and/or generation is acceptable provided there is no cascading.

4. **TPL-004-AB-0: System Performance Following Extreme BES Events**

   Category D represents a wide variety of extreme, rare and unpredictable events, which may result in the loss of load and generation in widespread areas. The system may not be able to reach a new stable steady state, which means a blackout is a possible outcome. The AESO needs to evaluate these events, at its discretion, for risks and consequences prior to creating mitigation plans.

5. **FAC-014-AB1-2: Establishing and Communicating System Operating Limits**

   The AESO is required to establish system operating limits where a contingency is not mitigated through construction of transmission facilities

[1] A complete description of the *Alberta Reliability Standards* can be found on the AESO's website: https://www.aeso.ca/rules-standards-and-tariff/alberta-reliability-standards/

2.1 Thermal Loading Criteria

The AESO Thermal Loading Criteria require that the continuous thermal rating of any transmission element is not exceeded under normal and post-contingency operating conditions. Thermal limits are assumed to be 100% of the respective normal summer and winter ratings. Emergency limits are not considered in the planning evaluations.

2.2 Voltage Range and Voltage Stability Criteria

The normal minimum and maximum voltage limits as specified in the following table are used to identify Category A system voltage violations, while the extreme minimum and maximum limits are used to identify Category B and C system violations. Table 2-1 presents the acceptable steady state and contingency state voltage ranges for the AIES. Table 2-2 provides voltage stability criteria used to test the system performance.

Table 2-1: Acceptable Range of Steady State Voltage (kV)

Nominal Voltage	Extreme Minimum	Normal Minimum	Normal Maximum	Extreme Maximum
500	475	500	525	550
240	216	234	252	264
260 (Northeast & Northwest)*	234	247	266	275
144	130	137	151	155
138	124	135	145	152
72	65	68.5	75.5	79
69	62	65.5	72.5	76

Table 2-2: Voltage Stability Criteria

Performance Level	Disturbance (1)(2)(3)(4) Initiated by: Fault of No Fault DC Disturbance	MW Margin (P-V method) (5)(6)(7)	MVAr Margin (V-Q method) (6)(7)
A	Any element such as: One Generator One Circuit One Transformer One Reactive Power Source One DC Monopole	≥5%	Worst Case Scenario(8)
B	Bus Section	≥5%	50% of Margin Requirement in Level A
C	Any combination of two elements such as: A Line and a Generator A Line and a Reactive Power Source Two Generators Two Circuits Two Transformers Two Reactive Power Sources DC Bipole	≥2.5%	50% of Margin Requirement in Level A
D	Any combination of three or more elements such as: Three or More Circuits on ROW Entire Substation Entire Plant Including Switchyard	> 0	> 0

2.3 Transient Stability Analysis Assumptions

Standard fault clearing times as shown in Table 2-3 are used for the new facilities or when the actual clearing times are not available for the existing facilities. Double line-to-ground faults are applied for the Category C5 events with normal clearing times. Single line-to-ground faults are applied for Category C6 to C9 events with delayed clearing times as depicted in Table 2-4 and Table 2-5.

Table 2-3: Fault Clearing Times

Nominal (kV)	Near End (Cycles)	Far End (Cycles)
500	4	5
240	5	6
144/138 with telecommunications	6	8
144/138 without telecommunications	6	30

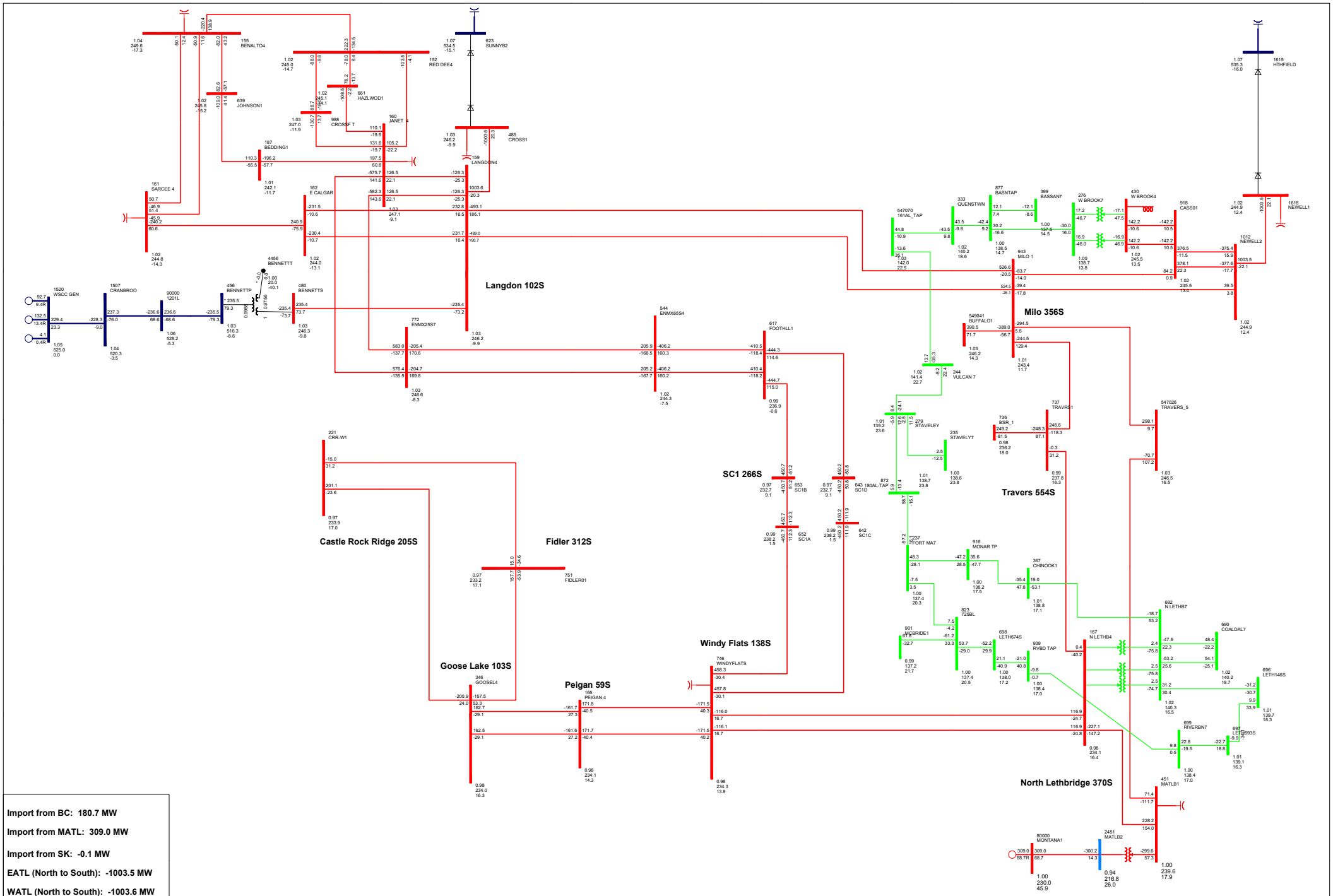
Table 2-4: Stuck Breaker Clearing Times for Lines

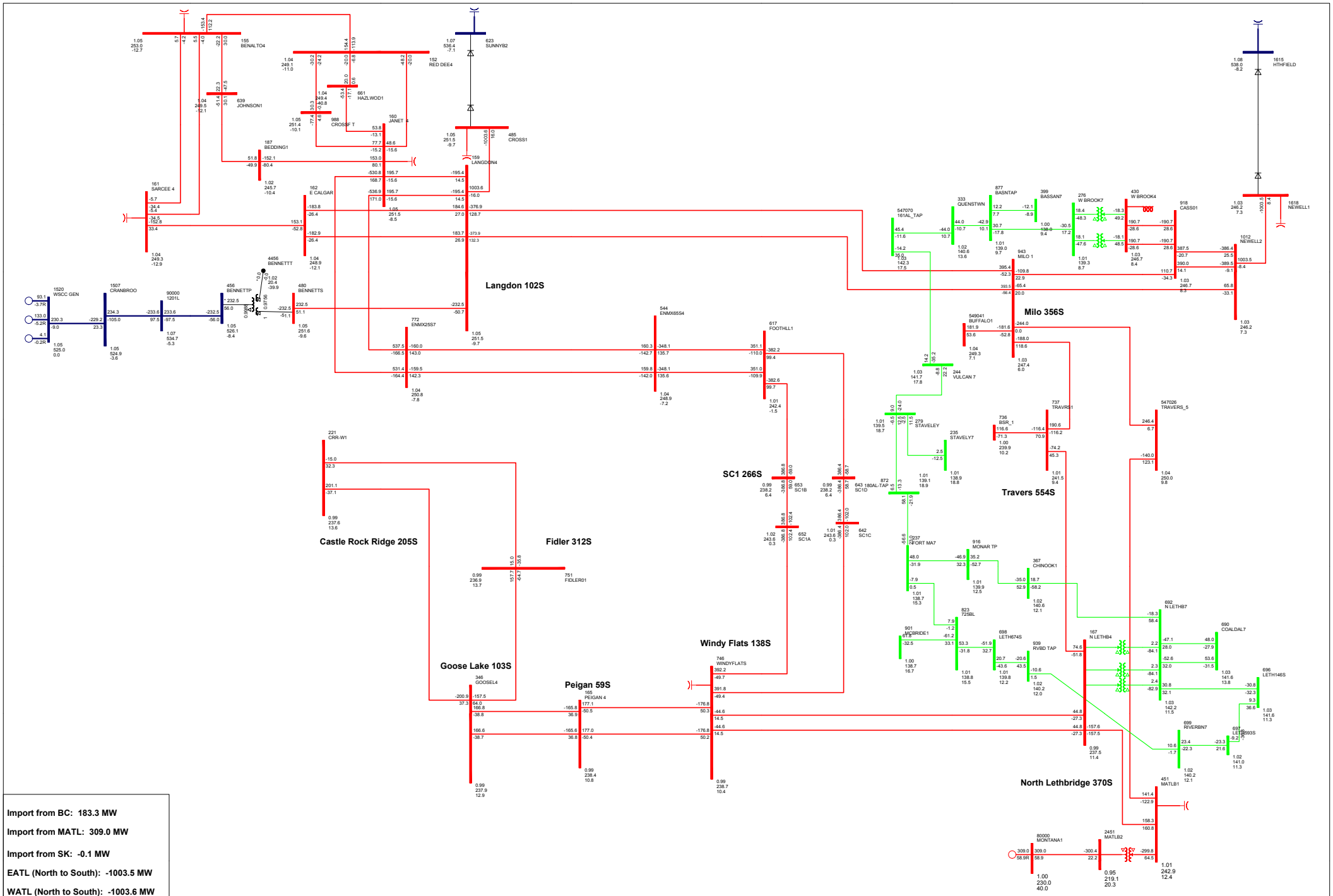
Voltage (kV)	Fault Clearing Times (Cycles)		
	Near End	Far End	2nd Ckt (C5 and C7 only)
138/144	15	24	24
240	12	6	14
500	9	5	11

Table 2-5: Stuck Breaker Clearing Times for Transformers

Voltage (kV)	Fault Location	Fault Clearing Times (Cycles)		
		High Side	Low Side	2nd Ckt (breaker fail)
240/138	240 kV side	12	6	14
	138 kV side	5	15	24
500/240	500 kV side	9	5	11
	240 kV side	4	12	14

Attachment A2
Pre-Project Power Flow Diagrams


Langdon 102S
Milo 356S
Travers 554S
SC1 266S
Castle Rock Ridge 205S
Fidler 312S
Windy Flats 138S
Goose Lake 103S
Peigan 59S
North Lethbridge 370S
155 BENALTO4
639 JOHNSON1
187 BEDDING1
161 SARCEE 4
162 E CALGAR
4456 BENNETTT
456 BENNETTP
480 BENNETTS
1520 WSCC GEN
1507 CRANBROO
90000 1201L
152 RED DEE4
623 SUNNYB2
485 CROSS1
159 LANGDON4
160 JANET 4
661 HAZLWOD1
988 CROSSF T
772 ENMX25S7
544 ENMX65S4
617 FOOTHLL1
653 SC1B
652 SC1A
643 180AL-TAP SC1D
642 SC1C
872 180AL-TAP 7
221 CRR-W1
751 FIDLER01
746 WINDYFLATS
346 GOOSEL4
165 PEIGAN 4
547070 161AL_TAP
333 QUENSTWN
877 BASNTAP
399 BASSAN7
276 W BROOK7
430 W BROOK4
918 CASS01
1615 HTHFIELD
1618 NEWELL1
1012 NEWELL2
1003.5
549041 BUFFALO1
244 VULCAN 7
943 MILO 1
279 STAVELEY
235 STAVELY7
736 BSR_1
737 TRAVRS1
547026 TRAVERS_5
237 FORT MA7
916 MONAR TP
367 CHINOOK1
901 MCBRIDE1
823 725BL
698 LETH674S
939 RVBD TAP
167 N LETHB4
692 N LETHB7
690 COALDAL7
696 LETH146S
697 LETH693S
699 RIVERBN7
451 MATLB1
2451 MATLB2
80000 MONTANA1
Import from BC: 180.7 MW
Import from MATL: 309.0 MW
Import from SK: -0.1 MW
EATL (North to South): -1003.5 MW
WATL (North to South): -1003.6 MW
P2396 Georgetown Solar: 0.0 MW
Georgetown Solar Project
AESO Project Number: P2396
SCENARIO: P2396_SP_PRE_STAGE3_V6_PRE-CURTAIL
CAT A-NO CONTINGENCY
SUN, MAR 05 2023 10:59
Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.0000V 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000



Import from BC: 183.3 MW

Import from MATL: 309.0 MW

Import from SK: -0.1 MW

EATL (North to South): -1003.5 MW

WATL (North to South): -1003.6 MW

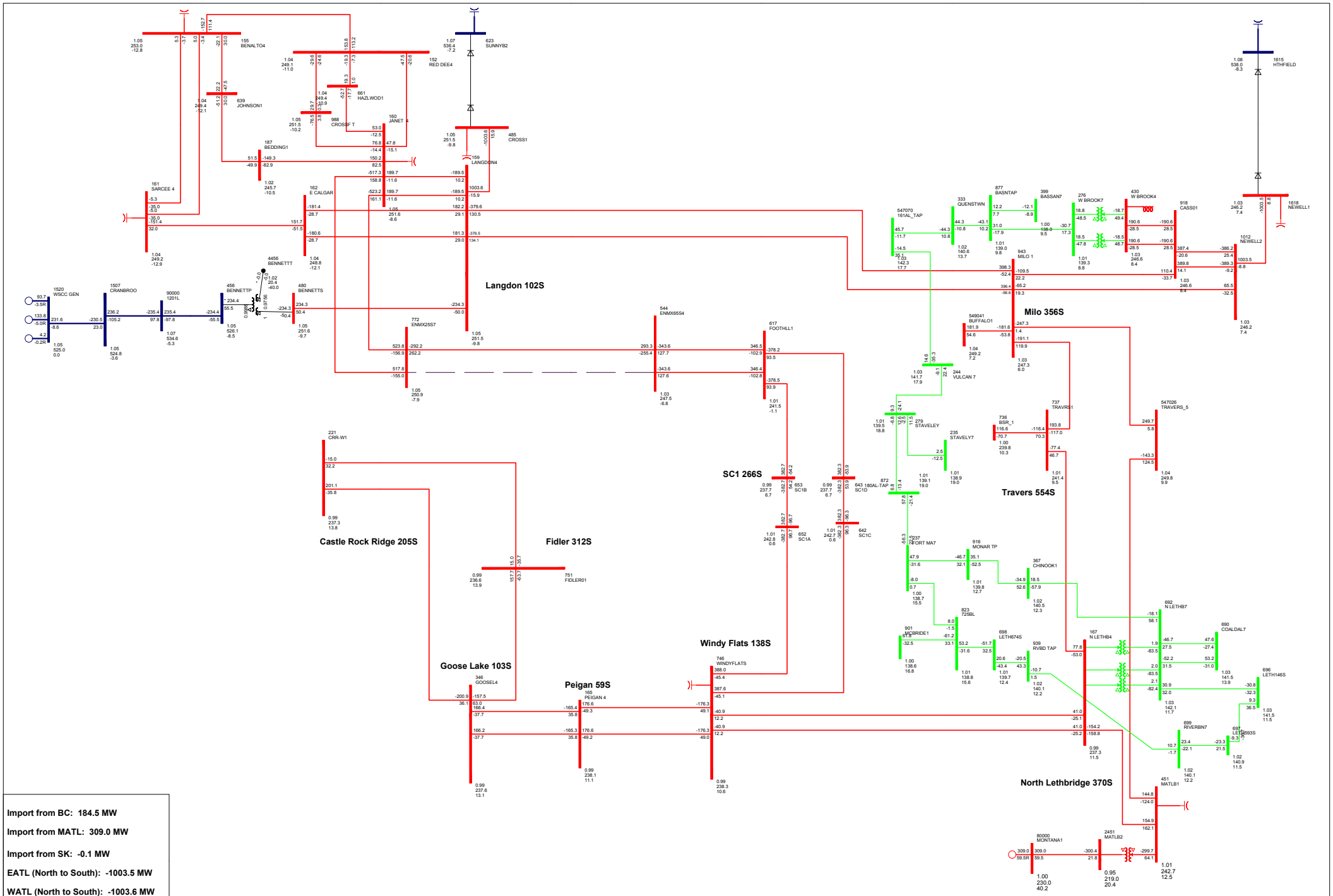
P2396 Georgetown Solar: 0.0 MW

Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SP_PRE_STAGE3_V6
CAT A-NO CONTINGENCY
SAT, JAN 14 2023 21:07

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.000UV 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000



Import from BC: 184.5 MW

Import from MATL: 309.0 MW

Import from SK: -0.1 MW

EATL (North to South): -1003.5 MW

WATL (North to South): -1003.6 MW

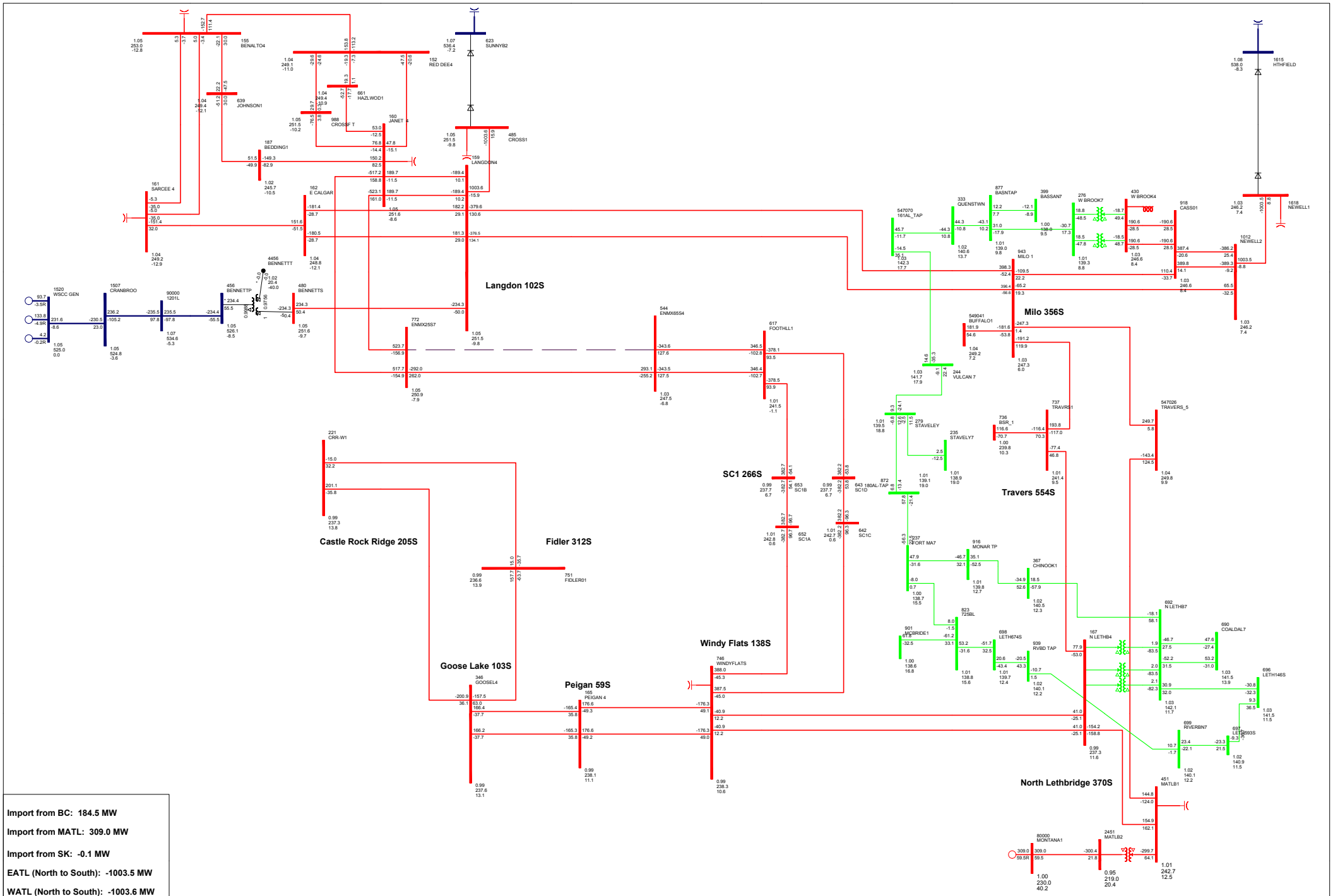
P2396 Georgetown Solar: 0.0 MW

Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SP_PRE_STAGE3_V6
CAT B-1080L (SS-65 - SHEPARD SS-25)
SAT, JAN 14 2023 21:07

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.000UV 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000



Import from BC: 184.5 MW

Import from MATL: 309.0 MW

Import from SK: -0.1 MW

EATL (North to South): -1003.5 MW

WATL (North to South): -1003.6 MW

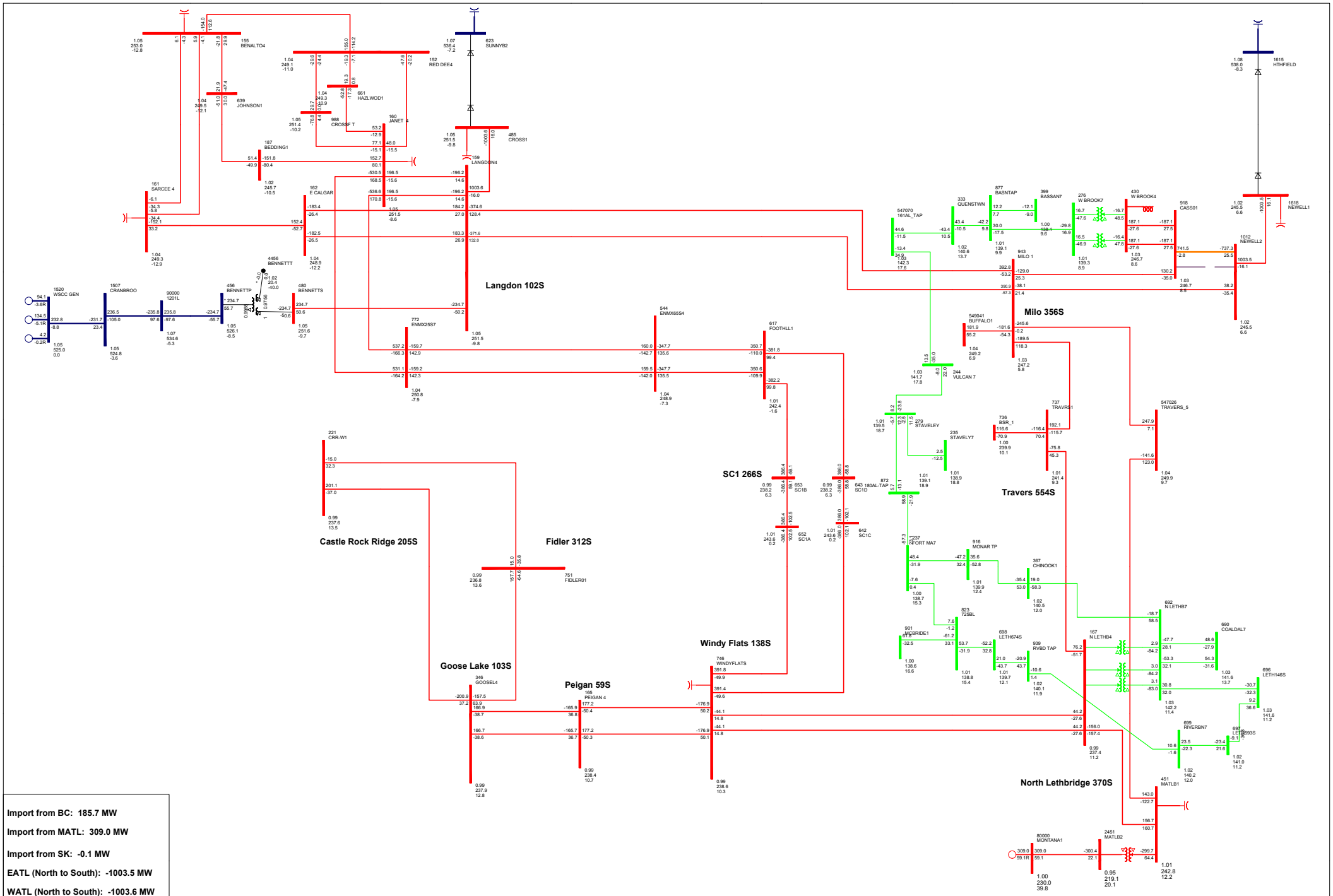
P2396 Georgetown Solar: 0.0 MW

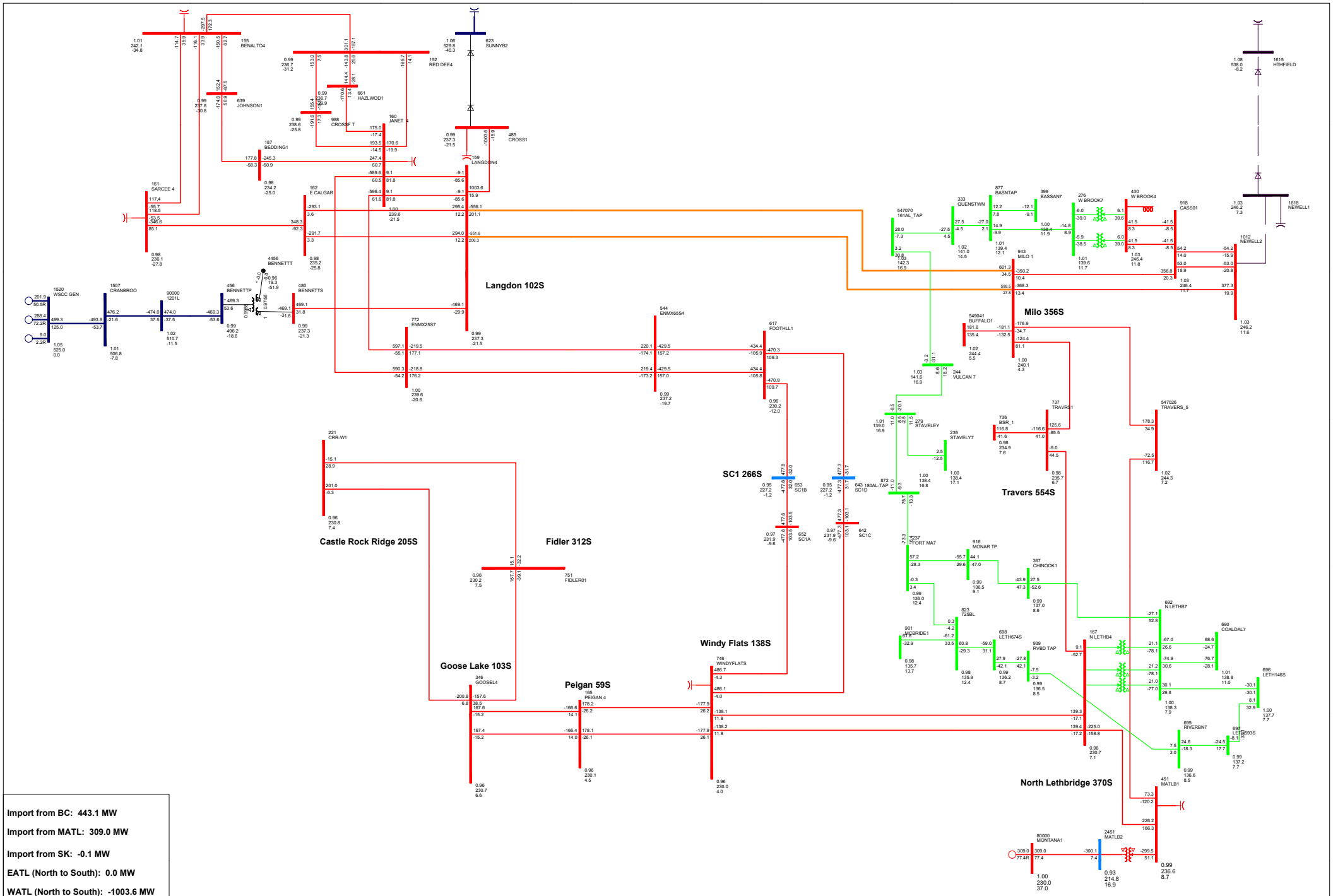
Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SP_PRE_STAGE3_V6
CAT B-1109L (SS-65 - SHEPARD SS-25)
SAT, JAN 14 2023 21:08

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.000OV 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000


Langdon 102S
Milo 356S
SC1 266S
Travers 554S
Castle Rock Ridge 205S
Fidler 312S
Windy Flats 138S
Goose Lake 103S
Peigan 59S
North Lethbridge 370S
155 BENALTO4
639 JOHNSON1
187 BEDDING1
161 SARCEE 4
162 E CALGAR
4456 BENNETT
456 BENNETTP
480 BENNETTS
1520 WSCC GEN
1507 CRANBROO
90000 1201L
772 ENMX25S7
544 ENMX65S4
617 FOOTHLL1
152 RED DEE4
623 SUNNYB2
661 HAZLWOD1
988 CROSSF T
160 JANET 4
485 CROSS1
159 LANGDON4
547070 161AL_TAP
333 QUENSTWN
877 BASNTAP
399 BASSAN7
276 W BROOK7
430 W BROOK4
918 CASS01
1615 HTHFIELD
1618 NEWELL1
1012 NEWELL2
1003.5
549041 BUFFALO1
244 VULCAN 7
943 MILO 1
737 TRAVRS1
547026 TRAVERS_5
736 BSR_1
279 STAVELEY
235 STAVELY7
872 180AL-TAP
643 SC1D
653 SC1B
642 SC1C
652 SC1A
237 NPORT MA7
916 MONAR TP
367 CHINOOK1
823 725BL
901 LMCBRIDE1
698 LETH674S
939 RVBD TAP
167 N LETHB4
692 N LETHB7
690 COALDAL7
696 LETH146S
699 RIVERBN7
697 LETH693S
451 MATLB1
2451 MATLB2
80000 MONTANA1
221 CRR-W1
751 FIDLER01
746 WINDYFLATS
346 GOOSEL4
165 PEIGAN 4
Import from BC: 185.7 MW
Import from MATL: 309.0 MW
Import from SK: -0.1 MW
EATL (North to South): -1003.5 MW
WATL (North to South): -1003.6 MW
P2396 Georgetown Solar: 0.0 MW
Georgetown Solar Project
AESO Project Number: P2396
SCENARIO: P2396_SP_PRE_STAGE3_V6
CAT B-1088L (NEWELL 2075S - CASSILS 324S)
SAT, JAN 14 2023 21:08
Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.000OV 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000



Import from BC: 443.1 MW

Import from MATL: 309.0 MW

Import from SK: -0.1 MW

EATL (North to South): 0.0 MW

WATL (North to South): -1003.6 MW

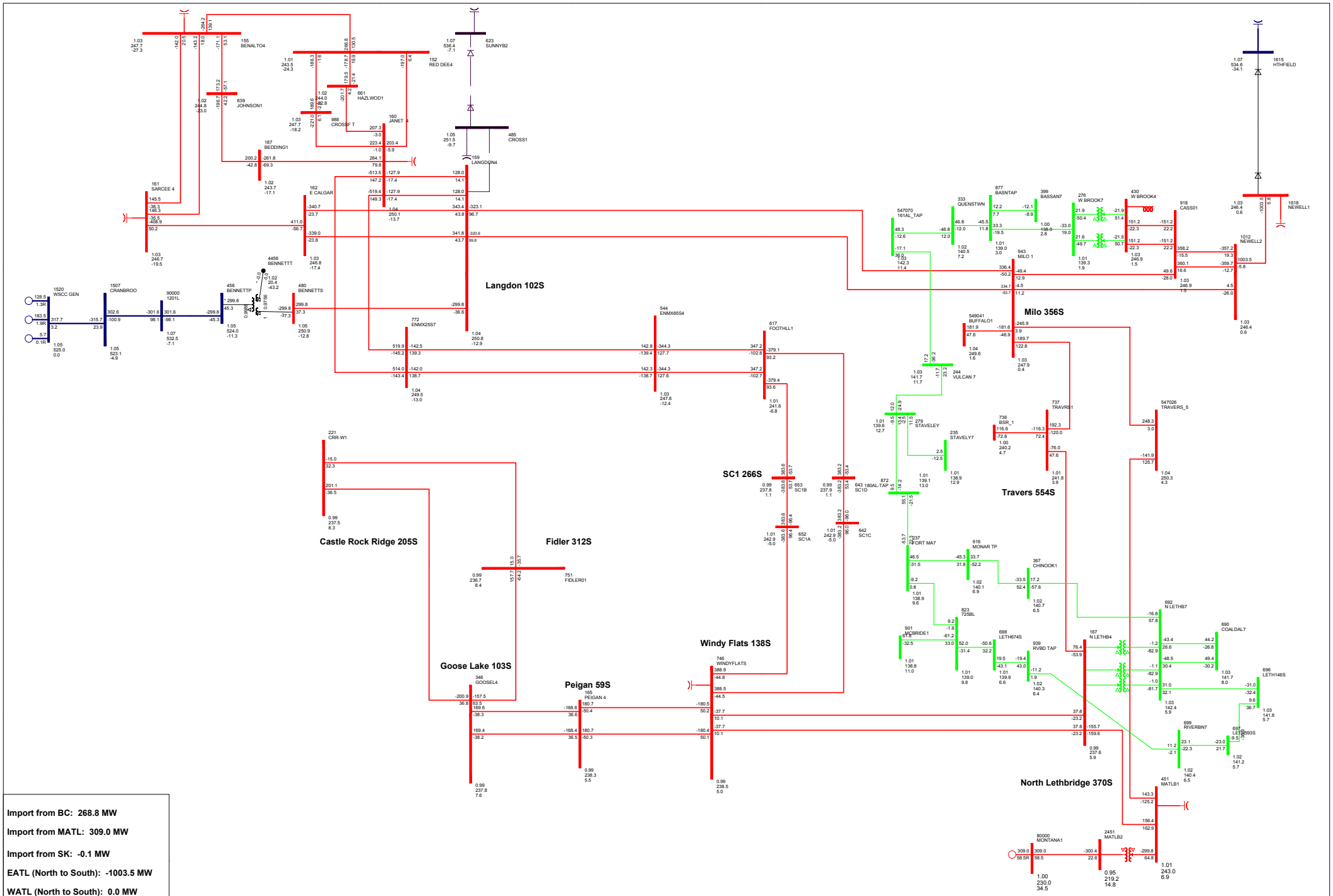
P2396 Georgetown Solar: 0.0 MW

Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SP_PRE_STAGE3_V6
CAT B-EATL
SAT, JAN 14 2023 21:08

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.0000V 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000



Import from BC: 268.8 MW

Import from MATL: 309.0 MW

Import from SK: -0.1 MW

EATL (North to South): -1003.5 MW

WATL (North to South): 0.0 MW

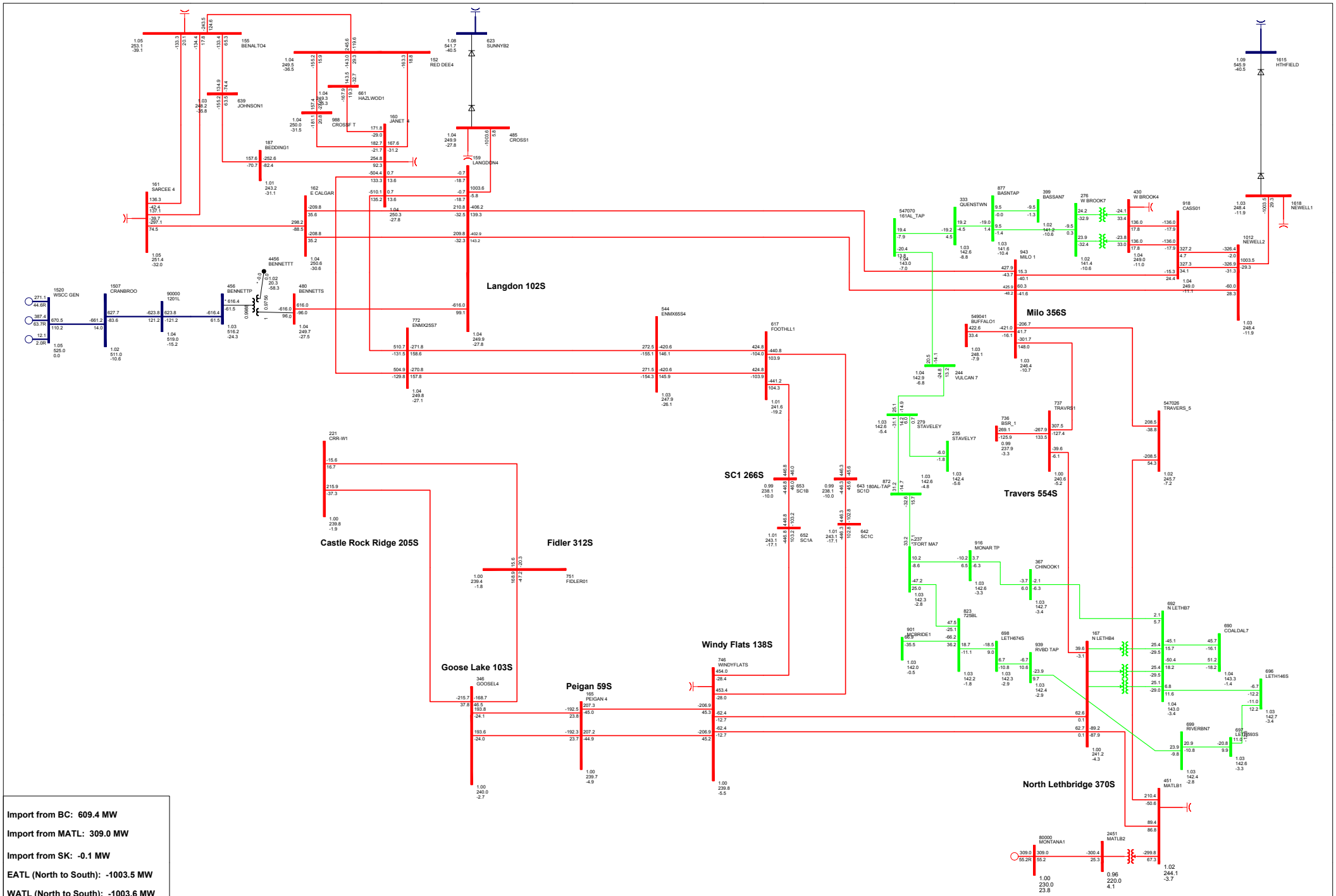
P2396 Georgetown Solar: 0.0 MW

Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SP_PRE_STAGE3_V6
CAT B-WATL
SAT, JAN 14 2023 21:08

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.0000V 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000



Import from BC: 609.4 MW

Import from MATL: 309.0 MW

Import from SK: -0.1 MW

EATL (North to South): -1003.5 MW

WATL (North to South): -1003.6 MW

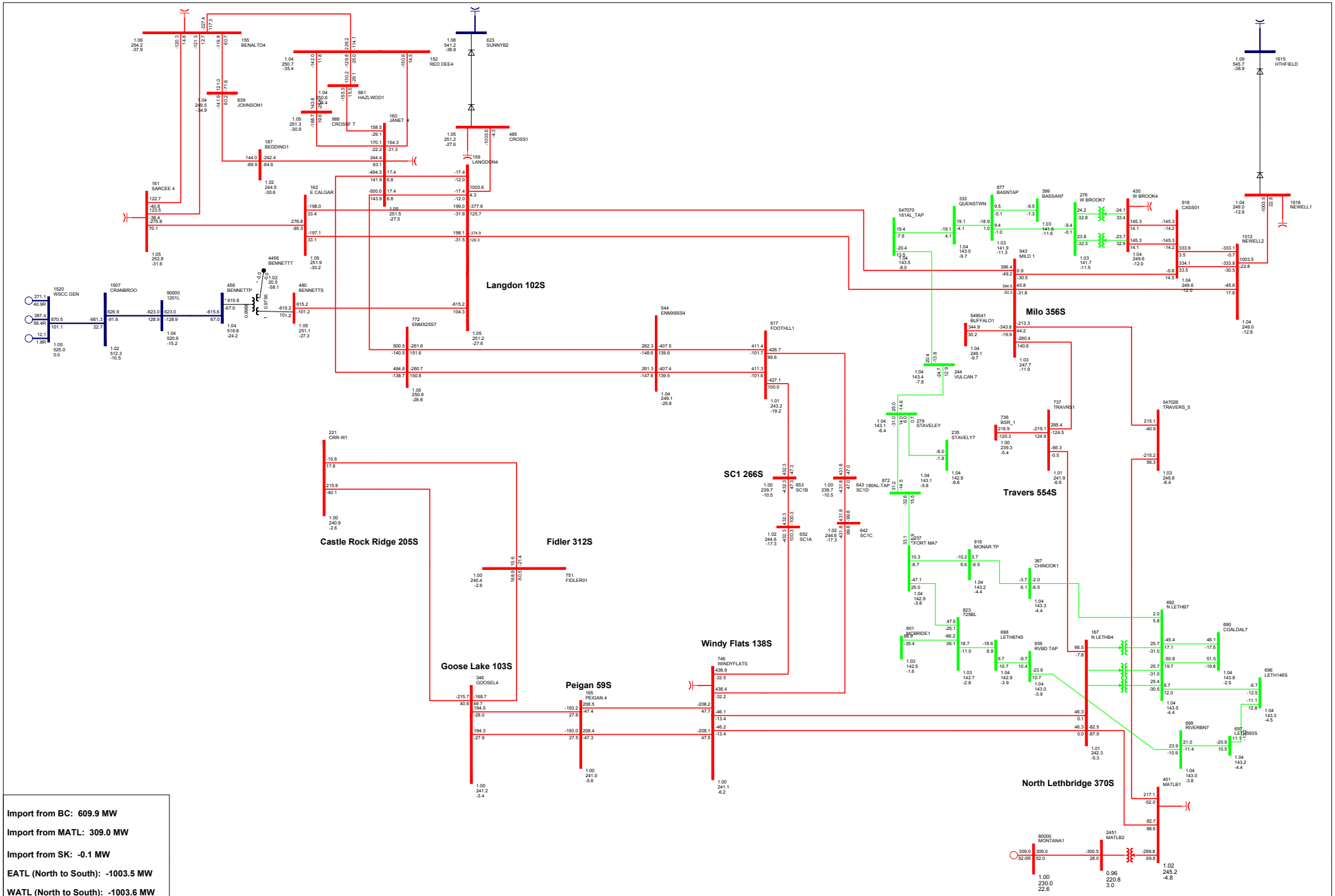
P2396 Georgetown Solar: 0.0 MW

Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SL_PRE_STAGE3_V3_PRE-CURTAIL
CAT A-NO CONTINGENCY
SUN, MAR 05 2023 11:00

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.000OV 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000



Import from BC: 609.9 MW

Import from MATL: 309.0 MW

Import from SK: -0.1 MW

EATL (North to South): -1003.5 MW

WATL (North to South): -1003.6 MW

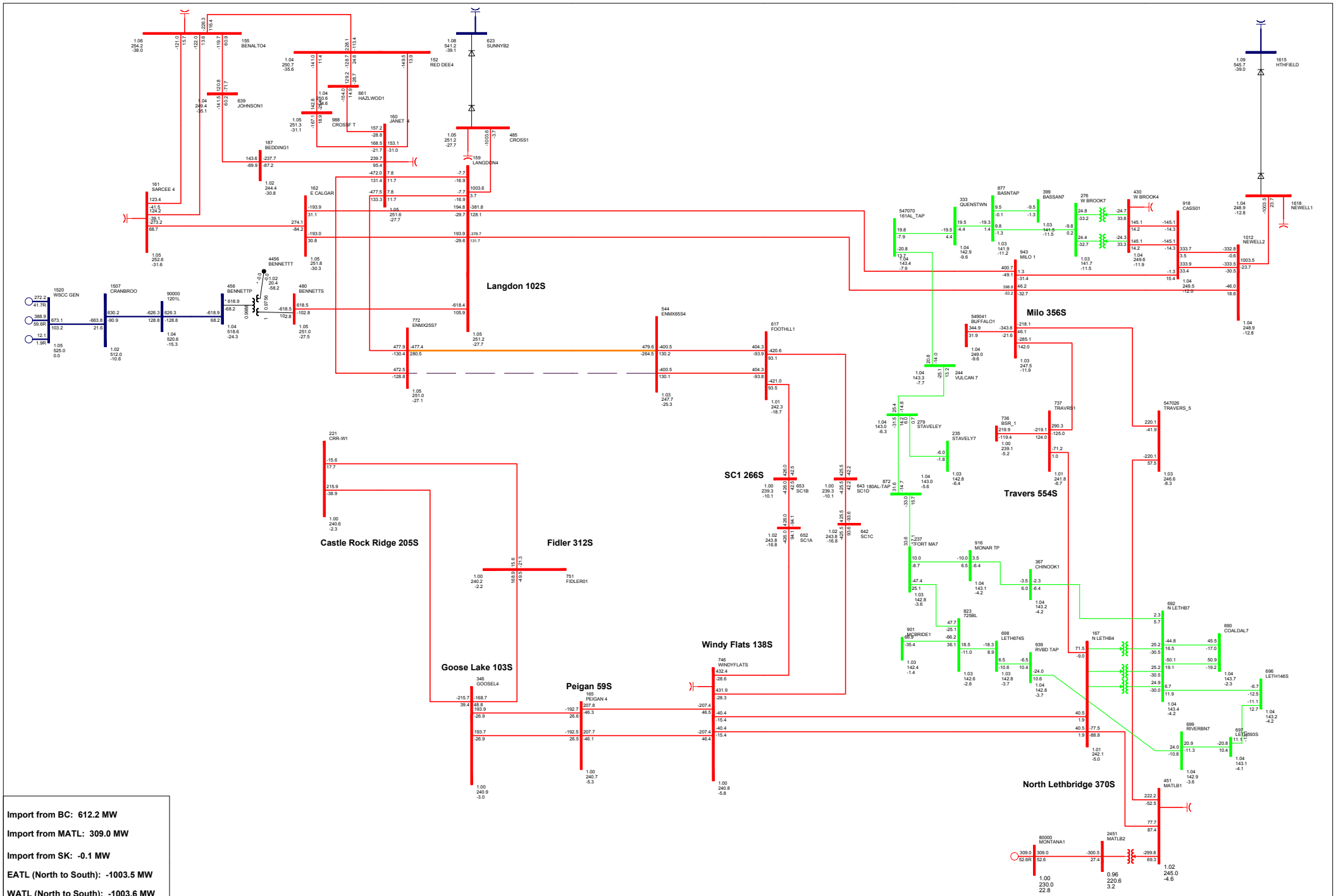
P2396 Georgetown Solar: 0.0 MW

Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SL_PRE_STAGE3_V3
CAT A-NO CONTINGENCY
SAT, JAN 14 2023 21:05

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.000UV 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000



Import from BC: 612.2 MW

Import from MATL: 309.0 MW

Import from SK: -0.1 MW

EATL (North to South): -1003.5 MW

WATL (North to South): -1003.6 MW

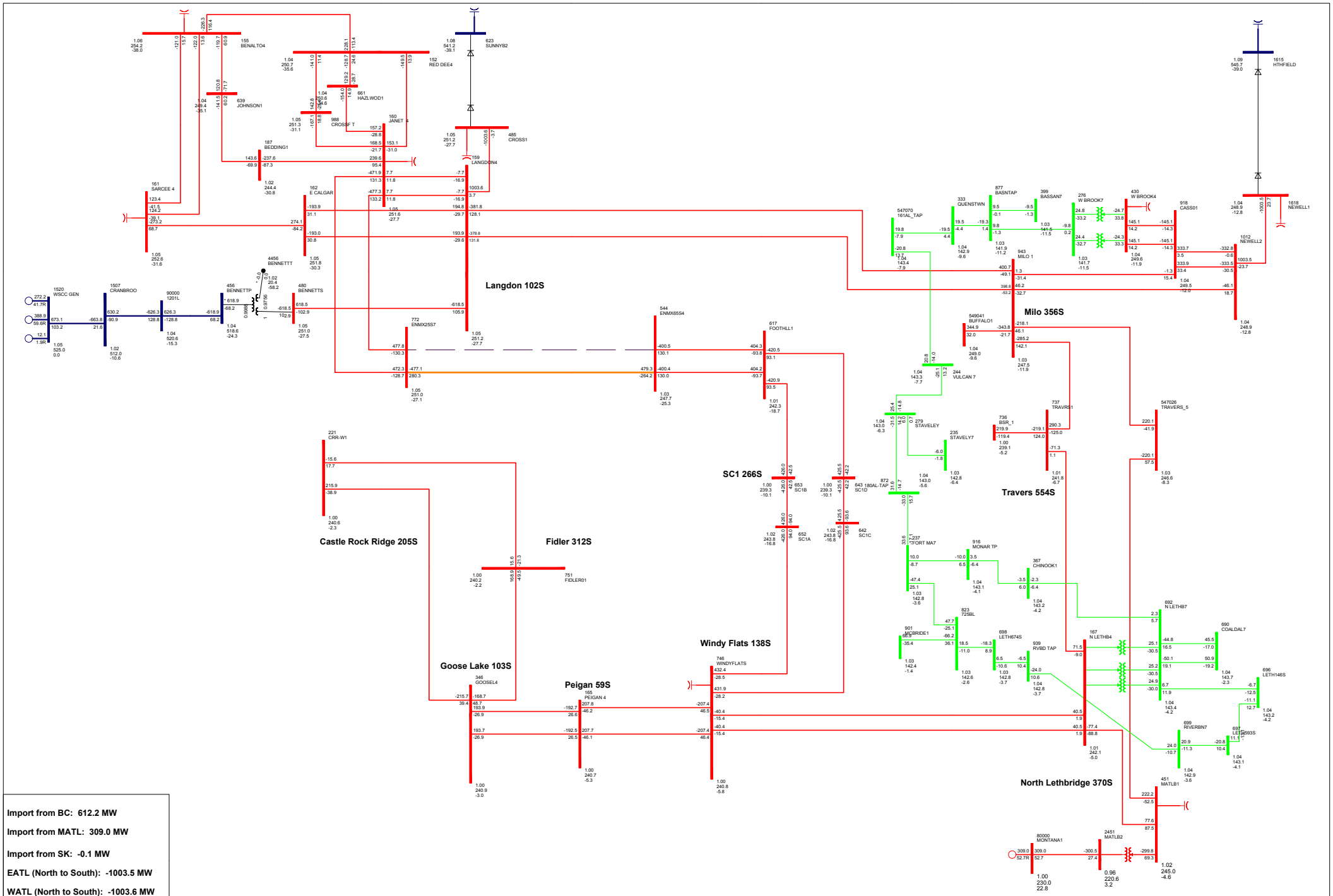
P2396 Georgetown Solar: 0.0 MW

Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SL_PRE_STAGE3_V3
CAT B-1080L (SS-65 - SHEPARD SS-25)
SAT, JAN 14 2023 21:05

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.000UV 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000



Import from BC: 612.2 MW

Import from MATL: 309.0 MW

Import from SK: -0.1 MW

EATL (North to South): -1003.5 MW

WATL (North to South): -1003.6 MW

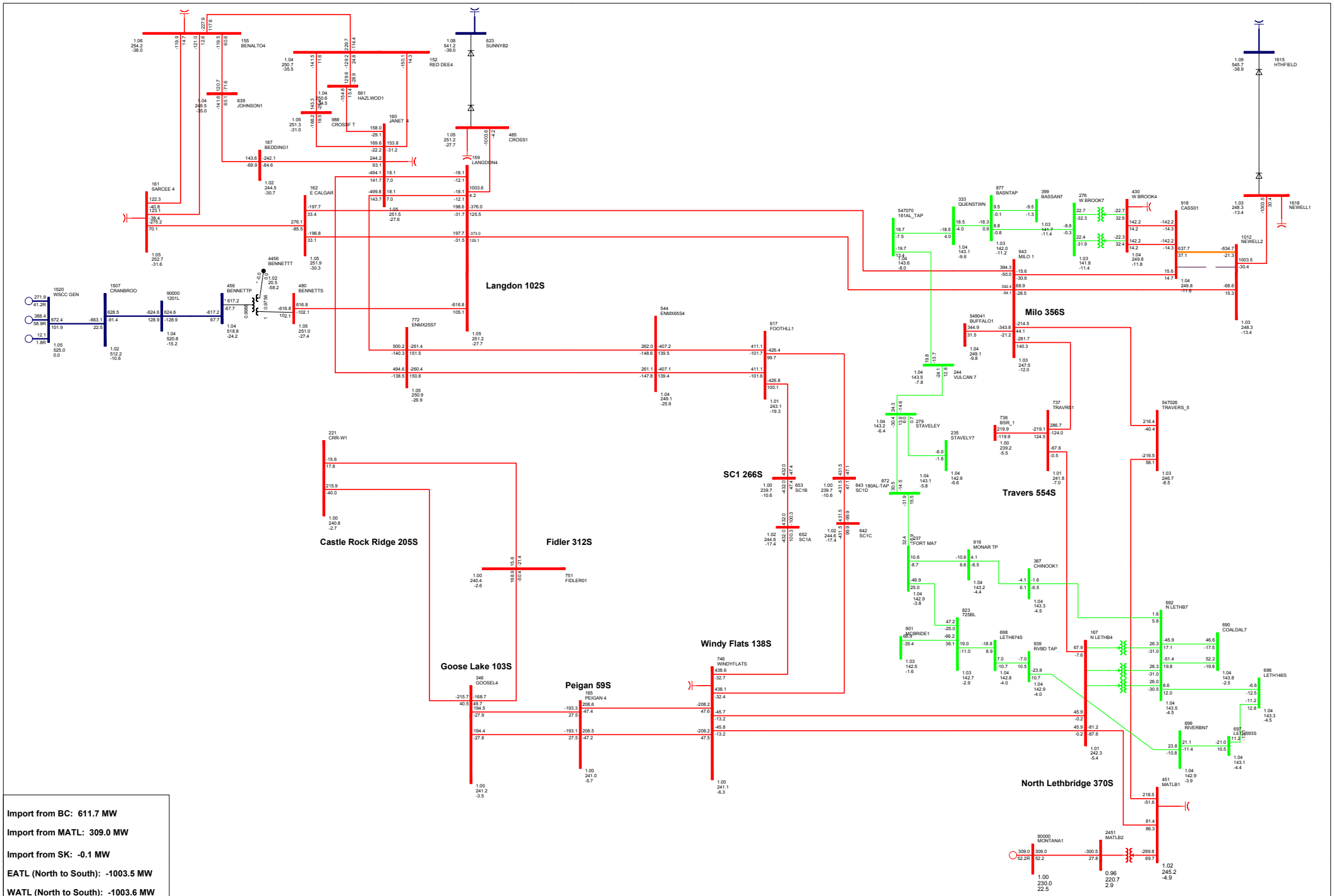
P2396 Georgetown Solar: 0.0 MW

Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SL_PRE_STAGE3_V3
CAT B-1109L (SS-65 - SHEPARD SS-25)
SAT, JAN 14 2023 21:05

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.000UV 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000



Import from BC: 611.7 MW

Import from MATL: 309.0 MW

Import from SK: -0.1 MW

EATL (North to South): -1003.5 MW

WATL (North to South): -1003.6 MW

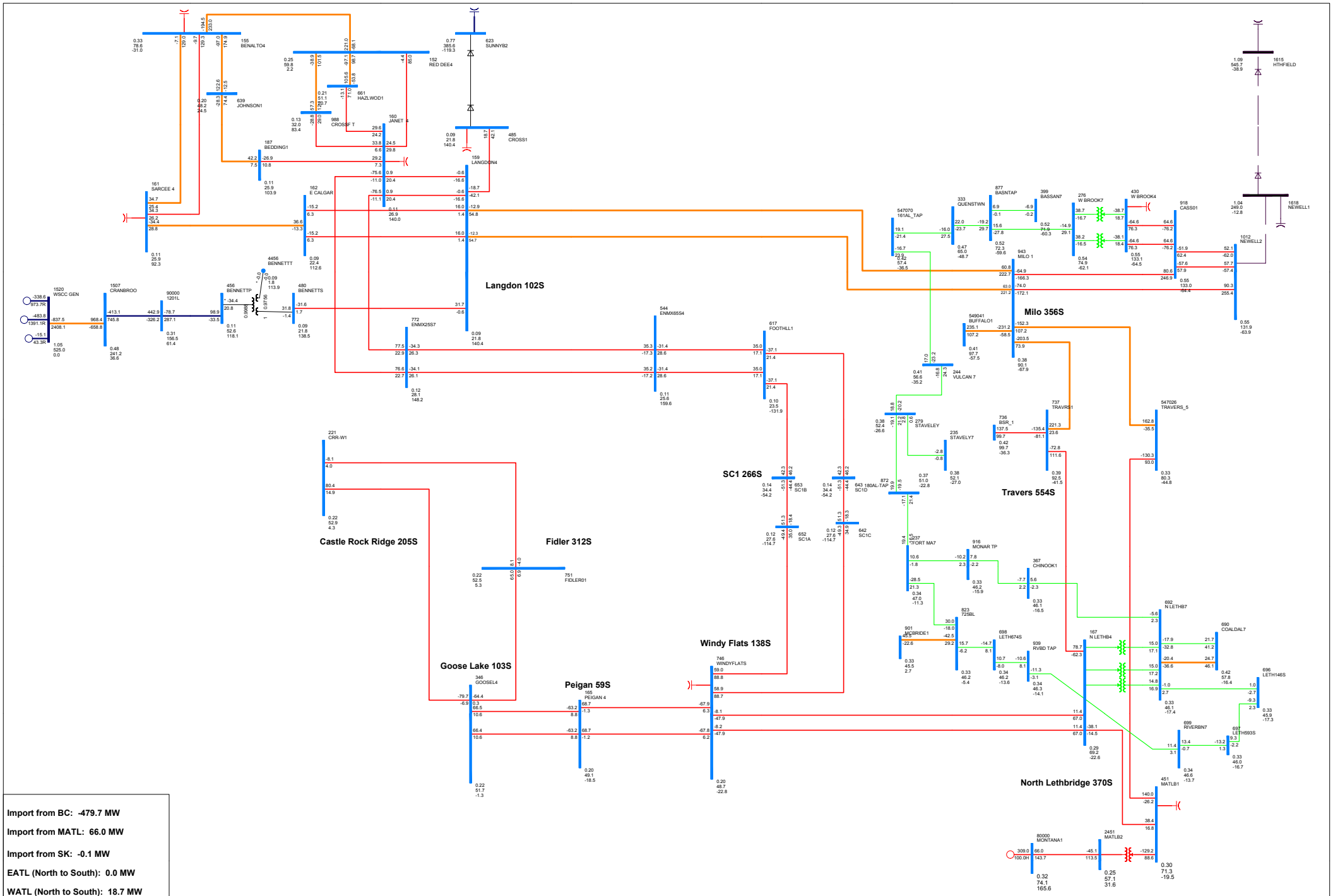
P2396 Georgetown Solar: 0.0 MW

Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SL_PRE_STAGE3_V3
CAT B-1088L (NEWELL 2075S - CASSILS 324S)
SAT, JAN 14 2023 21:05

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.000UV 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000



Import from BC: -479.7 MW

Import from MATL: 66.0 MW

Import from SK: -0.1 MW

EATL (North to South): 0.0 MW

WATL (North to South): 18.7 MW

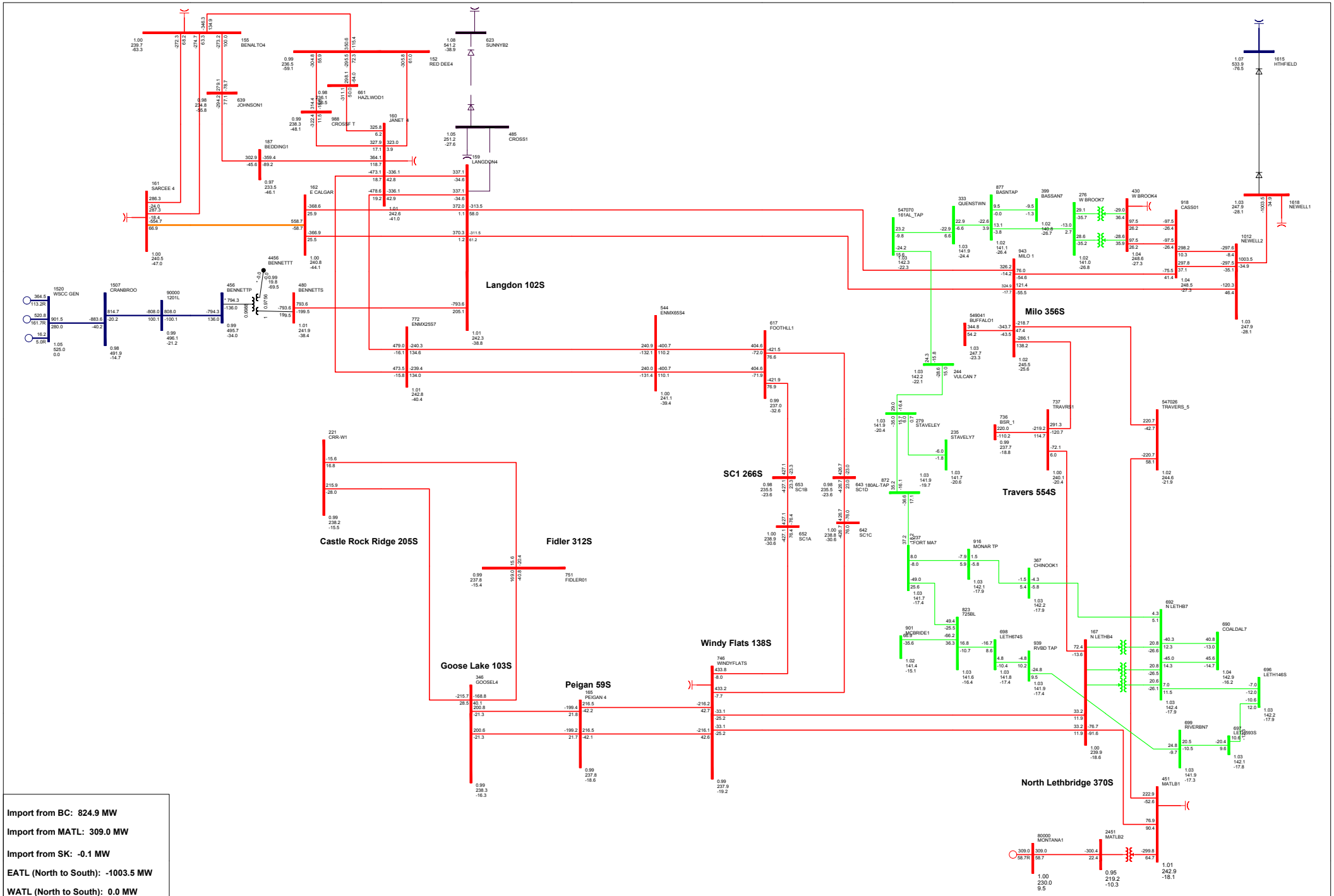
P2396 Georgetown Solar: 0.0 MW

Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SL_PRE_STAGE3_V3
CAT B-EATL
SAT, JAN 14 2023 21:05

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.000UV 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000



Import from BC: 824.9 MW

Import from MATL: 309.0 MW

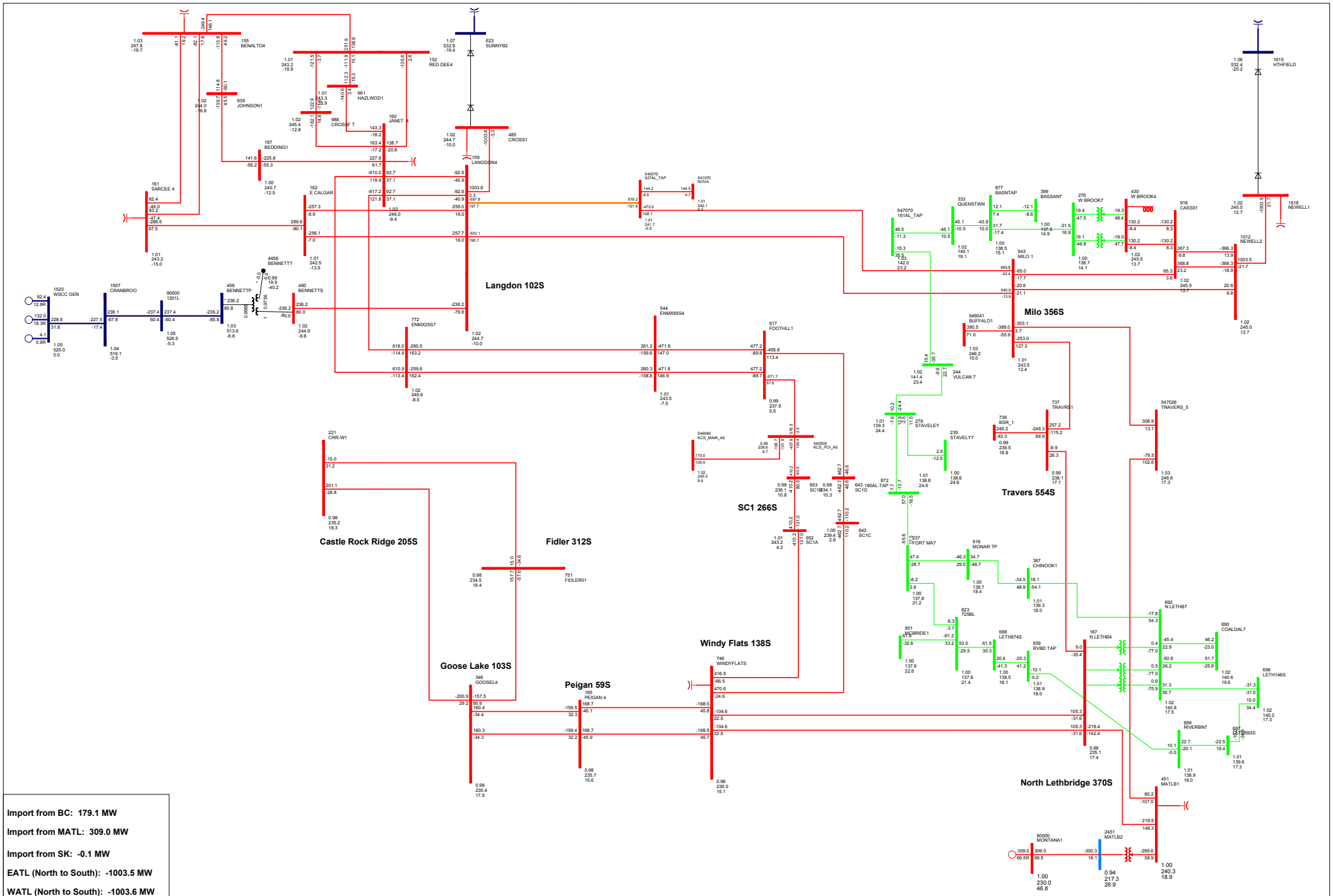
Import from SK: -0.1 MW

EATL (North to South): -1003.5 MW

WATL (North to South): 0.0 MW

P2396 Georgetown Solar: 0.0 MW

Georgetown Solar Project **AESO Project Number: P2396**	**SCENARIO: P2396_SL_PRE_STAGE3_V3** **CAT B-WATL** **SAT, JAN 14 2023 21:05**	Bus - Voltage (kV/pu)/Angle Branch - MW/Mvar Equipment - MW/Mvar 100.0%Rate A 1.000UV 0.950UV kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000



Import from BC: 179.1 MW

Import from MATL: 309.0 MW

Import from SK: -0.1 MW

EATL (North to South): -1003.5 MW

WATL (North to South): -1003.6 MW

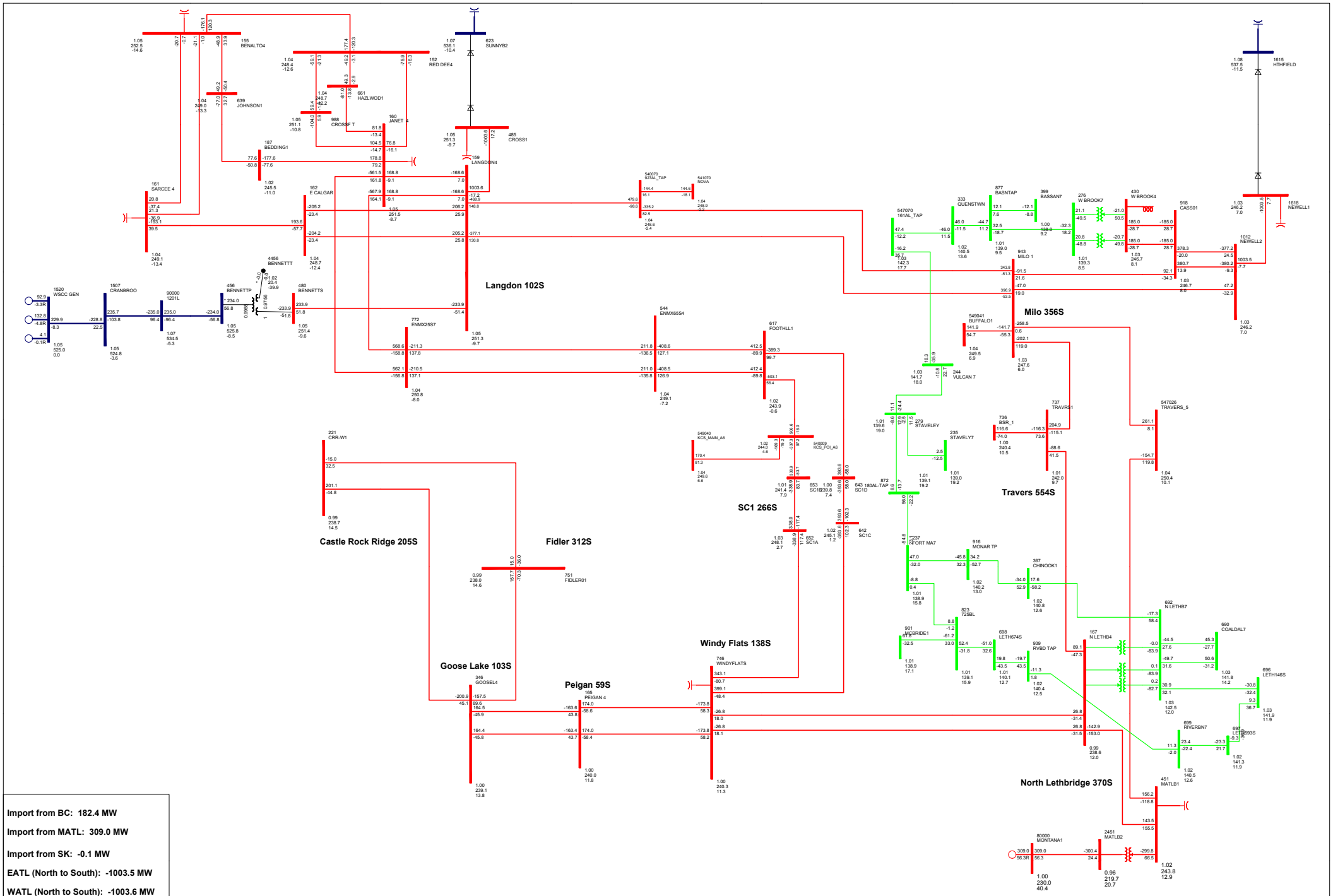
P2396 Georgetown Solar: 0.0 MW

Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SP_PRE_SEN_P2373-P2378_PRE-CURTAIL
CAT A-NO CONTINGENCY
SUN, MAR 05 2023 11:00

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.000OV 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000



Import from BC: 182.4 MW

Import from MATL: 309.0 MW

Import from SK: -0.1 MW

EATL (North to South): -1003.5 MW

WATL (North to South): -1003.6 MW

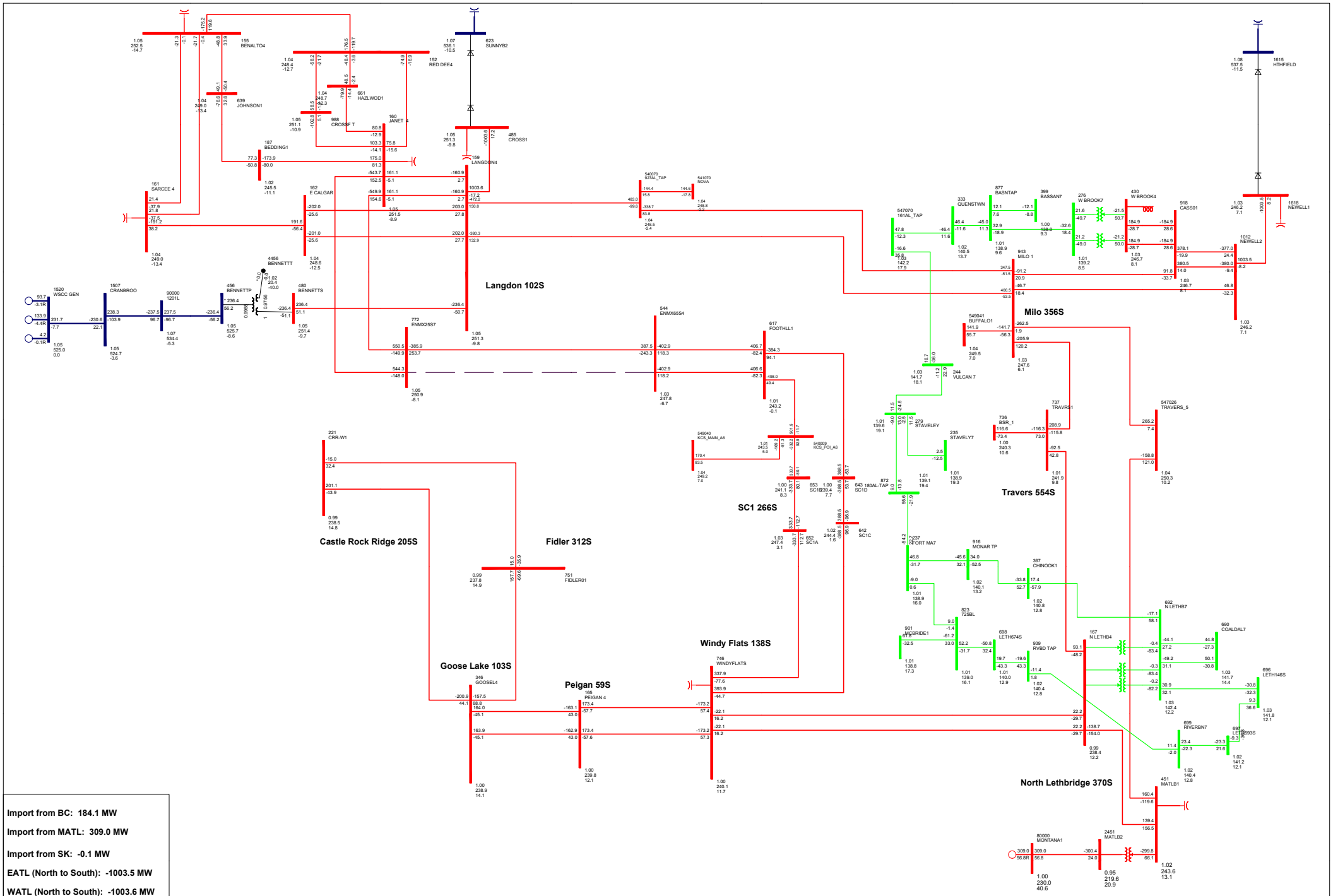
P2396 Georgetown Solar: 0.0 MW

Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SP_PRE_SEN_P2373-P2378
CAT A-NO CONTINGENCY
SAT, JAN 14 2023 20:57

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.0000V 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000

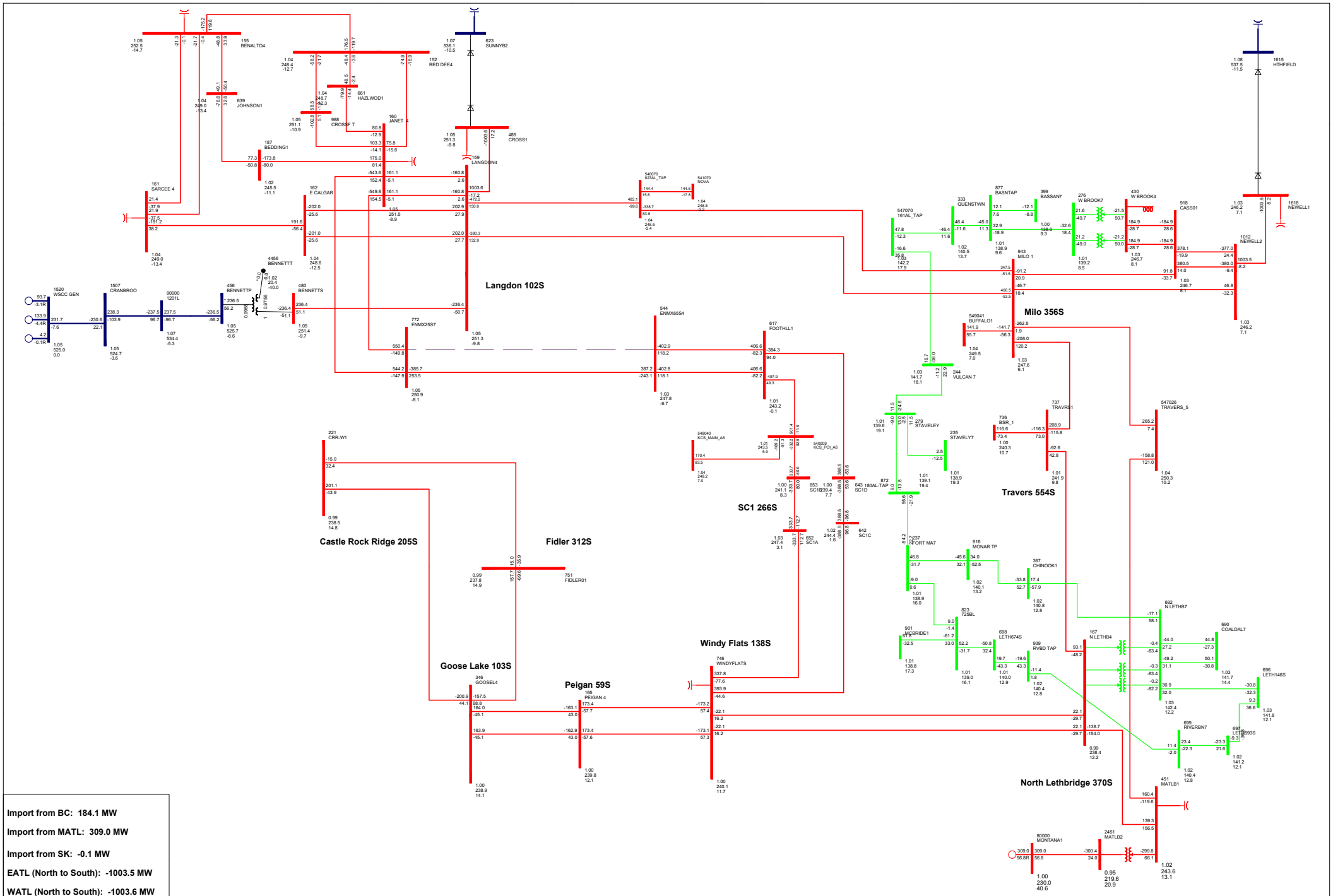


Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SP_PRE_SEN_P2373-P2378
CAT B-1080L (SS-65 - SHEPARD SS-25)
SAT, JAN 14 2023 20:57

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.0000V 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000

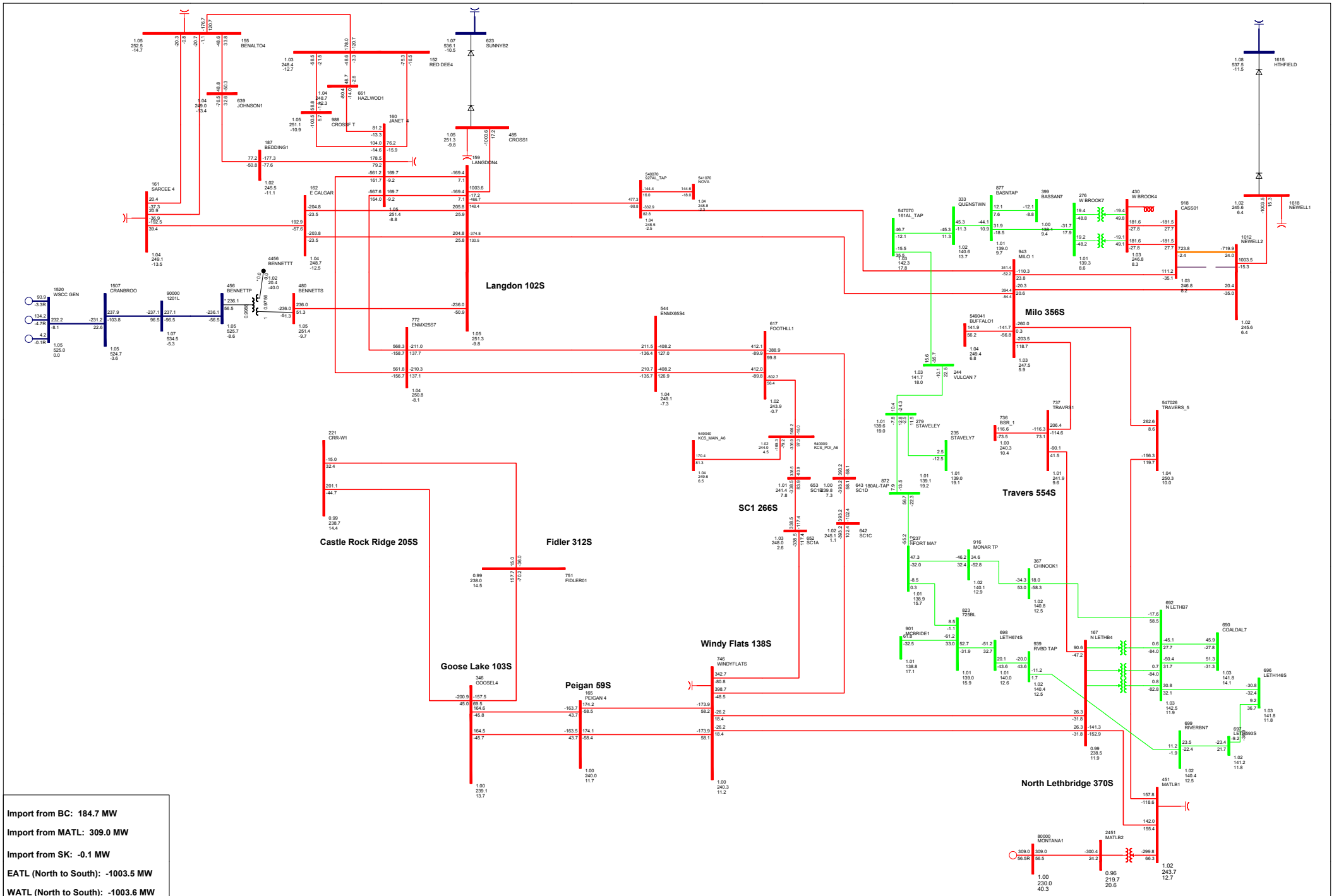


Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SP_PRE_SEN_P2373-P2378
CAT B-1109L (SS-65 - SHEPARD SS-25)
SAT, JAN 14 2023 20:57

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.0000V 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000



Import from BC: 184.7 MW

Import from MATL: 309.0 MW

Import from SK: -0.1 MW

EATL (North to South): -1003.5 MW

WATL (North to South): -1003.6 MW

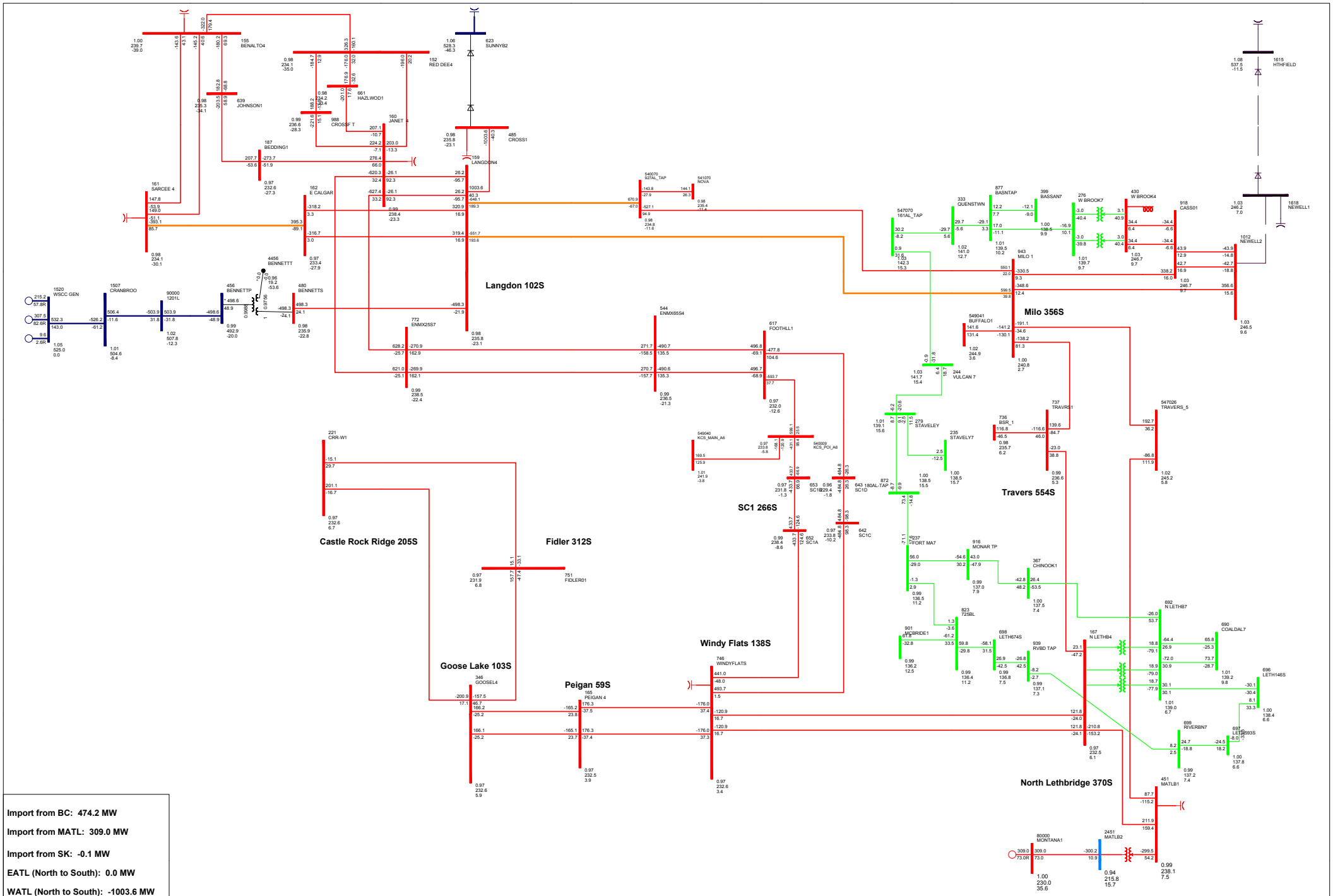
P2396 Georgetown Solar: 0.0 MW

Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SP_PRE_SEN_P2373-P2378
CAT B-1088L (NEWELL 2075S - CASSILS 324S)
SAT, JAN 14 2023 20:58

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.000OV 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000



Import from BC: 474.2 MW

Import from MATL: 309.0 MW

Import from SK: -0.1 MW

EATL (North to South): 0.0 MW

WATL (North to South): -1003.6 MW

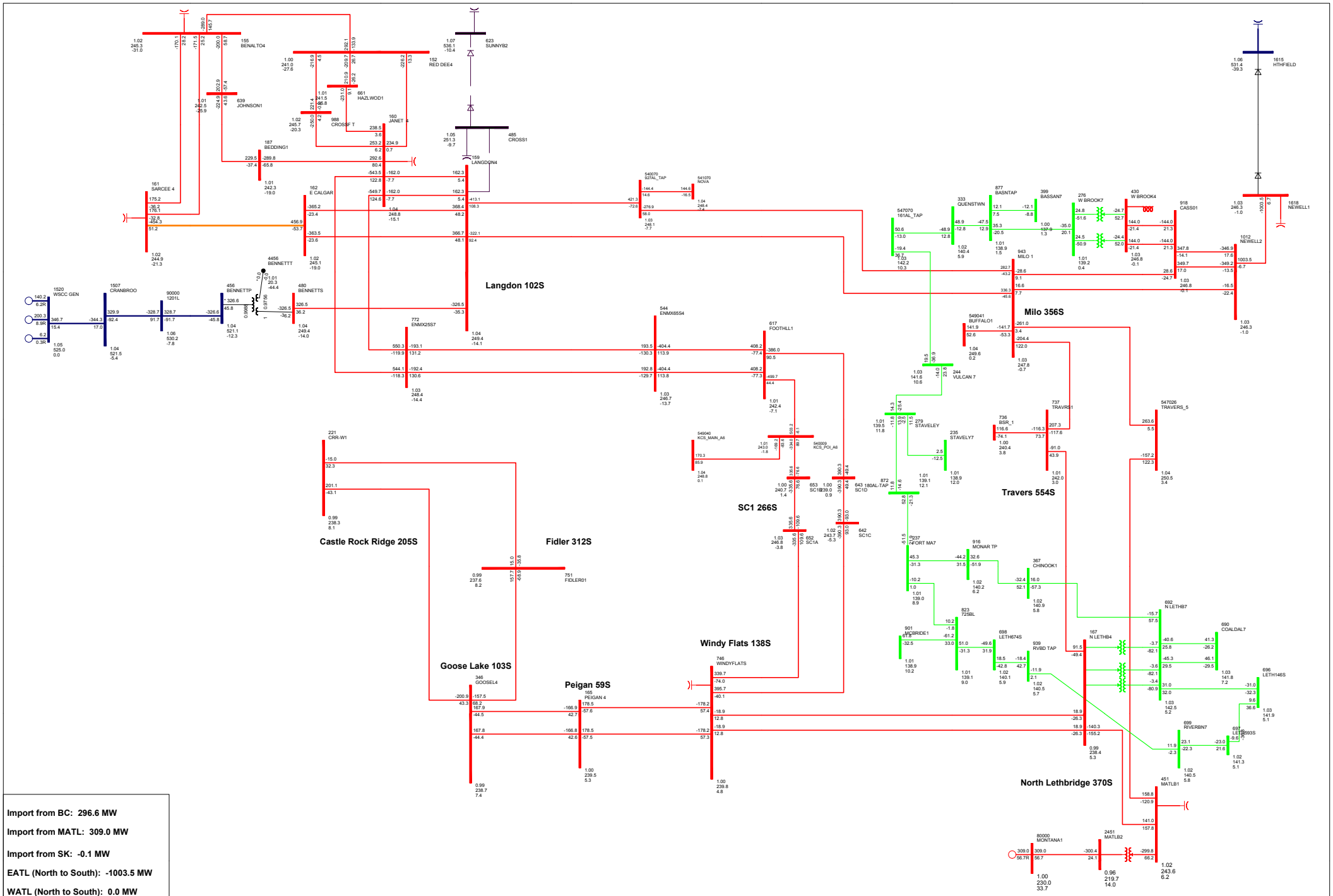
P2396 Georgetown Solar: 0.0 MW

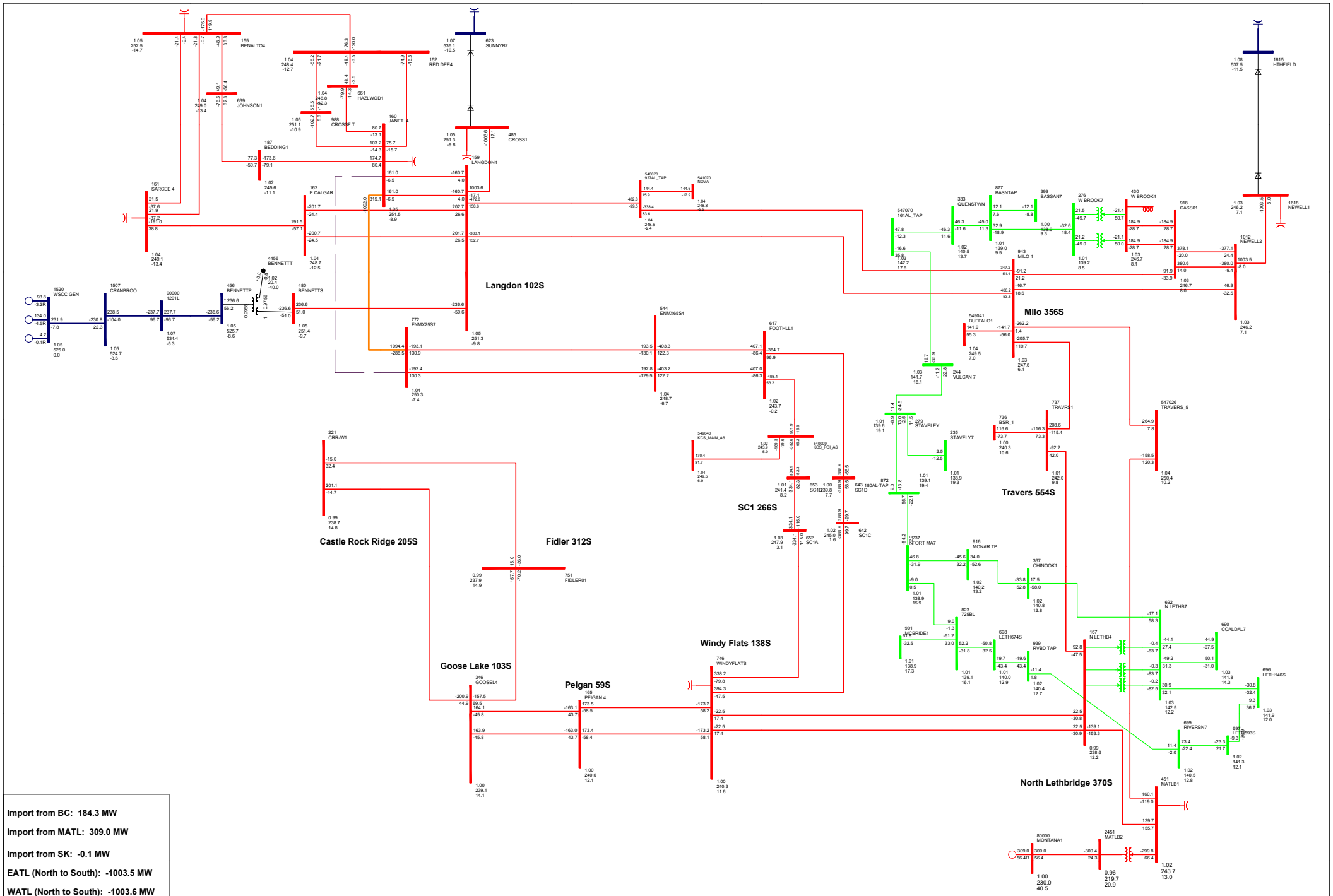
Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SP_PRE_SEN_P2373-P2378
CAT B-EATL
SAT, JAN 14 2023 20:58

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.0000V 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000


Langdon 102S
Milo 356S
Travers 554S
SC1 266S
Castle Rock Ridge 205S
Fidler 312S
Windy Flats 138S
Goose Lake 103S
Peigan 59S
North Lethbridge 370S
155 BENALTO4
639 JOHNSON1
152 RED DEE4
623 SUNNYB2
485 CROSS1
159 LANGDON4
187 BEDDING1
661 HAZLWOD1
988 CROSSF T
160 JANET 4
161 SARCEE 4
162 E CALGAR
4456 BENNETT
456 BENNETTP
480 BENNETTS
1520 WSCC GEN
1507 CRANBROO
90000 1201L
772 ENMX25S7
544 ENMX65S4
617 FOOTHLL1
540070 927AL_TAP
541070 NOVA
547070 161AL_TAP
333 QUENSTWN
877 BASNTAP
399 BASSAN7
276 W BROOK7
430 W BROOK4
918 CASS01
1615 HTHFIELD
1618 NEWELL1
1012 NEWELL2
1003.5
943 MILO 1
549041 BUFFALO1
244 VULCAN 7
279 STAVELEY
235 STAVELY7
736 BSR_1
737 TRAVRS1
547026 TRAVERS_5
549040 KCS_MAIN_A6
540009 KCS_POI_A6
872 180AL-TAP
643 SC1D
653 SC1B
652 SC1A
642 SC1C
221 CRR-W1
751 FIDLER01
746 WINDYFLATS
165 PEIGAN 4
346 GOOSEL4
7237 FORT MA7
916 MONAR TP
367 CHINOOK1
823 725BL
901 MCBRIDE1
698 LETH674S
939 RVBD TAP
167 N LETHB4
692 N LETHB7
690 COALDAL7
696 LETH146S
699 RIVERBN7
697 LETH693S
451 MATLB1
80000 MONTANA1
2451 MATLB2
Import from BC: 296.6 MW
Import from MATL: 309.0 MW
Import from SK: -0.1 MW
EATL (North to South): -1003.5 MW
WATL (North to South): 0.0 MW
P2396 Georgetown Solar: 0.0 MW
Georgetown Solar Project
AESO Project Number: P2396
SCENARIO: P2396_SP_PRE_SEN_P2373-P2378
CAT B-WATL
SAT, JAN 14 2023 20:58
Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.0000V 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000

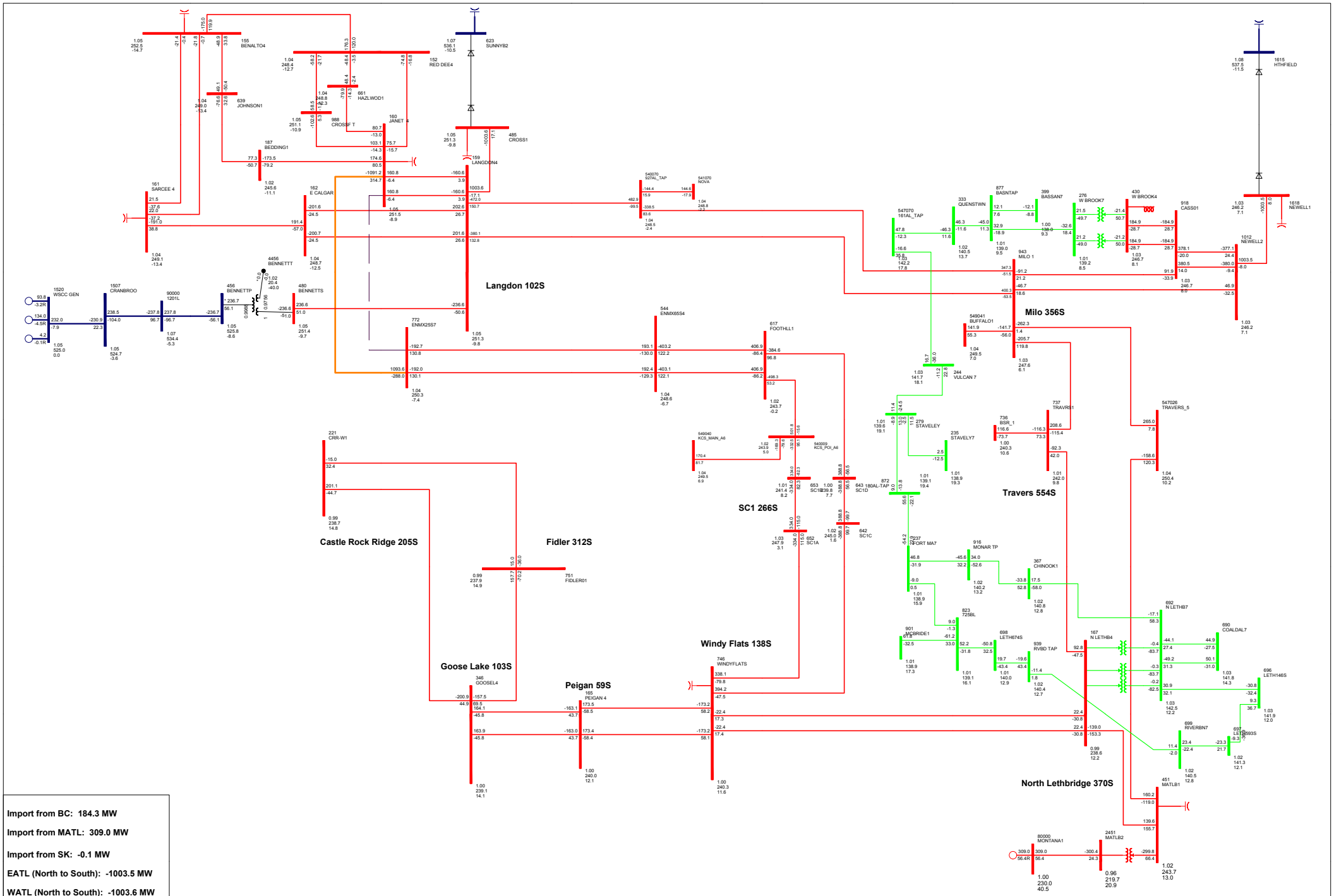


Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SP_PRE_SEN_P2373-P2378
CAT B-1003L (JANET 74S - SS-25)
SAT, JAN 14 2023 20:58

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.000OV 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000

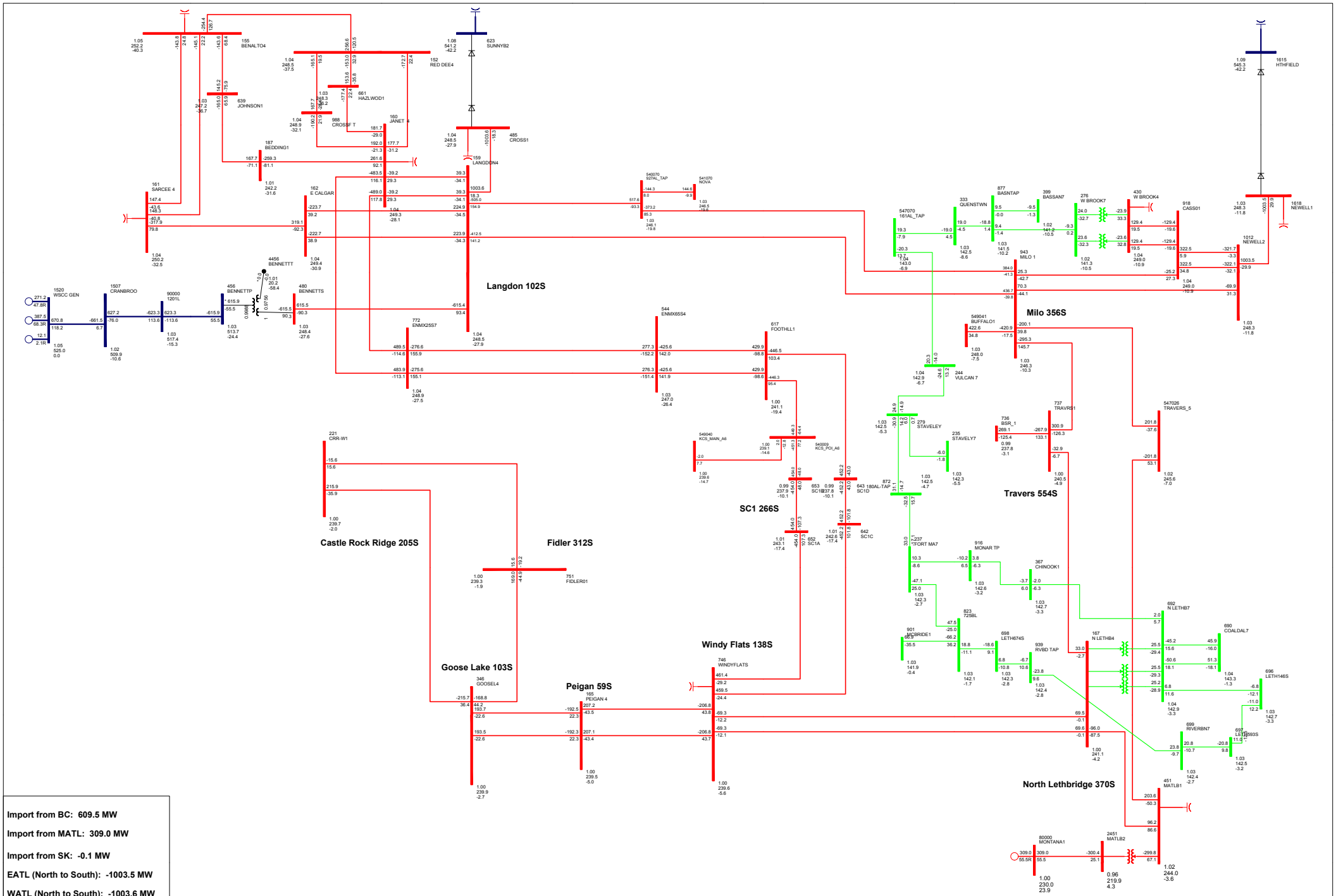


Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SP_PRE_SEN_P2373-P2378
CAT B-985L (JANET 74S - SS-25)
SAT, JAN 14 2023 20:58

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.0000V 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000



Import from BC: 609.5 MW

Import from MATL: 309.0 MW

Import from SK: -0.1 MW

EATL (North to South): -1003.5 MW

WATL (North to South): -1003.6 MW

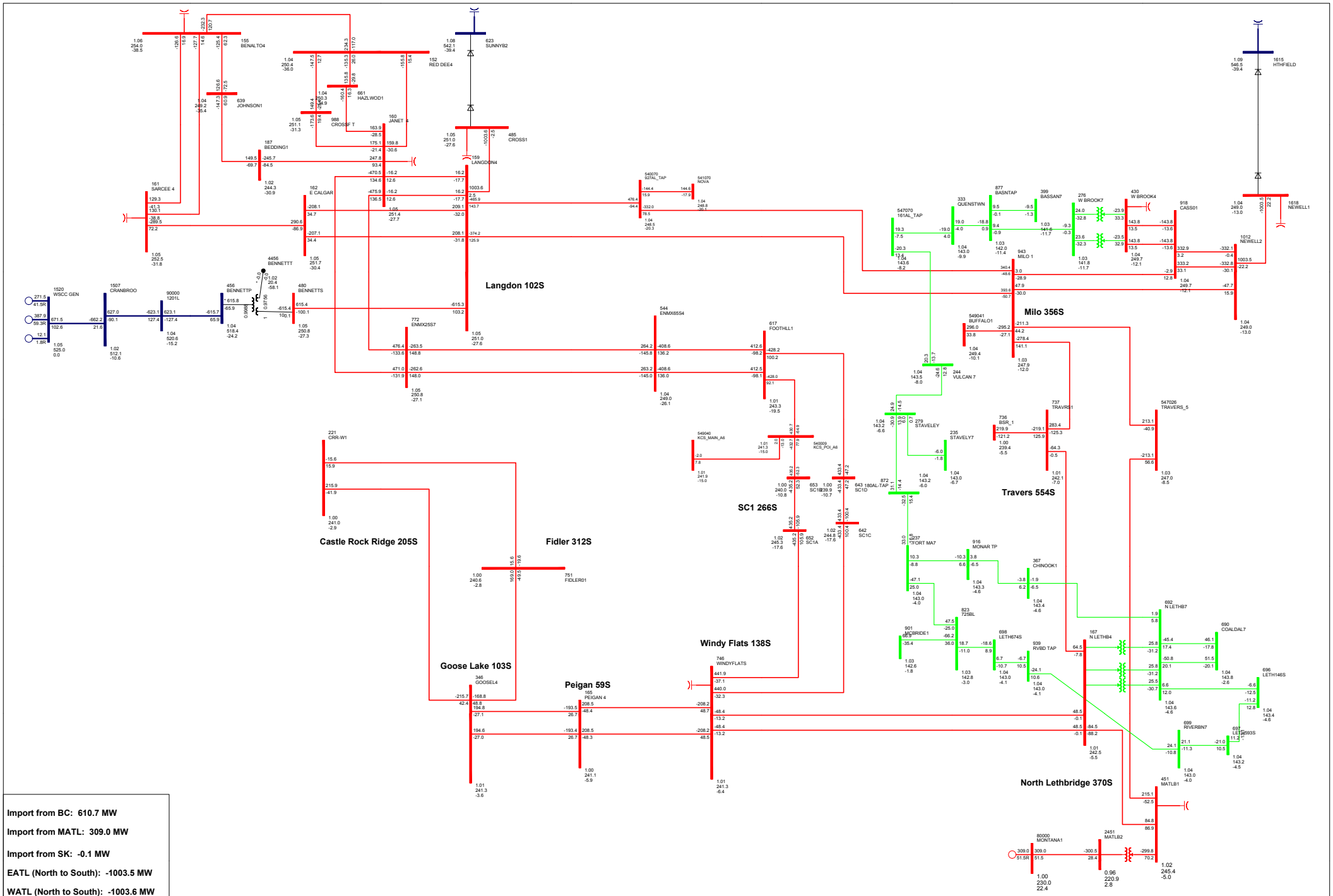
P2396 Georgetown Solar: 0.0 MW

Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SL_PRE_SEN_P2373-P2378_PRE-CURTAIL
CAT A-NO CONTINGENCY
SUN, MAR 05 2023 11:00

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.000UV 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000



Import from BC: 610.7 MW

Import from MATL: 309.0 MW

Import from SK: -0.1 MW

EATL (North to South): -1003.5 MW

WATL (North to South): -1003.6 MW

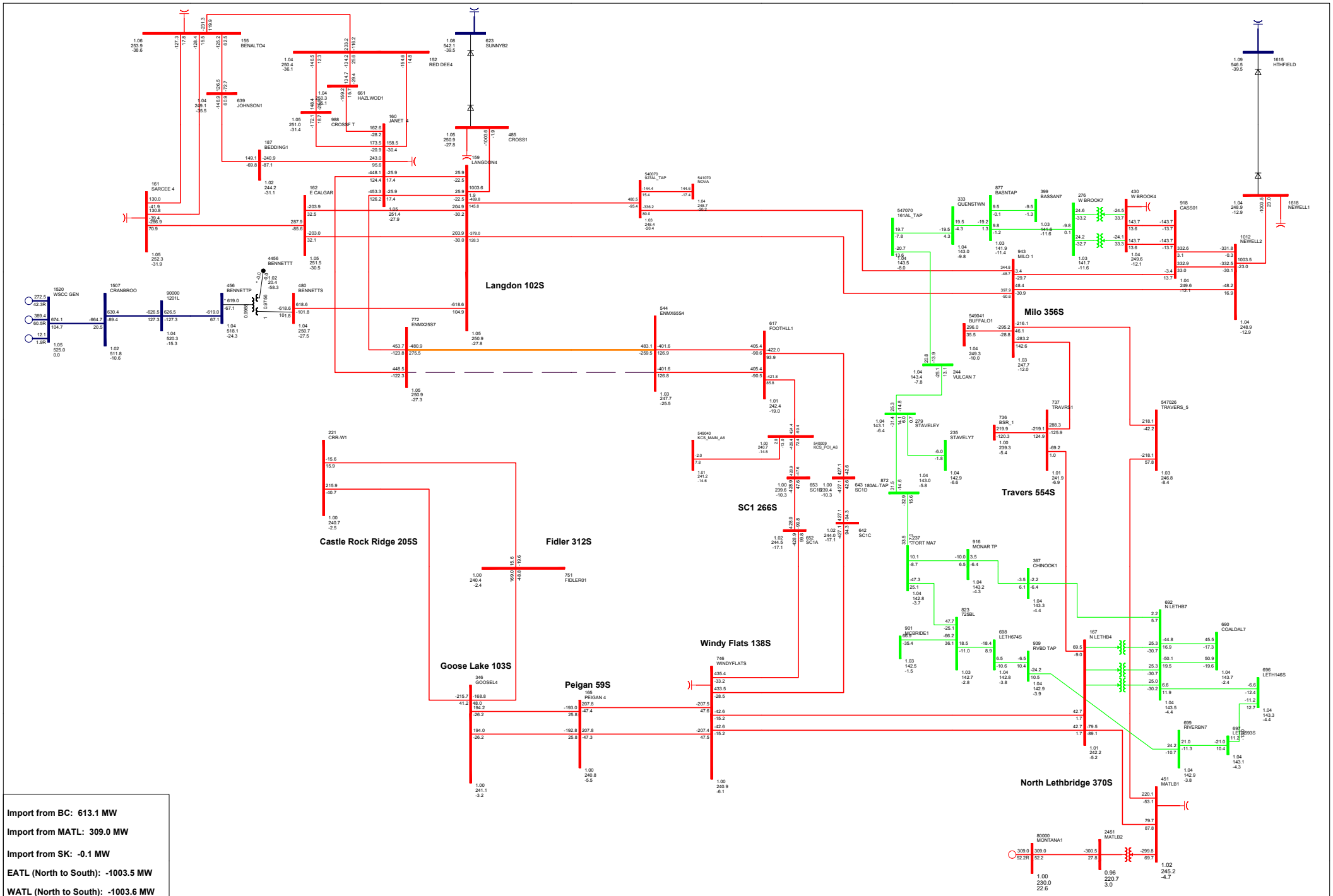
P2396 Georgetown Solar: 0.0 MW

Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SL_PRE_SEN_P2373-P2378
CAT A-NO CONTINGENCY
SAT, JAN 14 2023 20:54

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.000pu 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000



Import from BC: 613.1 MW

Import from MATL: 309.0 MW

Import from SK: -0.1 MW

EATL (North to South): -1003.5 MW

WATL (North to South): -1003.6 MW

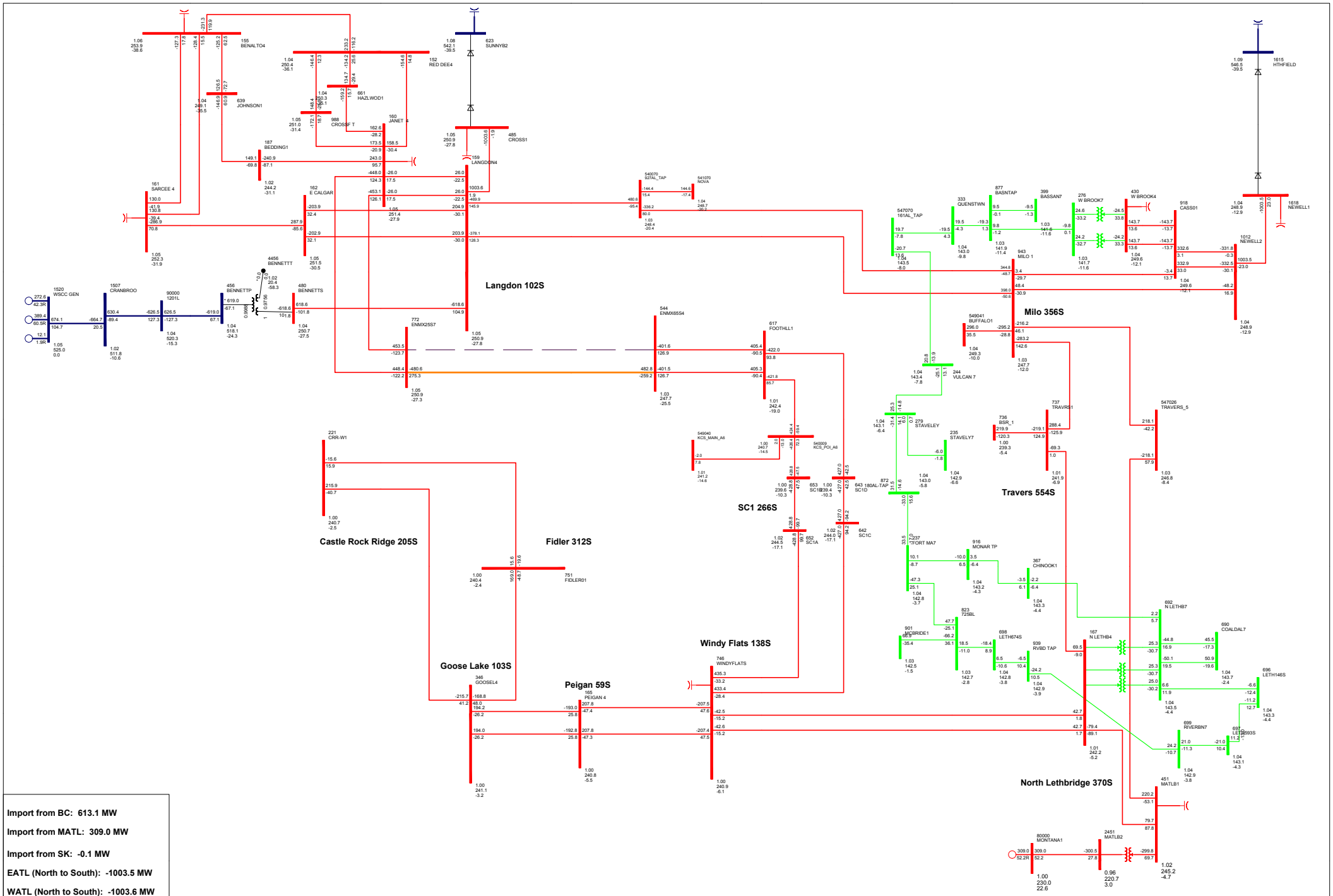
P2396 Georgetown Solar: 0.0 MW

Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SL_PRE_SEN_P2373-P2378
CAT B-1080L (SS-65 - SHEPARD SS-25)
SAT, JAN 14 2023 20:54

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.000OV 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000

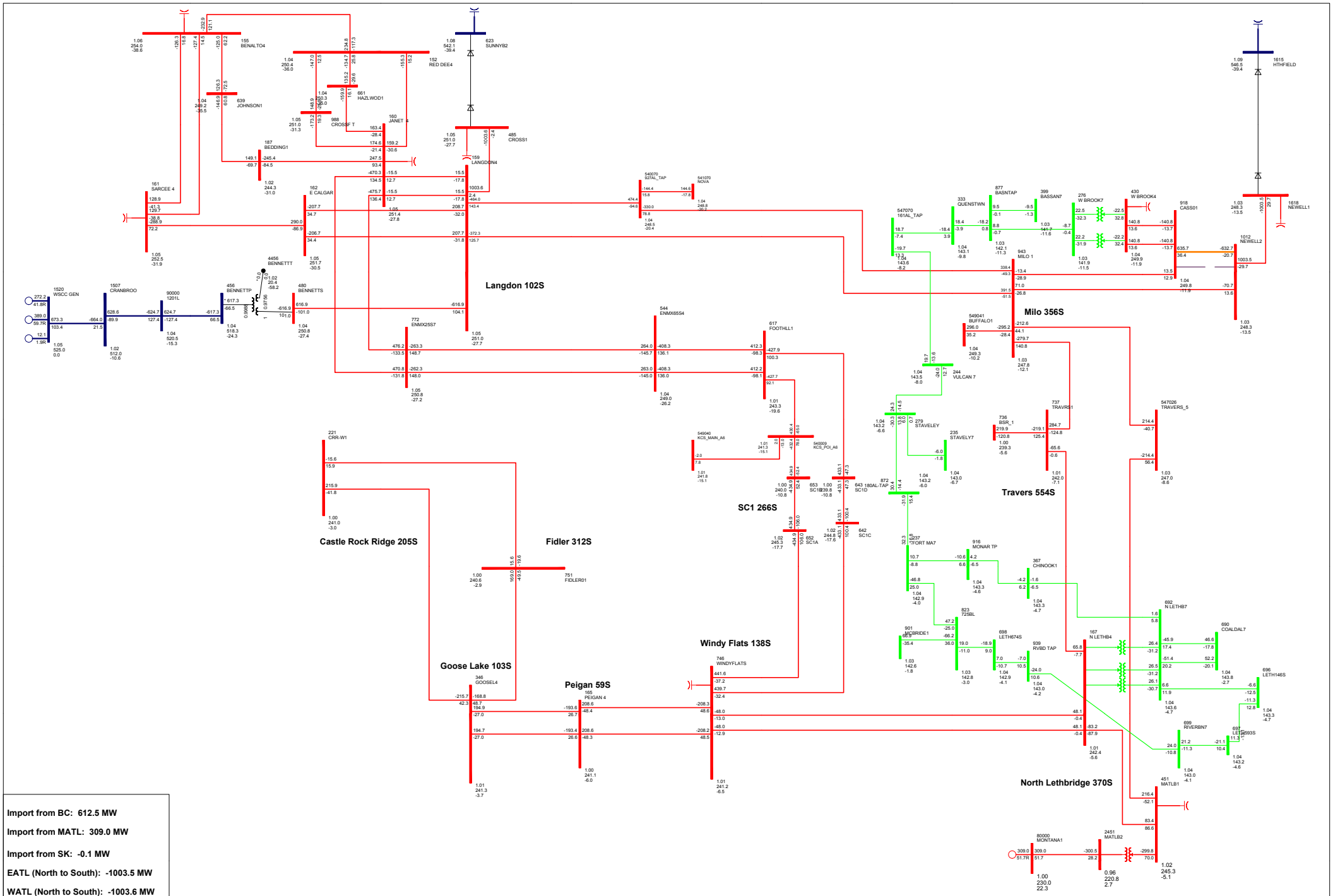


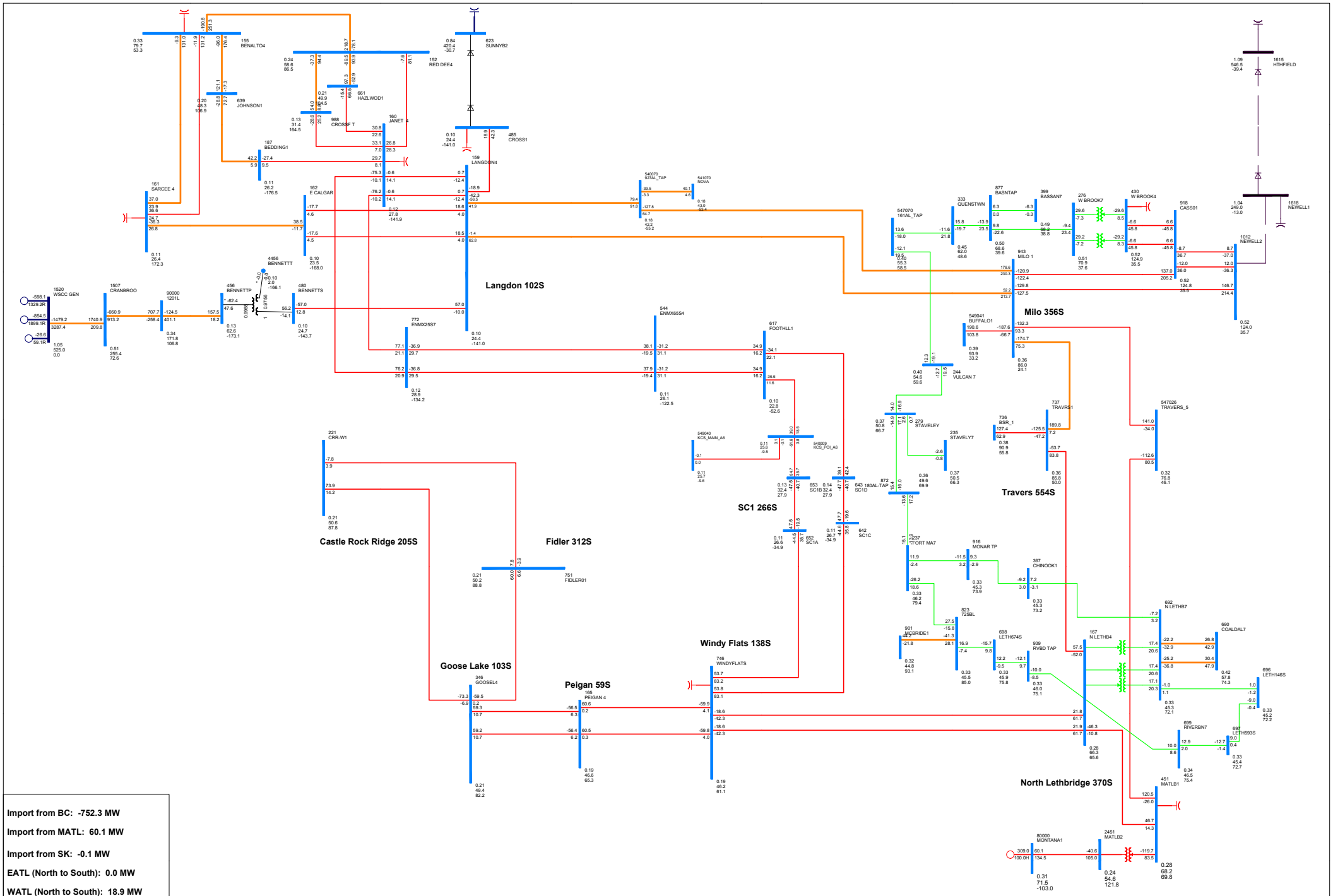
Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SL_PRE_SEN_P2373-P2378
CAT B-1109L (SS-65 - SHEPARD SS-25)
SAT, JAN 14 2023 20:54

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.000OV 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000


Langdon 102S
Milo 356S
Travers 554S
SC1 266S
Castle Rock Ridge 205S
Fidler 312S
Windy Flats 138S
Goose Lake 103S
Peigan 59S
North Lethbridge 370S
BENALTO4
JOHNSON1
RED DEE4
SUNNYB2
HAZLWOD1
CROSSF T
JANET 4
CROSS1
BEDDING1
LANGDON4
SARCEE 4
E CALGAR
BENNETTP
BENNETT
BENNETTS
WSCC GEN
CRANBROO
1201L
ENMX65S4
FOOTHLL1
ENMX25S7
NOVA
161AL_TAP
BASNTAP
QUENSTWN
BASSAN7
W BROOK7
W BROOK4
CASS01
NEWELL2
NEWELL1
HTHFIELD
MILO 1
BUFFALO1
VULCAN 7
STAVELEY
STAVELY7
BSR_1
TRAVRS1
TRAVERS_5
KCS_MAIN_A6
KCS_POI_A6
180AL-TAP
SC1D
SC1B
SC1A
SC1C
FORT MA7
MONAR TP
CHINOOK1
N LETHB7
COALDAL7
LETH674S
RVBD TAP
N LETHB4
LETH146S
LETH693S
RIVERBN7
MCBRIDE1
CRR-W1
FIDLER01
WINDYFLATS
GOOSEL4
PEIGAN 4
MATLB1
MATLB2
MONTANA1
725BL
Import from BC: 612.5 MW
Import from MATL: 309.0 MW
Import from SK: -0.1 MW
EATL (North to South): -1003.5 MW
WATL (North to South): -1003.6 MW
P2396 Georgetown Solar: 0.0 MW
Georgetown Solar Project
AESO Project Number: P2396
SCENARIO: P2396_SL_PRE_SEN_P2373-P2378
CAT B-1088L (NEWELL 2075S - CASSILS 324S)
SAT, JAN 14 2023 20:54
Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.0000V 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000



Import from BC: -752.3 MW

Import from MATL: 60.1 MW

Import from SK: -0.1 MW

EATL (North to South): 0.0 MW

WATL (North to South): 18.9 MW

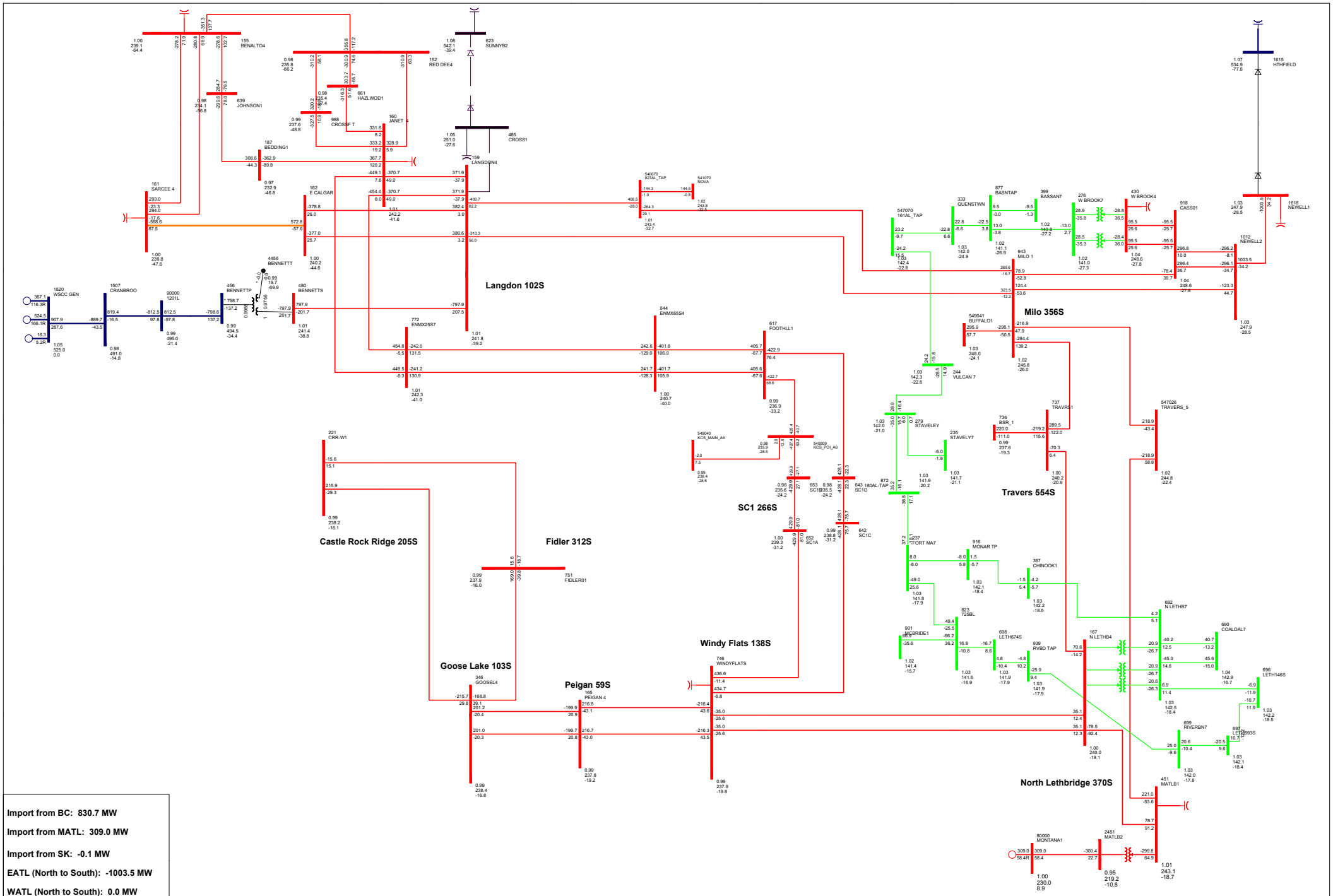
P2396 Georgetown Solar: 0.0 MW

Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SL_PRE_SEN_P2373-P2378
CAT B-EATL
SAT, JAN 14 2023 20:55

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.0000V 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000

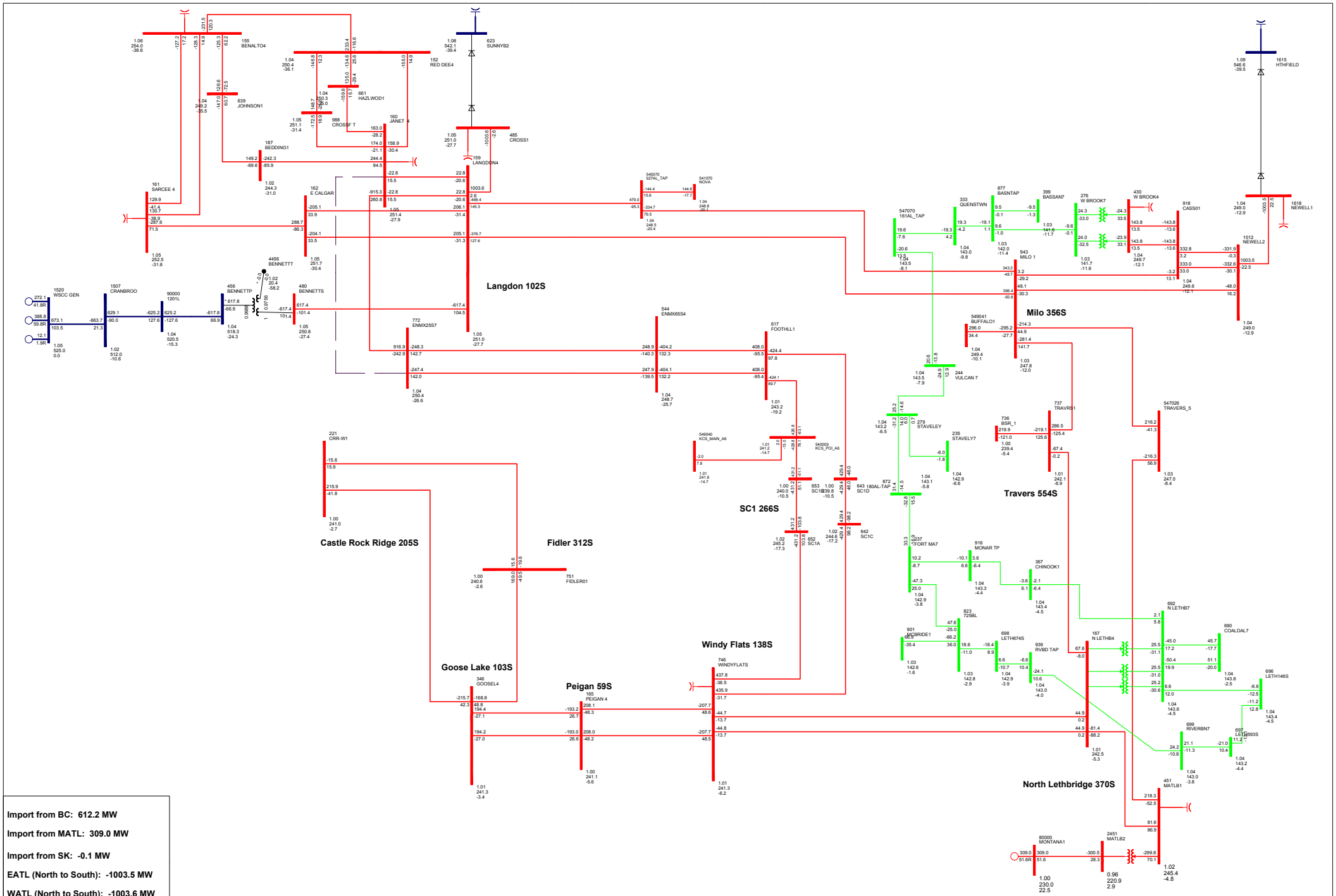


Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SL_PRE_SEN_P2373-P2378
CAT B-WATL
SAT, JAN 14 2023 20:55

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.000OV 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000



Import from BC: 612.2 MW

Import from MATL: 309.0 MW

Import from SK: -0.1 MW

EATL (North to South): -1003.5 MW

WATL (North to South): -1003.6 MW

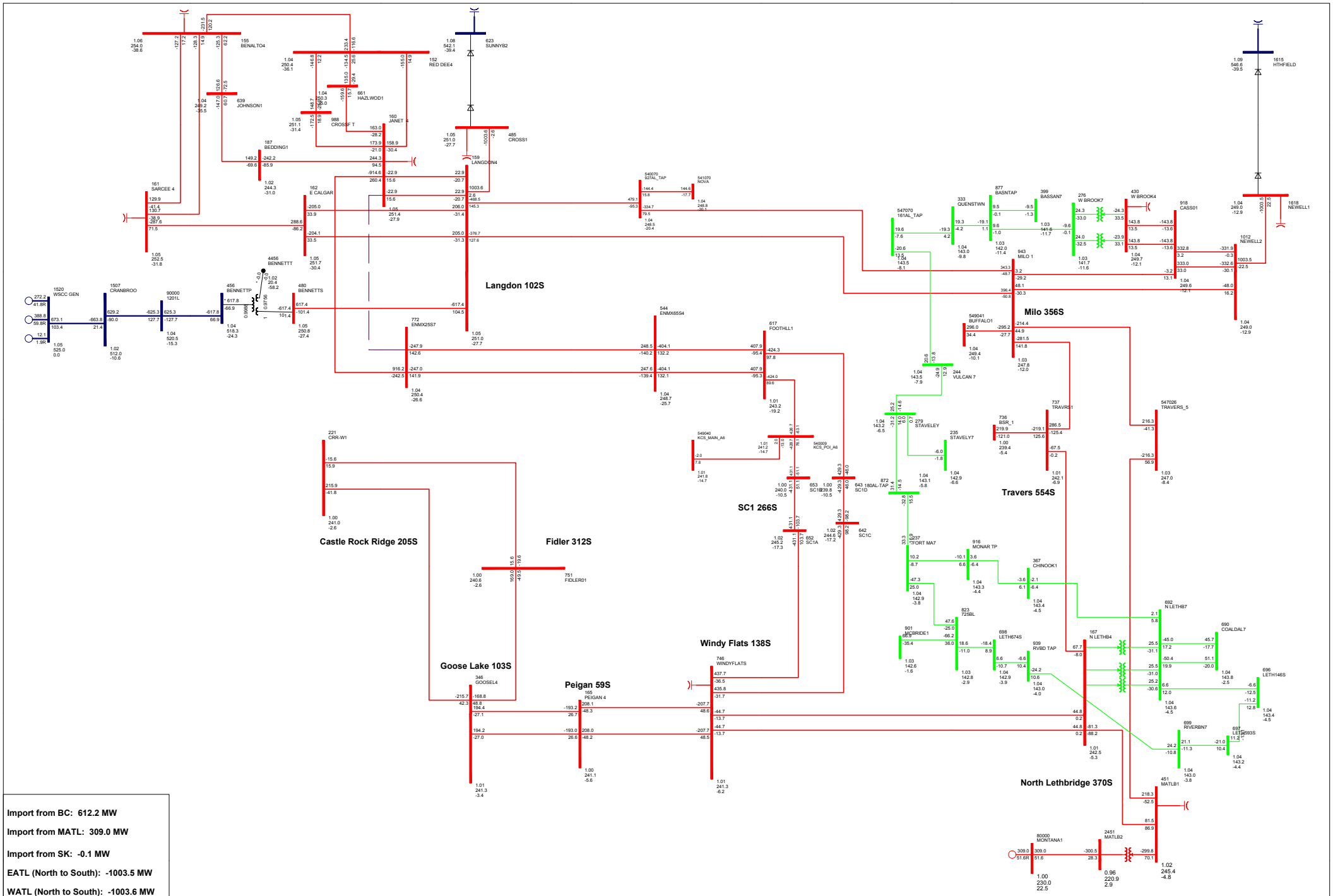
P2396 Georgetown Solar: 0.0 MW

Georgetown Solar Project

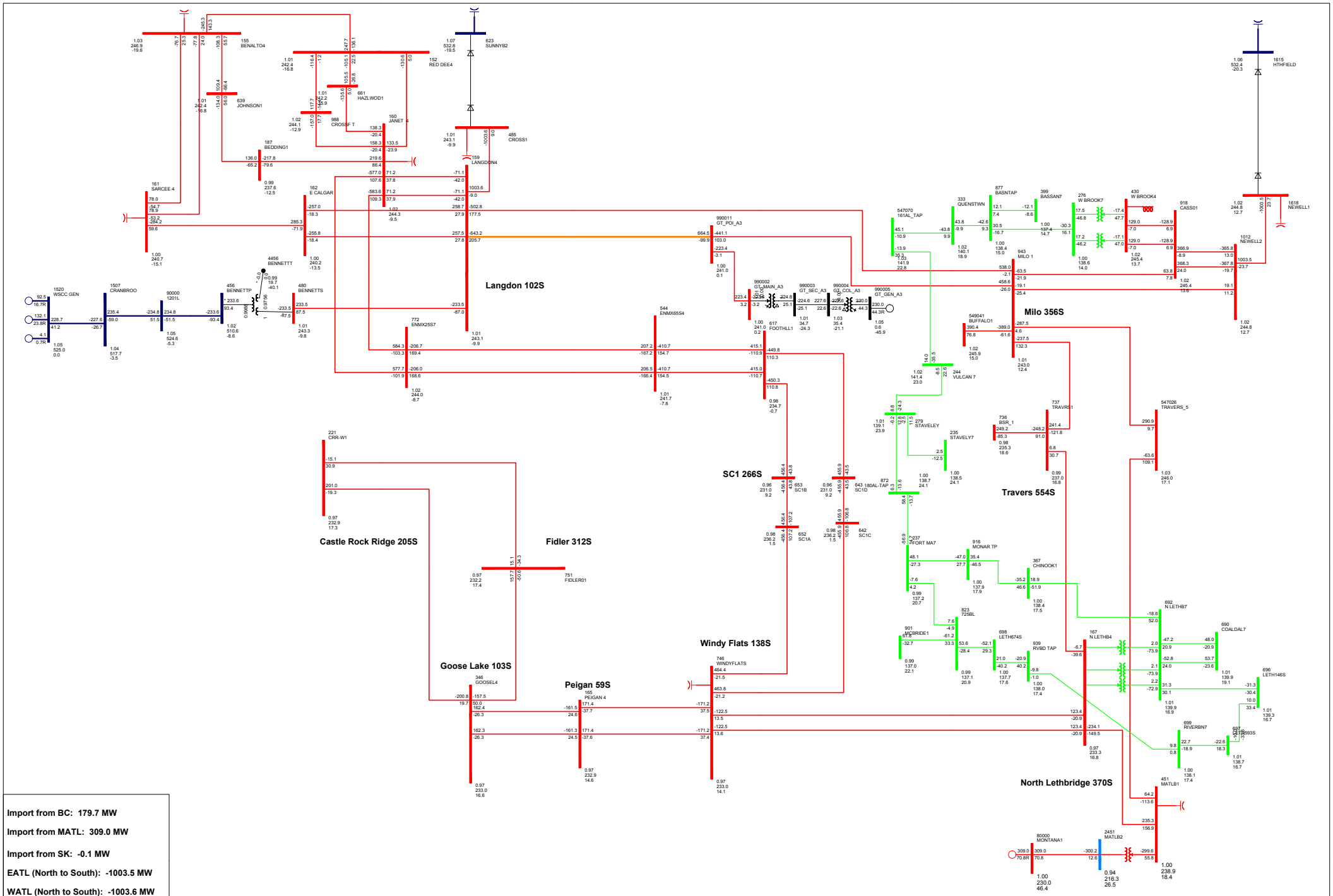
AESO Project Number: P2396

SCENARIO: P2396_SL_PRE_SEN_P2373-P2378
CAT B-1003L (JANET 74S - SS-25)
SAT, JAN 14 2023 20:55

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.000OV 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000


Langdon 102S
Milo 356S
Travers 554S
SC1 266S
Castle Rock Ridge 205S
Fidler 312S
Windy Flats 138S
Goose Lake 103S
Peigan 59S
North Lethbridge 370S
BENALTO4
JOHNSON1
HAZLWOD1
CROSSF T
RED DEE4
SUNNYB2
CROSS1
BEDDING1
LANGDON4
SARCEE 4
E CALGAR
BENNETTP
BENNETTS
BENNETT
WSCC GEN
CRANBROO
1201L
ENMX25S7
ENMX65S4
FOOTHLL1
KCS_MAIN_A6
KCS_POI_A6
180AL-TAP
SC1D
SC1B
SC1A
SC1C
CRR-W1
FIDLER01
WINDYFLATS
GOOSEL4
PEIGAN 4
NOVA
161AL_TAP
BUFFALO1
VULCAN 7
STAVELEY
STAVELY7
FORT MA7
MONAR TP
CHINOOK1
MCBRIDE1
725BL
LETH674S
RVBD TAP
N LETHB4
N LETHB7
COALDAL7
LETH146S
LETH693S
RIVERBN7
MATLB1
MATLB2
MONTANA1
BASNTAP
BASSAN7
W BROOK7
W BROOK4
CASS01
NEWELL2
NEWELL1
HTHFIELD
QUENSTWN
MILO 1
BSR_1
TRAVRS1
TRAVERS_5
Import from BC: 612.2 MW
Import from MATL: 309.0 MW
Import from SK: -0.1 MW
EATL (North to South): -1003.5 MW
WATL (North to South): -1003.6 MW
P2396 Georgetown Solar: 0.0 MW
Georgetown Solar Project
AESO Project Number: P2396
SCENARIO: P2396_SL_PRE_SEN_P2373-P2378
CAT B-985L (JANET 74S - SS-25)
SAT, JAN 14 2023 20:55
Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.000OV 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000

Attachment A3
Post-Project Power Flow Diagrams



Import from BC: 179.7 MW

Import from MATL: 309.0 MW

Import from SK: -0.1 MW

EATL (North to South): -1003.5 MW

WATL (North to South): -1003.6 MW

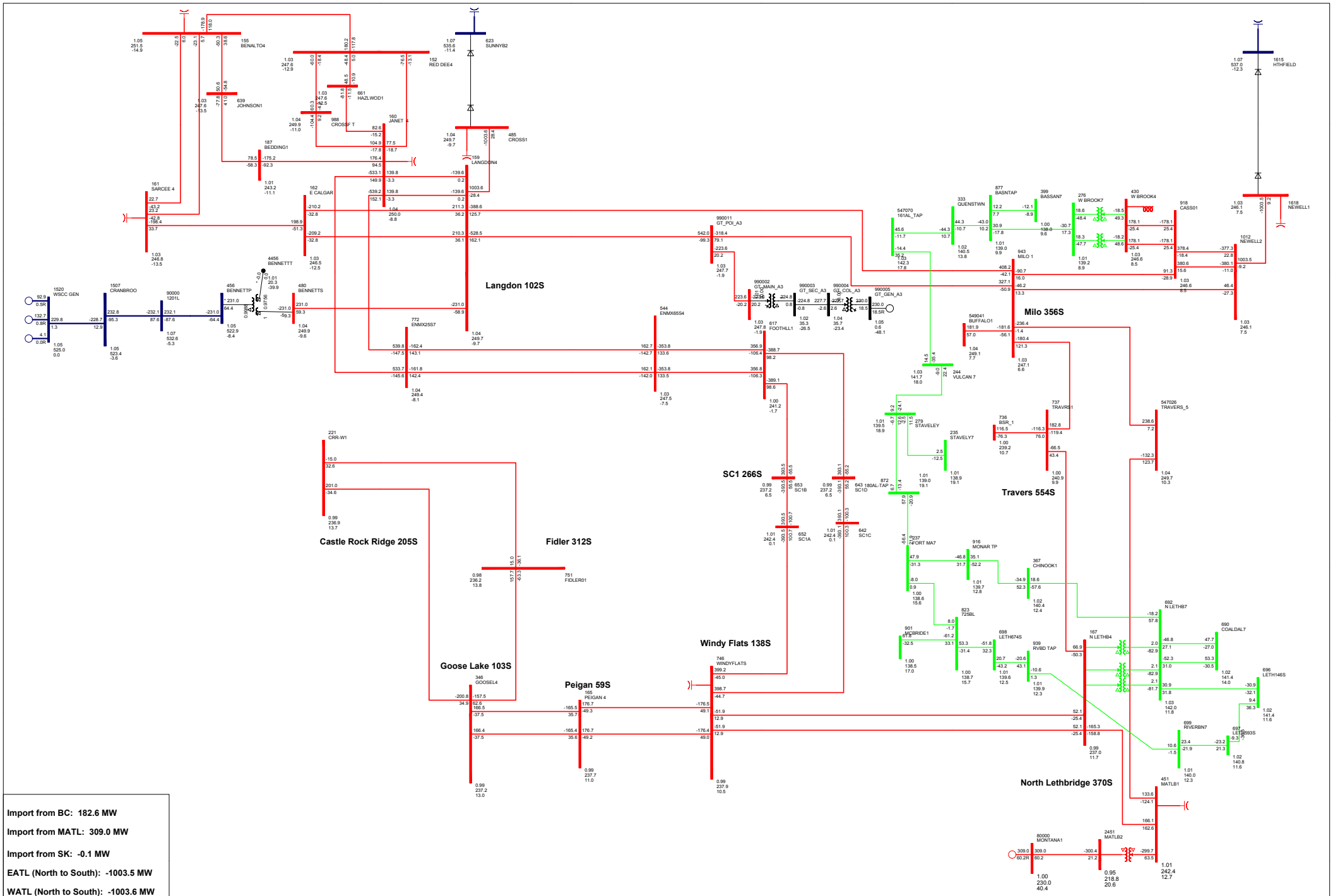
P2396 Georgetown Solar: 230.0 MW

Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SP_POST_ALT3_STAGE3_V6_PRE-CURTAIL
CAT A-NO CONTINGENCY
SUN, MAR 05 2023 11:00

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.000OV 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000



Import from BC: 182.6 MW

Import from MATL: 309.0 MW

Import from SK: -0.1 MW

EATL (North to South): -1003.5 MW

WATL (North to South): -1003.6 MW

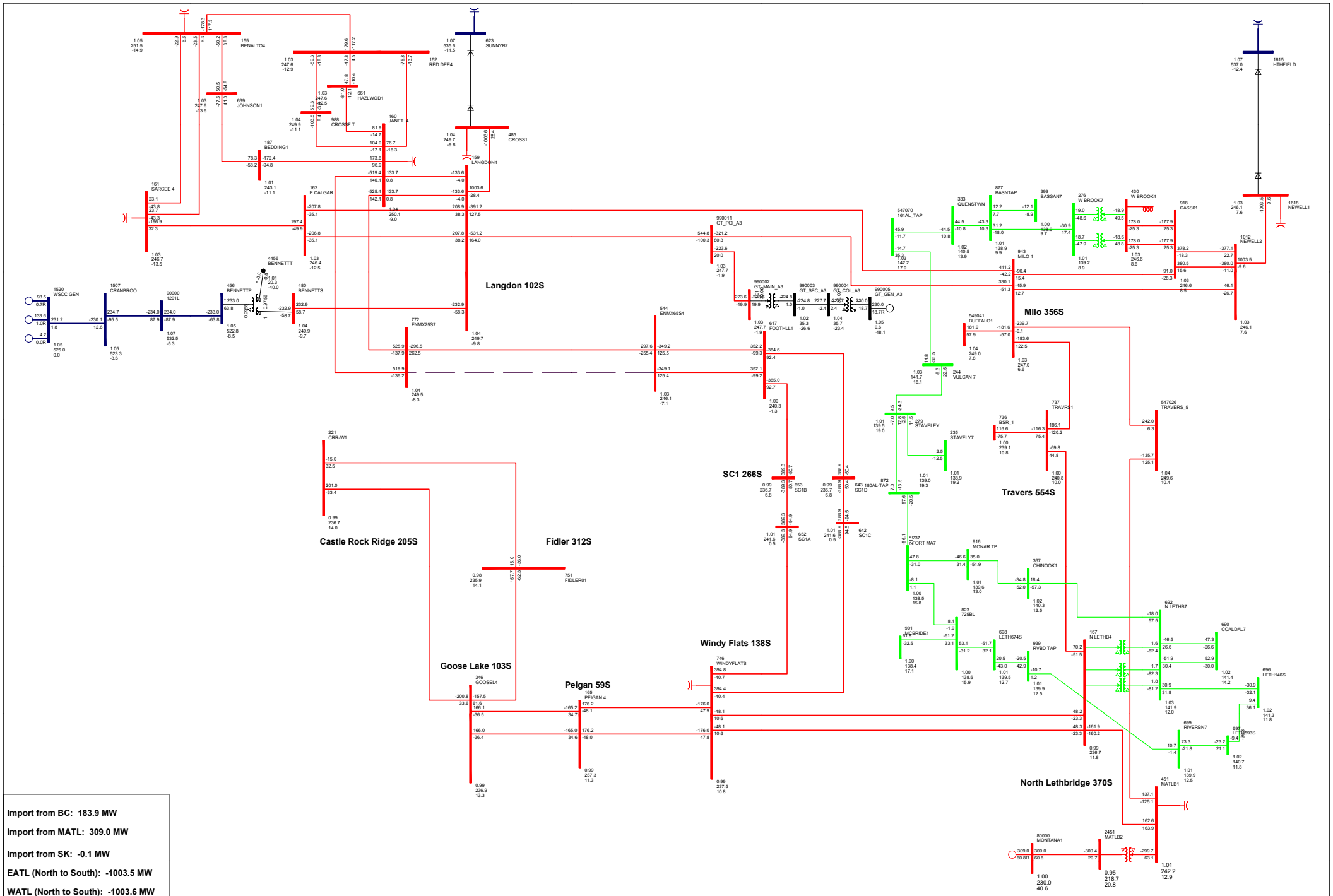
P2396 Georgetown Solar: 230.0 MW

Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SP_POST_ALT3_STAGE3_V6
CAT A-NO CONTINGENCY
SAT, JAN 14 2023 21:06

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.0000V 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000



Import from BC: 183.9 MW

Import from MATL: 309.0 MW

Import from SK: -0.1 MW

EATL (North to South): -1003.5 MW

WATL (North to South): -1003.6 MW

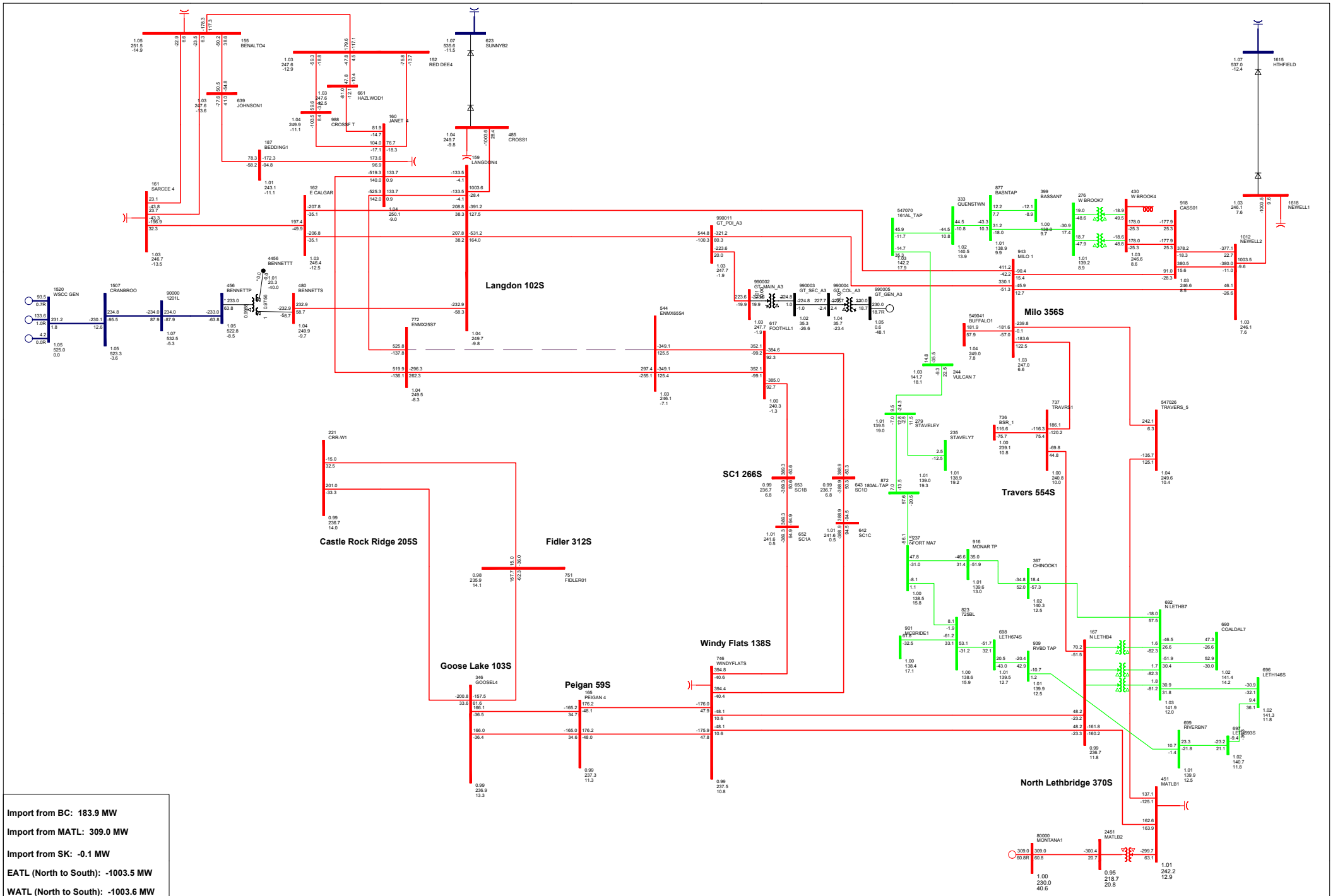
P2396 Georgetown Solar: 230.0 MW

Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SP_POST_ALT3_STAGE3_V6
CAT B-1080L (SS-65 - SHEPARD SS-25)
SAT, JAN 14 2023 21:06

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.000OV 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000

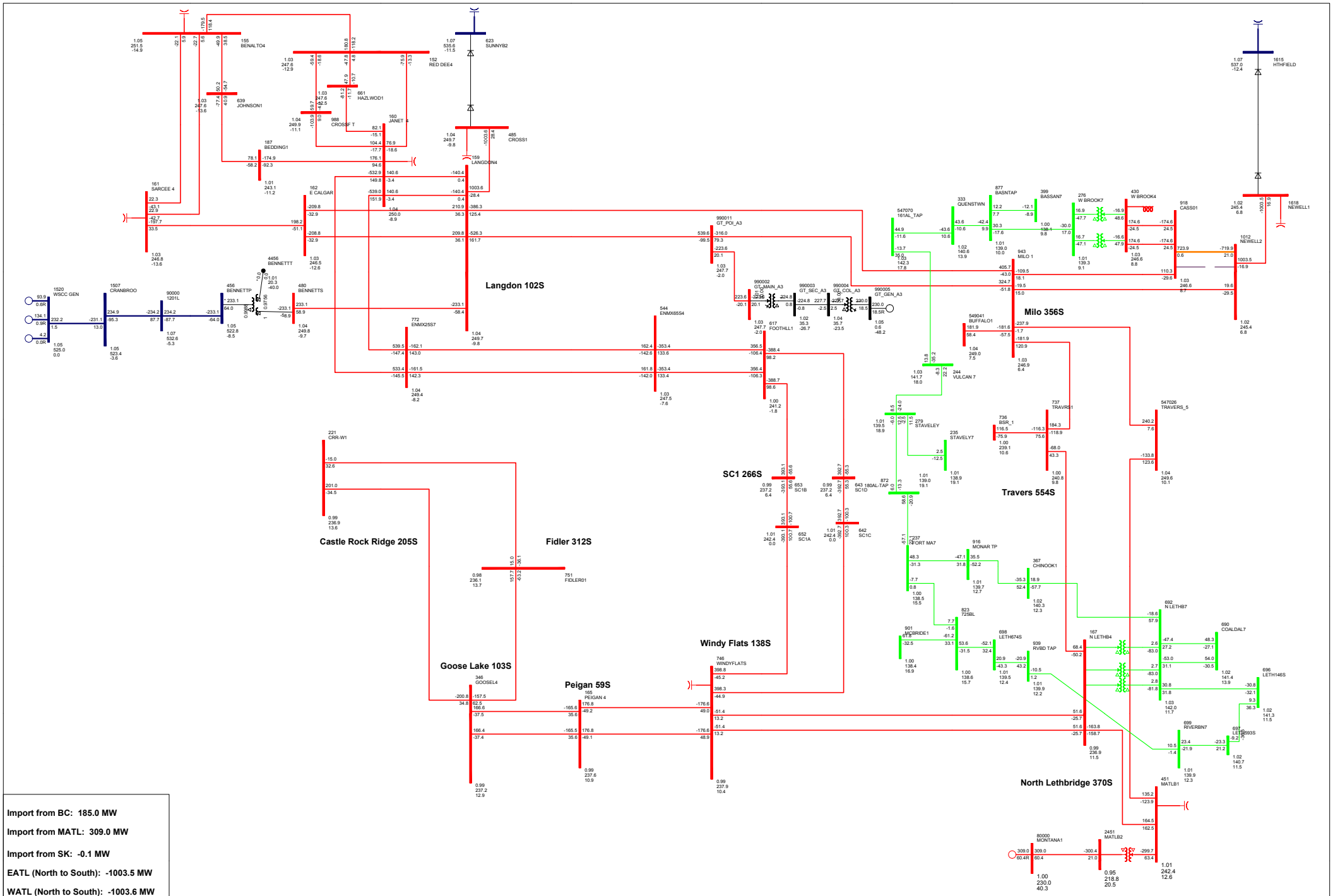


Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SP_POST_ALT3_STAGE3_V6
CAT B-1109L (SS-65 - SHEPARD SS-25)
SAT, JAN 14 2023 21:06

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.000OV 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000

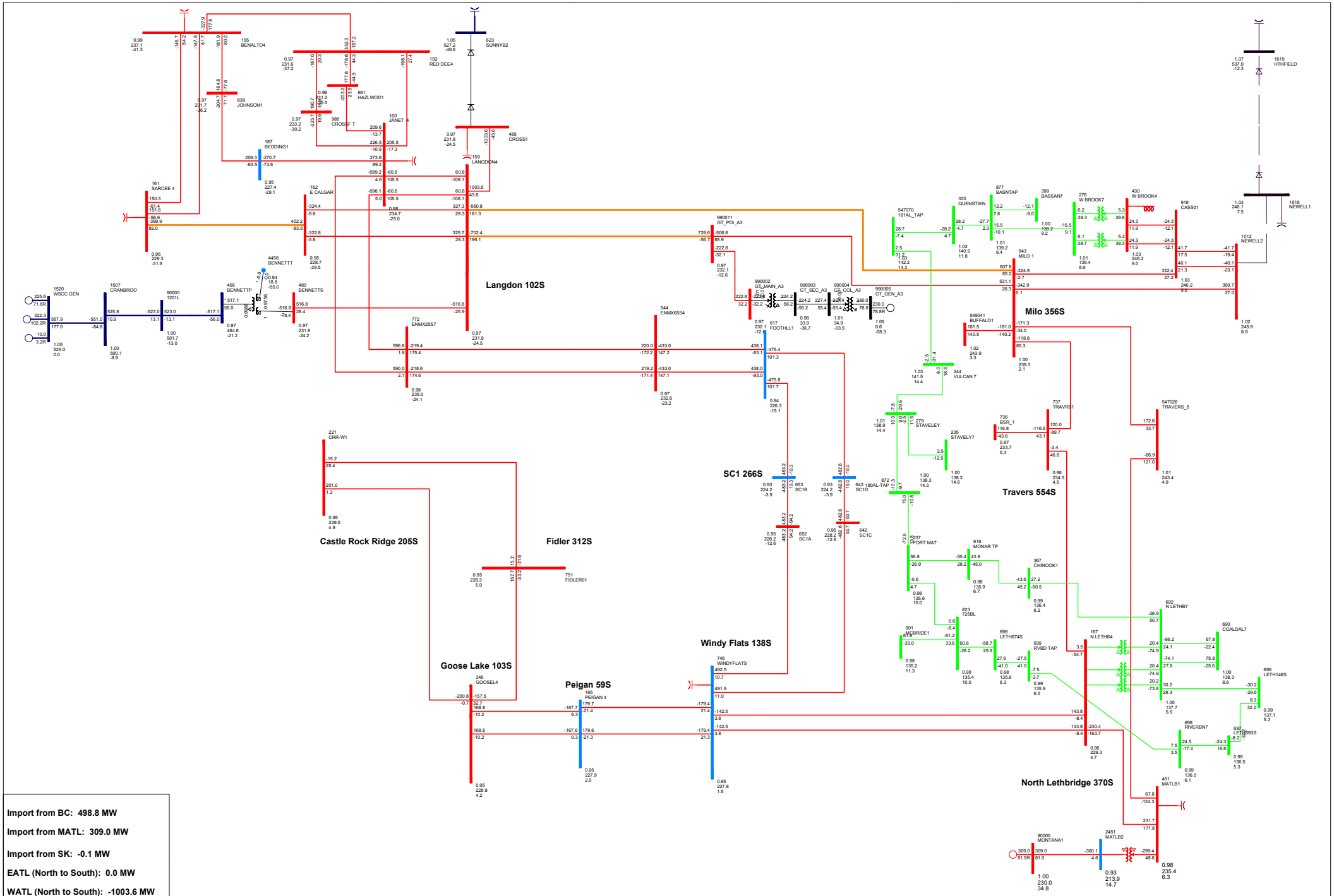


Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SP_POST_ALT3_STAGE3_V6
CAT B-1088L (NEWELL 2075S - CASSILS 324S)
SAT, JAN 14 2023 21:06

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.000OV 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000



Import from BC: 498.8 MW

Import from MATL: 309.0 MW

Import from SK: -0.1 MW

EATL (North to South): 0.0 MW

WATL (North to South): -1003.6 MW

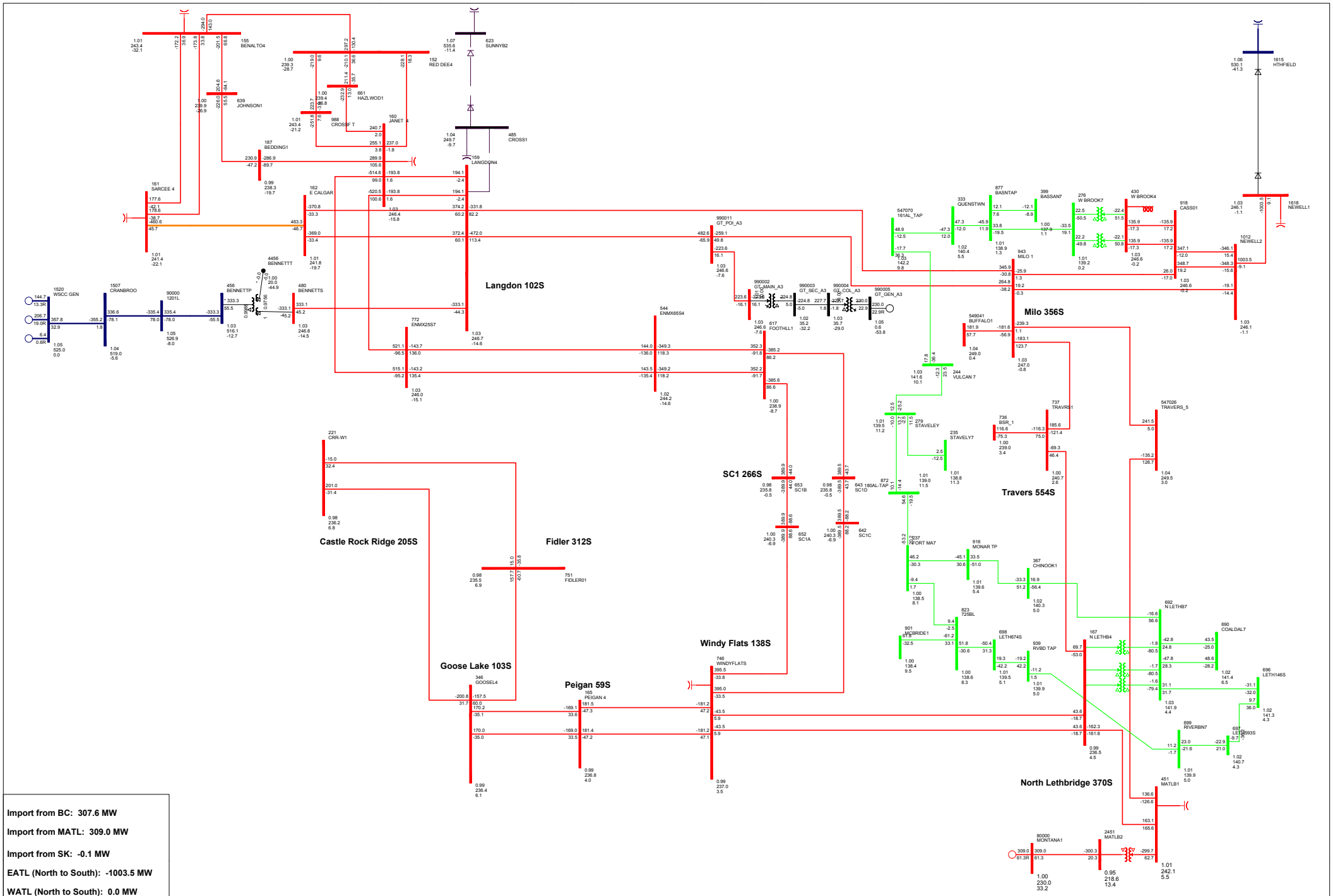
P2396 Georgetown Solar: 230.0 MW

Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SP_POST_ALT3_STAGE3_V6
CAT B-EATL
SAT, JAN 14 2023 21:06

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.000OV 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000

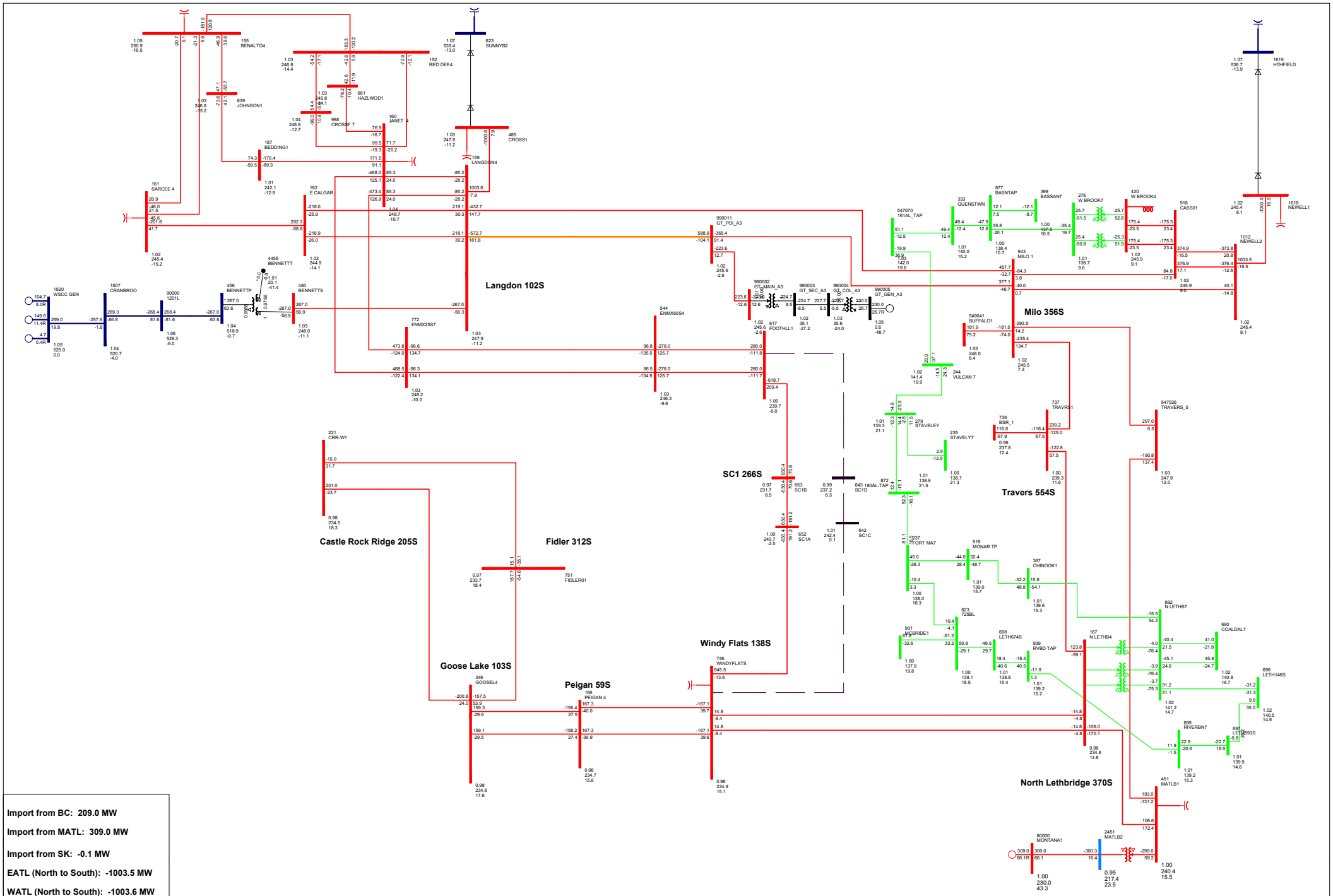


Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SP_POST_ALT3_STAGE3_V6
CAT B-WATL
SAT, JAN 14 2023 21:06

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.000OV 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000



Import from BC: 209.0 MW

Import from MATL: 309.0 MW

Import from SK: -0.1 MW

EATL (North to South): -1003.5 MW

WATL (North to South): -1003.6 MW

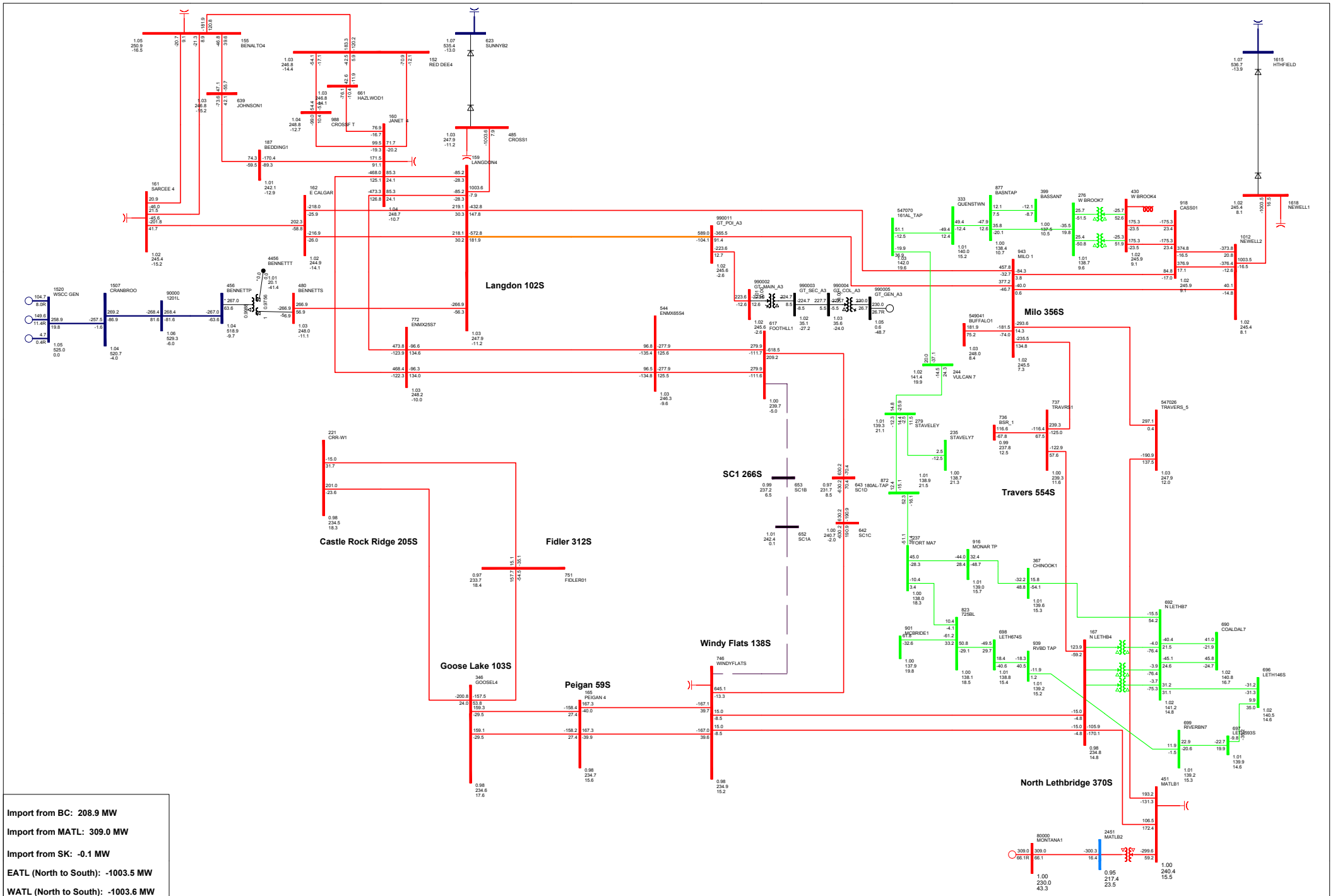
P2396 Georgetown Solar: 230.0 MW

Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SP_POST_ALT3_STAGE3_V6
CAT B-1037L (FOOTHILLS 237S - WINDY FLATS 138S)
SAT, JAN 14 2023 21:06

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.000UV 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000

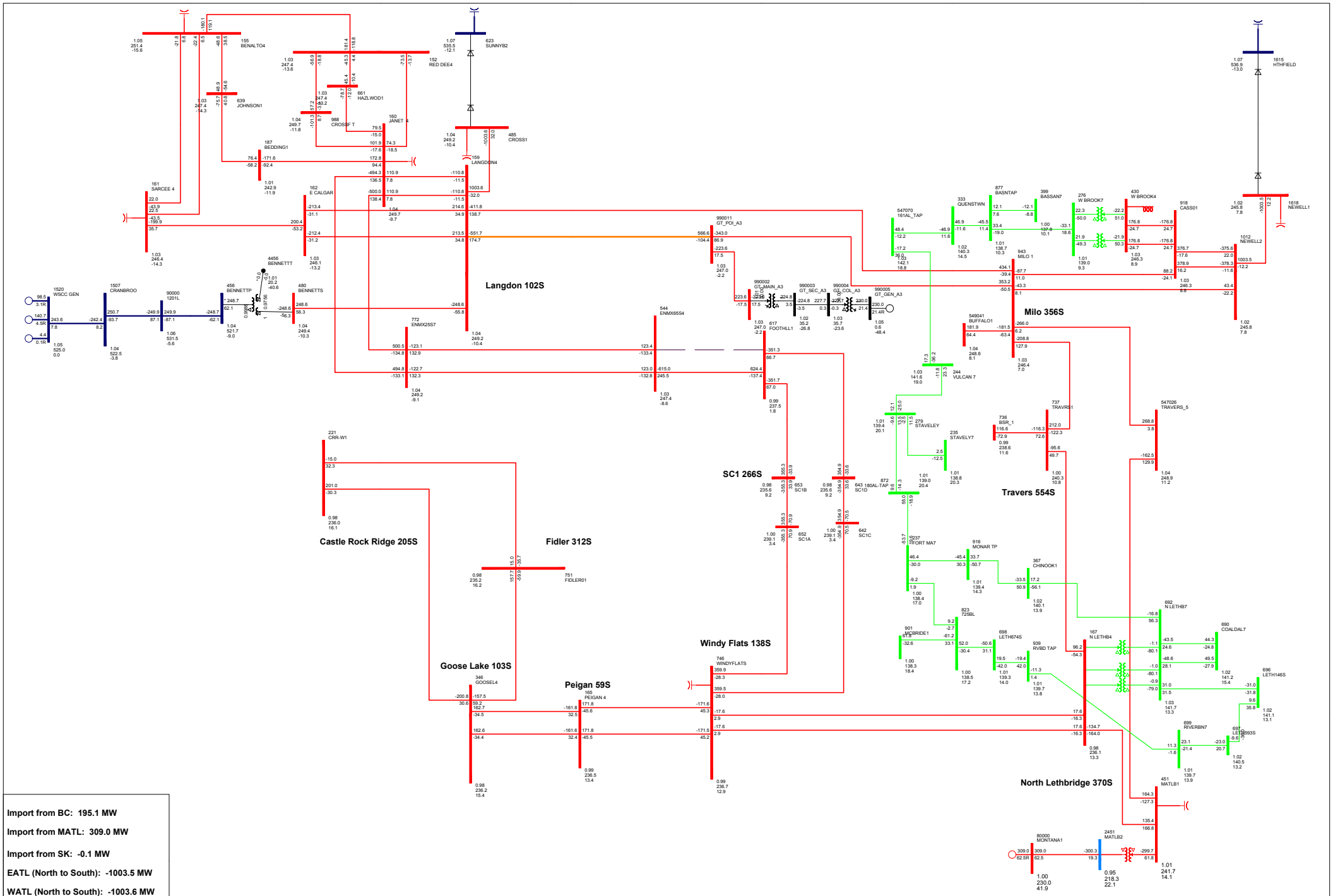


Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SP_POST_ALT3_STAGE3_V6
CAT B-1038L (FOOTHILLS 237S - WINDY FLATS 138S)
SAT, JAN 14 2023 21:07

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.000UV 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000

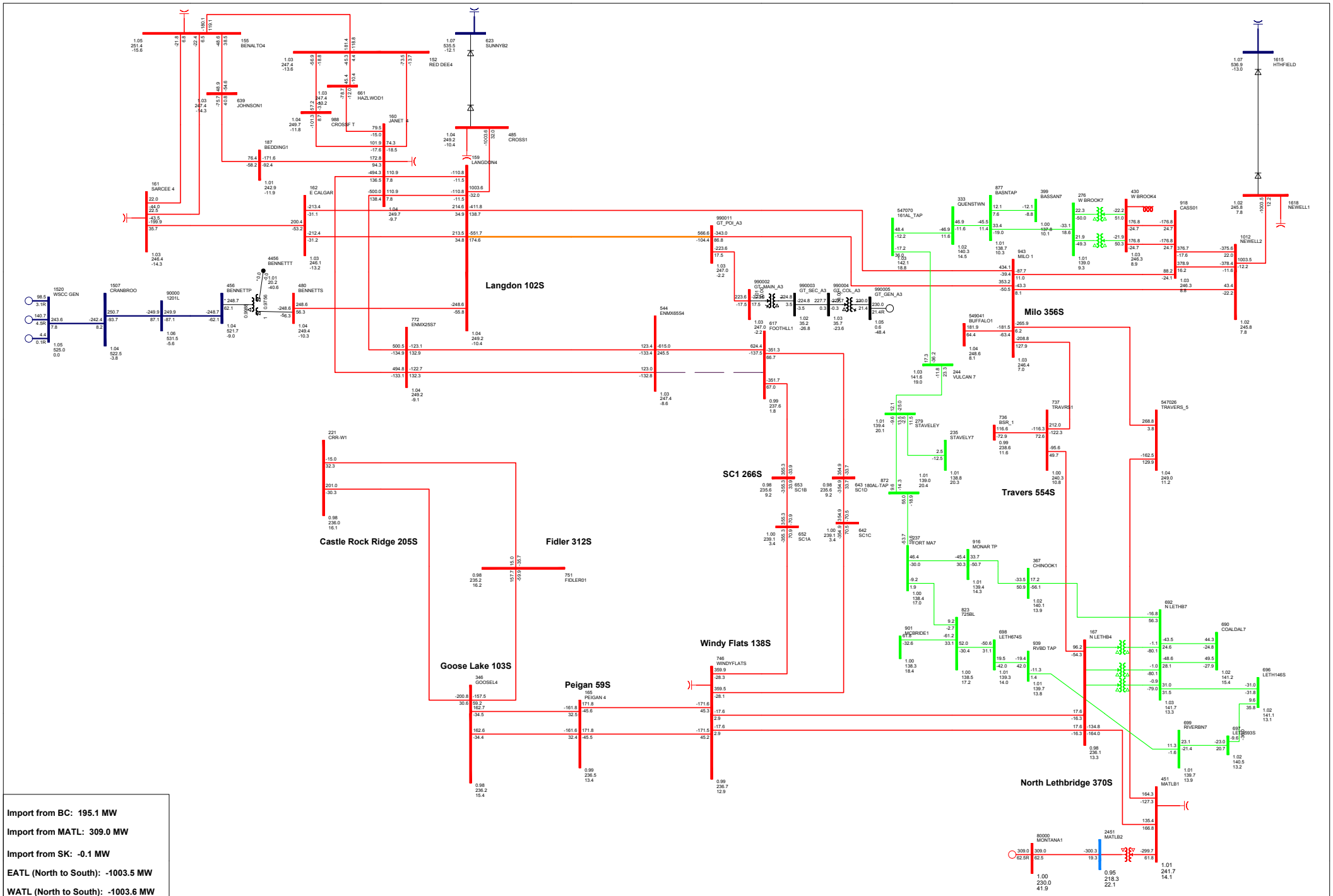


Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SP_POST_ALT3_STAGE3_V6
CAT B-1106L (SS-65 - FOOTHILLS 237S)
SAT, JAN 14 2023 21:07

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.000UV 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000

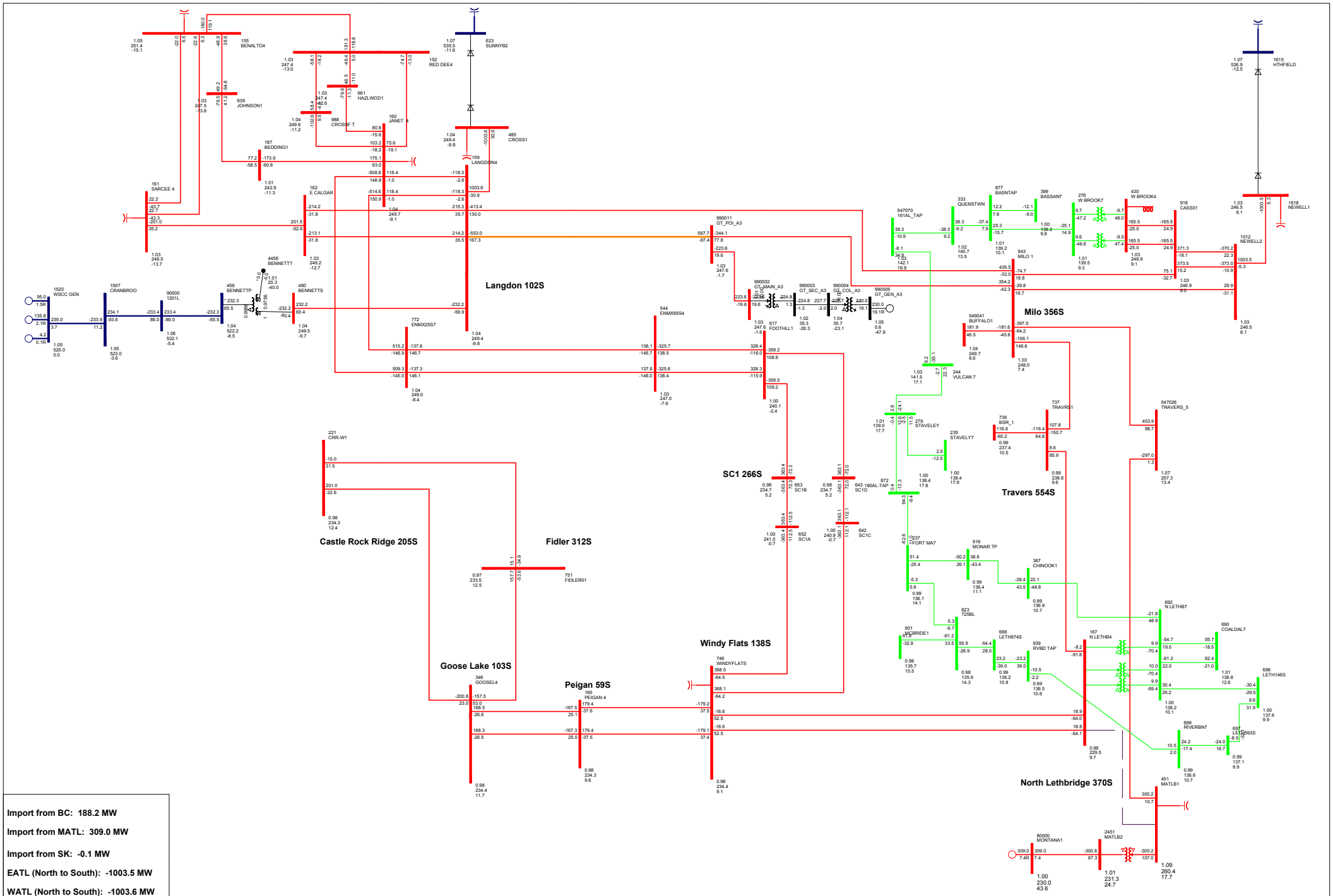


Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SP_POST_ALT3_STAGE3_V6
CAT B-1107L (SS-65 - FOOTHILLS 237S)
SAT, JAN 14 2023 21:07

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.000UV 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000

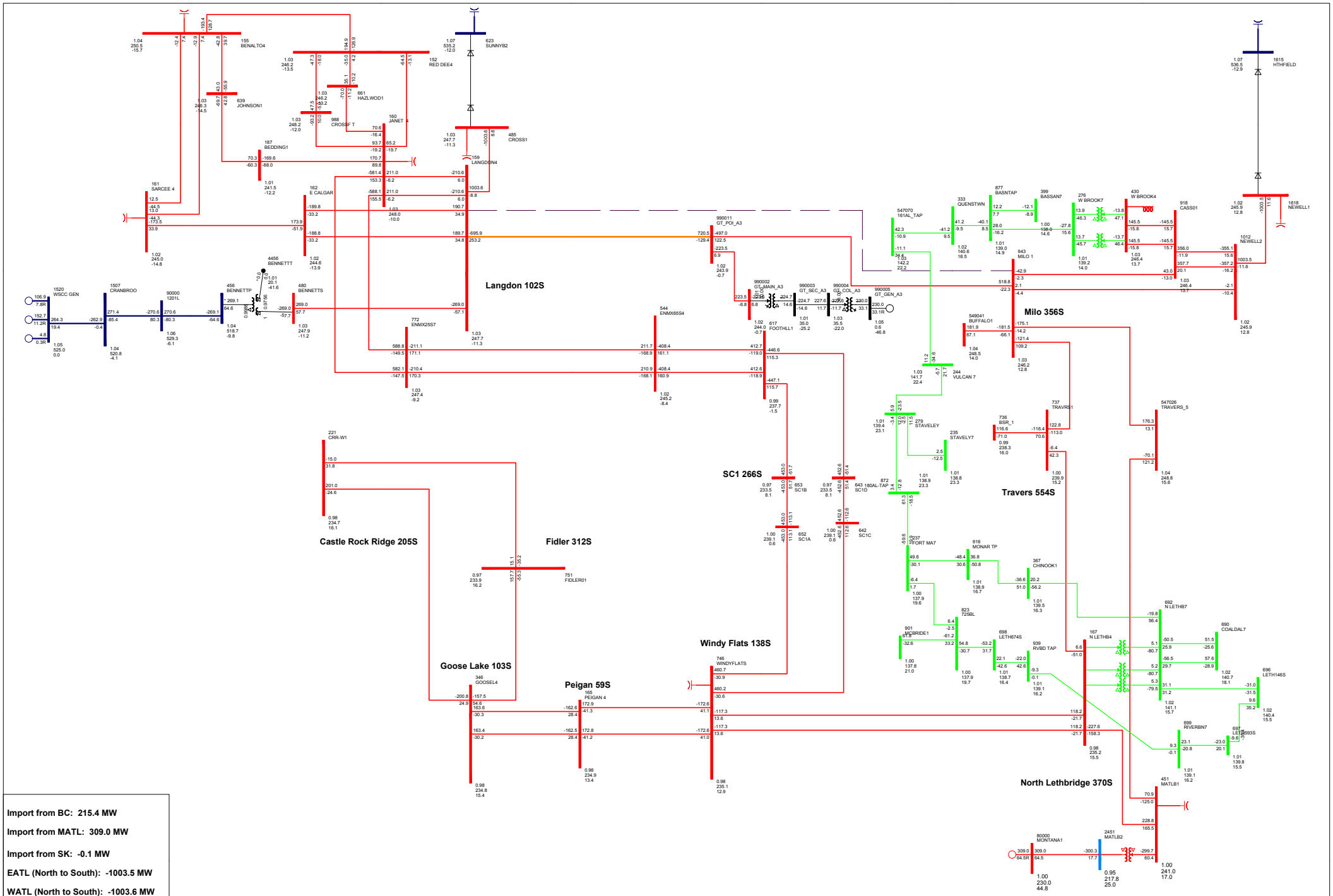


Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SP_POST_ALT3_STAGE3_V6
CAT B-940L (N. LETHBRIDGE 370S - PICTURE BUTTE 120S)
SAT, JAN 14 2023 21:07

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.000UV 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000

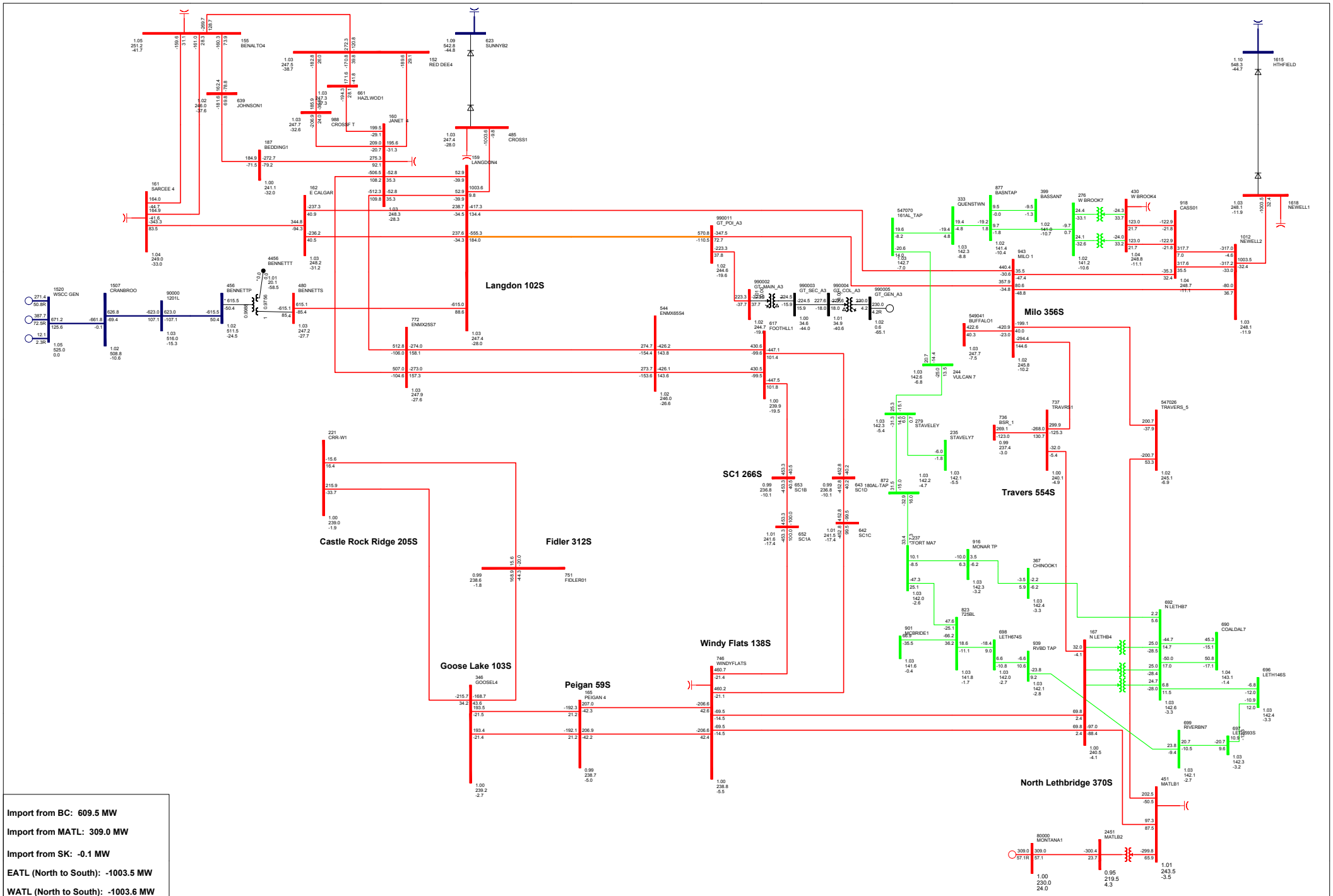


Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SP_POST_ALT3_STAGE3_V6
CAT B-927L (LANGDON 102S - MILO 356S)
SAT, JAN 14 2023 21:07

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.000OV 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000



Import from BC: 609.5 MW

Import from MATL: 309.0 MW

Import from SK: -0.1 MW

EATL (North to South): -1003.5 MW

WATL (North to South): -1003.6 MW

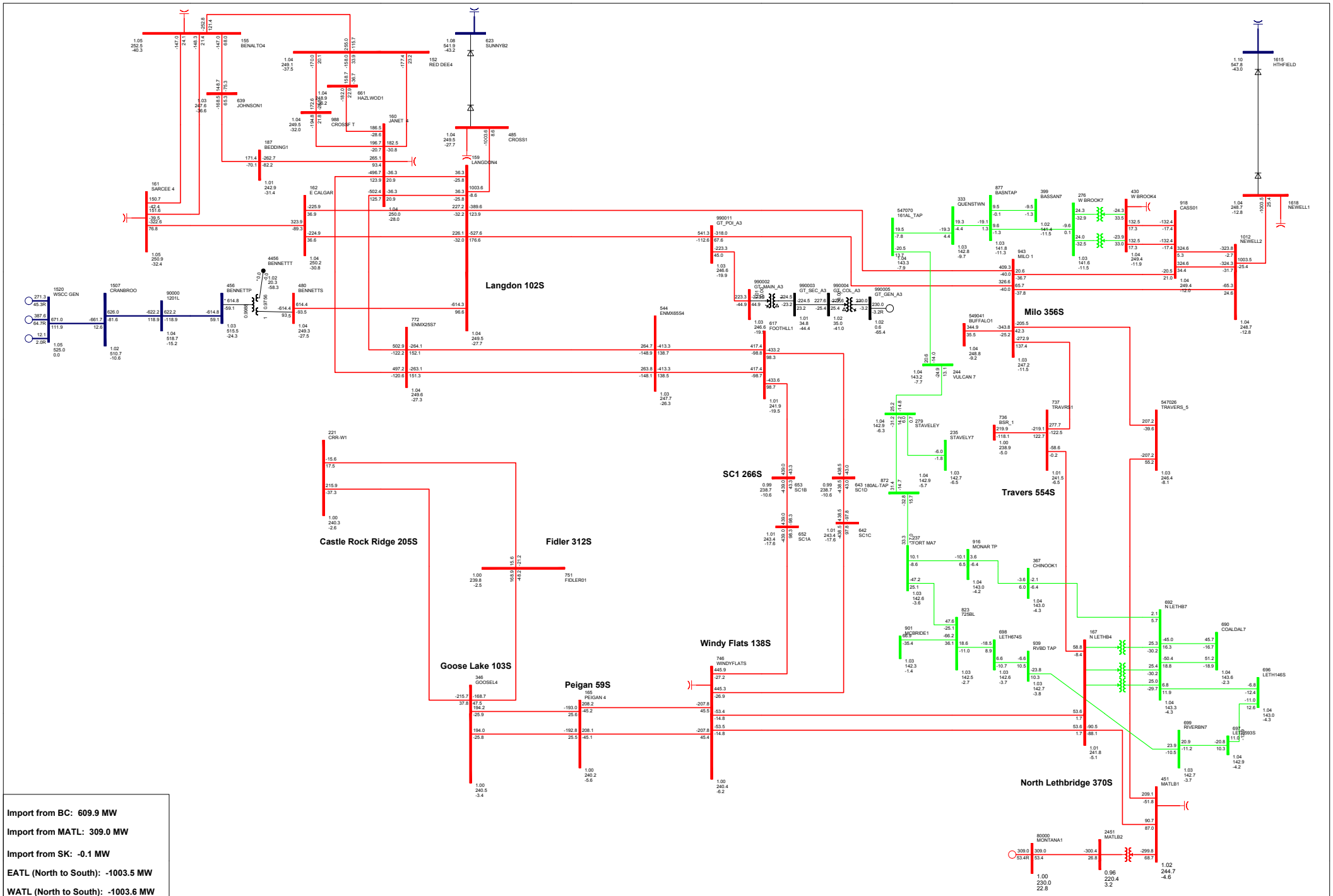
P2396 Georgetown Solar: 230.0 MW

Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SL_POST_ALT3_STAGE3_V3_PRE-CURTAIL
CAT A-NO CONTINGENCY
SUN, MAR 05 2023 11:00

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.000OV 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000



Import from BC: 609.9 MW

Import from MATL: 309.0 MW

Import from SK: -0.1 MW

EATL (North to South): -1003.5 MW

WATL (North to South): -1003.6 MW

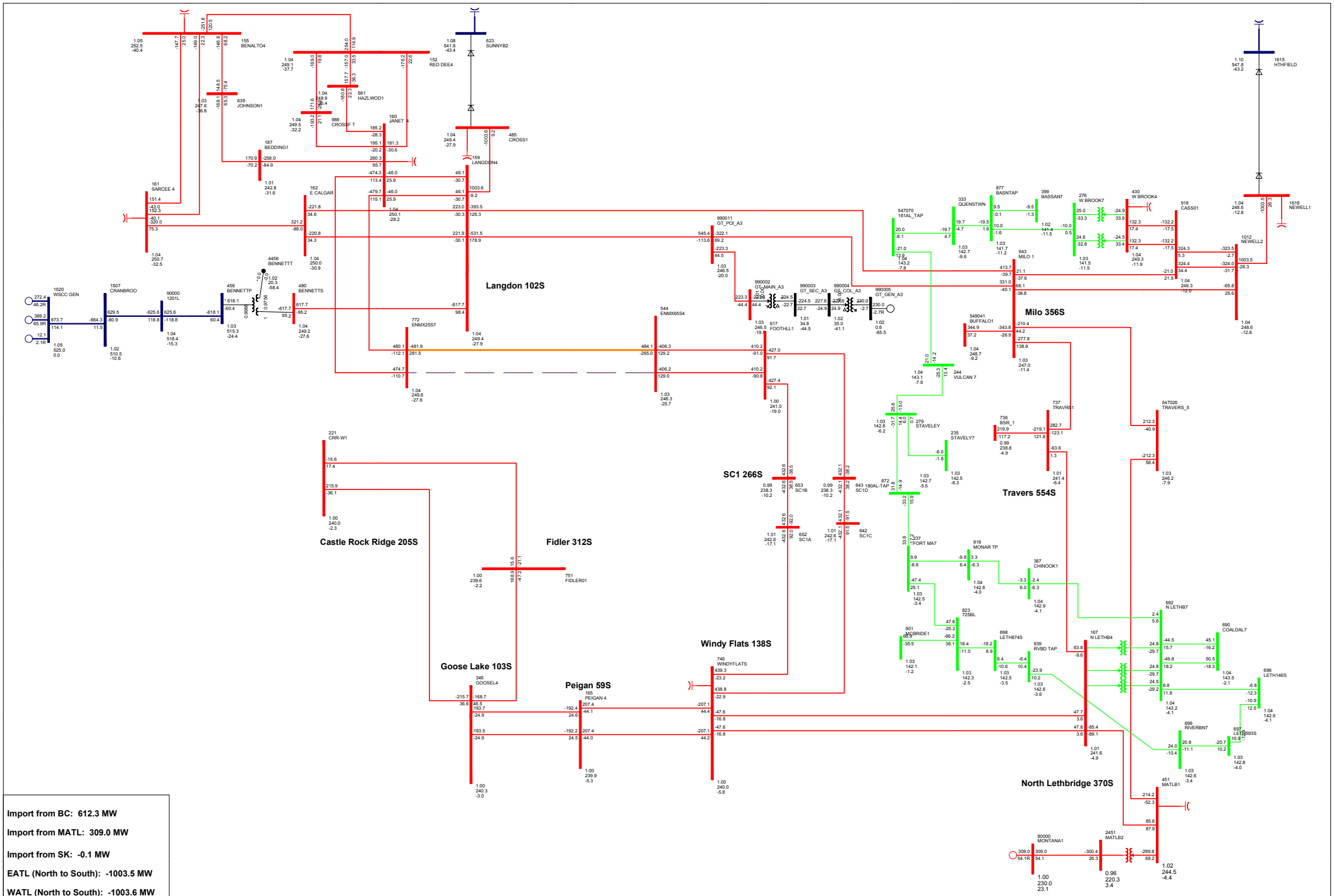
P2396 Georgetown Solar: 230.0 MW

Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SL_POST_ALT3_STAGE3_V3
CAT A-NO CONTINGENCY
SAT, JAN 14 2023 21:03

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.000OV 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000

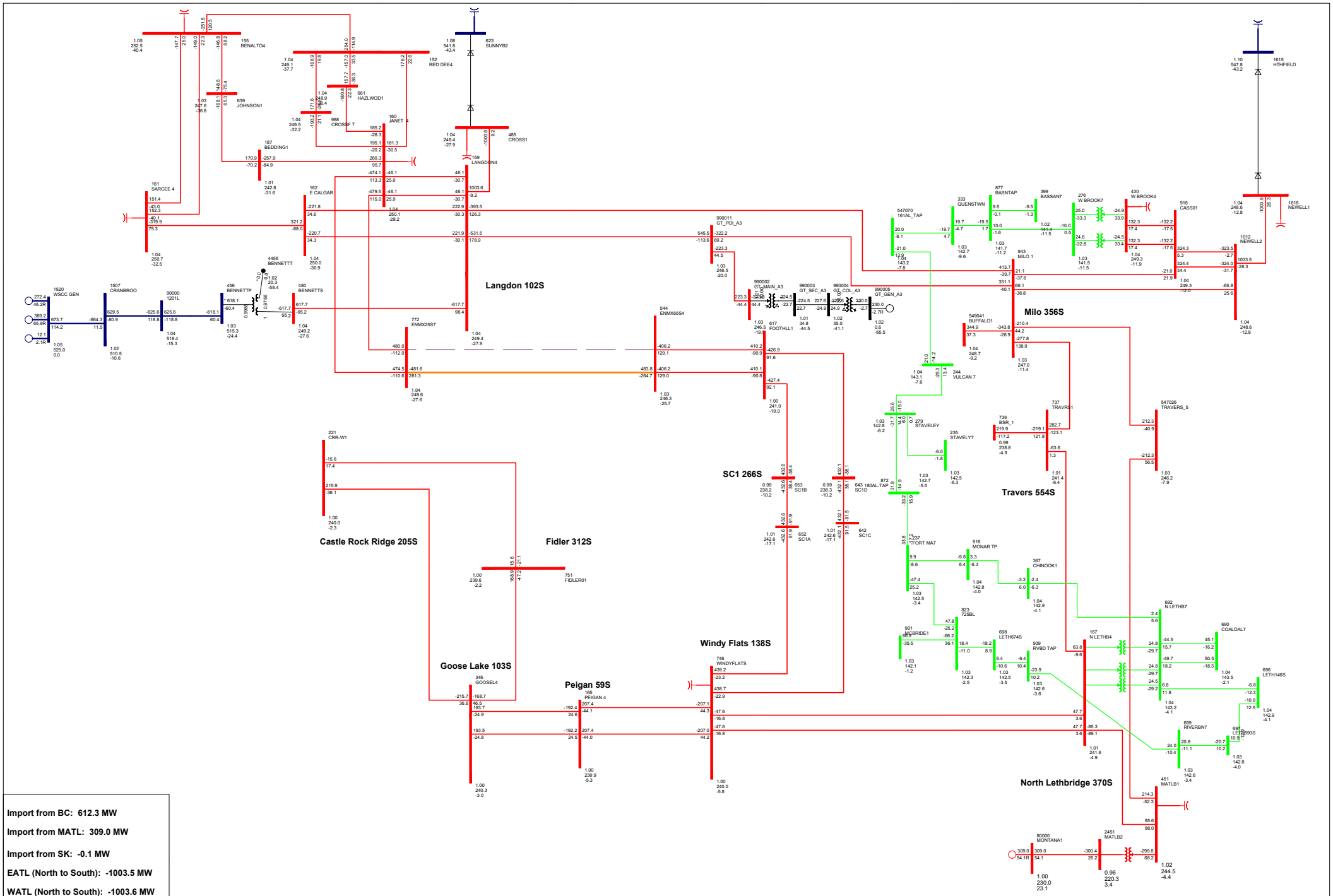


Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SL_POST_ALT3_STAGE3_V3
CAT B-1080L (SS-65 - SHEPARD SS-25)
SAT, JAN 14 2023 21:03

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.000OV 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000



Import from BC: 612.3 MW

Import from MATL: 309.0 MW

Import from SK: -0.1 MW

EATL (North to South): -1003.5 MW

WATL (North to South): -1003.6 MW

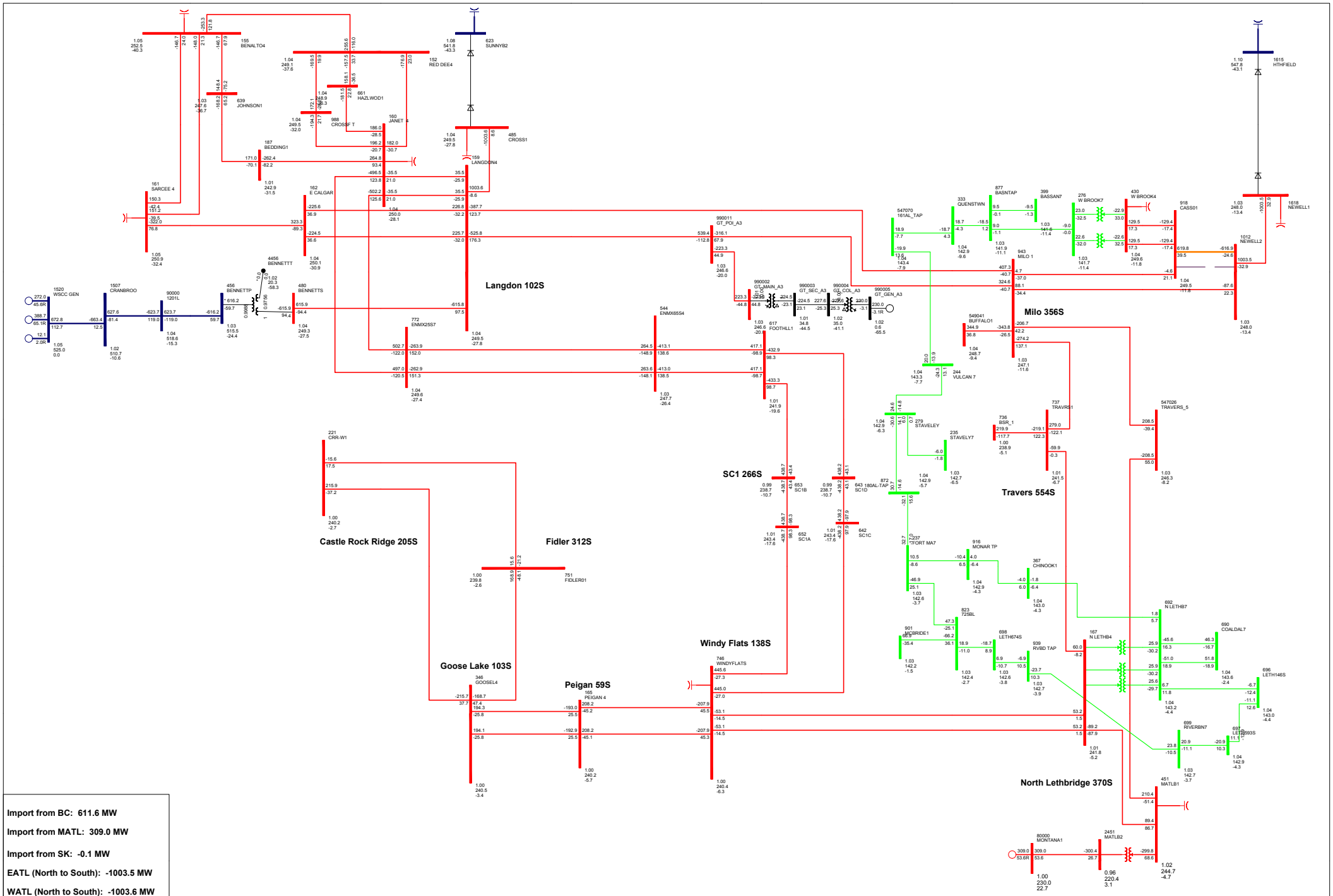
P2396 Georgetown Solar: 230.0 MW

Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SL_POST_ALT3_STAGE3_V3
CAT B-1109L (SS-65 - SHEPARD SS-25)
SAT, JAN 14 2023 21:03

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.000UV 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000



Import from BC: 611.6 MW

Import from MATL: 309.0 MW

Import from SK: -0.1 MW

EATL (North to South): -1003.5 MW

WATL (North to South): -1003.6 MW

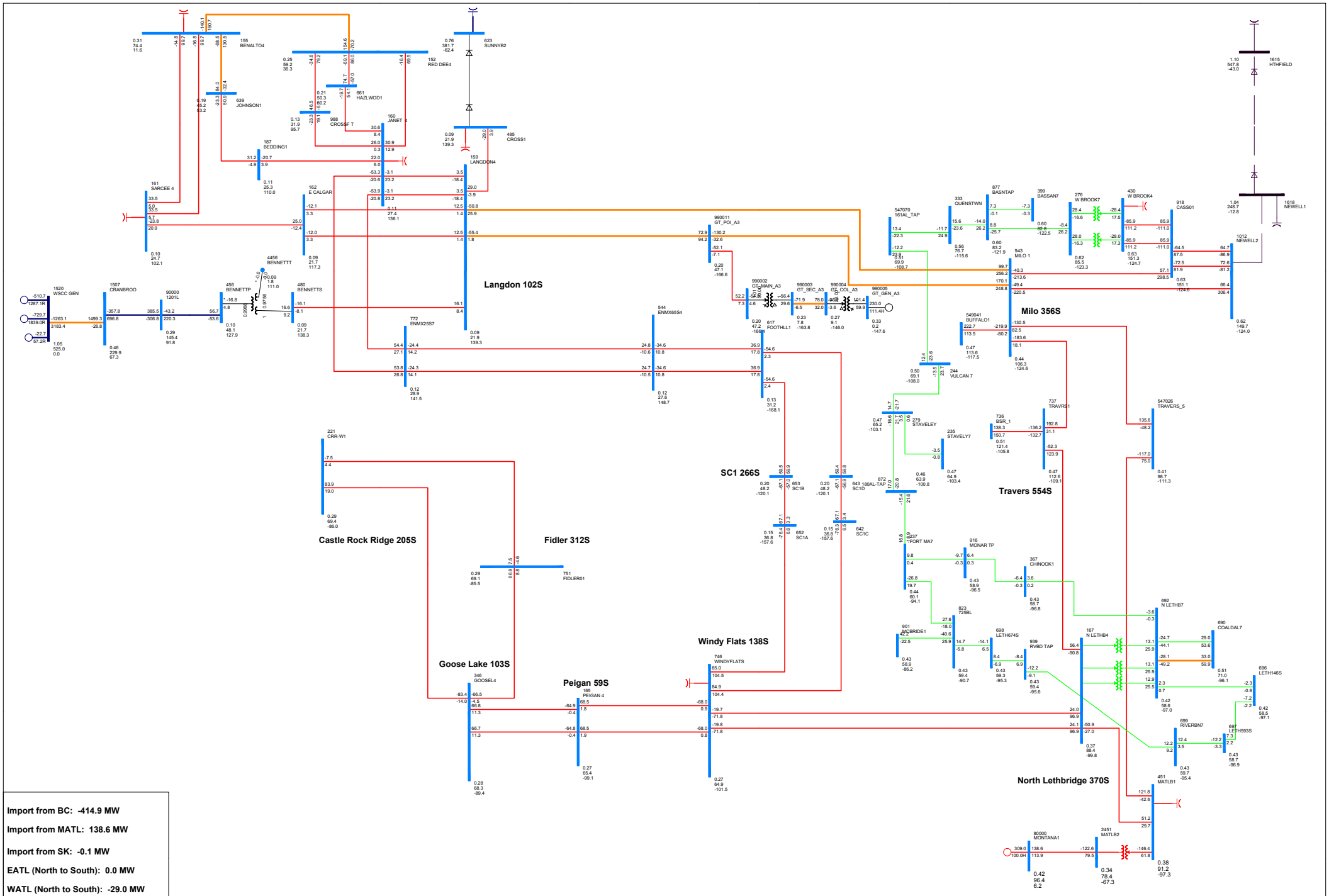
P2396 Georgetown Solar: 230.0 MW

Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SL_POST_ALT3_STAGE3_V3
CAT B-1088L (NEWELL 2075S - CASSILS 324S)
SAT, JAN 14 2023 21:04

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.000OV 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000



Import from BC: -414.9 MW

Import from MATL: 138.6 MW

Import from SK: -0.1 MW

EATL (North to South): 0.0 MW

WATL (North to South): -29.0 MW

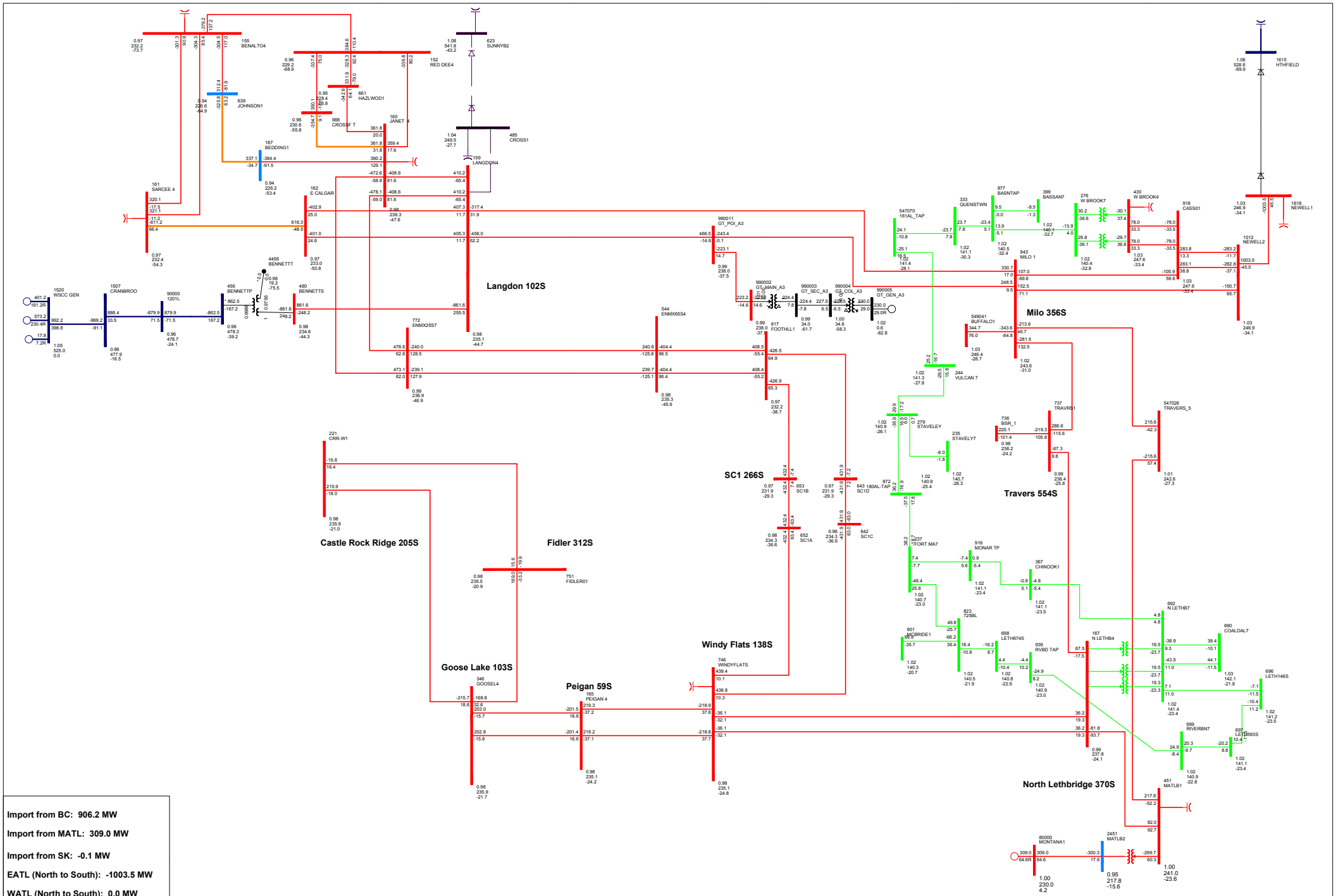
P2396 Georgetown Solar: 230.0 MW

Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SL_POST_ALT3_STAGE3_V3
CAT B-EATL
SAT, JAN 14 2023 21:04

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.000OV 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000



Import from BC: 906.2 MW

Import from MATL: 309.0 MW

Import from SK: -0.1 MW

EATL (North to South): -1003.5 MW

WATL (North to South): 0.0 MW

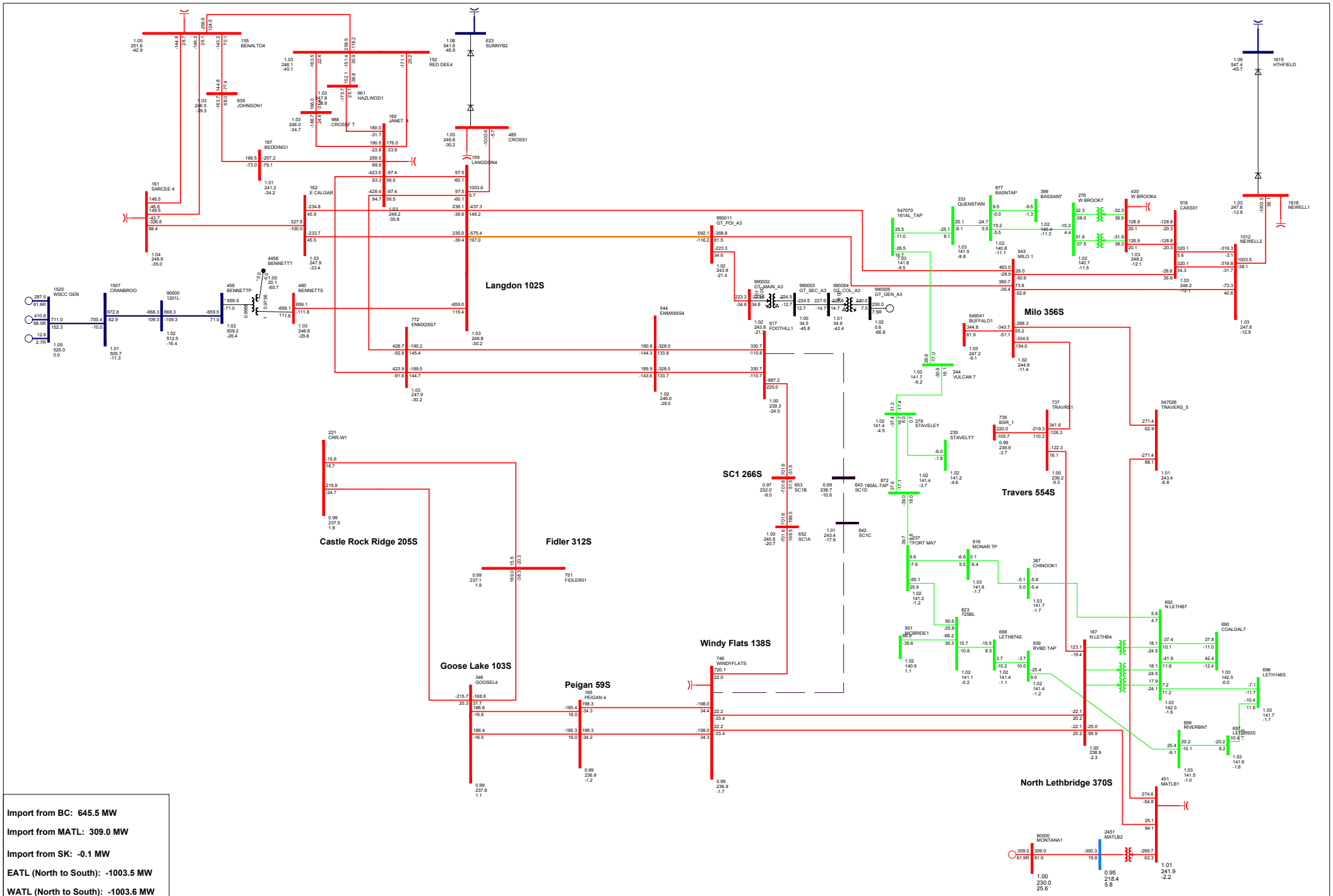
P2396 Georgetown Solar: 230.0 MW

Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SL_POST_ALT3_STAGE3_V3
CAT B-WATL
SAT, JAN 14 2023 21:04

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.000UV 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000



Import from BC: 645.5 MW

Import from MATL: 309.0 MW

Import from SK: -0.1 MW

EATL (North to South): -1003.5 MW

WATL (North to South): -1003.6 MW

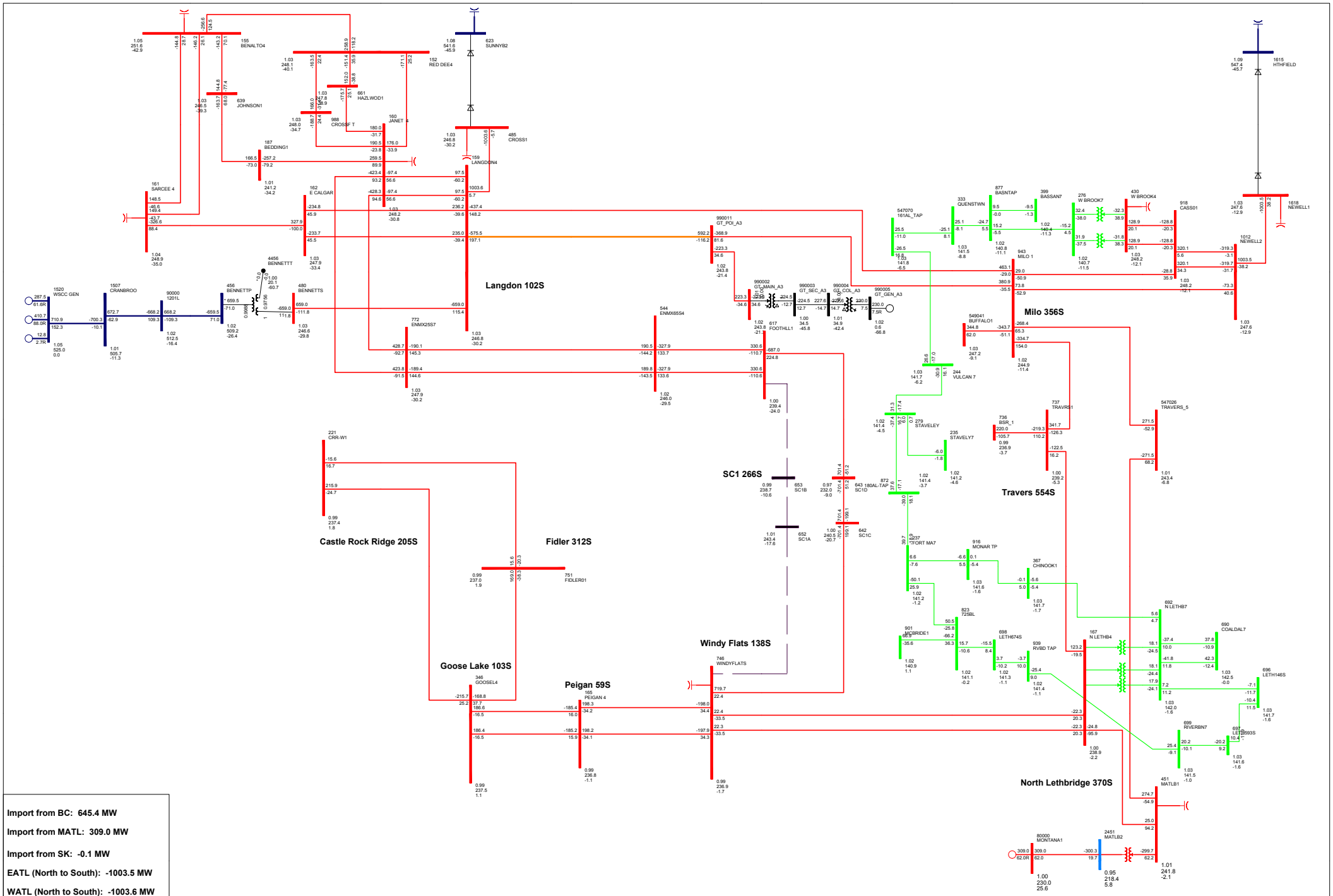
P2396 Georgetown Solar: 230.0 MW

Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SL_POST_ALT3_STAGE3_V3
CAT B-1037L (FOOTHILLS 237S - WINDY FLATS 138S)
SAT, JAN 14 2023 21:04

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.000OV 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000



Import from BC: 645.4 MW

Import from MATL: 309.0 MW

Import from SK: -0.1 MW

EATL (North to South): -1003.5 MW

WATL (North to South): -1003.6 MW

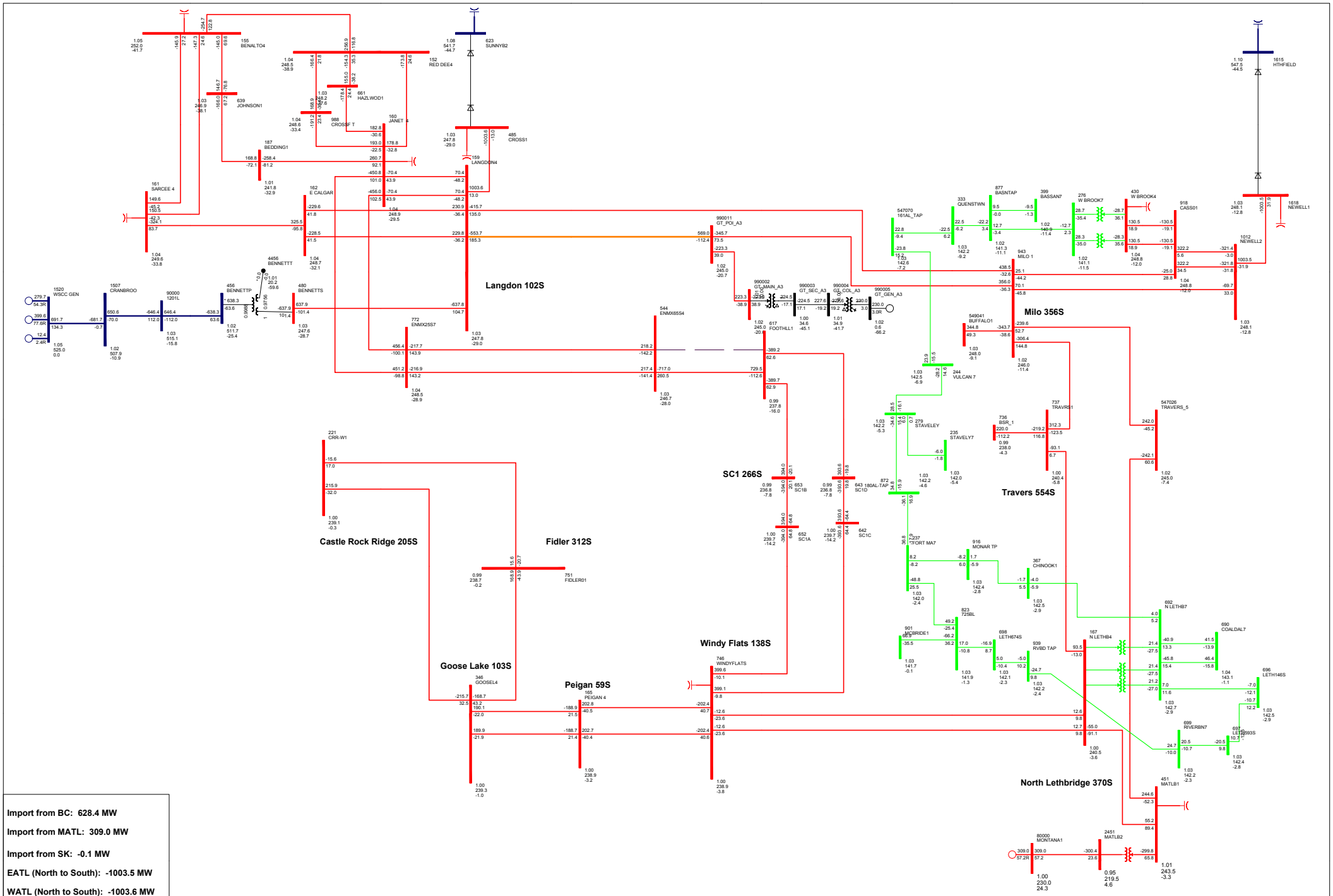
P2396 Georgetown Solar: 230.0 MW

Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SL_POST_ALT3_STAGE3_V3
CAT B-1038L (FOOTHILLS 237S - WINDY FLATS 138S)
SAT, JAN 14 2023 21:04

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.000UV 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000

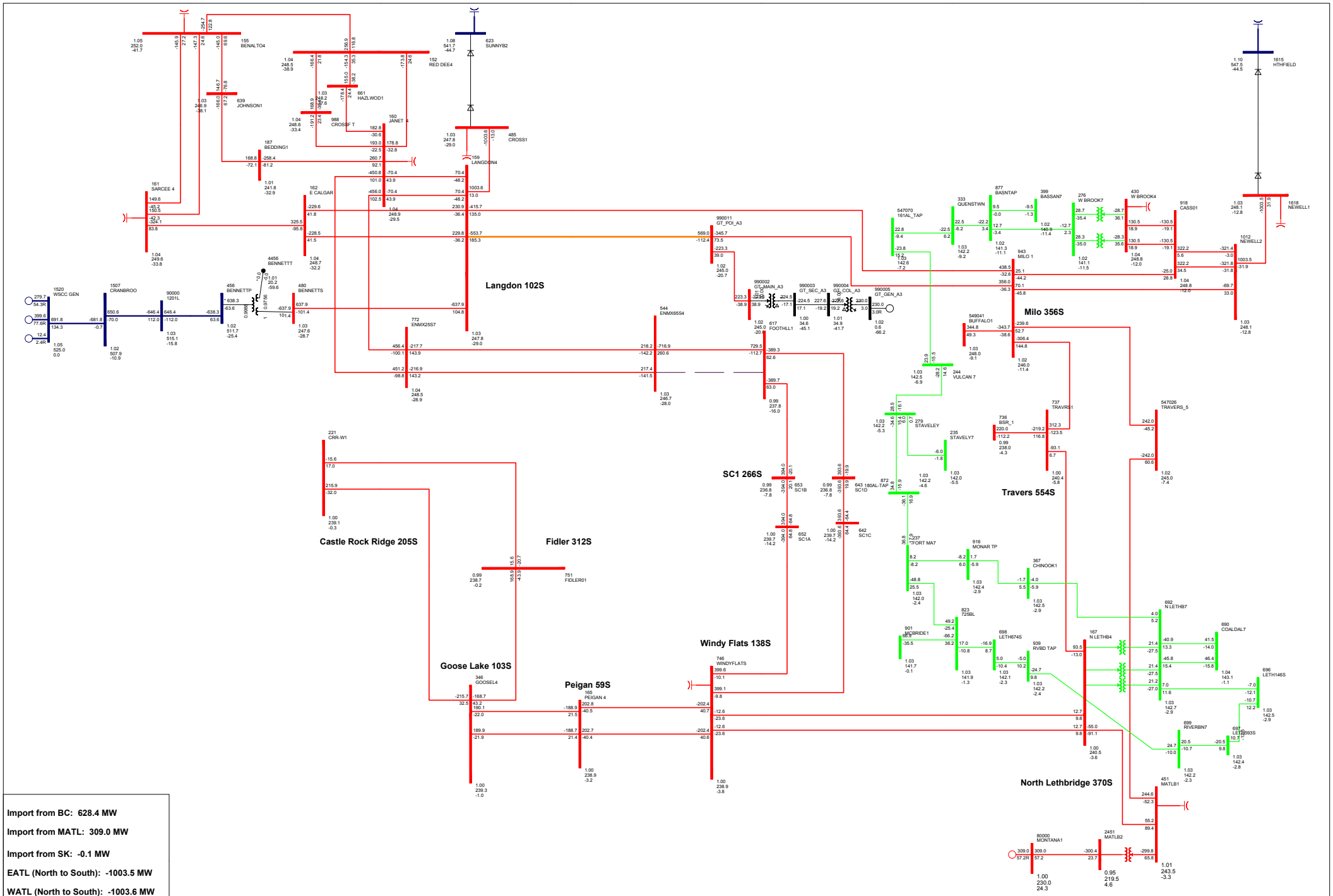


Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SL_POST_ALT3_STAGE3_V3
CAT B-1106L (SS-65 - FOOTHILLS 237S)
SAT, JAN 14 2023 21:04

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.000UV 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000

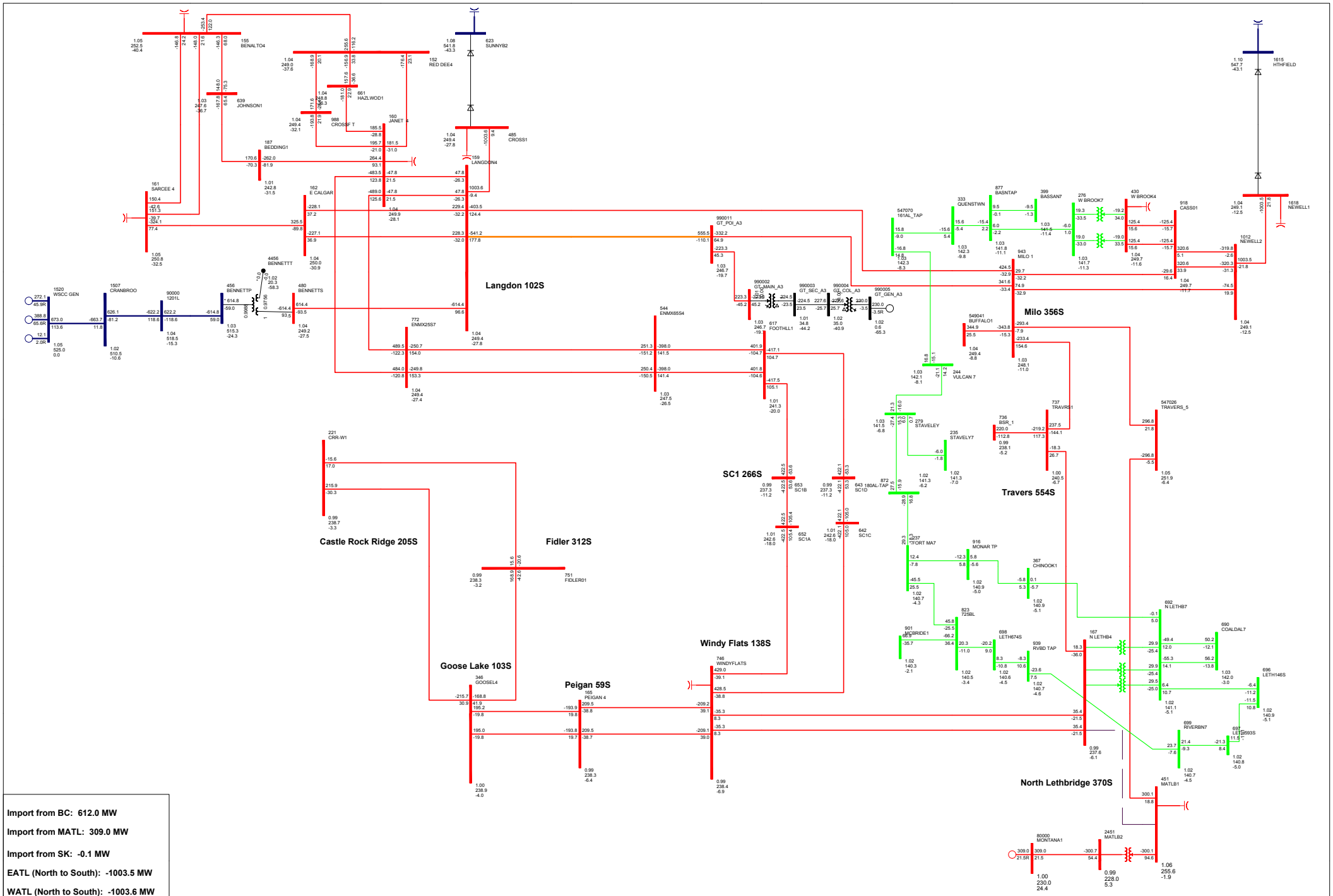


Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SL_POST_ALT3_STAGE3_V3
CAT B-1107L (SS-65 - FOOTHILLS 237S)
SAT, JAN 14 2023 21:04

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.0000V 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000



Import from BC: 612.0 MW

Import from MATL: 309.0 MW

Import from SK: -0.1 MW

EATL (North to South): -1003.5 MW

WATL (North to South): -1003.6 MW

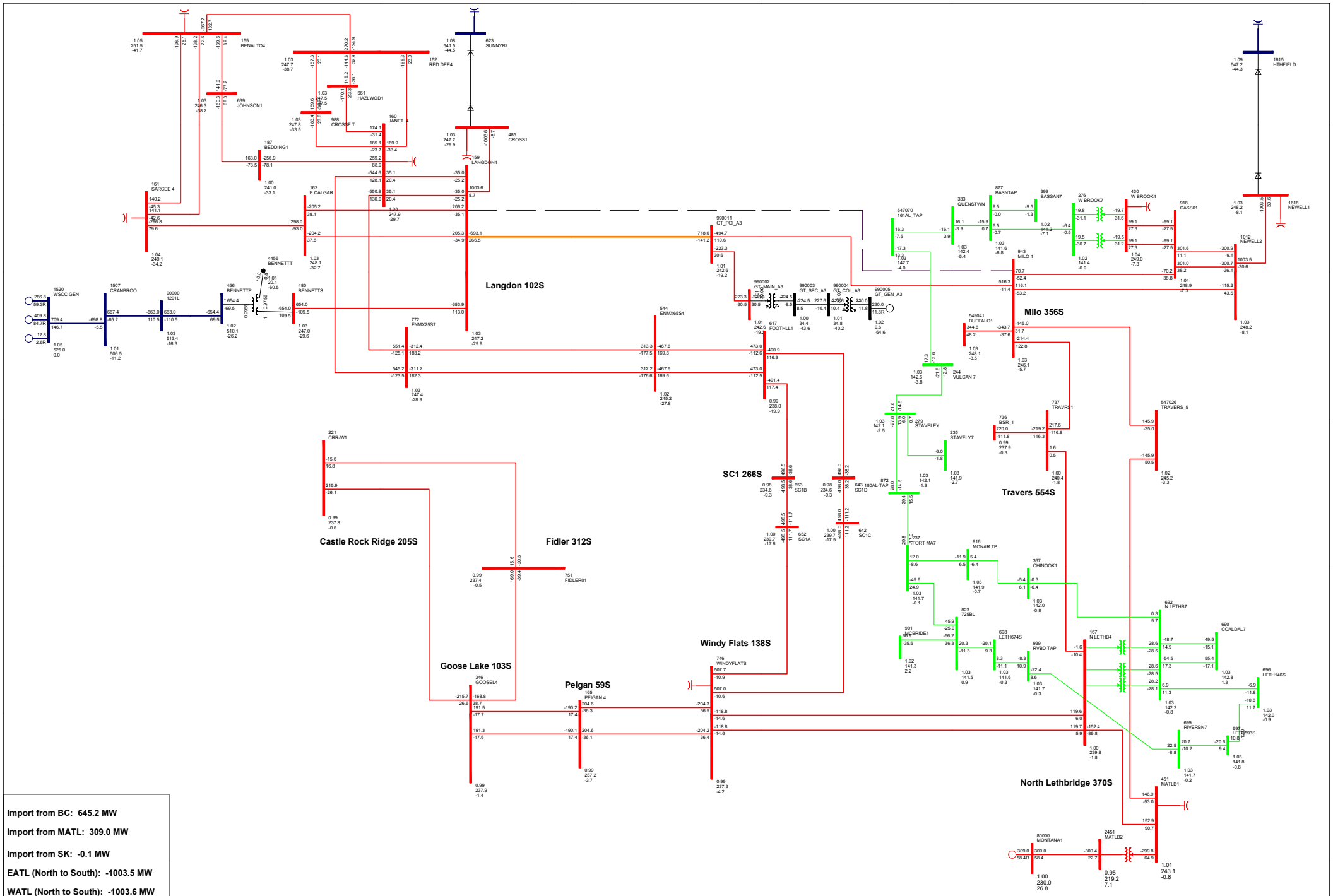
P2396 Georgetown Solar: 230.0 MW

Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SL_POST_ALT3_STAGE3_V3
CAT B-940L (N. LETHBRIDGE 370S - PICTURE BUTTE 120S)
SAT, JAN 14 2023 21:05

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.000OV 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000

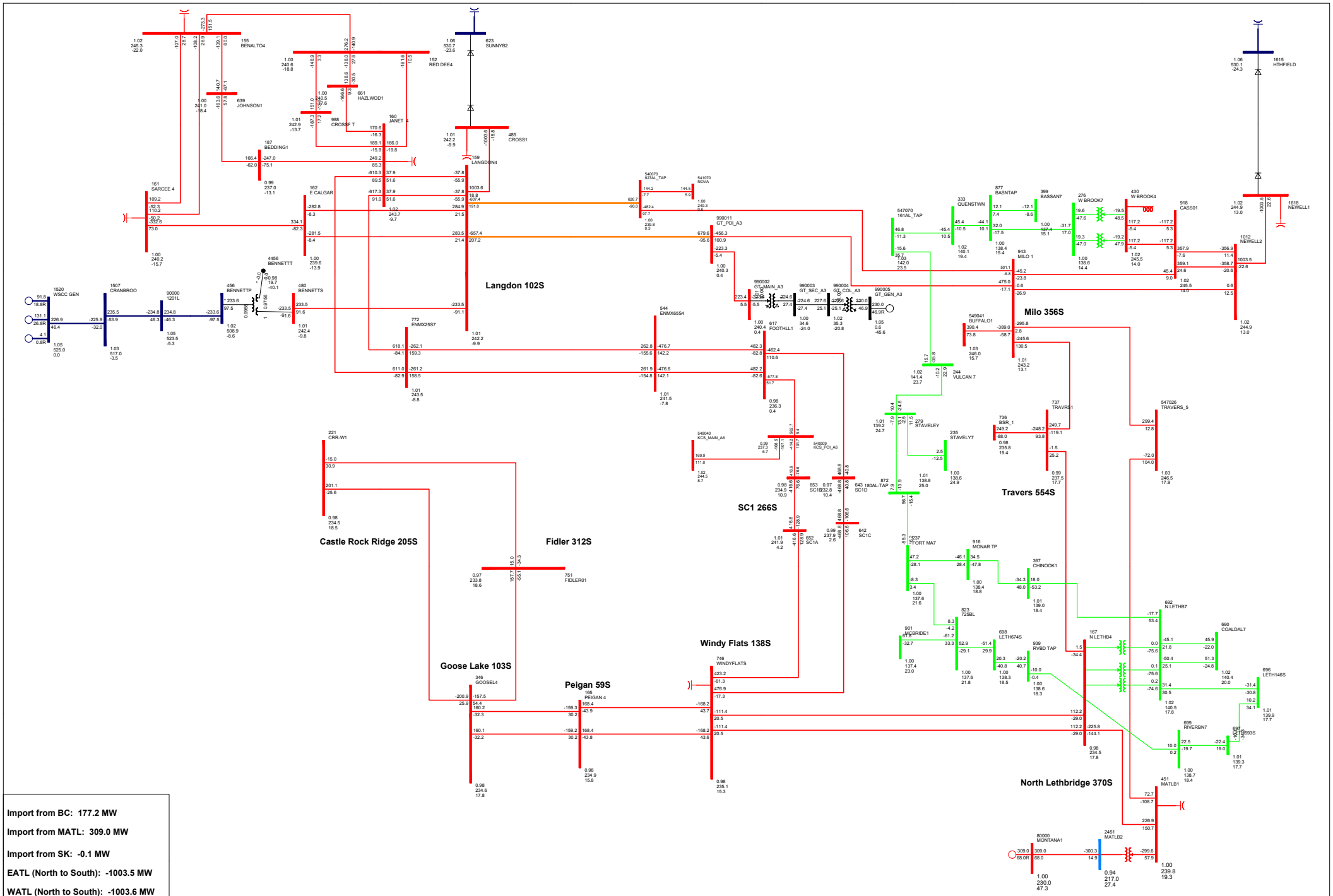


Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SL_POST_ALT3_STAGE3_V3
CAT B-927L (LANGDON 102S - MILO 356S)
SAT, JAN 14 2023 21:05

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.000UV 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000



Import from BC: 177.2 MW

Import from MATL: 309.0 MW

Import from SK: -0.1 MW

EATL (North to South): -1003.5 MW

WATL (North to South): -1003.6 MW

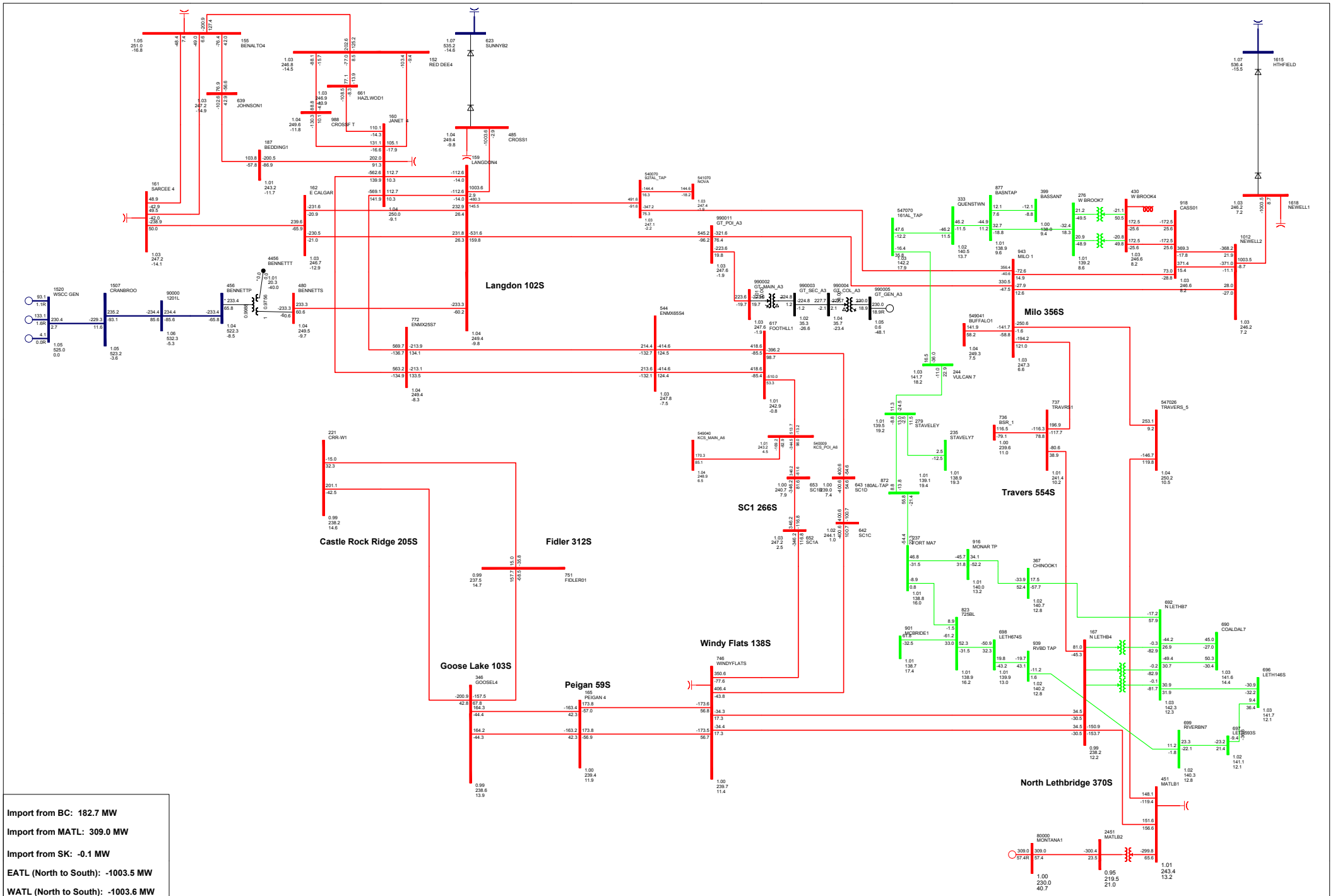
P2396 Georgetown Solar: 230.0 MW

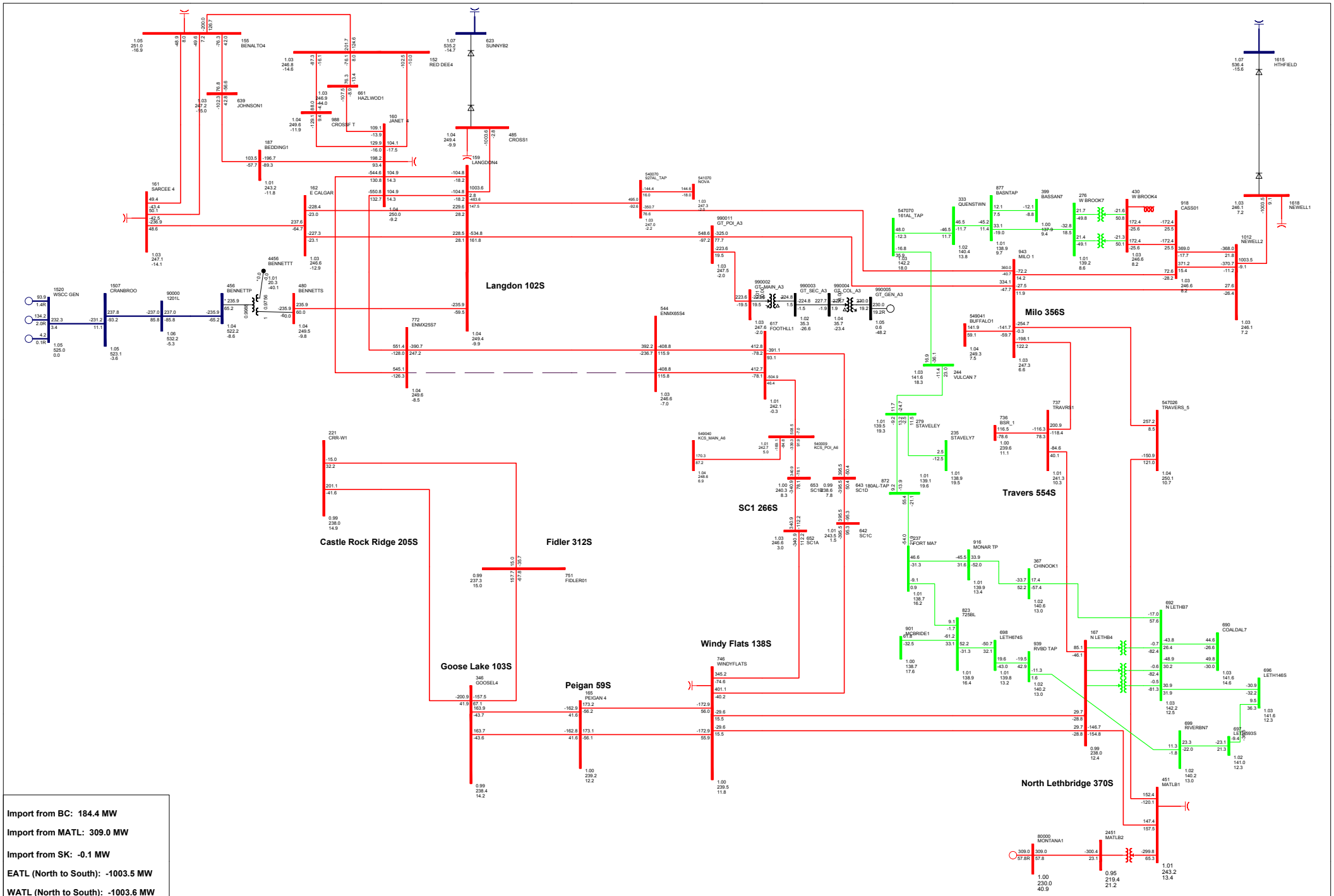
Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SP_POST_ALT3_SEN_P2373-P2378_PRE-CURTAIL
CAT A-NO CONTINGENCY
SUN, MAR 05 2023 11:00

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.000OV 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000


Langdon 102S
Milo 356S
Travers 554S
SC1 266S
Castle Rock Ridge 205S
Fidler 312S
Windy Flats 138S
Goose Lake 103S
Peigan 59S
North Lethbridge 370S
155 BENALTO4
639 JOHNSON1
187 BEDDING1
988 CROSSF T
661 HAZLWOD1
160 JANET 4
152 RED DEE4
623 SUNNYB2
485 CROSS1
159 LANGDON4
161 SARCEE 4
162 E CALGAR
4456 BENNETT
456 BENNETTP
480 BENNETTS
1520 WSCC GEN
1507 CRANBROO
90000 1201L
772 ENMX25S7
544 ENMX65S4
990011 GT_POI_A3
990002 GT_MAIN_A3
990003 GT_SEC_A3
990004 GT_COL_A3
990005 GT_GEN_A3
617 FOOTHLL1
540070 927AL_TAP
541070 NOVA
547070 161AL_TAP
333 QUENSTWN
877 BASNTAP
399 BASSAN7
276 W BROOK7
430 W BROOK4
918 CASS01
1012 NEWELL2
1618 NEWELL1
1615 HTHFIELD
549041 BUFFALO1
244 VULCAN 7
279 STAVELEY
235 STAVELY7
736 BSR_1
737 TRAVRS1
547026 TRAVERS_5
549040 KCS_MAIN_A6
540009 KCS_POI_A6
643 180AL-TAP
872 SC1D
653 SC1B
652 SC1A
642 SC1C
221 CRR-W1
751 FIDLER01
746 WINDYFLATS
346 GOOSEL4
165 PEIGAN 4
237 NFORT MA7
916 MONAR TP
367 CHINOOK1
901 MCBRIDE1
823 725BL
698 LETH674S
939 RVBD TAP
167 N LETHB4
692 N LETHB7
690 COALDAL7
696 LETH146S
697 LETH693S
699 RIVERBN7
451 MATLB1
2451 MATLB2
80000 MONTANA1
Import from BC: 182.7 MW
Import from MATL: 309.0 MW
Import from SK: -0.1 MW
EATL (North to South): -1003.5 MW
WATL (North to South): -1003.6 MW
P2396 Georgetown Solar: 230.0 MW
Georgetown Solar Project
AESO Project Number: P2396
SCENARIO: P2396_SP_POST_ALT3_SEN_P2373-P2378
CAT A-NO CONTINGENCY
SAT, JAN 14 2023 20:55
Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.000PU 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000

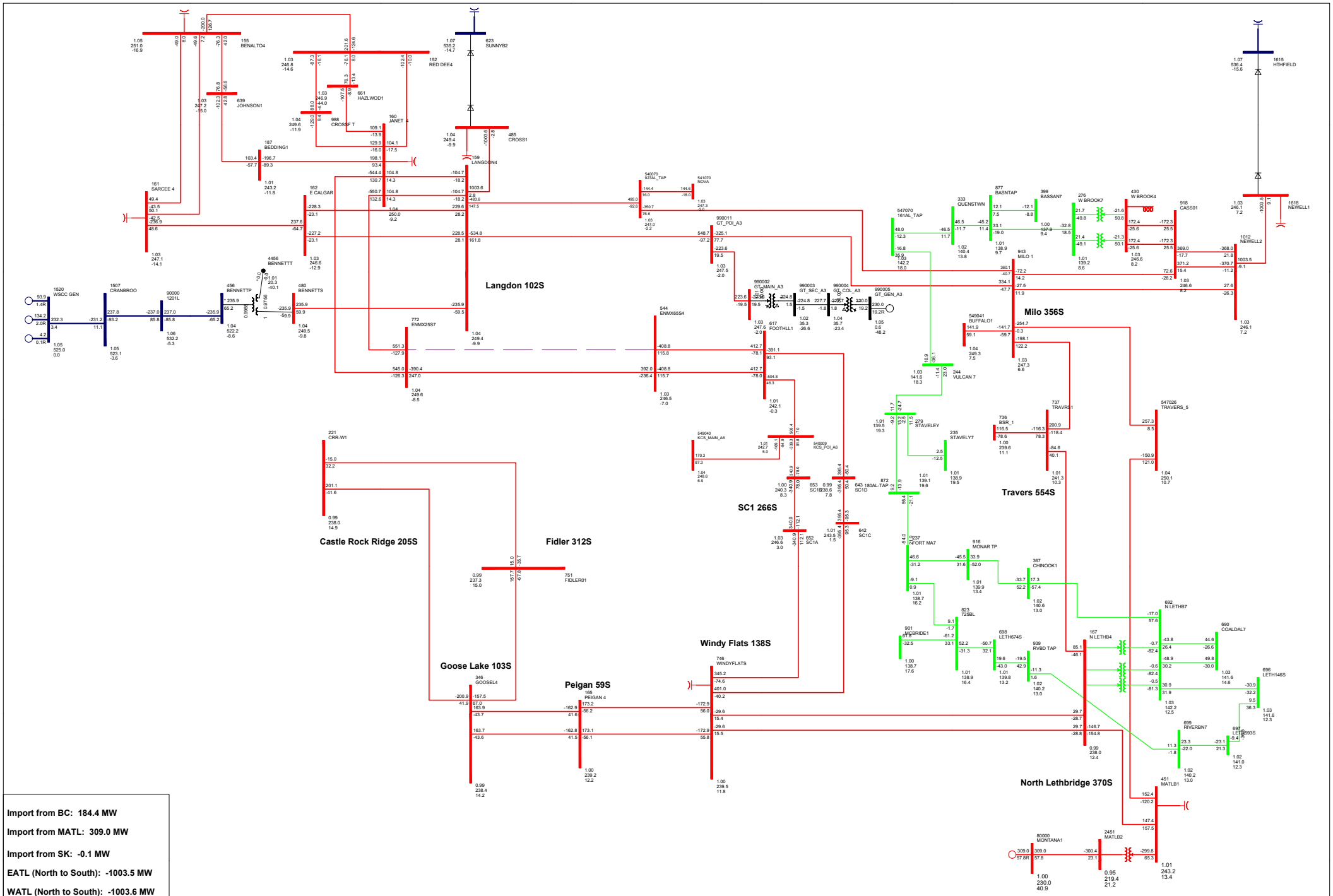


Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SP_POST_ALT3_SEN_P2373-P2378
CAT B-1080L (SS-65 - SHEPARD SS-25)
SAT, JAN 14 2023 20:55

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.000UV 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000



Import from BC: 184.4 MW

Import from MATL: 309.0 MW

Import from SK: -0.1 MW

EATL (North to South): -1003.5 MW

WATL (North to South): -1003.6 MW

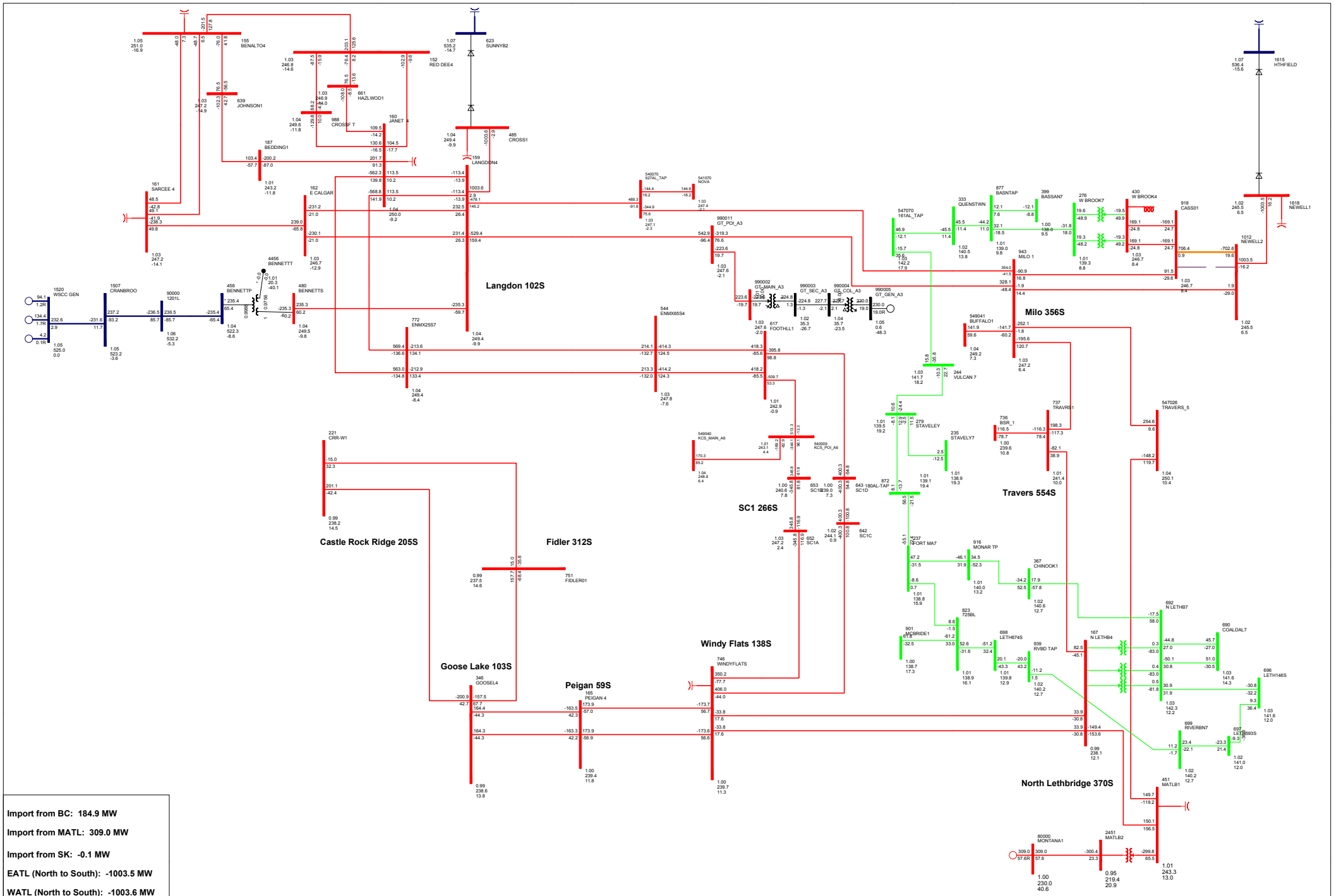
P2396 Georgetown Solar: 230.0 MW

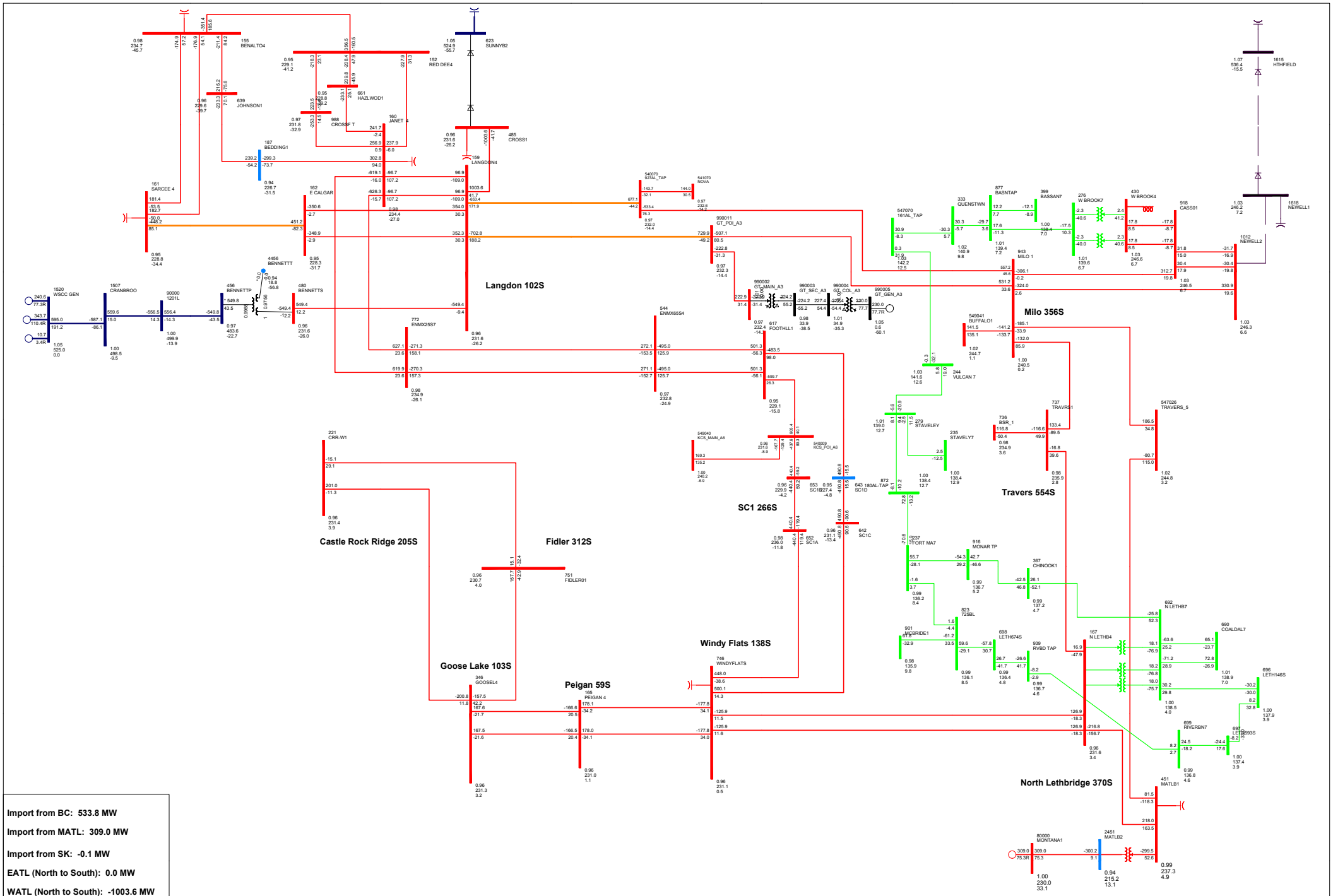
Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SP_POST_ALT3_SEN_P2373-P2378
CAT B-1109L (SS-65 - SHEPARD SS-25)
SAT, JAN 14 2023 20:55

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.000UV 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000


Langdon 102S
Milo 356S
Travers 554S
SC1 266S
Windy Flats 138S
North Lethbridge 370S
Peigan 59S
Goose Lake 103S
Castle Rock Ridge 205S
Fidler 312S
155 BENALTO4
639 JOHNSON1
187 BEDDING1
661 HAZLWOD1
988 CROSSF T
160 JANET 4
152 RED DEE4
623 SUNNYB2
485 CROSS1
159 LANGDON4
161 SARCEE 4
162 E CALGAR
4456 BENNETT
456 BENNETTP
480 BENNETTS
1520 WSCC GEN
1507 CRANBROO
90000 1201L
772 ENMX25S7
544 ENMX65S4
990011 GT_POI_A3
990002 GT_MAIN_A3
990003 GT_SEC_A3
990004 GT_COL_A3
990005 GT_GEN_A3
617 FOOTHLL1
547070 161AL_TAP
540070 927AL_TAP
541070 NOVA
333 QUENSTWN
877 BASNTAP
399 BASSAN7
276 W BROOK7
430 W BROOK4
918 CASS01
1012 NEWELL2
1615 HTHFIELD
1618 NEWELL1
1003.5 -16.2
549041 BUFFALO1
244 VULCAN 7
279 STAVELEY
235 STAVELY7
736 BSR_1
737 TRAVRS1
547026 TRAVERS_5
549040 KCS_MAIN_A6
540009 KCS_POI_A6
872 180AL-TAP
643 SC1D
653 SC1B
652 SC1A
642 SC1C
221 CRR-W1
751 FIDLER01
346 GOOSEL4
165 PEIGAN 4
746 WINDYFLATS
237 NFORT MA7
916 MONAR TP
367 CHINOOK1
823 725BL
901 MCBRIDE1
698 LETH674S
939 RVBD TAP
167 N LETHB4
692 N LETHB7
690 COALDAL7
696 LETH146S
699 RIVERBN7
697 LETH693S
451 MATLB1
2451 MATLB2
80000 MONTANA1
Import from BC: 184.9 MW
Import from MATL: 309.0 MW
Import from SK: -0.1 MW
EATL (North to South): -1003.5 MW
WATL (North to South): -1003.6 MW
P2396 Georgetown Solar: 230.0 MW
Georgetown Solar Project
AESO Project Number: P2396
SCENARIO: P2396_SP_POST_ALT3_SEN_P2373-P2378
CAT B-1088L (NEWELL 2075S - CASSILS 324S)
SAT, JAN 14 2023 20:56
Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.0000V 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000



Import from BC: 533.8 MW

Import from MATL: 309.0 MW

Import from SK: -0.1 MW

EATL (North to South): 0.0 MW

WATL (North to South): -1003.6 MW

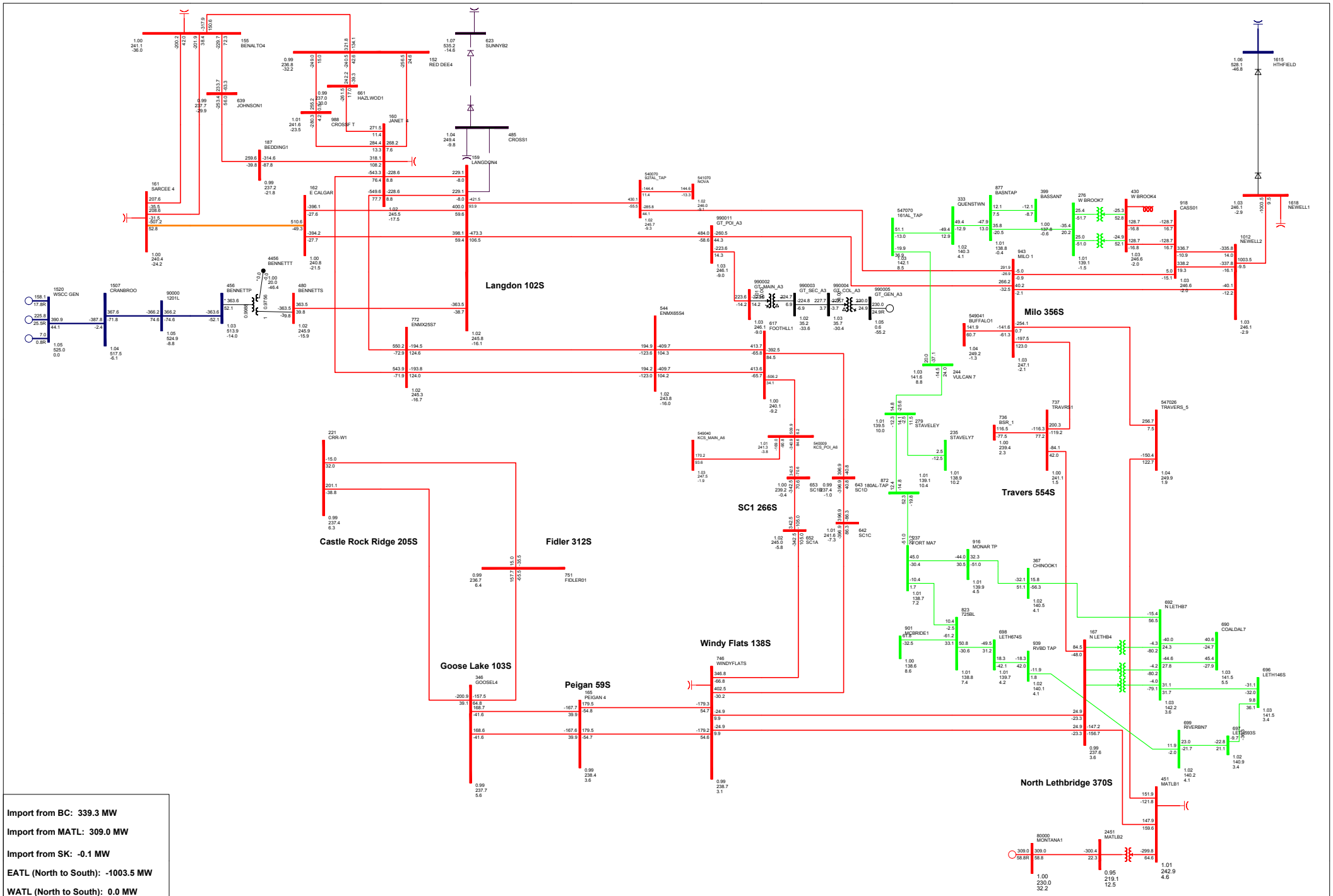
P2396 Georgetown Solar: 230.0 MW

Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SP_POST_ALT3_SEN_P2373-P2378
CAT B-EATL
SAT, JAN 14 2023 20:56

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.000OV 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000



Import from BC: 339.3 MW

Import from MATL: 309.0 MW

Import from SK: -0.1 MW

EATL (North to South): -1003.5 MW

WATL (North to South): 0.0 MW

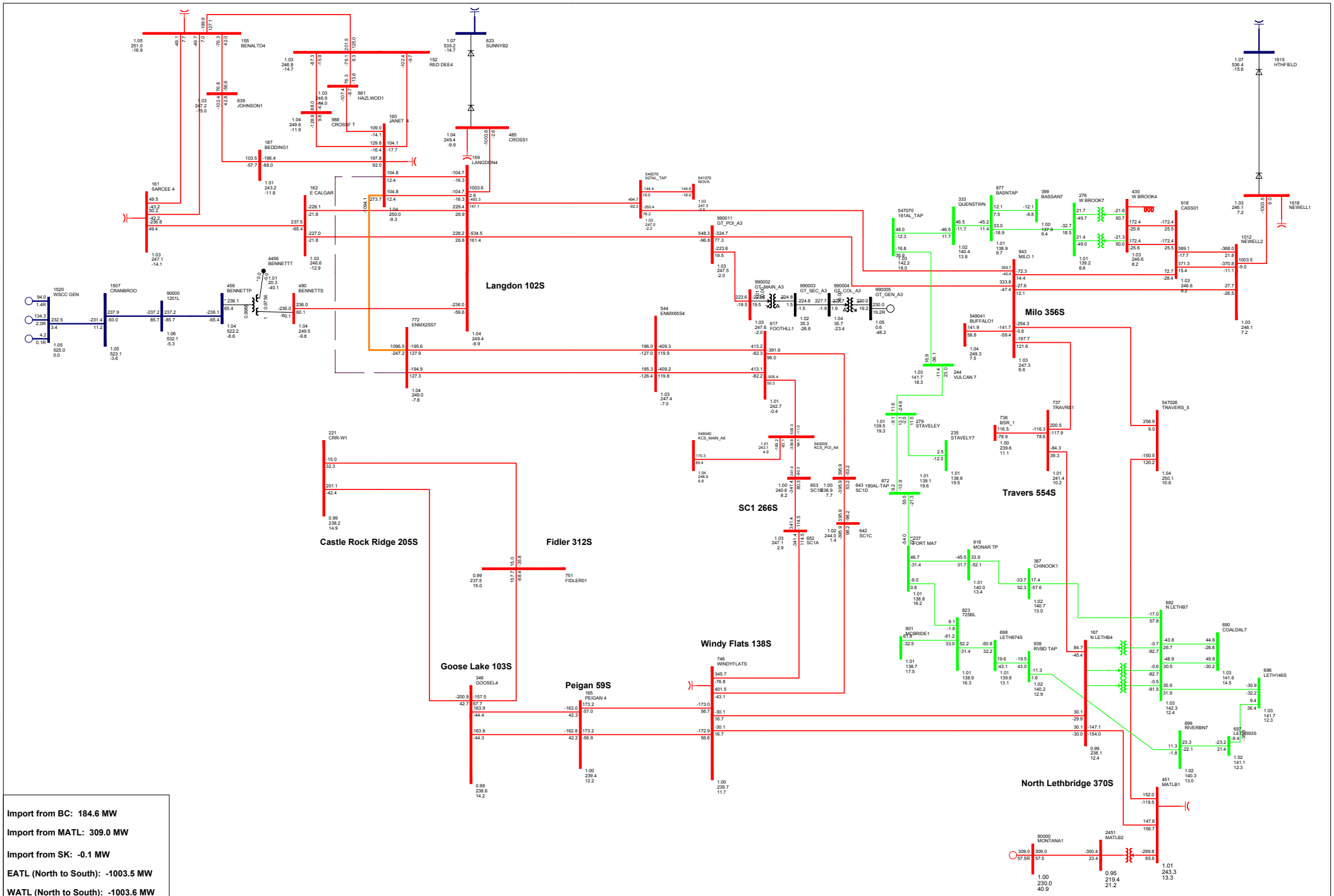
P2396 Georgetown Solar: 230.0 MW

Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SP_POST_ALT3_SEN_P2373-P2378
CAT B-WATL
SAT, JAN 14 2023 20:56

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.000OV 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000

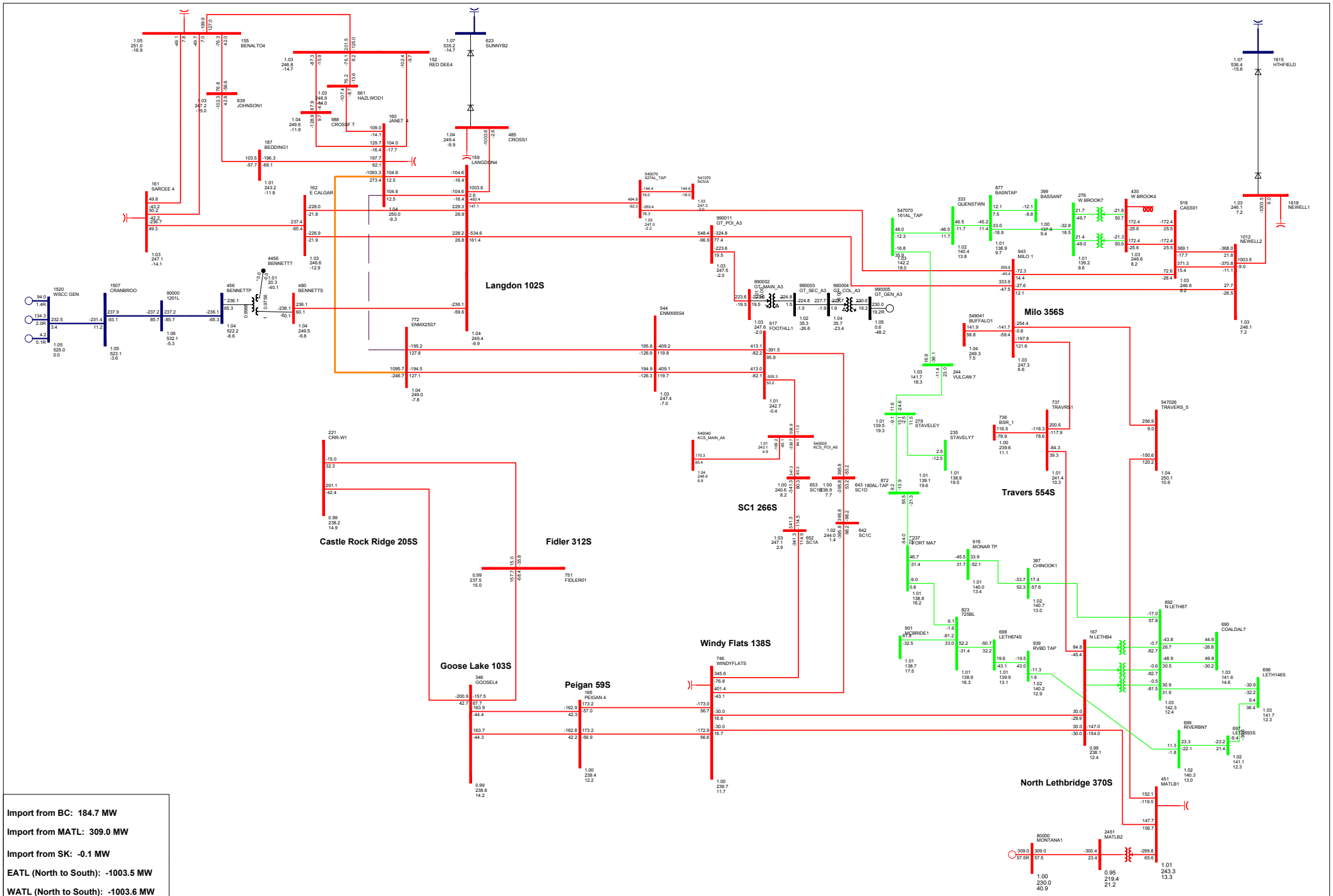


Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SP_POST_ALT3_SEN_P2373-P2378
CAT B-1003L (JANET 74S - SS-25)
SAT, JAN 14 2023 20:56

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.000OV 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000

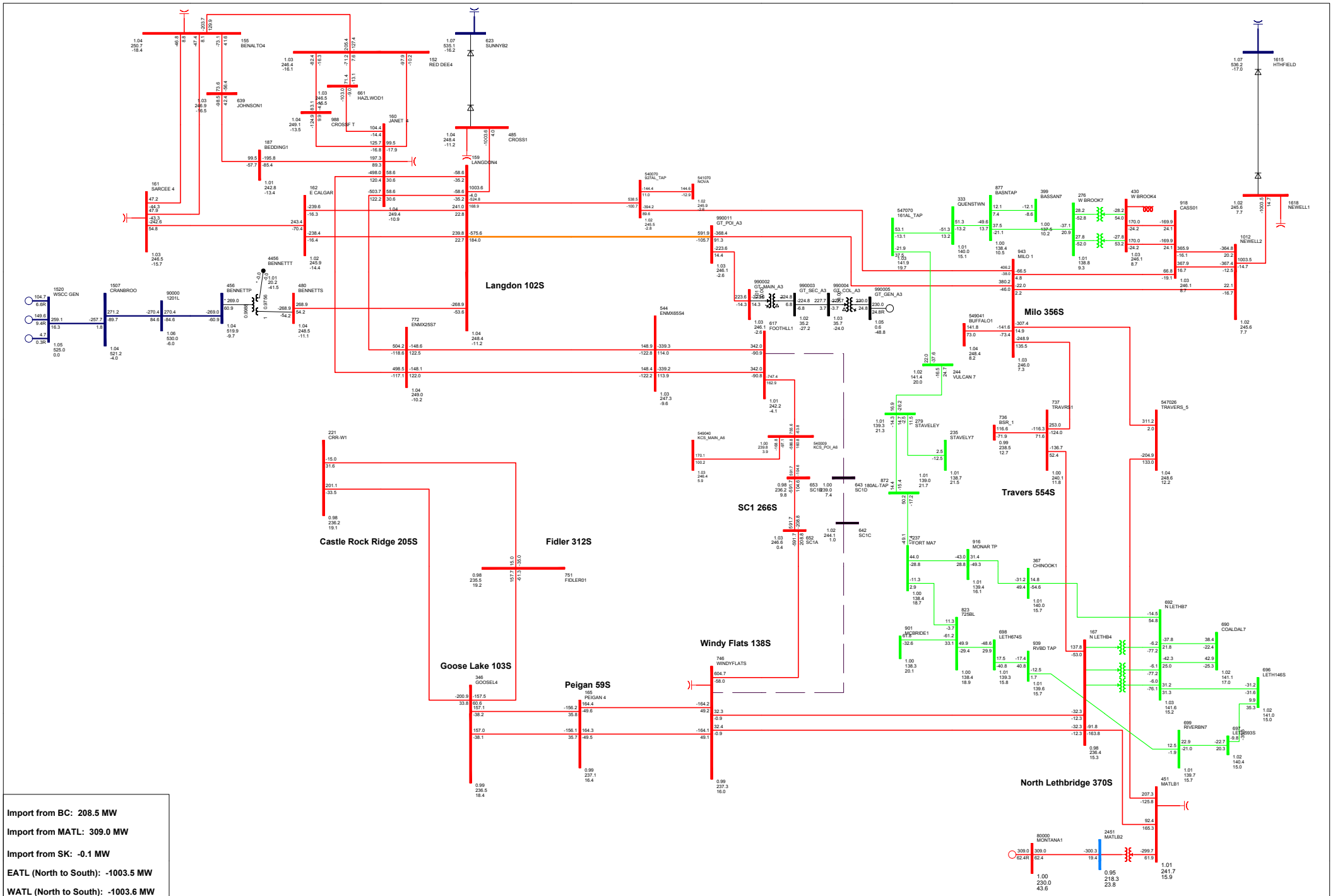


Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SP_POST_ALT3_SEN_P2373-P2378
CAT B-985L (JANET 74S - SS-25)
SAT, JAN 14 2023 20:56

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.000OV 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000

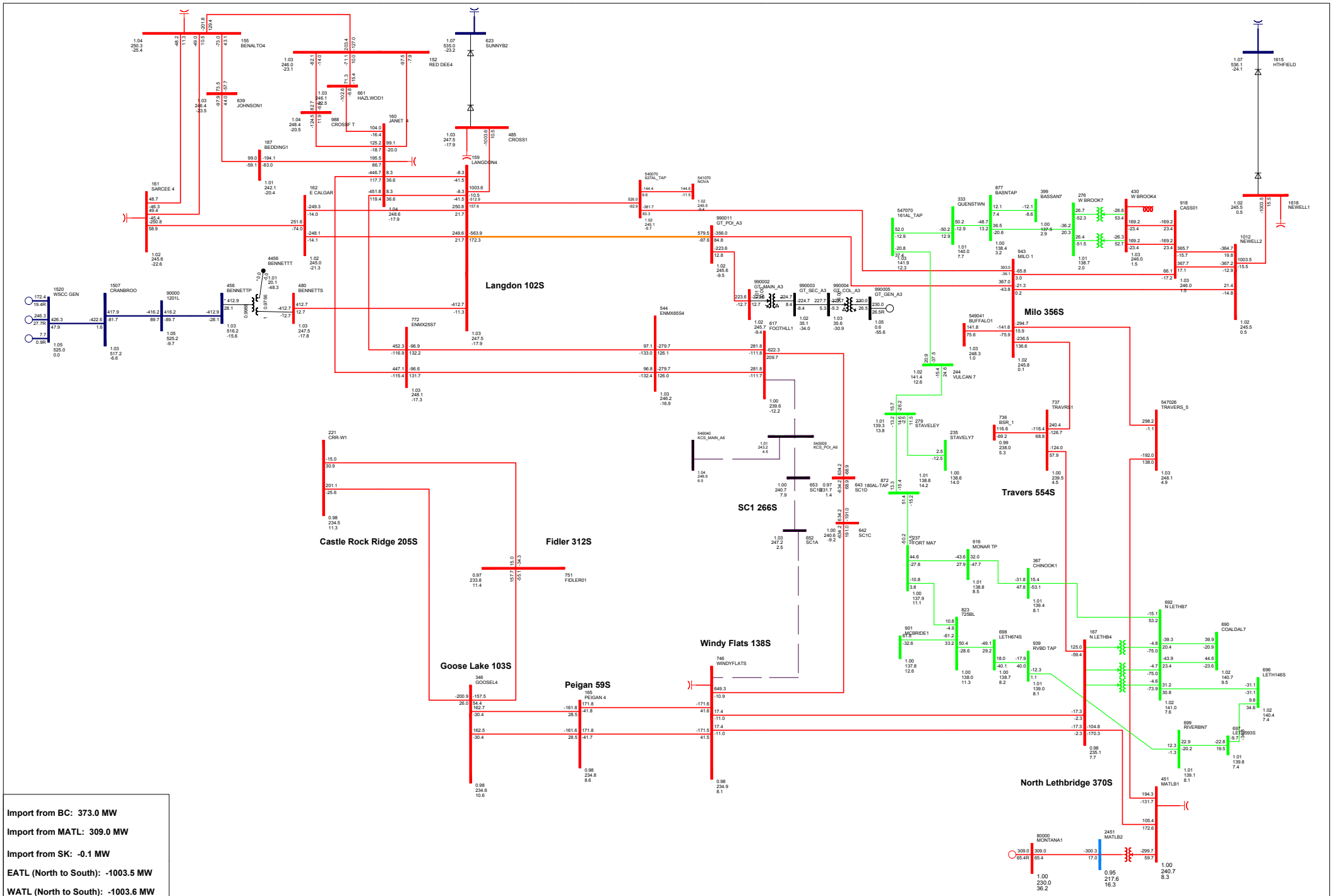


Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SP_POST_ALT3_SEN_P2373-P2378
CAT B-1037L (FOOTHILLS 237S - WINDY FLATS 138S)
SAT, JAN 14 2023 20:56

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.0000V 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000

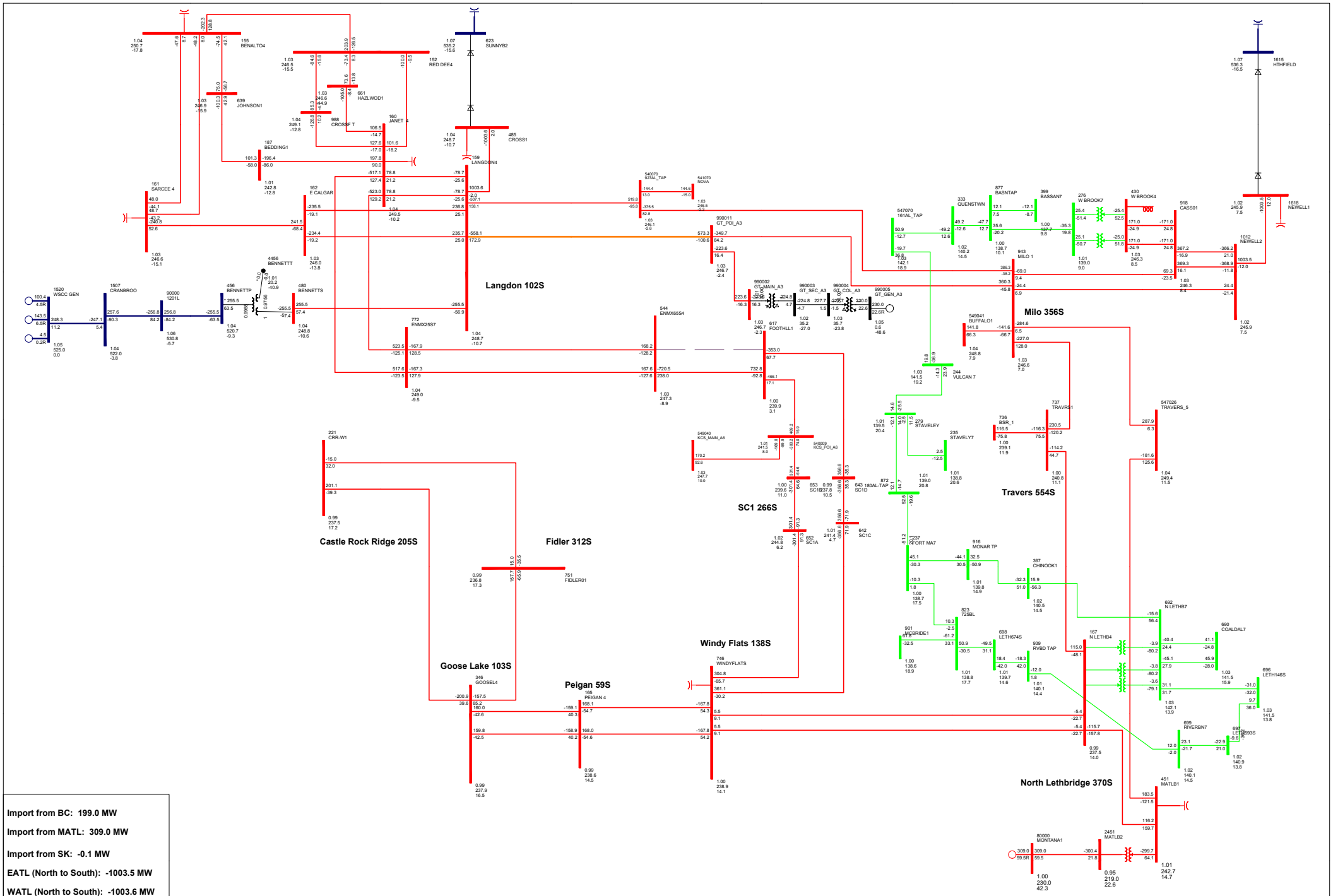


Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SP_POST_ALT3_SEN_P2373-P2378
CAT B-1038L (FOOTHILLS 237S - WINDY FLATS 138S)
SAT, JAN 14 2023 20:56

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.000OV 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000

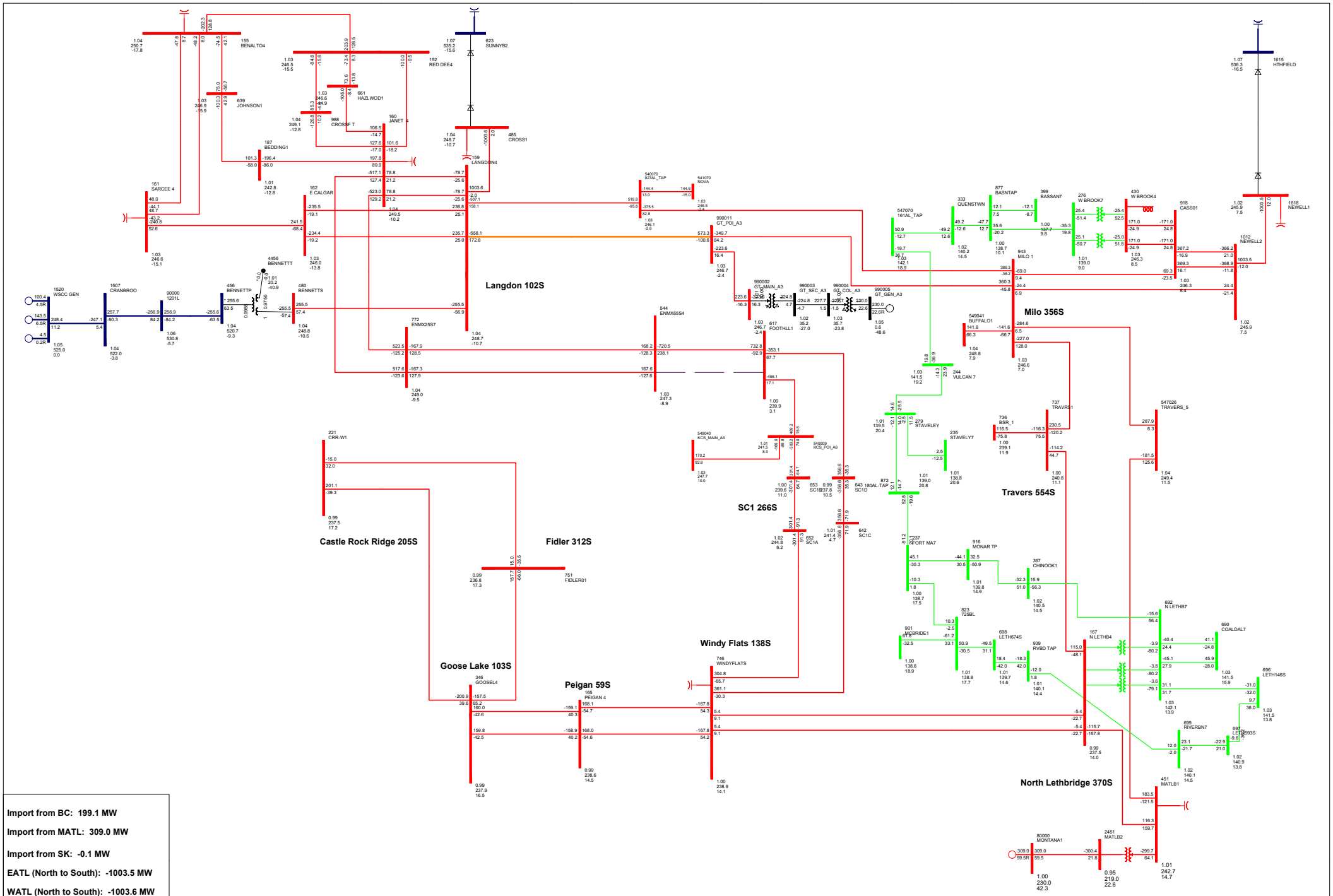


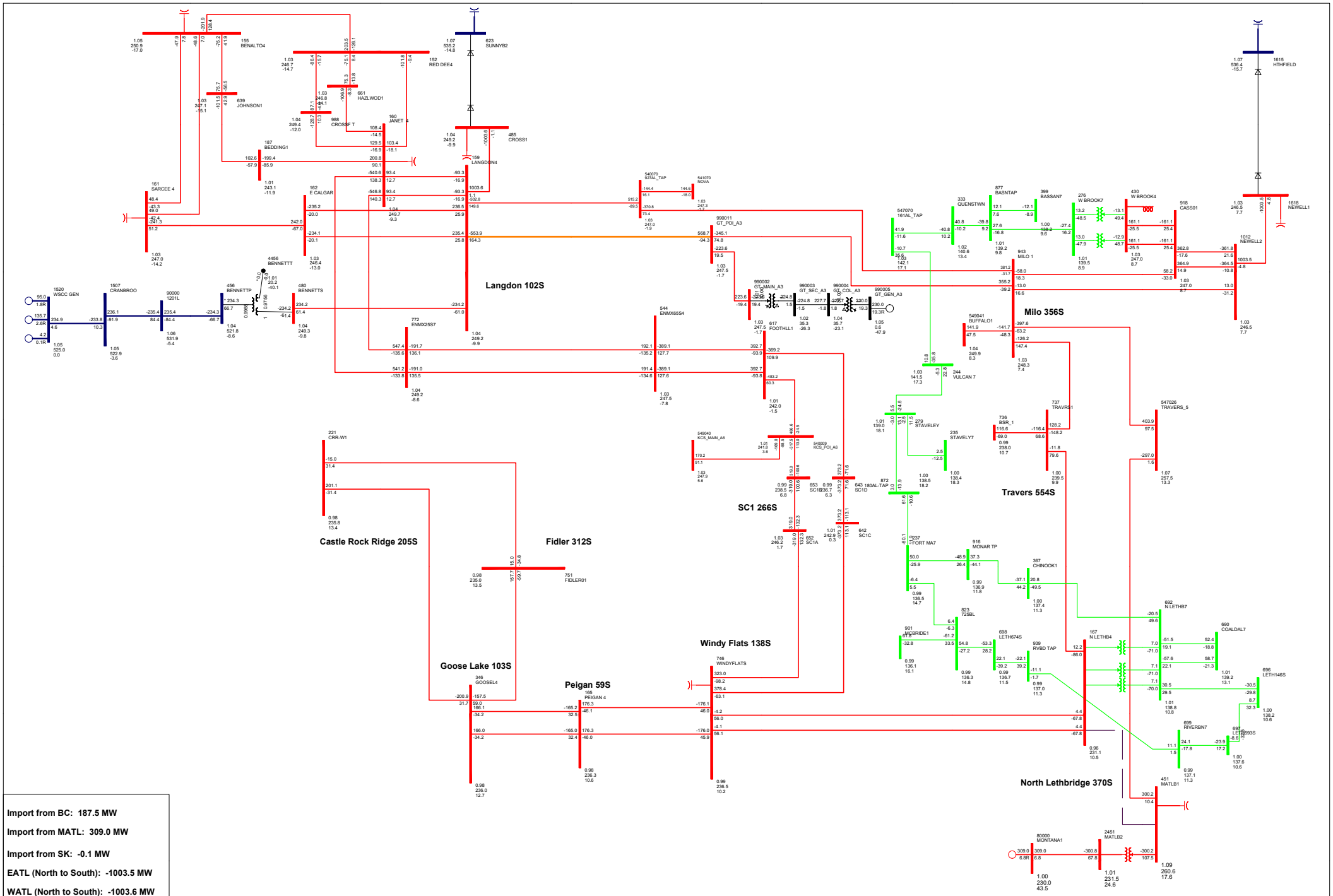
Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SP_POST_ALT3_SEN_P2373-P2378
CAT B-1106L (SS-65 - FOOTHILLS 237S)
SAT, JAN 14 2023 20:57

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.000pu 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000


Langdon 102S
Milo 356S
Travers 554S
SC1 266S
Castle Rock Ridge 205S
Fidler 312S
Windy Flats 138S
Goose Lake 103S
Peigan 59S
North Lethbridge 370S
BENALTO4
JOHNSON1
BEDDING1
SARCEE 4
E CALGAR
BENNETTP
BENNETTS
CRANBROO
WSCC GEN
HAZLWOD1
CROSSF T
JANET 4
RED DEE4
SUNNYB2
CROSS1
LANGDON4
ENMX25S7
ENMX65S4
FOOTHLL1
GT_MAIN_A3
GT_SEC_A3
GT_COL_A3
GT_GEN_A3
GT_POI_A3
NOVA
161AL_TAP
327AL_TAP
NOVA
BASNTAP
QUENSTWN
BASSAN7
W BROOK7
W BROOK4
CASS01
NEWELL2
NEWELL1
HTHFIELD
MILO 1
VULCAN 7
BUFFALO1
STAVELEY
STAVELY7
TRAVRS1
BSR_1
TRAVERS_5
MONAR TP
CHINOOK1
RVBD TAP
N LETHB4
N LETHB7
COALDAL7
LETH674S
LETH146S
LETH693S
RIVERBN7
MATLB1
MATLB2
MONTANA1
PORT MA7
MCBRIDE1
725BL
CRR-W1
FIDLER01
GOOSEL4
PEIGAN 4
WINDYFLATS
KCS_MAIN_A6
KCS_POI_A6
180AL-TAP
SC1A
SC1B
SC1C
SC1D
Import from BC: 199.1 MW
Import from MATL: 309.0 MW
Import from SK: -0.1 MW
EATL (North to South): -1003.5 MW
WATL (North to South): -1003.6 MW
P2396 Georgetown Solar: 230.0 MW
Georgetown Solar Project
AESO Project Number: P2396
SCENARIO: P2396_SP_POST_ALT3_SEN_P2373-P2378
CAT B-1107L (SS-65 - FOOTHILLS 237S)
SAT, JAN 14 2023 20:57
Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.0000V 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000

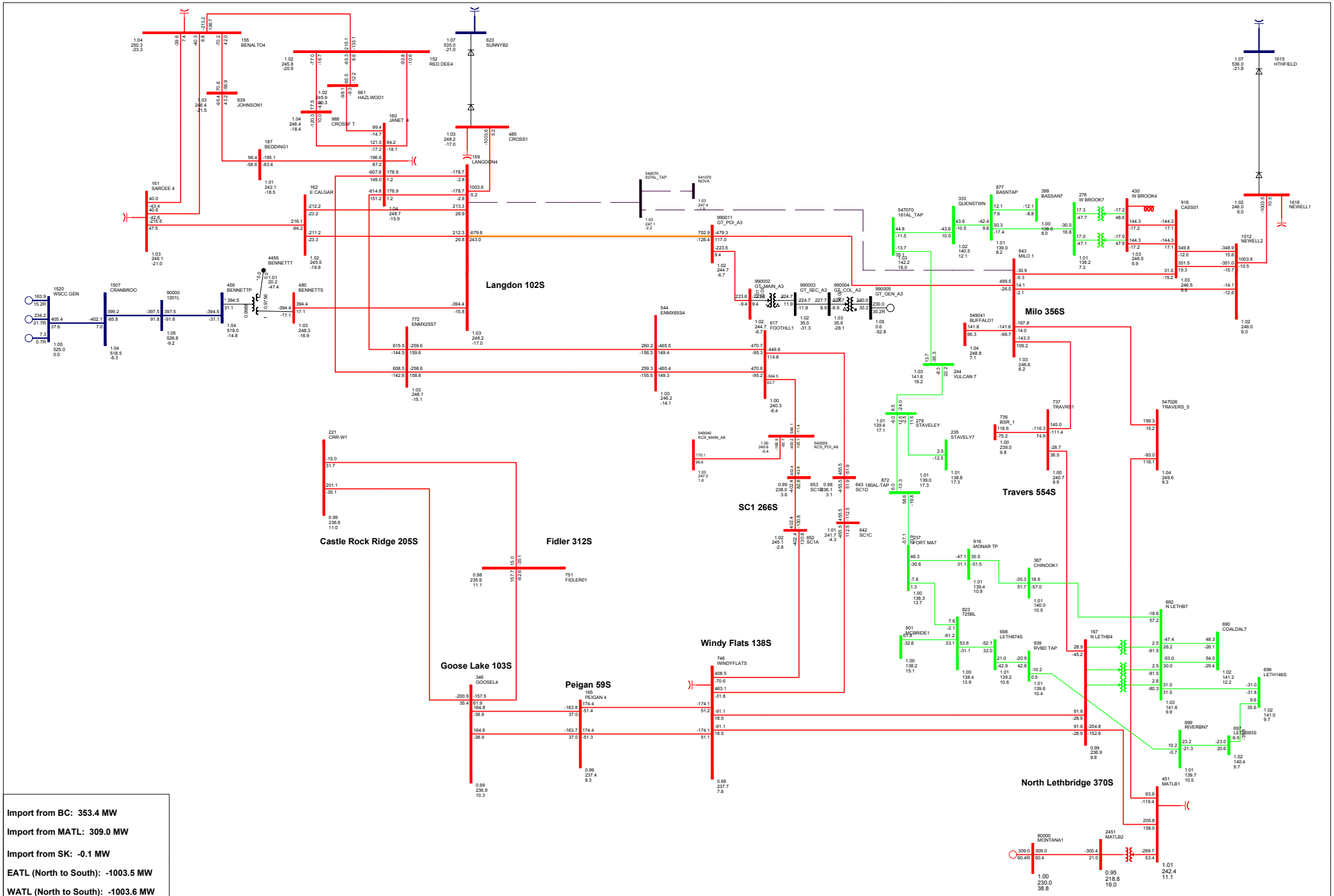


Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SP_POST_ALT3_SEN_P2373-P2378
CAT B-940L (N. LETHBRIDGE 370S - PICTURE BUTTE 120S)
SAT, JAN 14 2023 20:57

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.000OV 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000

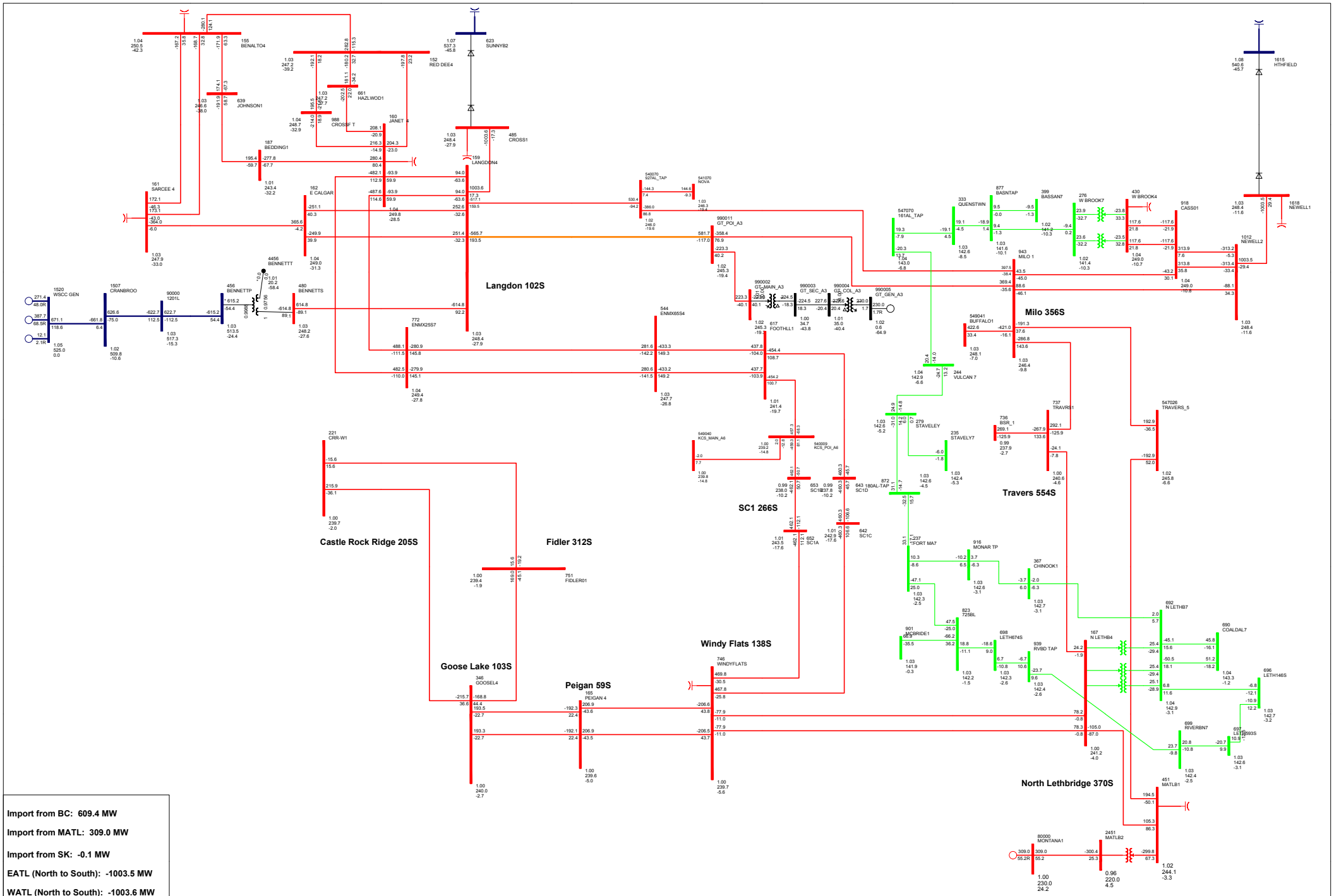


Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SP_POST_ALT3_SEN_P2373-P2378
CAT B-927L (LANGDON 102S - MILO 356S)
SAT, JAN 14 2023 20:57

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.000OV 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000

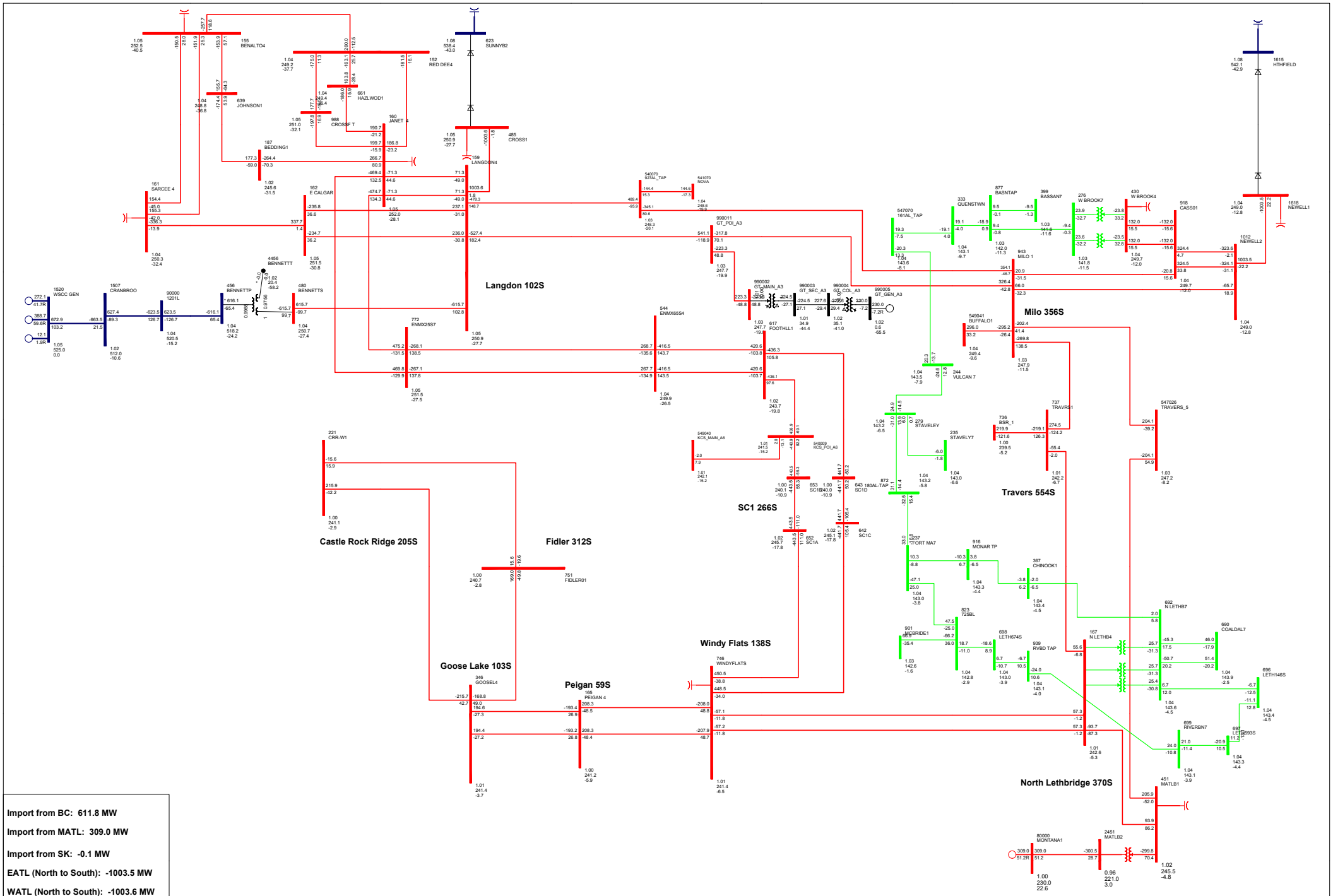


Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SL_POST_ALT3_SEN_P2373-P2378_PRE-CURTAIL
CAT A-NO CONTINGENCY
SUN, MAR 05 2023 10:59

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.000OV 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000



Import from BC: 611.8 MW

Import from MATL: 309.0 MW

Import from SK: -0.1 MW

EATL (North to South): -1003.5 MW

WATL (North to South): -1003.6 MW

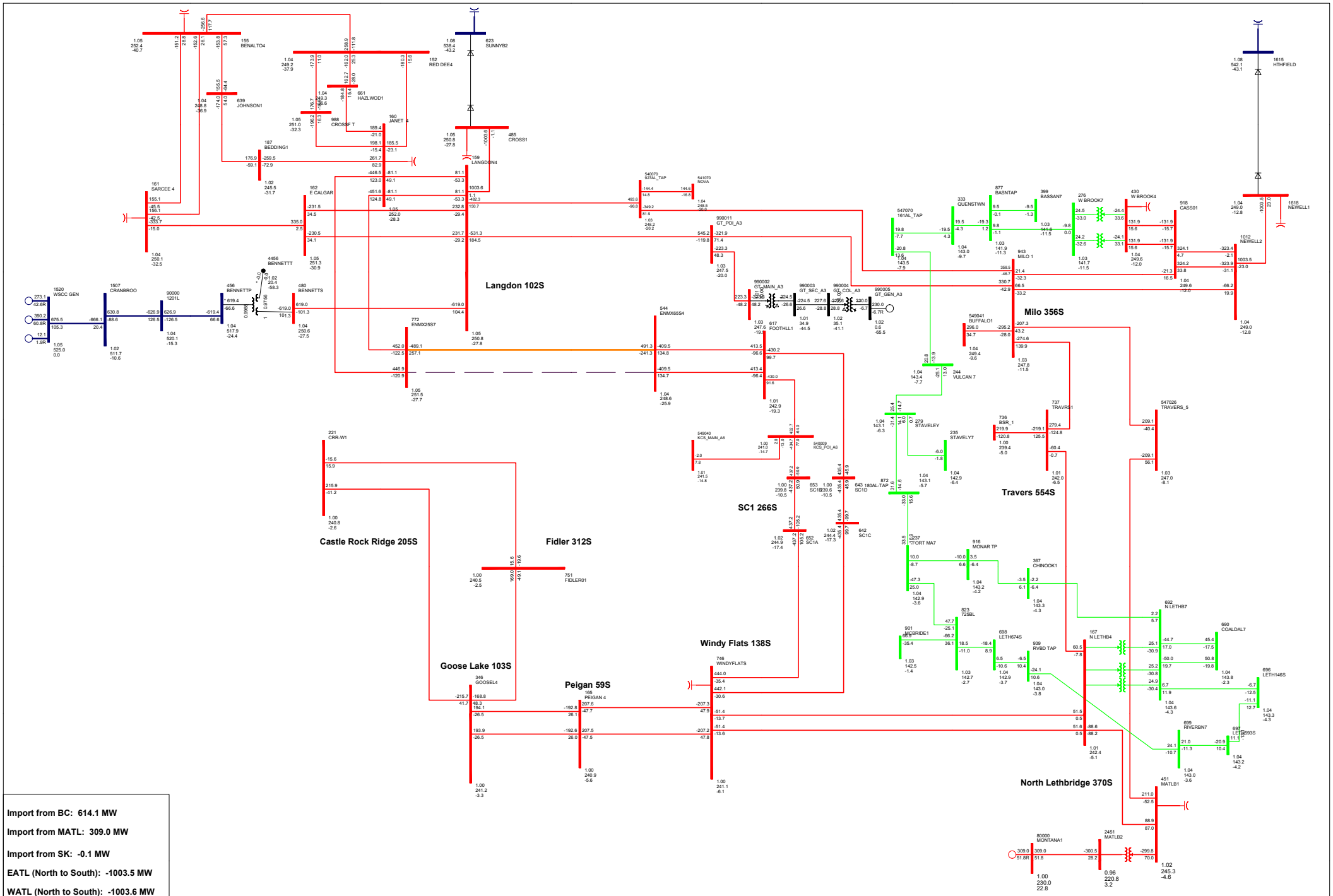
P2396 Georgetown Solar: 230.0 MW

Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SL_POST_ALT3_SEN_P2373-P2378
CAT A-NO CONTINGENCY
SAT, JAN 14 2023 20:52

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.000PU 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000

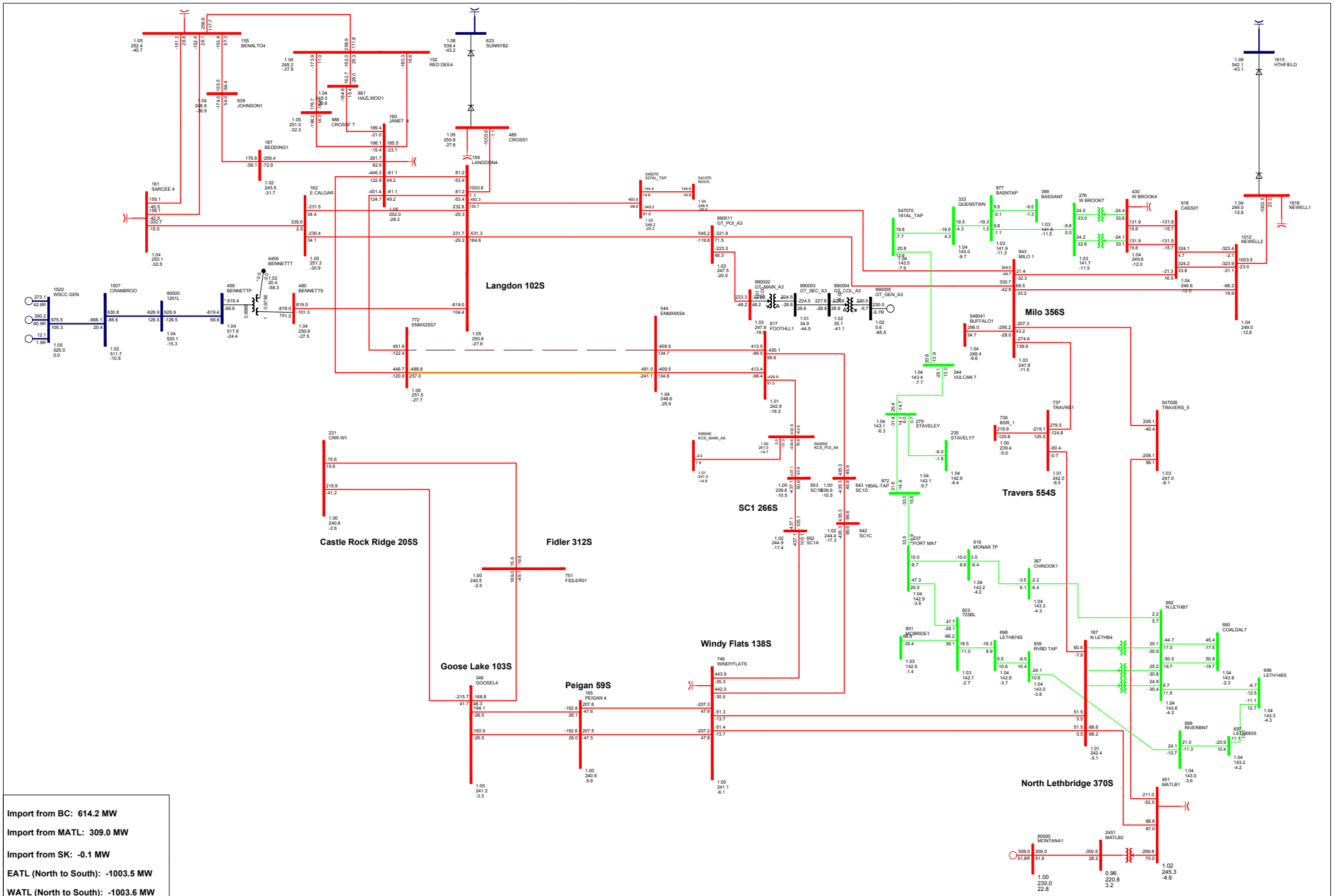


Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SL_POST_ALT3_SEN_P2373-P2378
CAT B-1080L (SS-65 - SHEPARD SS-25)
SAT, JAN 14 2023 20:52

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.000OV 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000

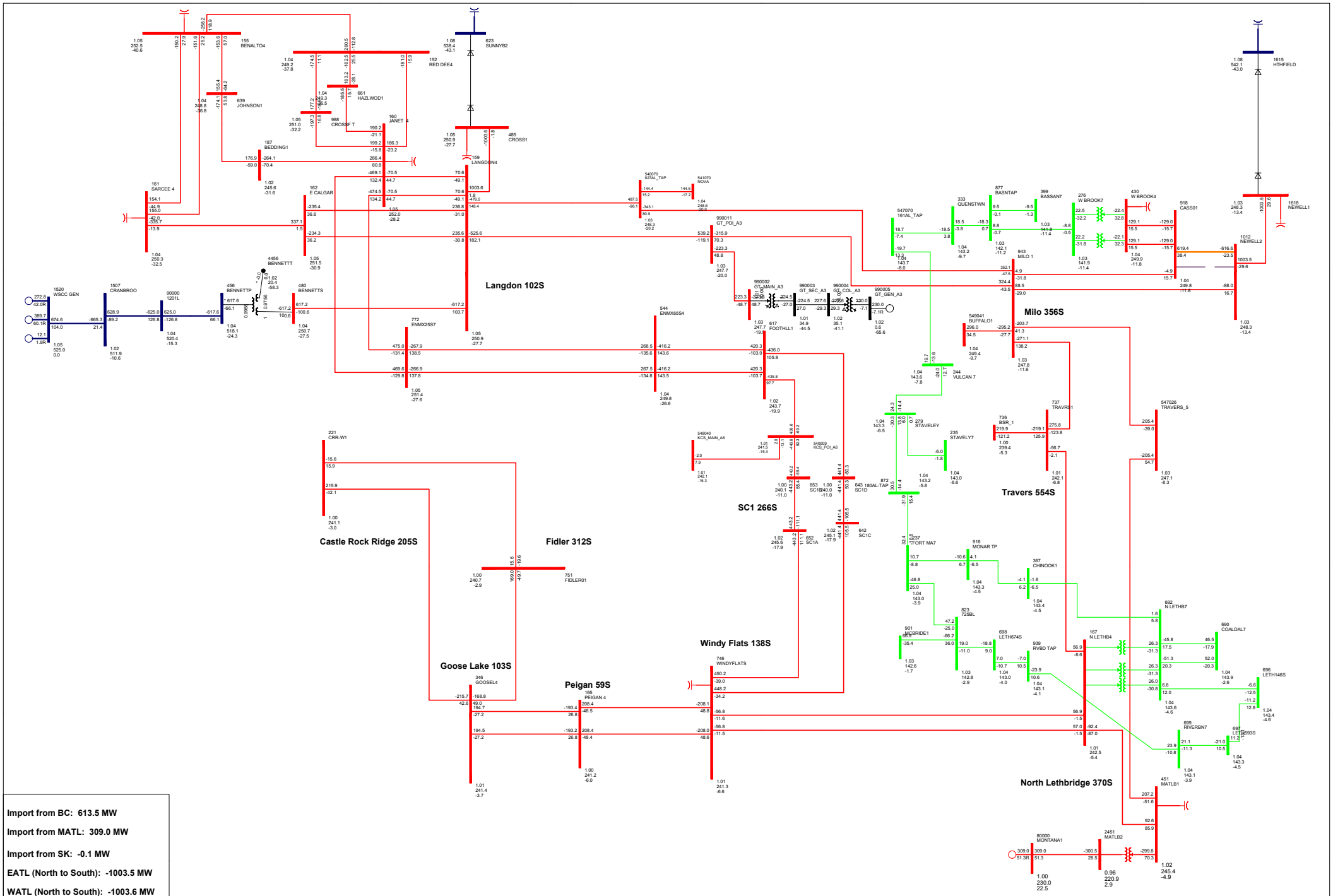


Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SL_POST_ALT3_SEN_P2373-P2378
CAT B-1109L (SS-65 - SHEPARD SS-25)
SAT, JAN 14 2023 20:52

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.000OV 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000



Import from BC: 613.5 MW

Import from MATL: 309.0 MW

Import from SK: -0.1 MW

EATL (North to South): -1003.5 MW

WATL (North to South): -1003.6 MW

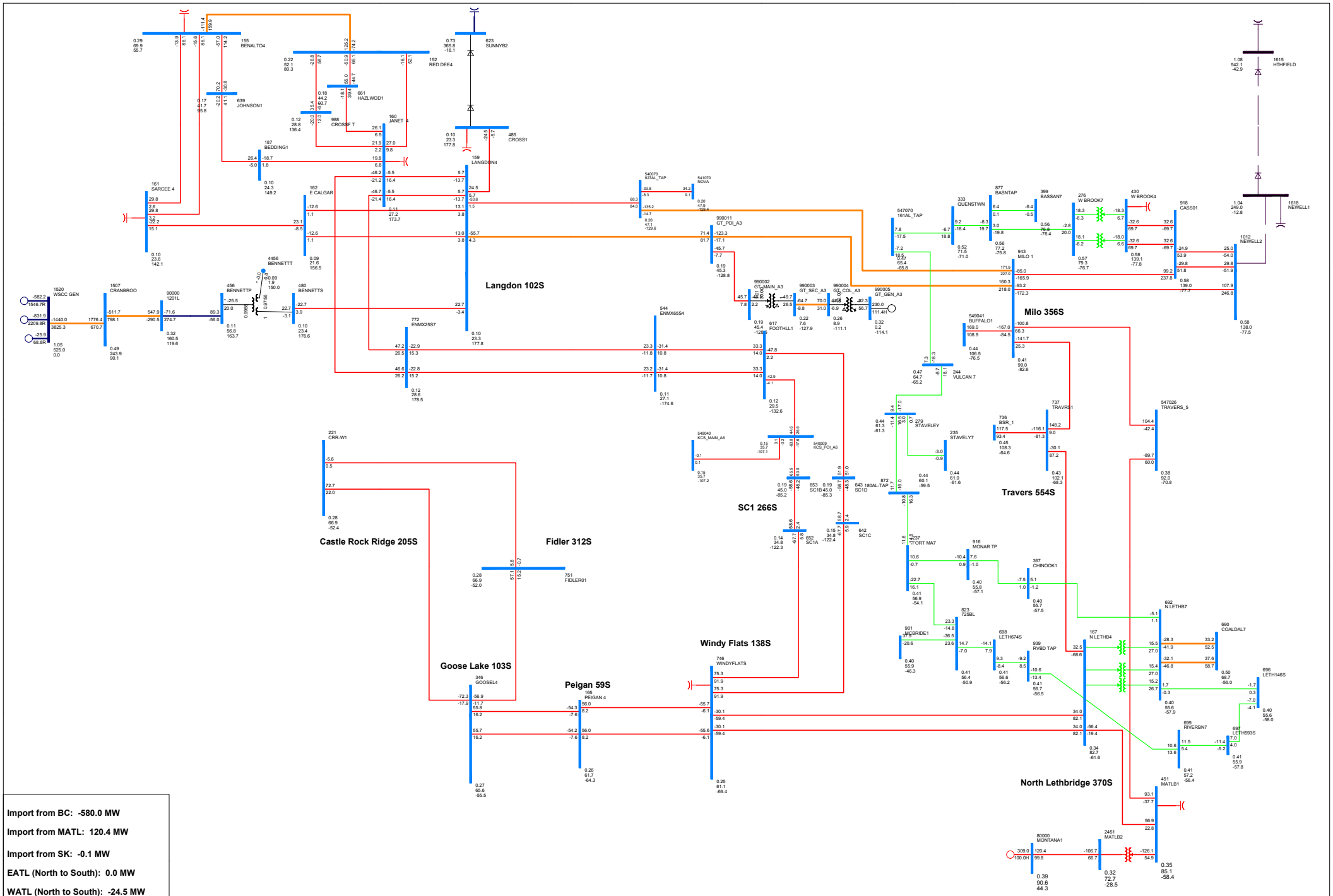
P2396 Georgetown Solar: 230.0 MW

Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SL_POST_ALT3_SEN_P2373-P2378
CAT B-1088L (NEWELL 2075S - CASSILS 324S)
SAT, JAN 14 2023 20:53

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.000UV 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000



Import from BC: -580.0 MW

Import from MATL: 120.4 MW

Import from SK: -0.1 MW

EATL (North to South): 0.0 MW

WATL (North to South): -24.5 MW

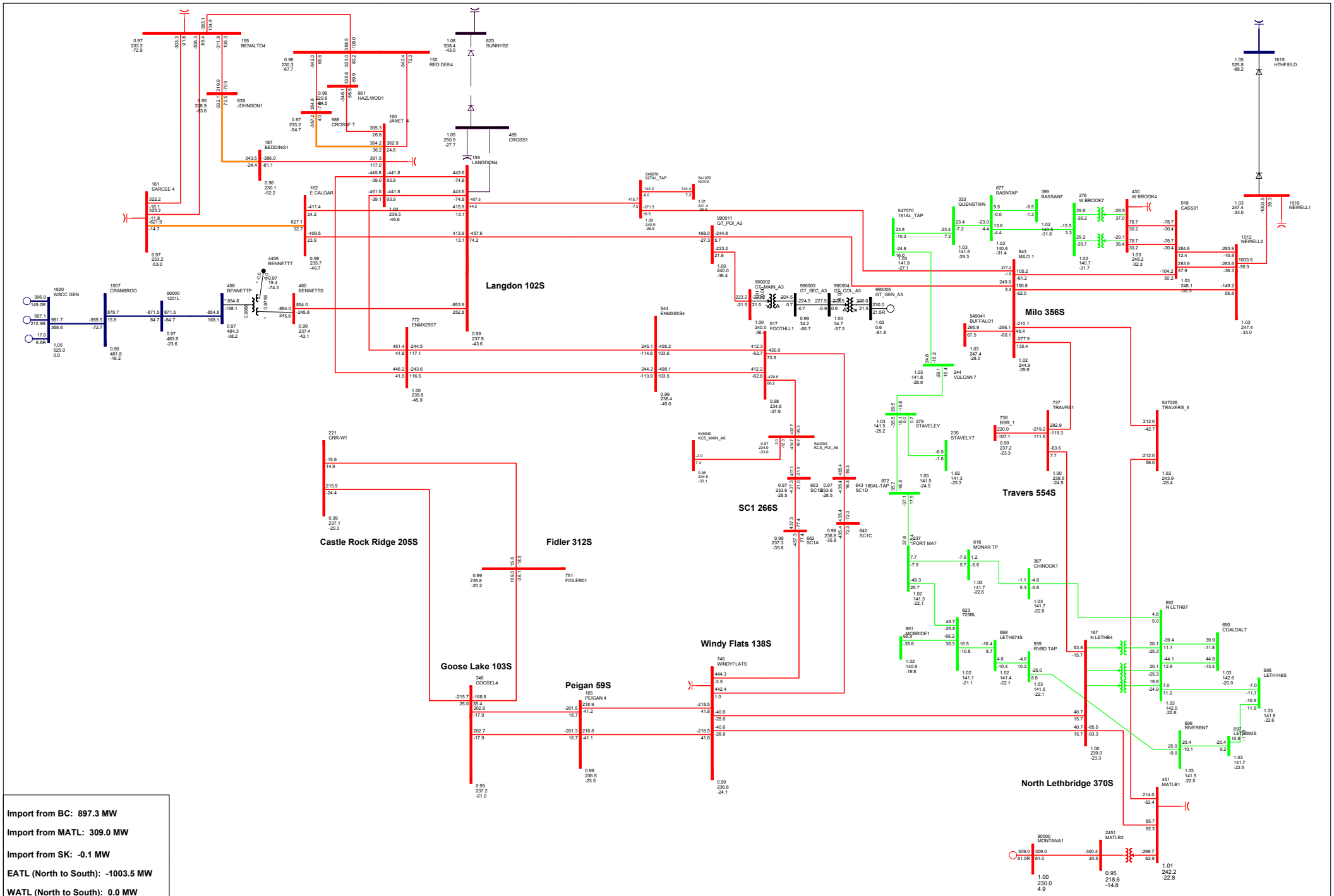
P2396 Georgetown Solar: 230.0 MW

Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SL_POST_ALT3_SEN_P2373-P2378
CAT B-EATL
SAT, JAN 14 2023 20:53

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.000OV 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000

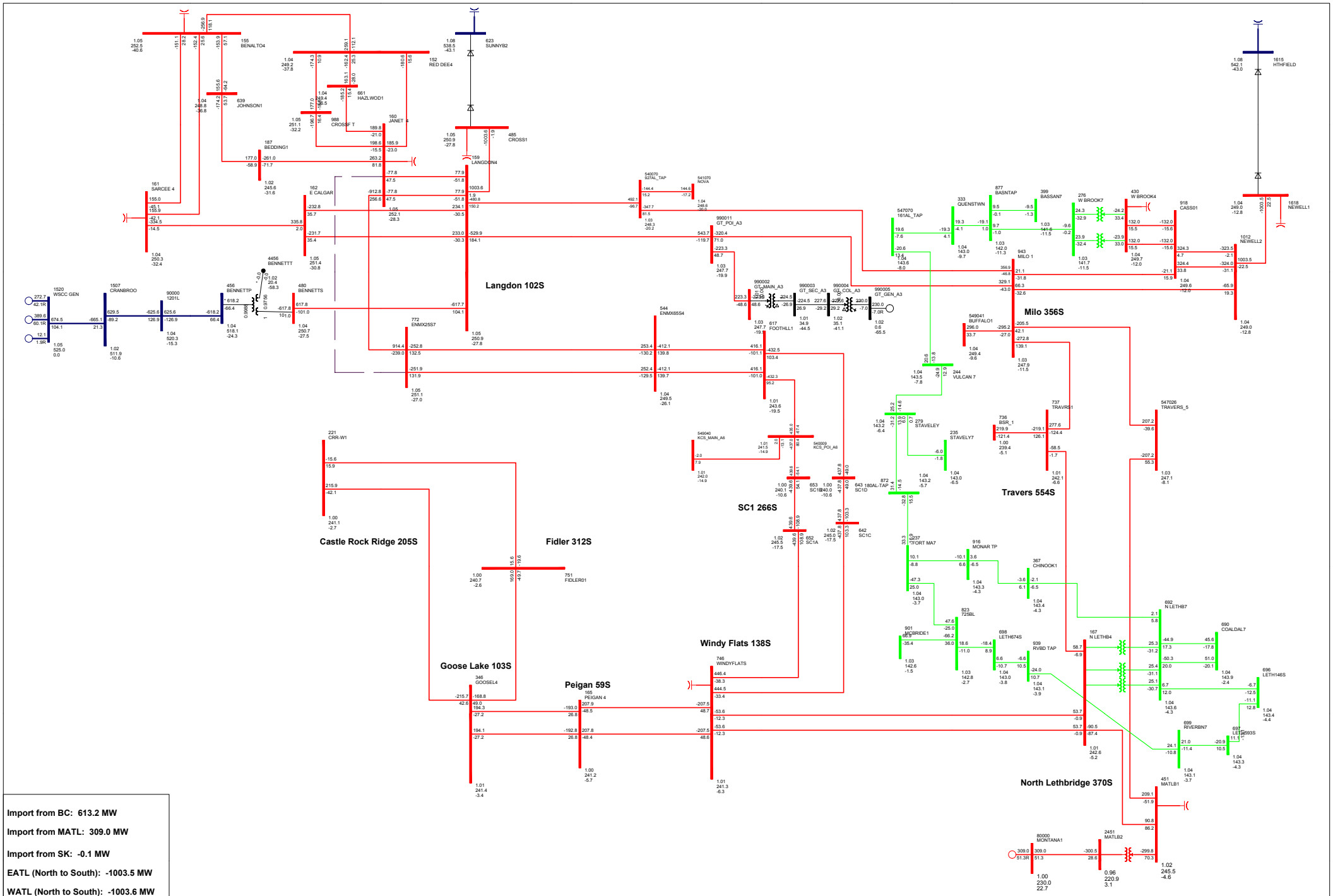


Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SL_POST_ALT3_SEN_P2373-P2378
CAT B-WATL
SAT, JAN 14 2023 20:53

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.000OV 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000



Import from BC: 613.2 MW

Import from MATL: 309.0 MW

Import from SK: -0.1 MW

EATL (North to South): -1003.5 MW

WATL (North to South): -1003.6 MW

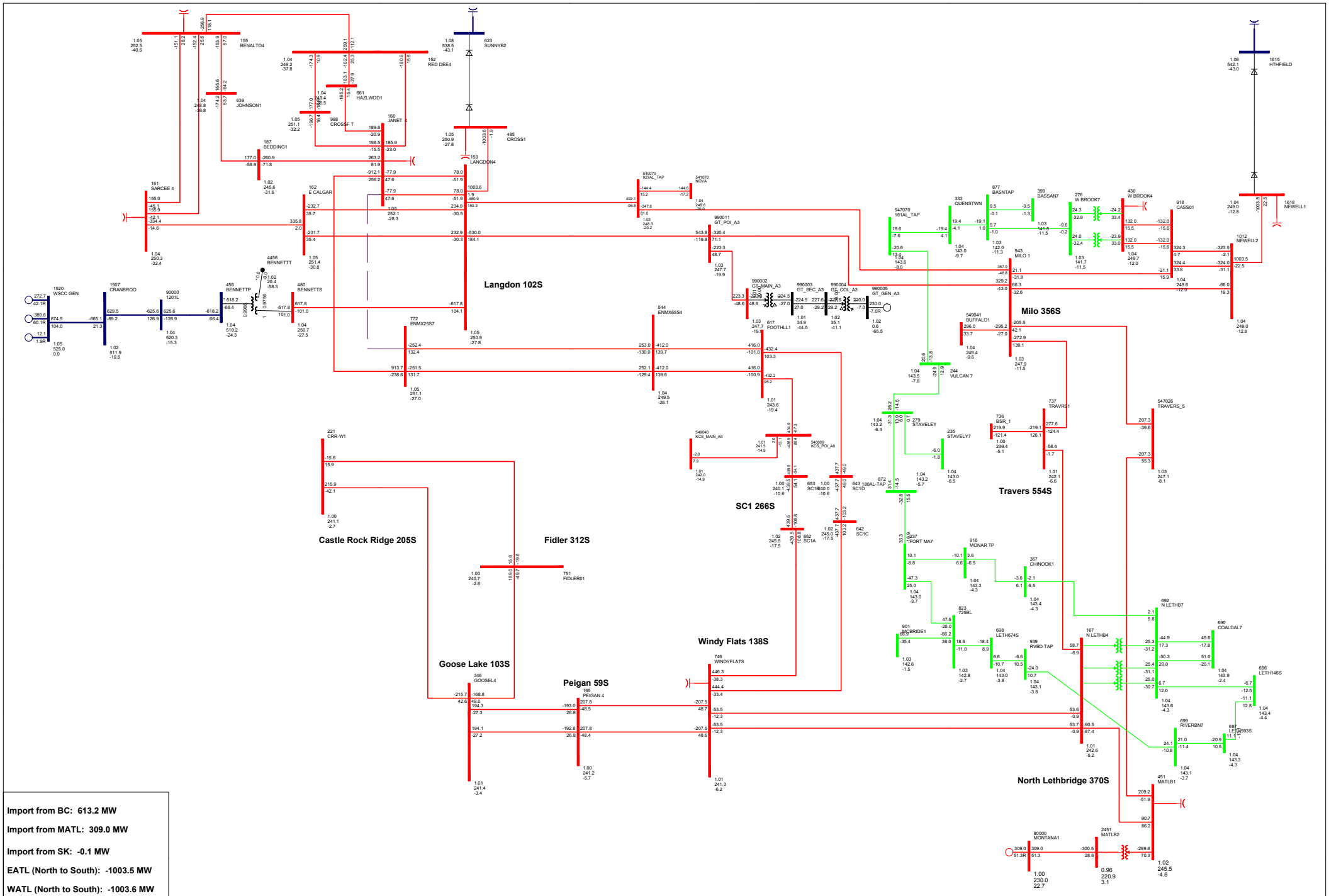
P2396 Georgetown Solar: 230.0 MW

Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SL_POST_ALT3_SEN_P2373-P2378
CAT B-1003L (JANET 74S - SS-25)
SAT, JAN 14 2023 20:53

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.000OV 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000



Import from BC: 613.2 MW

Import from MATL: 309.0 MW

Import from SK: -0.1 MW

EATL (North to South): -1003.5 MW

WATL (North to South): -1003.6 MW

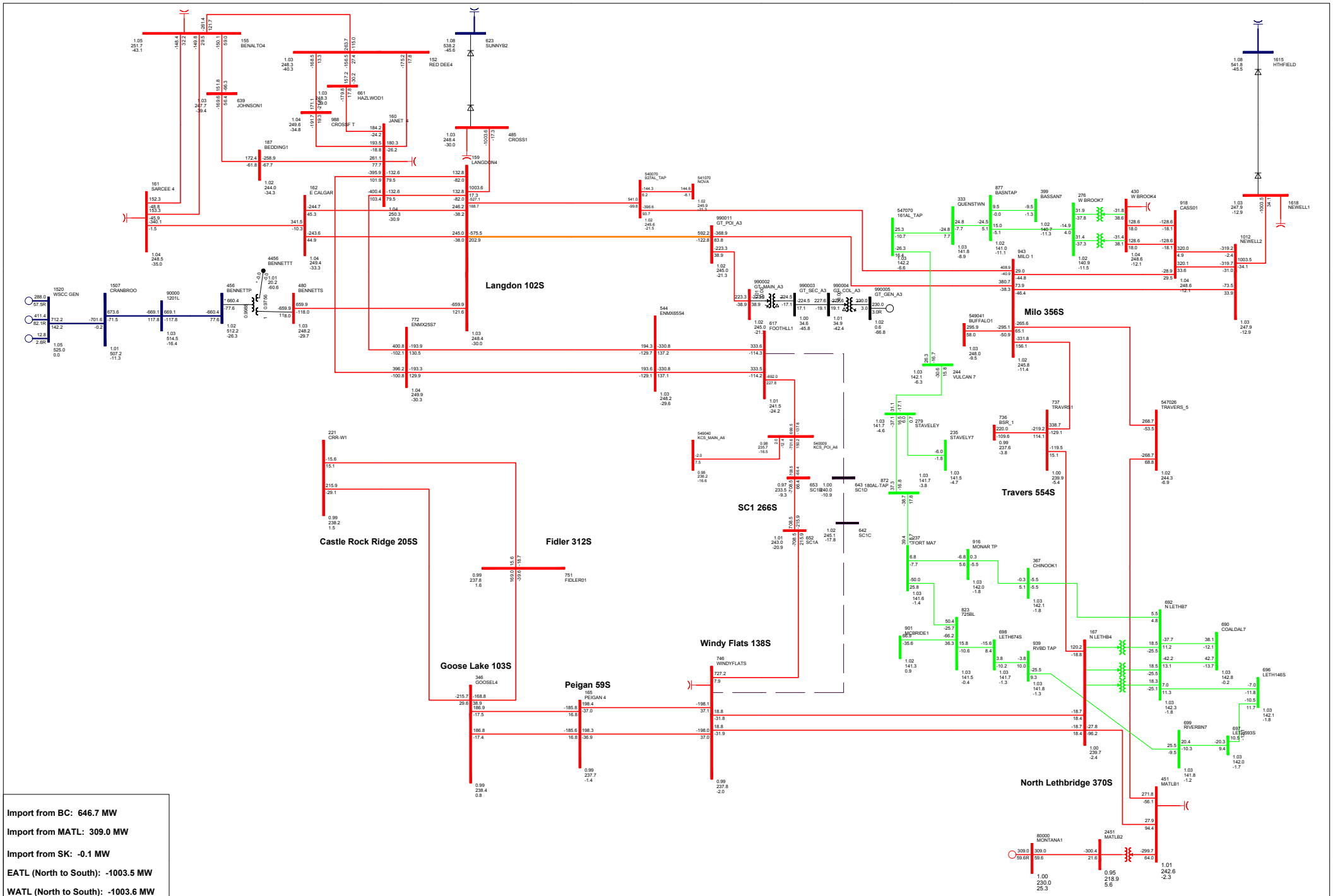
P2396 Georgetown Solar: 230.0 MW

Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SL_POST_ALT3_SEN_P2373-P2378
CAT B-985L (JANET 74S - SS-25)
SAT, JAN 14 2023 20:53

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.000OV 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000



Import from BC: 646.7 MW

Import from MATL: 309.0 MW

Import from SK: -0.1 MW

EATL (North to South): -1003.5 MW

WATL (North to South): -1003.6 MW

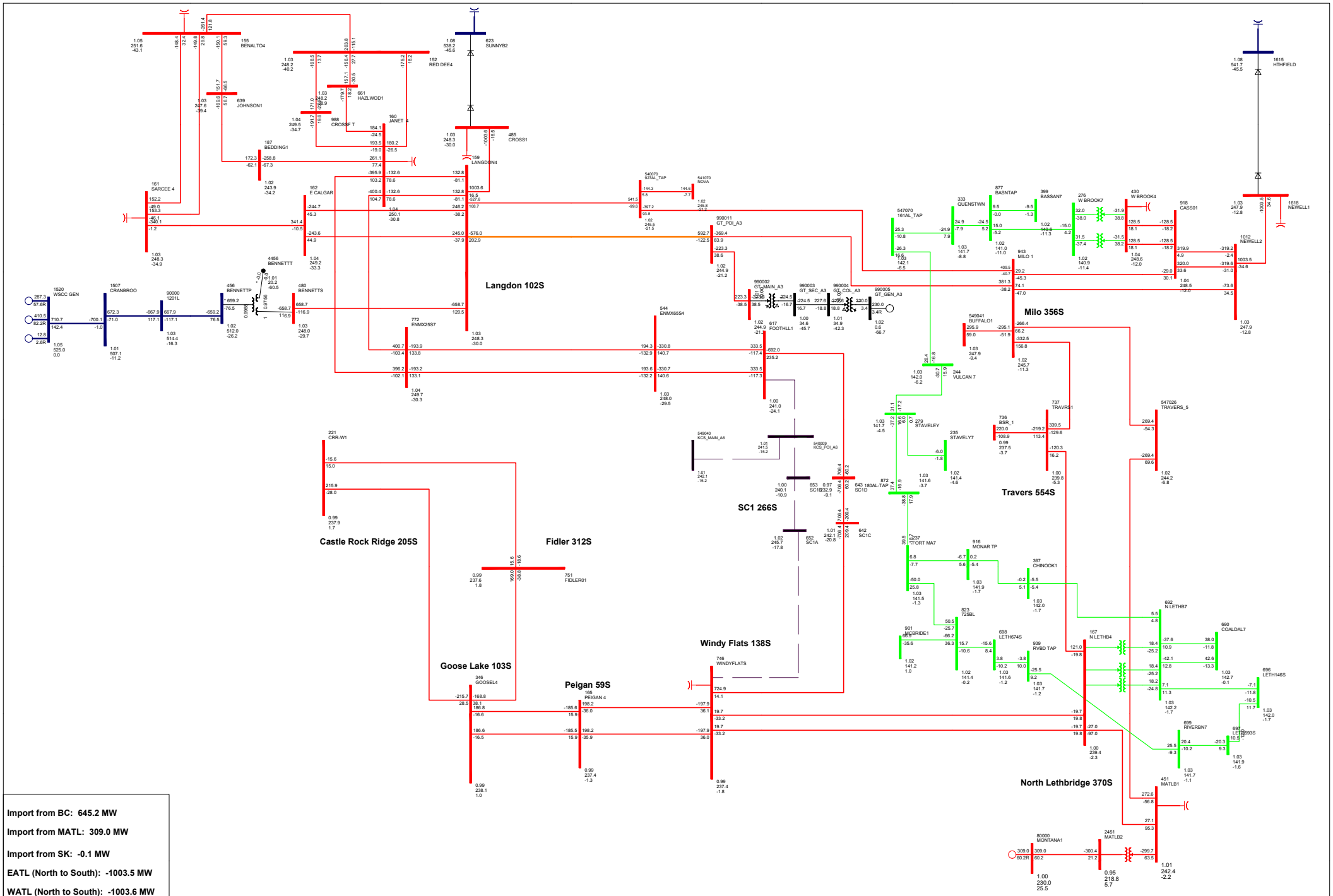
P2396 Georgetown Solar: 230.0 MW

Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SL_POST_ALT3_SEN_P2373-P2378
CAT B-1037L (FOOTHILLS 237S - WINDY FLATS 138S)
SAT, JAN 14 2023 20:53

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.000OV 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000

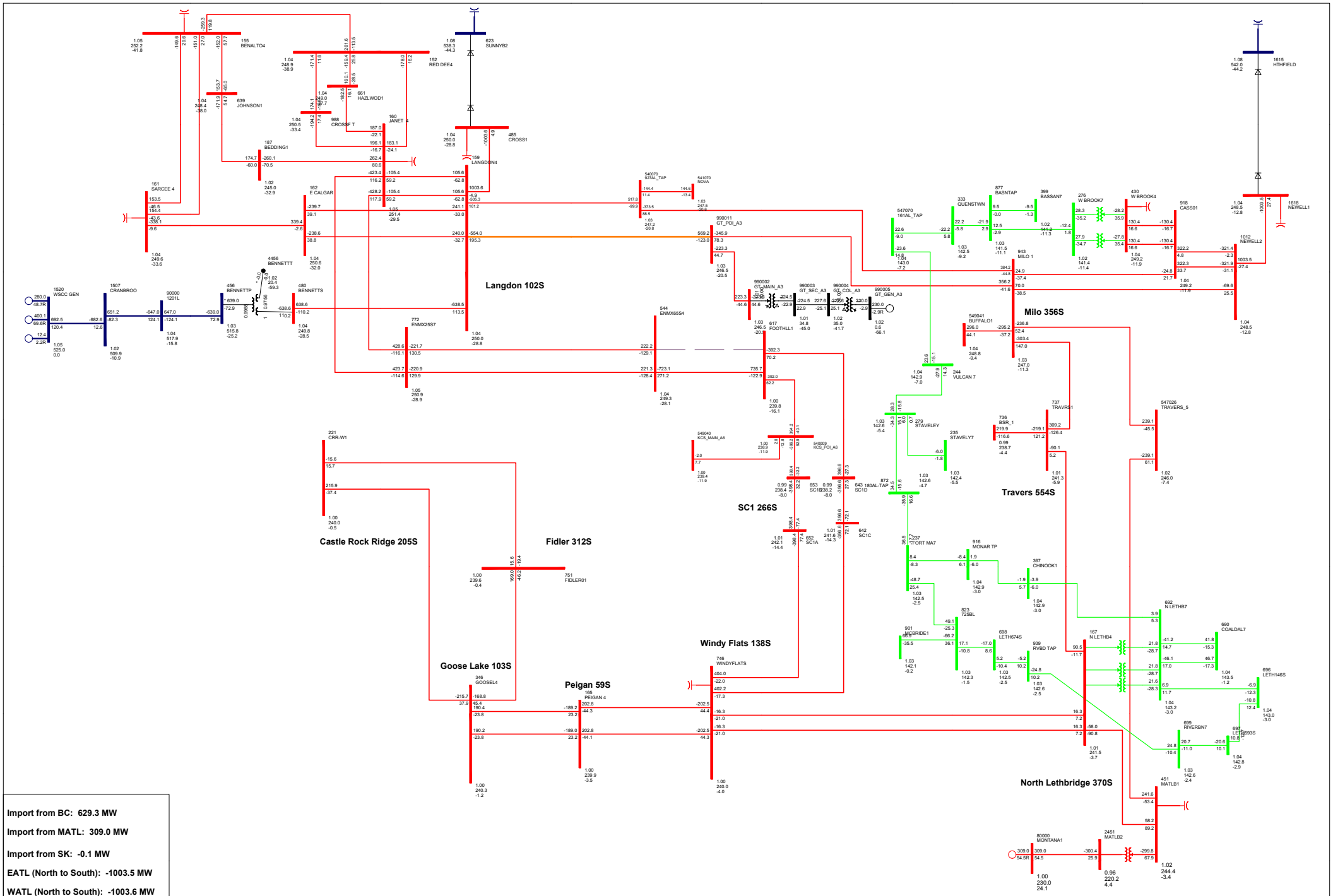


Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SL_POST_ALT3_SEN_P2373-P2378
CAT B-1038L (FOOTHILLS 237S - WINDY FLATS 138S)
SAT, JAN 14 2023 20:53

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.000UV 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000

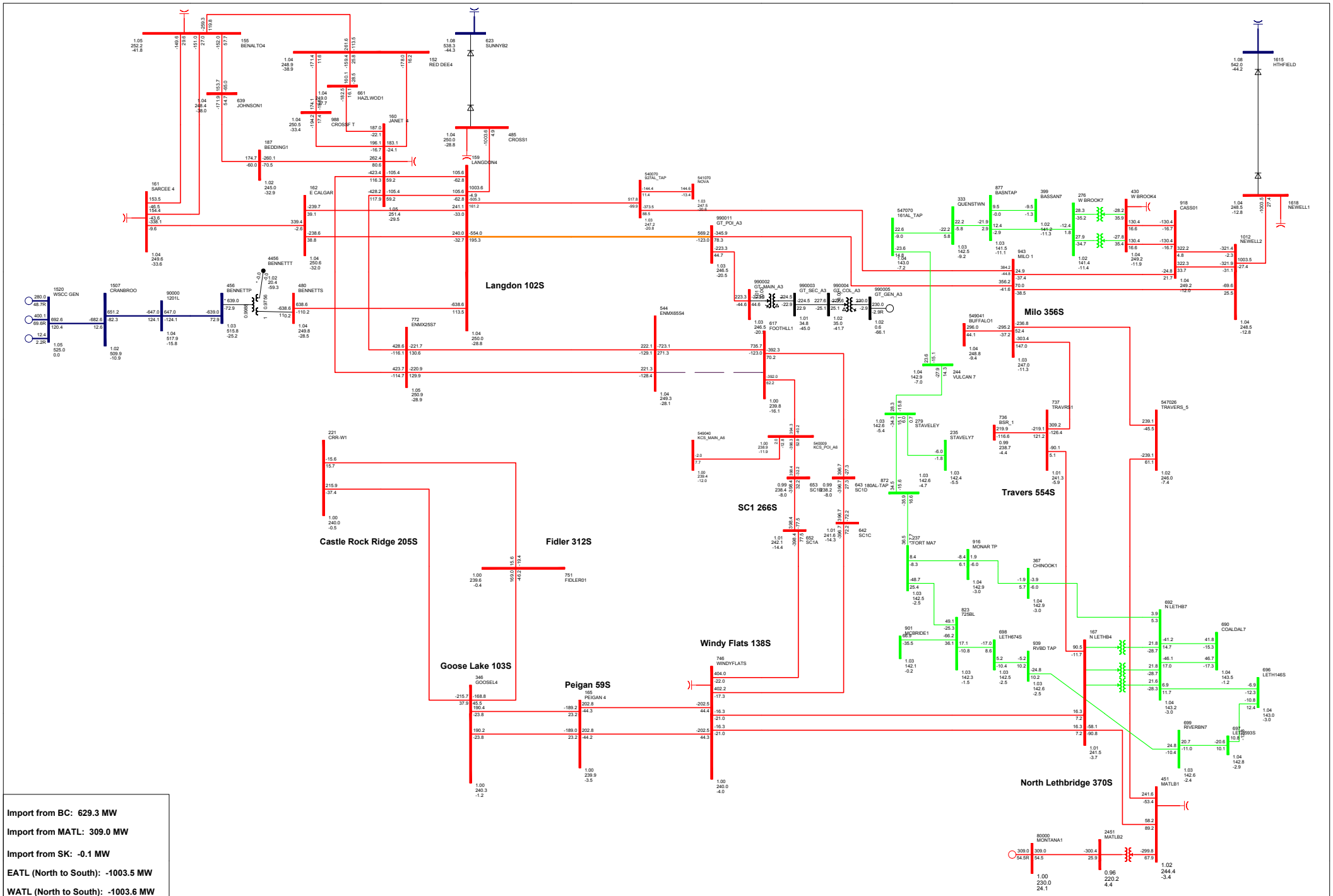


Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SL_POST_ALT3_SEN_P2373-P2378
CAT B-1106L (SS-65 - FOOTHILLS 237S)
SAT, JAN 14 2023 20:53

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.000OV 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000

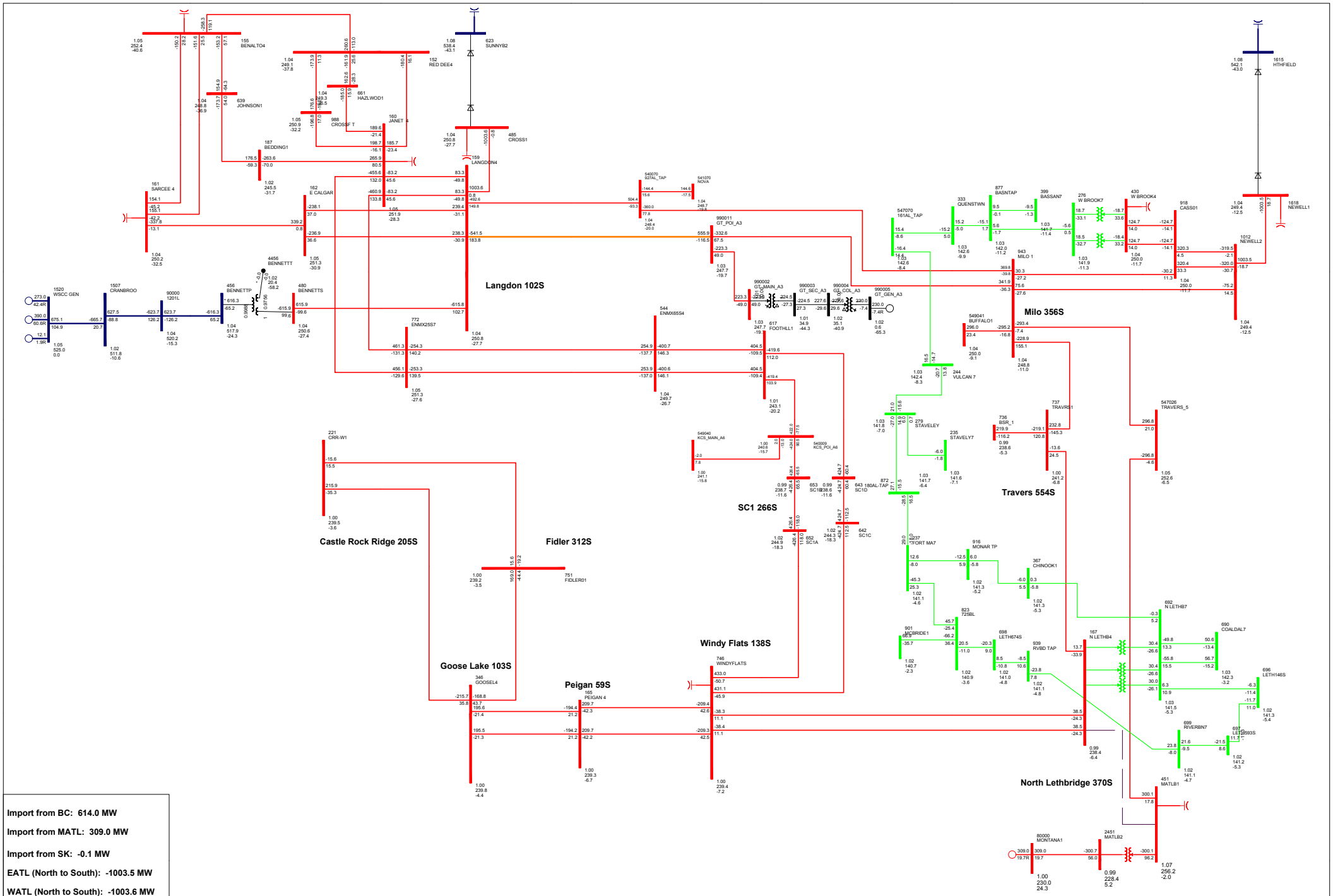


Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SL_POST_ALT3_SEN_P2373-P2378
CAT B-1107L (SS-65 - FOOTHILLS 237S)
SAT, JAN 14 2023 20:54

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.000OV 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000



Import from BC: 614.0 MW

Import from MATL: 309.0 MW

Import from SK: -0.1 MW

EATL (North to South): -1003.5 MW

WATL (North to South): -1003.6 MW

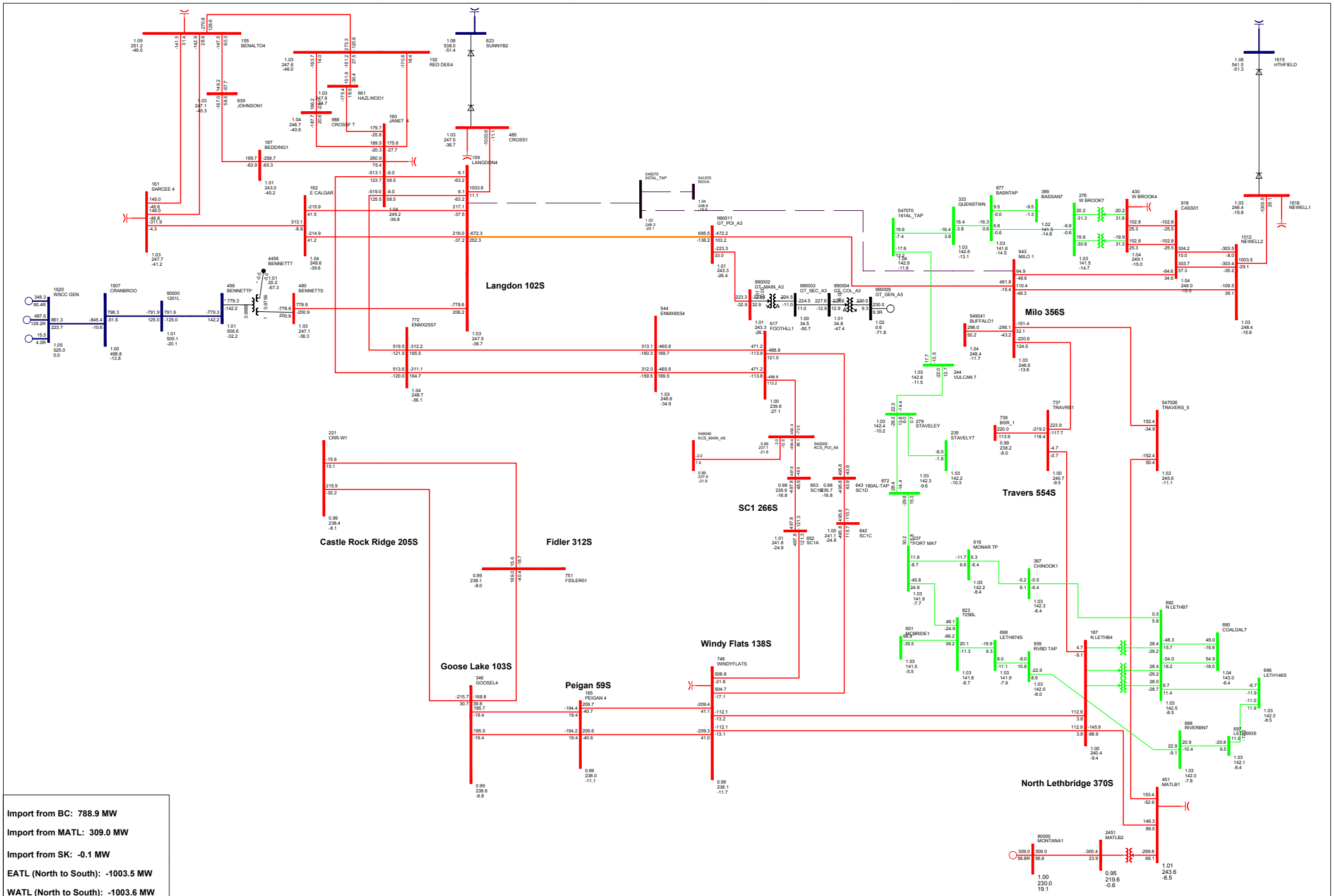
P2396 Georgetown Solar: 230.0 MW

Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SL_POST_ALT3_SEN_P2373-P2378
CAT B-940L (N. LETHBRIDGE 370S - PICTURE BUTTE 120S)
SAT, JAN 14 2023 20:54

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.000OV 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000



Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SL_POST_ALT3_SEN_P2373-P2378
CAT B-927L (LANGDON 102S - MILO 356S)
SAT, JAN 14 2023 20:54

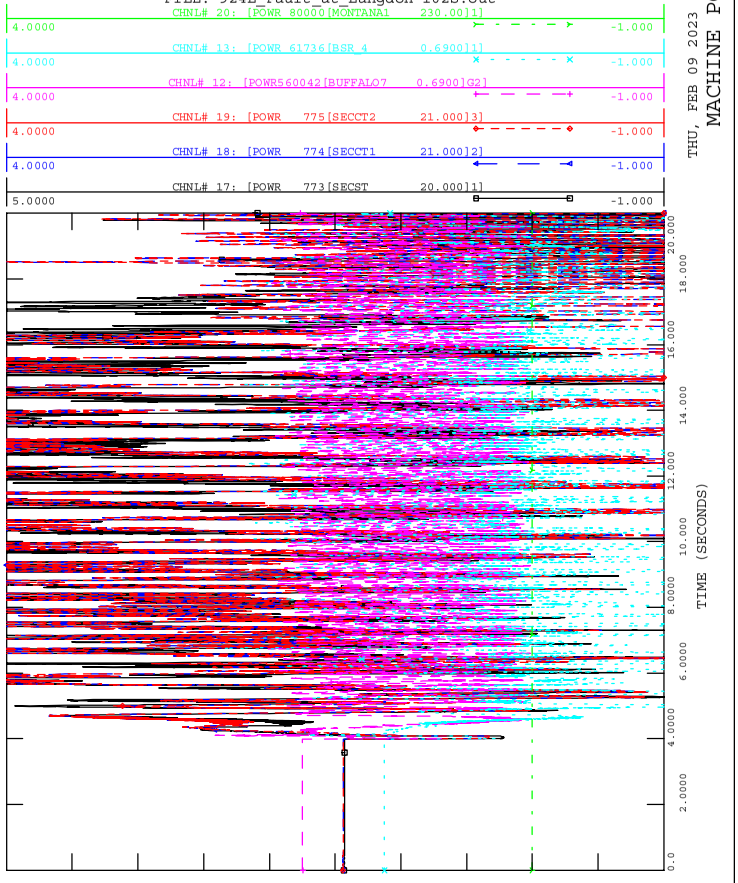
Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.000OV 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000

Attachment A4
Post-Project Transient Stability Diagram

Plots for P2396 SL_Pre (Scenario 2)

SCENARIO #2: 2023 SL/PRE PROJECT
CATB -924L_FAULT_AT_LANGDON 102S

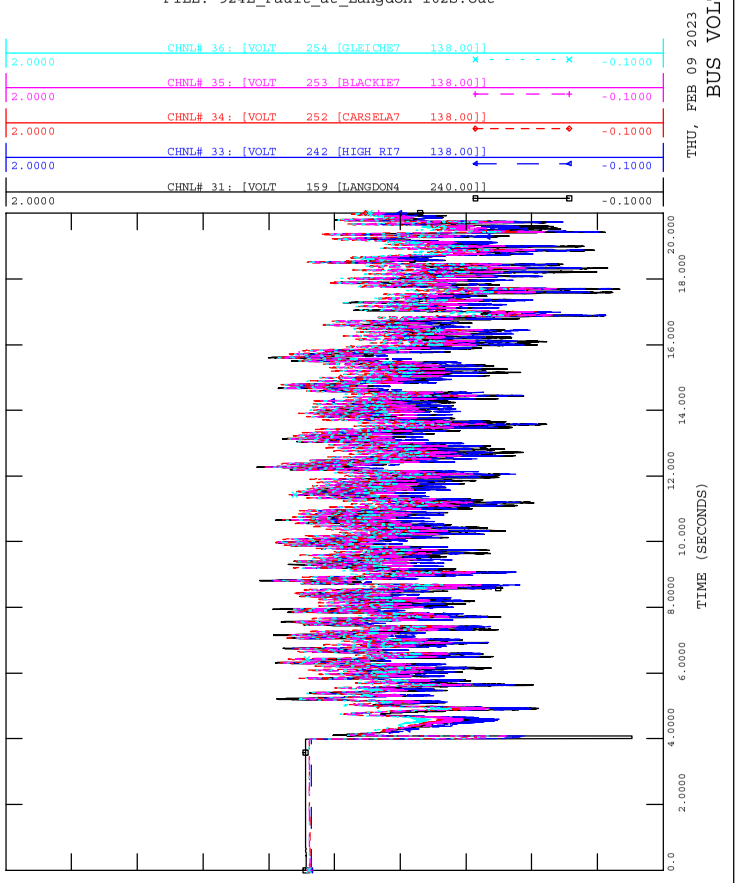
FILE: 924L_Fault_at_Langdon 102S.out



THU, FEB 09 2023 10:28
MACHINE POWER

SCENARIO #2: 2023 SL/PRE PROJECT
CATB -924L_FAULT_AT_LANGDON 102S

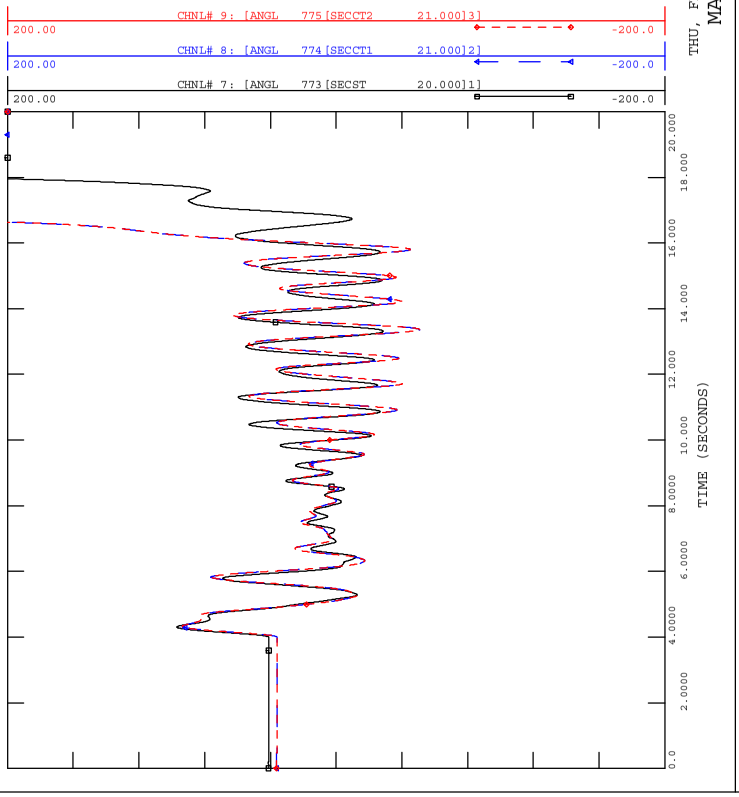
FILE: 924L_Fault_at_Langdon 102S.out



THU, FEB 09 2023 10:28
BUS VOLTAGE

SCENARIO #2: 2023 SL/PRE PROJECT
CATB -924L_FAULT_AT_LANGDON 102S

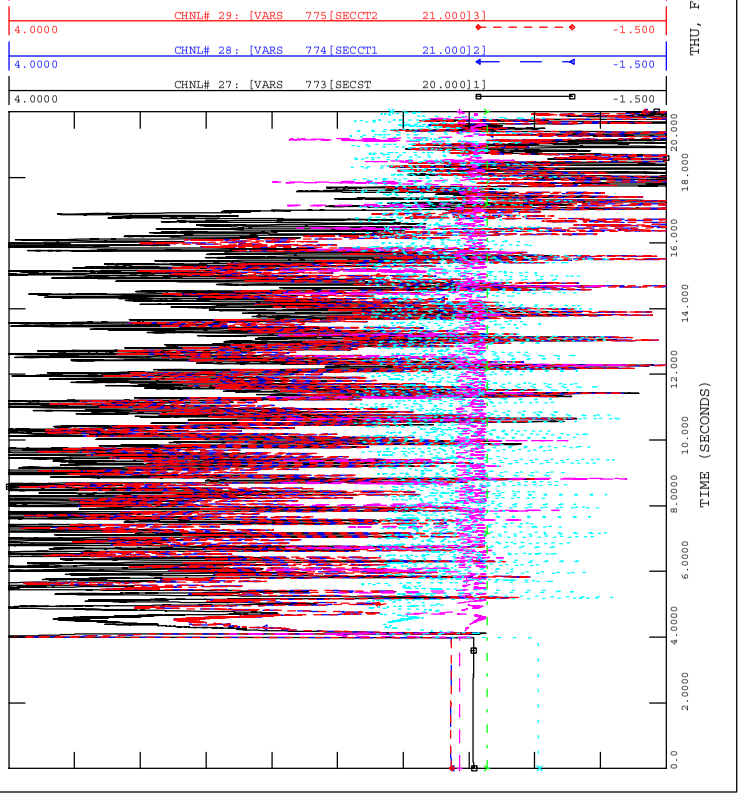
FILE: 924L_Fault_at_Langdon 102S.out



THU, FEB 09 2023 10:28
MACHINE ANGLE

SCENARIO #2: 2023 SL/PRE PROJECT
CATB -924L_FAULT_AT_LANGDON 102S

FILE: 924L_Fault_at_Langdon 102S.out



THU, FEB 09 2023 10:28
MACHINE VAR

SCENARIO #2: 2023 SL/PRE PROJECT
CATB -924L_FAULT_AT_LANGDON 102S

FILE: 924L_Fault_at_Langdon 102S.out

THU, FEB 09 2023 10:28 LINE VAR

CHNL# 63: [VARS 943 TO 918 CKT '35'] 600.00 -400.0
CHNL# 61: [VARS 943 TO 1012 CKT '23'] 600.00 -400.0
CHNL# 59: [VARS 943 TO 547026 CKT '05'] 600.00 -400.0
CHNL# 57: [VARS 943 TO 737 CKT '36'] 600.00 -400.0
CHNL# 55: [VARS 159 TO 943 CKT '27'] 600.00 -400.0

TIME (SECONDS) 0.0 2.0000 4.0000 6.0000 8.0000 10.000 12.000 14.000 16.000 18.000 20.000

SCENARIO #2: 2023 SL/PRE PROJECT
CATB -927L_FAULT_AT_LANGDON 102S

FILE: 927L_Fault_at_Langdon 102S.out

THU, FEB 09 2023 10:28 MACHINE POWER

CHNL# 20: [POWR 80000[MONTANA1 230.00]1] 4.0000 -1.000
CHNL# 13: [POWR 61736[BSR_4 0.6900]1] 4.0000 -1.000
CHNL# 12: [POWR560042[BUFFALO7 0.6900]G2] 4.0000 -1.000
CHNL# 19: [POWR 775[SECCT2 21.000]3] 4.0000 -1.000
CHNL# 18: [POWR 774[SECCT1 21.000]2] 4.0000 -1.000
CHNL# 17: [POWR 773[SECST 20.000]1] 5.0000 -1.000

TIME (SECONDS) 0.0 2.0000 4.0000 6.0000 8.0000 10.000 12.000 14.000 16.000 18.000 20.000

SCENARIO #2: 2023 SL/PRE PROJECT
CATB -924L_FAULT_AT_LANGDON 102S

FILE: 924L_Fault_at_Langdon 102S.out

THU, FEB 09 2023 10:28 LINE POWER

CHNL# 62: [POWR 943 TO 918 CKT '35'] 600.00 -400.0
CHNL# 60: [POWR 943 TO 1012 CKT '23'] 600.00 -400.0
CHNL# 58: [POWR 943 TO 547026 CKT '05'] 600.00 -400.0
CHNL# 56: [POWR 943 TO 737 CKT '36'] 600.00 -600.0
CHNL# 54: [POWR 159 TO 943 CKT '27'] 1000.0 -400.0

TIME (SECONDS) 0.0 2.0000 4.0000 6.0000 8.0000 10.000 12.000 14.000 16.000 18.000 20.000

SCENARIO #2: 2023 SL/PRE PROJECT
CATB -927L_FAULT_AT_LANGDON 102S

FILE: 927L_Fault_at_Langdon 102S.out

THU, FEB 09 2023 10:28 MACHINE ANGLE

CHNL# 9: [ANGL 775[SECCT2 21.000]3] 200.00 -200.0
CHNL# 8: [ANGL 774[SECCT1 21.000]2] 200.00 -200.0
CHNL# 7: [ANGL 773[SECST 20.000]1] 200.00 -200.0

TIME (SECONDS) 0.0 2.0000 4.0000 6.0000 8.0000 10.000 12.000 14.000 16.000 18.000 20.000

SCENARIO #2: 2023 SL/PRE PROJECT
CATB -927L_FAULT_AT_LANGDON 102S

FILE: 927L_Fault_at_Langdon 102S.out

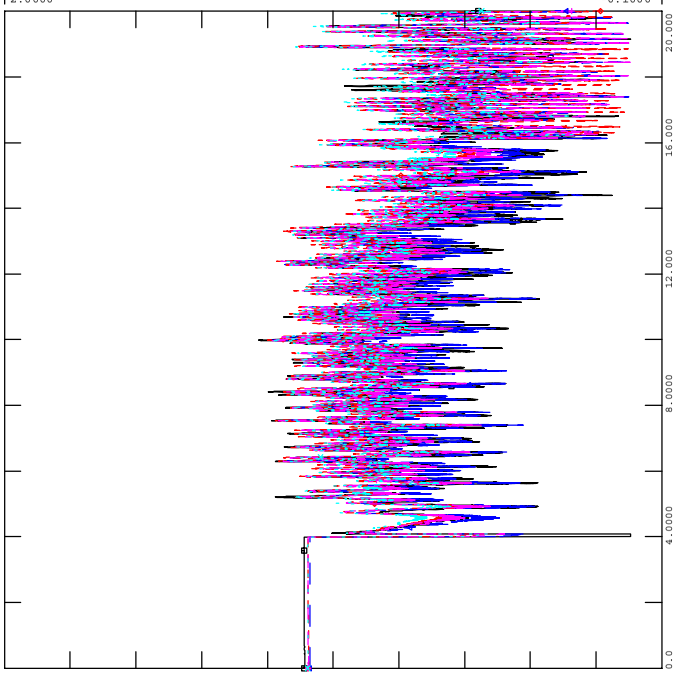
THU, FEB 09 2023 10:28

BUS VOLTAGE

CHNL# 36: [VOLT 254 [GLEICHE7 138.00]]
CHNL# 35: [VOLT 253 [BLACKIE7 138.00]]
CHNL# 34: [VOLT 252 [CARSELA7 138.00]]
CHNL# 33: [VOLT 242 [HIGH RI7 138.00]]
CHNL# 31: [VOLT 159 [LANGDON4 240.00]]

2.0000 -0.1000

TIME (SECONDS)



SCENARIO #2: 2023 SL/PRE PROJECT
CATB -927L_FAULT_AT_LANGDON 102S

FILE: 927L_Fault_at_Langdon 102S.out

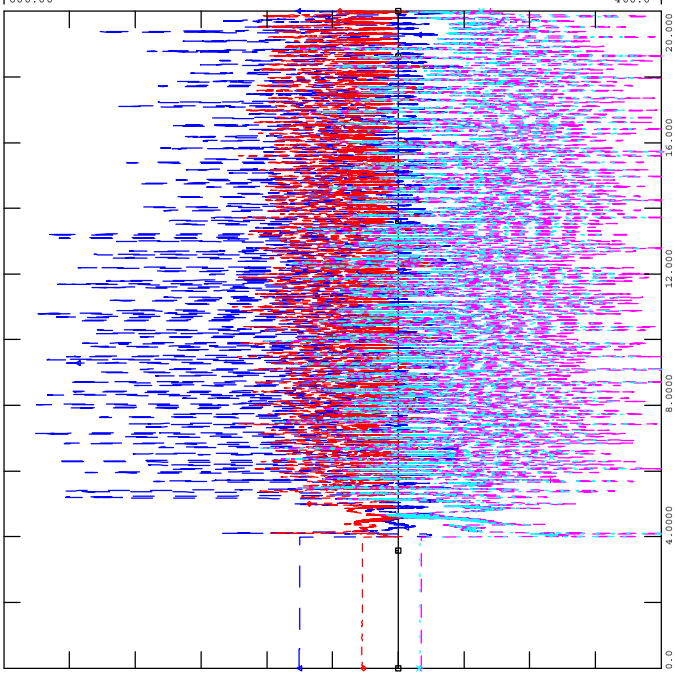
THU, FEB 09 2023 10:28

LINE VAR

CHNL# 63: [VARS 943 TO 918 CKT '35']
CHNL# 61: [VARS 943 TO 1012 CKT '23']
CHNL# 59: [VARS 943 TO 547026 CKT '05']
CHNL# 57: [VARS 943 TO 737 CKT '36']
CHNL# 55: [VARS 159 TO 943 CKT '27']

600.00 -400.0

TIME (SECONDS)



SCENARIO #2: 2023 SL/PRE PROJECT
CATB -927L_FAULT_AT_LANGDON 102S

FILE: 927L_Fault_at_Langdon 102S.out

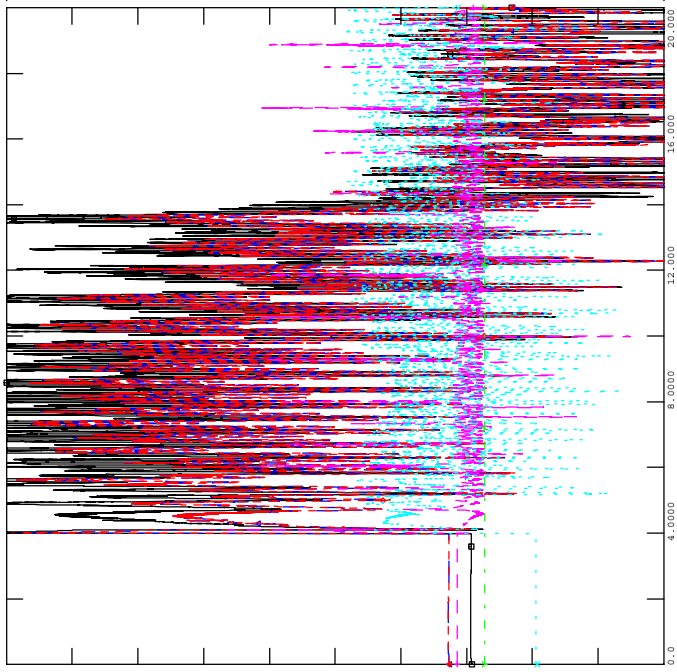
THU, FEB 09 2023 10:28

MACHINE VAR

CHNL# 30: [VARS 80000[MONTANA1 230.00]1]
CHNL# 23: [VARS 61736[BSR 4 0.6900]1]
CHNL# 22: [VARS560042[BUFFALO7 0.6900]G2]
CHNL# 29: [VARS 775[SECCT2 21.000]3]
CHNL# 28: [VARS 774[SECCT1 21.000]2]
CHNL# 27: [VARS 773[SECST 20.000]1]

4.0000 -1.500

TIME (SECONDS)



SCENARIO #2: 2023 SL/PRE PROJECT
CATB -927L_FAULT_AT_LANGDON 102S

FILE: 927L_Fault_at_Langdon 102S.out

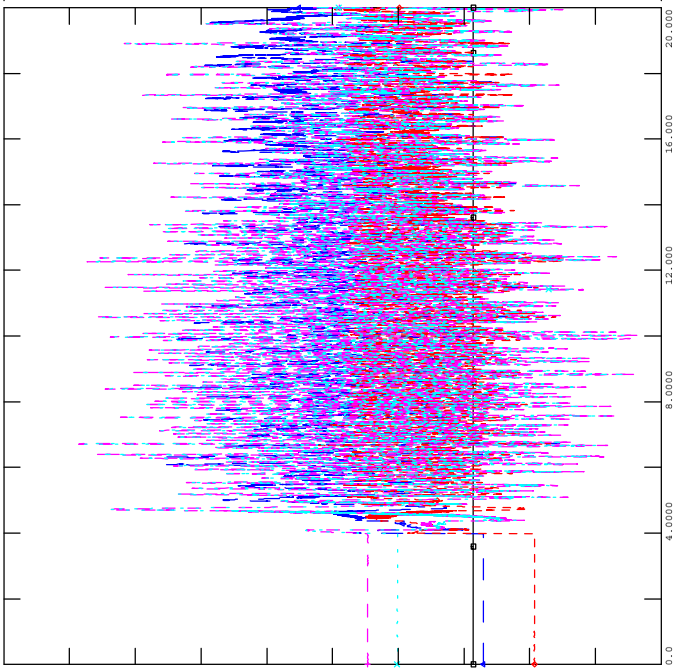
THU, FEB 09 2023 10:28

LINE POWER

CHNL# 62: [POWR 943 TO 918 CKT '35']
CHNL# 60: [POWR 943 TO 1012 CKT '23']
CHNL# 58: [POWR 943 TO 547026 CKT '05']
CHNL# 56: [POWR 943 TO 737 CKT '36']
CHNL# 54: [POWR 159 TO 943 CKT '27']

600.00 -400.0

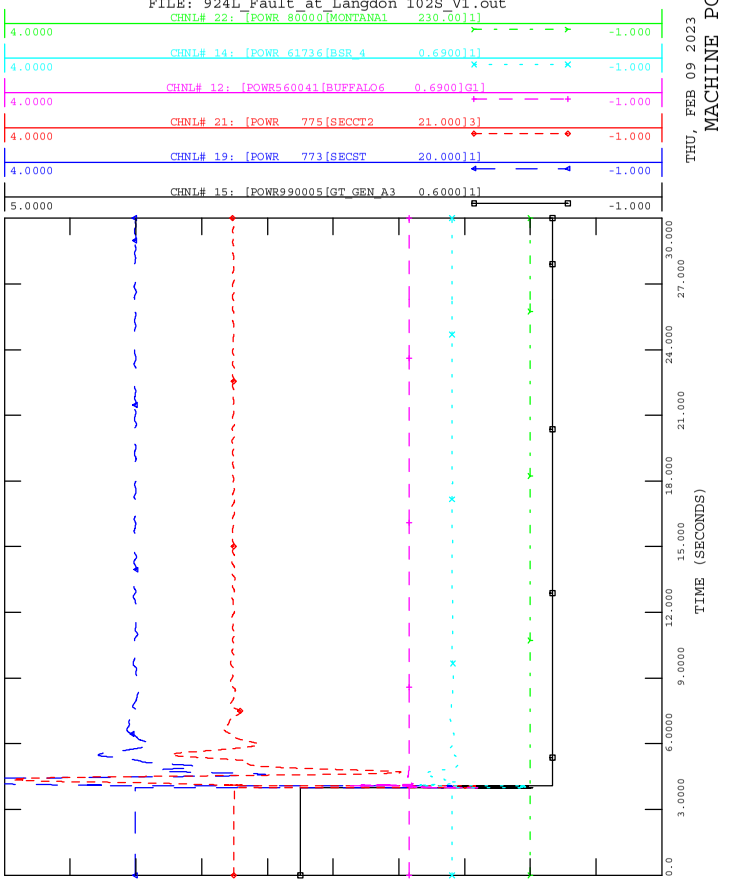
TIME (SECONDS)



Plots for P2396 SP_Post_Pre-RAS (Scenario 3)

SCENARIO #3: 2023 SP/POST PROJECT
CATB -924L_FAULT_AT_LANGDON 102S_V1

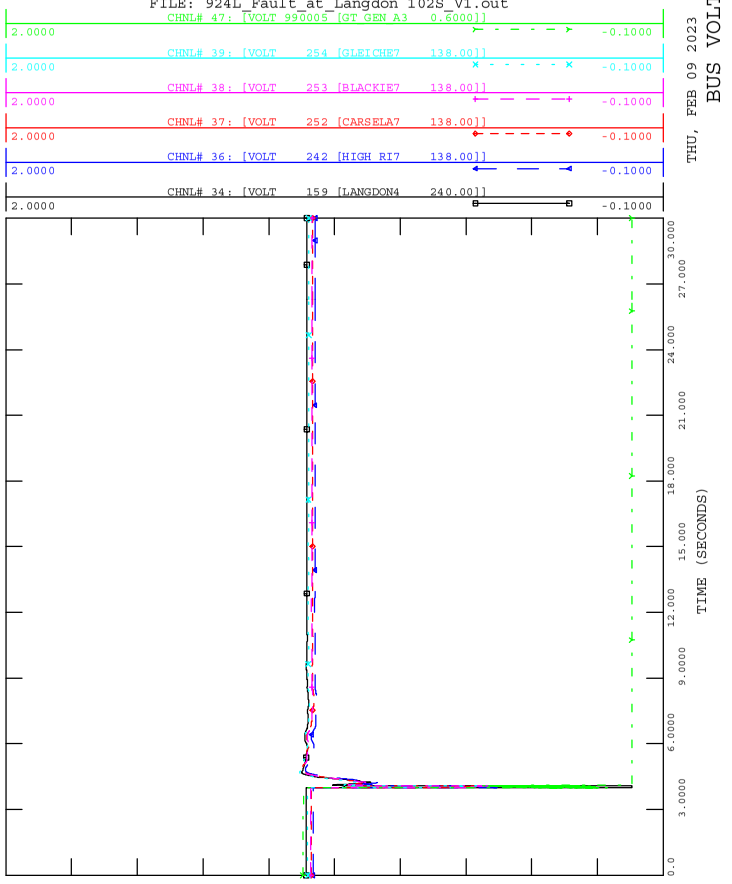
FILE: 924L_Fault_at_Langdon 102S_V1.out



THU, FEB 09 2023 13:54
MACHINE POWER

SCENARIO #3: 2023 SP/POST PROJECT
CATB -924L_FAULT_AT_LANGDON 102S_V1

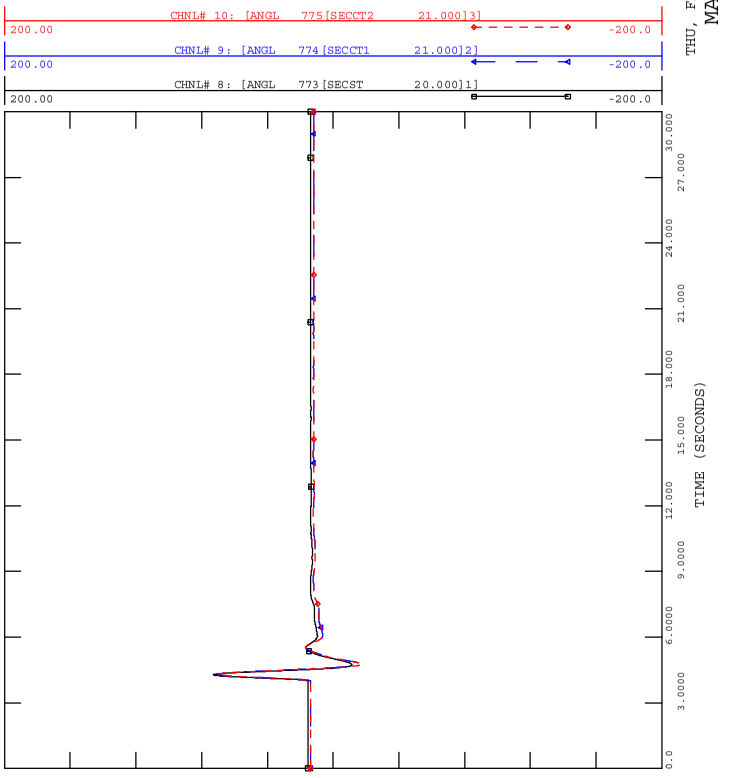
FILE: 924L_Fault_at_Langdon 102S_V1.out



THU, FEB 09 2023 13:54
BUS VOLTAGE

SCENARIO #3: 2023 SP/POST PROJECT
CATB -924L_FAULT_AT_LANGDON 102S_V1

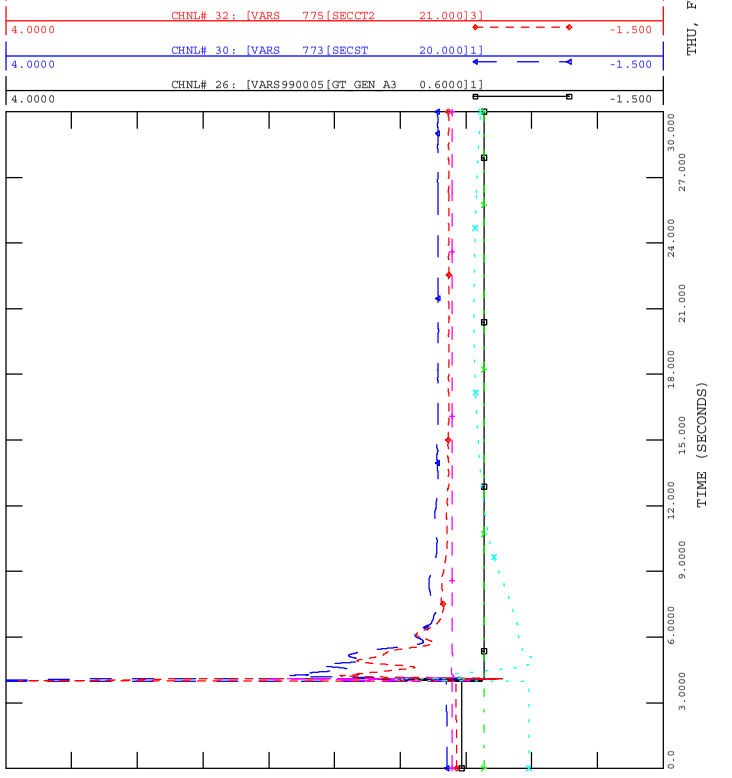
FILE: 924L_Fault_at_Langdon 102S_V1.out



THU, FEB 09 2023 13:54
MACHINE ANGLE

SCENARIO #3: 2023 SP/POST PROJECT
CATB -924L_FAULT_AT_LANGDON 102S_V1

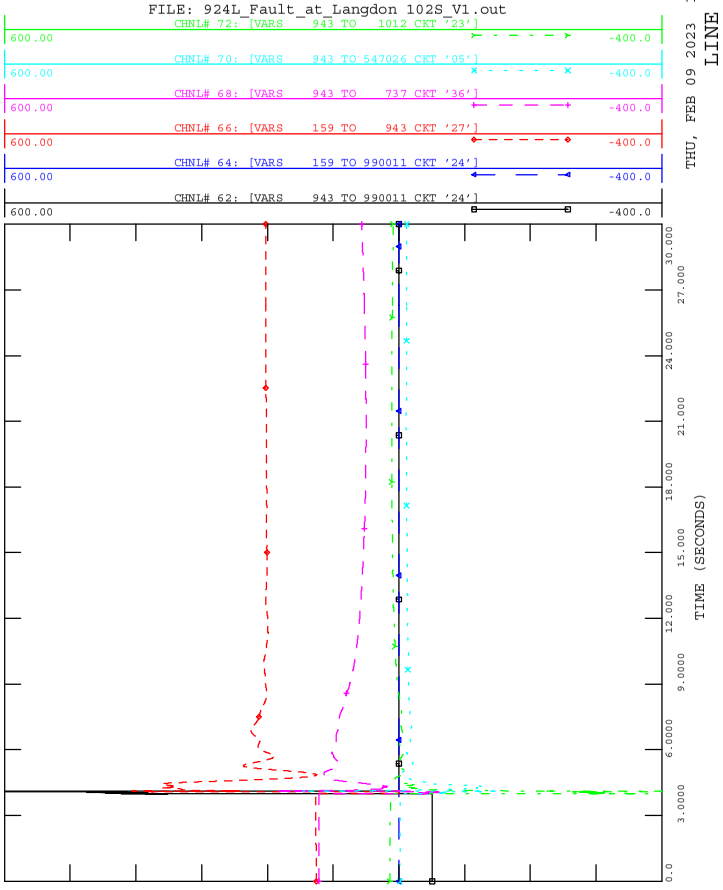
FILE: 924L_Fault_at_Langdon 102S_V1.out



THU, FEB 09 2023 13:54
MACHINE VAR

SCENARIO #3: 2023 SP/POST PROJECT
CATB -924L_FAULT_AT_LANGDON 102S_V1

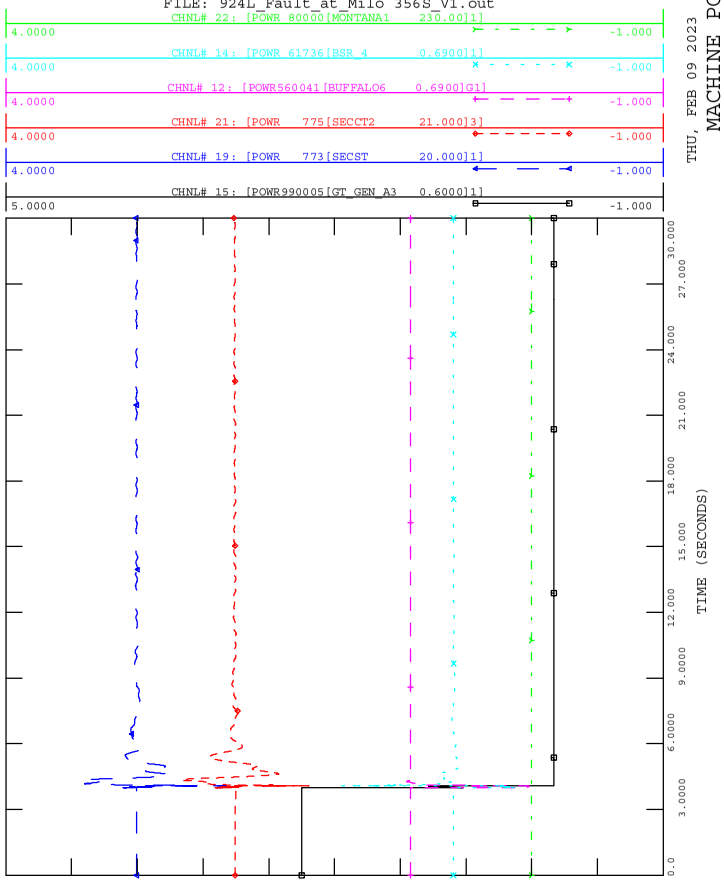
FILE: 924L_Fault_at_Langdon 102S_V1.out



THU, FEB 09 2023 13:54 LINE VAR

SCENARIO #3: 2023 SP/POST PROJECT
CATB -924L_FAULT_AT_MILO 356S_V1

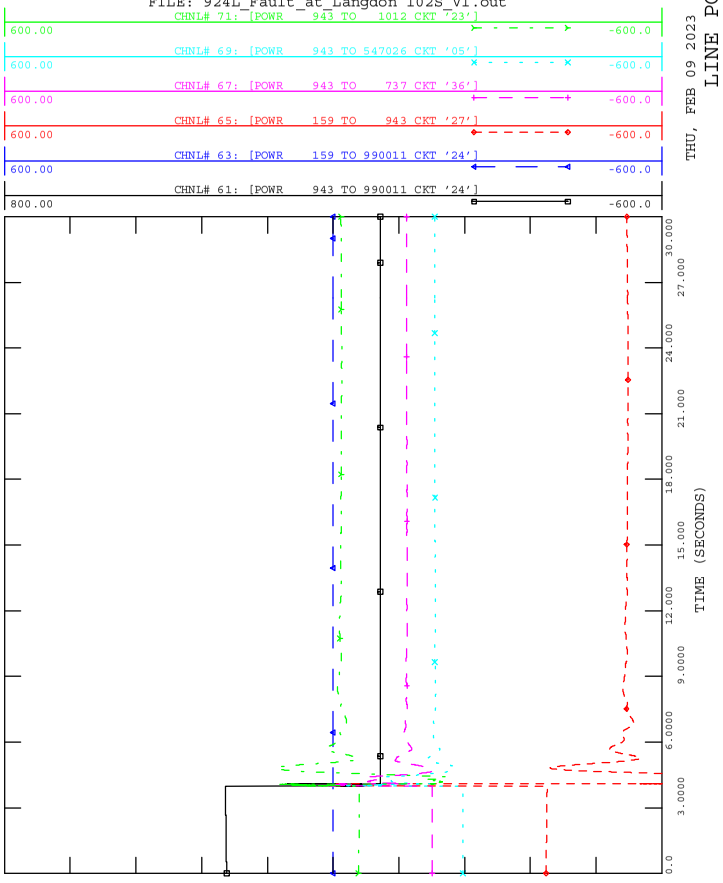
FILE: 924L_Fault_at_Milo 356S_V1.out



THU, FEB 09 2023 13:54 MACHINE POWER

SCENARIO #3: 2023 SP/POST PROJECT
CATB -924L_FAULT_AT_LANGDON 102S_V1

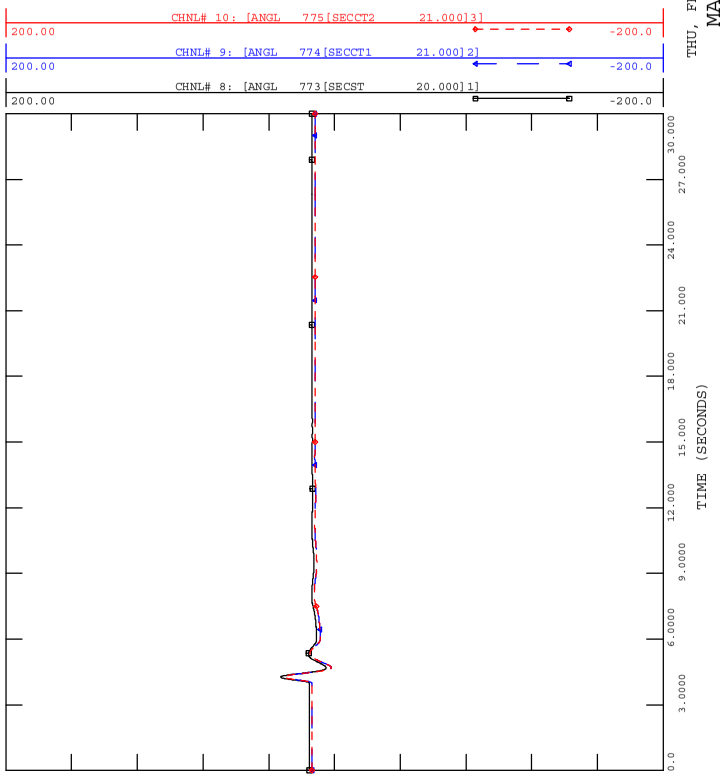
FILE: 924L_Fault_at_Langdon 102S_V1.out



THU, FEB 09 2023 13:54 LINE POWER

SCENARIO #3: 2023 SP/POST PROJECT
CATB -924L_FAULT_AT_MILO 356S_V1

FILE: 924L_Fault_at_Milo 356S_V1.out



THU, FEB 09 2023 13:54 MACHINE ANGLE

SCENARIO #3: 2023 SP/POST PROJECT
CATB -924L_FAULT_AT_MILO 356S_V1

FILE: 924L_Fault_at_Milo 356S_V1.out

CHNL# 47: [VOLT 990005 [GT GEN A3 0.6000]]
CHNL# 39: [VOLT 254 [GLEICHE7 138.00]]
CHNL# 38: [VOLT 253 [BLACKIE7 138.00]]
CHNL# 37: [VOLT 252 [CARSELA7 138.00]]
CHNL# 36: [VOLT 242 [HIGH RI7 138.00]]
CHNL# 34: [VOLT 159 [LANGDON4 240.00]]

2.0000 -0.1000

TIME (SECONDS) 0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

THU, FEB 09 2023 13:54 BUS VOLTAGE

SCENARIO #3: 2023 SP/POST PROJECT
CATB -924L_FAULT_AT_MILO 356S_V1

FILE: 924L_Fault_at_Milo 356S_V1.out

CHNL# 72: [VARS 943 TO 1012 CKT '23']
CHNL# 70: [VARS 943 TO 547026 CKT '05']
CHNL# 68: [VARS 943 TO 737 CKT '36']
CHNL# 66: [VARS 159 TO 943 CKT '27']
CHNL# 64: [VARS 159 TO 990011 CKT '24']
CHNL# 62: [VARS 943 TO 990011 CKT '24']

600.00 -400.0

TIME (SECONDS) 0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

THU, FEB 09 2023 13:54 LINE VAR

SCENARIO #3: 2023 SP/POST PROJECT
CATB -924L_FAULT_AT_MILO 356S_V1

FILE: 924L_Fault_at_Milo 356S_V1.out

CHNL# 33: [VARS 80000[MONTANA1 230.00]1]
CHNL# 25: [VARS 61736[BSR 4 0.6900]1]
CHNL# 23: [VARS560041[BUFFALO6 0.6900]G1]
CHNL# 32: [VARS 775[SECCT2 21.000]3]
CHNL# 30: [VARS 773[SECST 20.000]1]
CHNL# 26: [VARS990005[GT GEN A3 0.6000]1]

4.0000 -1.500

TIME (SECONDS) 0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

THU, FEB 09 2023 13:54 MACHINE VAR

SCENARIO #3: 2023 SP/POST PROJECT
CATB -924L_FAULT_AT_MILO 356S_V1

FILE: 924L_Fault_at_Milo 356S_V1.out

CHNL# 71: [POWR 943 TO 1012 CKT '23']
CHNL# 69: [POWR 943 TO 547026 CKT '05']
CHNL# 67: [POWR 943 TO 737 CKT '36']
CHNL# 65: [POWR 159 TO 943 CKT '27']
CHNL# 63: [POWR 159 TO 990011 CKT '24']
CHNL# 61: [POWR 943 TO 990011 CKT '24']

600.00 -600.0

TIME (SECONDS) 0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

THU, FEB 09 2023 13:54 LINE POWER

SCENARIO #3: 2023 SP/POST PROJECT
CATB -927L_FAULT_AT_LANGDON 102S

FILE: 927L_Fault_at_Langdon 102S.out

CHNL# 22: [POWR 80000[MONTANA1 230.00]1]
CHNL# 14: [POWR 61736[BSR 4 0.6900]1]
CHNL# 12: [POWR560041[BUFFALO6 0.6900]G1]
CHNL# 21: [POWR 775[SECCT2 21.000]3]
CHNL# 19: [POWR 773[SECST 20.000]1]
CHNL# 15: [POWR990005[GT_GEN_A3 0.6000]1]

THU, FEB 09 2023 13:54
MACHINE POWER

TIME (SECONDS)

SCENARIO #3: 2023 SP/POST PROJECT
CATB -927L_FAULT_AT_LANGDON 102S

FILE: 927L_Fault_at_Langdon 102S.out

CHNL# 47: [VOLT 990005 [GT GEN A3 0.6000]]
CHNL# 39: [VOLT 254 [GLEICHE7 138.00]]
CHNL# 38: [VOLT 253 [BLACKIE7 138.00]]
CHNL# 37: [VOLT 252 [CARSELA7 138.00]]
CHNL# 36: [VOLT 242 [HIGH RI7 138.00]]
CHNL# 34: [VOLT 159 [LANGDON4 240.00]]

THU, FEB 09 2023 13:54
BUS VOLTAGE

TIME (SECONDS)

SCENARIO #3: 2023 SP/POST PROJECT
CATB -927L_FAULT_AT_LANGDON 102S

FILE: 927L_Fault_at_Langdon 102S.out

CHNL# 10: [ANGL 775[SECCT2 21.000]3]
CHNL# 9: [ANGL 774[SECCT1 21.000]2]
CHNL# 8: [ANGL 773[SECST 20.000]1]

THU, FEB 09 2023 13:54
MACHINE ANGLE

TIME (SECONDS)

SCENARIO #3: 2023 SP/POST PROJECT
CATB -927L_FAULT_AT_LANGDON 102S

FILE: 927L_Fault_at_Langdon 102S.out

CHNL# 33: [VARS 80000[MONTANA1 230.00]1]
CHNL# 25: [VARS 61736[BSR 4 0.6900]1]
CHNL# 23: [VARS560041[BUFFALO6 0.6900]G1]
CHNL# 32: [VARS 775[SECCT2 21.000]3]
CHNL# 30: [VARS 773[SECST 20.000]1]
CHNL# 26: [VARS990005[GT GEN A3 0.6000]1]

THU, FEB 09 2023 13:54
MACHINE VAR

TIME (SECONDS)

SCENARIO #3: 2023 SP/POST PROJECT
CATB -927L_FAULT_AT_LANGDON 102S

FILE: 927L_Fault_at_Langdon 102S.out

CHNL# 72: [VARS 943 TO 1012 CKT '23'] 600.00 -400.0
CHNL# 70: [VARS 943 TO 547026 CKT '05'] 600.00 -400.0
CHNL# 68: [VARS 943 TO 737 CKT '36'] 600.00 -400.0
CHNL# 66: [VARS 159 TO 943 CKT '27'] 600.00 -400.0
CHNL# 64: [VARS 159 TO 990011 CKT '24'] 600.00 -400.0
CHNL# 62: [VARS 943 TO 990011 CKT '24'] 600.00 -400.0

TIME (SECONDS) 0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

THU, FEB 09 2023 13:54 LINE VAR

SCENARIO #3: 2023 SP/POST PROJECT
CATB -927L_FAULT_AT_MILO 356S

FILE: 927L_Fault_at_Milo 356S.out

CHNL# 22: [POWR 80000[MONTANA1 230.00]1] 4.0000 -1.000
CHNL# 14: [POWR 61736[BSR_4 0.6900]1] 4.0000 -1.000
CHNL# 12: [POWR560041[BUFFALO6 0.6900]G1] 4.0000 -1.000
CHNL# 21: [POWR 775[SECCT2 21.000]3] 4.0000 -1.000
CHNL# 19: [POWR 773[SECST 20.000]1] 4.0000 -1.000
CHNL# 15: [POWR990005[GT_GEN_A3 0.6000]1] 5.0000 -1.000

TIME (SECONDS) 0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

THU, FEB 09 2023 13:54 MACHINE POWER

SCENARIO #3: 2023 SP/POST PROJECT
CATB -927L_FAULT_AT_LANGDON 102S

FILE: 927L_Fault_at_Langdon 102S.out

CHNL# 71: [POWR 943 TO 1012 CKT '23'] 600.00 -600.0
CHNL# 69: [POWR 943 TO 547026 CKT '05'] 600.00 -600.0
CHNL# 67: [POWR 943 TO 737 CKT '36'] 600.00 -600.0
CHNL# 65: [POWR 159 TO 943 CKT '27'] 600.00 -600.0
CHNL# 63: [POWR 159 TO 990011 CKT '24'] 600.00 -600.0
CHNL# 61: [POWR 943 TO 990011 CKT '24'] 800.00 -600.0

TIME (SECONDS) 0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

THU, FEB 09 2023 13:54 LINE POWER

SCENARIO #3: 2023 SP/POST PROJECT
CATB -927L_FAULT_AT_MILO 356S

FILE: 927L_Fault_at_Milo 356S.out

CHNL# 10: [ANGL 775[SECCT2 21.000]3] 200.00 -200.0
CHNL# 9: [ANGL 774[SECCT1 21.000]2] 200.00 -200.0
CHNL# 8: [ANGL 773[SECST 20.000]1] 200.00 -200.0

TIME (SECONDS) 0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

THU, FEB 09 2023 13:54 MACHINE ANGLE

SCENARIO #3: 2023 SP/POST PROJECT
CATB -927L_FAULT_AT_MILO 356S

FILE: 927L_Fault_at_Milo 356S.out

CHNL# 47: [VOLT 990005 [GT GEN A3 0.6000]]
CHNL# 39: [VOLT 254 [GLEICHE7 138.00]]
CHNL# 38: [VOLT 253 [BLACKIE7 138.00]]
CHNL# 37: [VOLT 252 [CARSELA7 138.00]]
CHNL# 36: [VOLT 242 [HIGH RI7 138.00]]
CHNL# 34: [VOLT 159 [LANGDON4 240.00]]

2.0000 -0.1000

0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

TIME (SECONDS)

THU, FEB 09 2023 13:54

BUS VOLTAGE

SCENARIO #3: 2023 SP/POST PROJECT
CATB -927L_FAULT_AT_MILO 356S

FILE: 927L_Fault_at_Milo 356S.out

CHNL# 72: [VARS 943 TO 1012 CKT '23']
CHNL# 70: [VARS 943 TO 547026 CKT '05']
CHNL# 68: [VARS 943 TO 737 CKT '36']
CHNL# 66: [VARS 159 TO 943 CKT '27']
CHNL# 64: [VARS 159 TO 990011 CKT '24']
CHNL# 62: [VARS 943 TO 990011 CKT '24']

600.00 -400.0

0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

TIME (SECONDS)

THU, FEB 09 2023 13:54

LINE VAR

SCENARIO #3: 2023 SP/POST PROJECT
CATB -927L_FAULT_AT_MILO 356S

FILE: 927L_Fault_at_Milo 356S.out

CHNL# 33: [VARS 80000[MONTANA1 230.00]1]
CHNL# 25: [VARS 61736[BSR 4 0.6900]1]
CHNL# 23: [VARS560041[BUFFALO6 0.6900]G1]
CHNL# 32: [VARS 775[SECCT2 21.000]3]
CHNL# 30: [VARS 773[SECST 20.000]1]
CHNL# 26: [VARS990005[GT GEN A3 0.6000]1]

4.0000 -1.500

0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

TIME (SECONDS)

THU, FEB 09 2023 13:54

MACHINE VAR

SCENARIO #3: 2023 SP/POST PROJECT
CATB -927L_FAULT_AT_MILO 356S

FILE: 927L_Fault_at_Milo 356S.out

CHNL# 71: [POWR 943 TO 1012 CKT '23']
CHNL# 69: [POWR 943 TO 547026 CKT '05']
CHNL# 67: [POWR 943 TO 737 CKT '36']
CHNL# 65: [POWR 159 TO 943 CKT '27']
CHNL# 63: [POWR 159 TO 990011 CKT '24']
CHNL# 61: [POWR 943 TO 990011 CKT '24']

600.00 -600.0

0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

TIME (SECONDS)

THU, FEB 09 2023 13:54

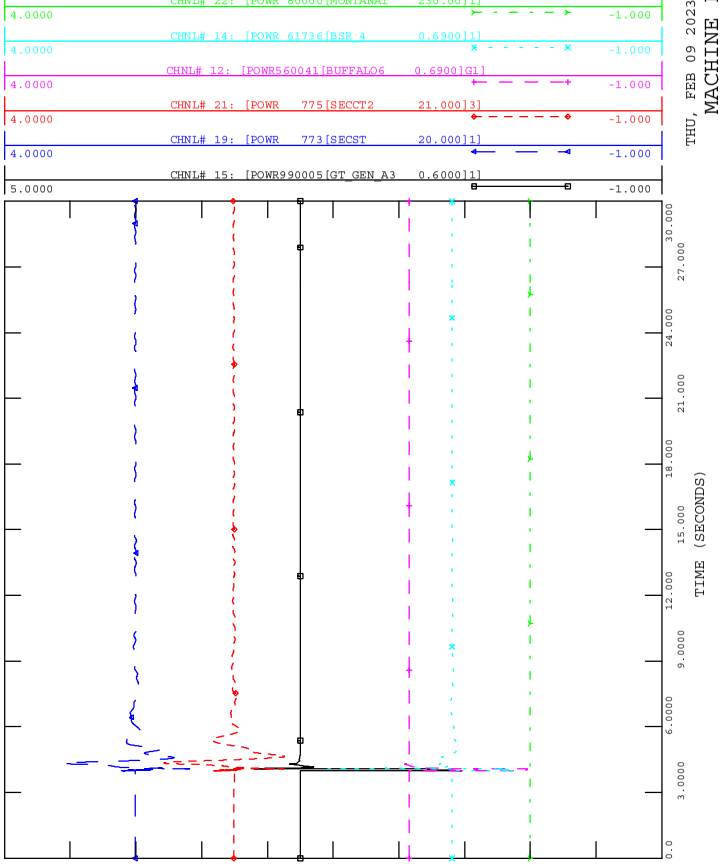
LINE POWER

SCENARIO #3: 2023 SP/POST PROJECT
CATB -1005L_FAULT_AT_MILO 356S

FILE: 1005L_Fault_at_Milo 356S.out

THU, FEB 09 2023 13:54

MACHINE POWER

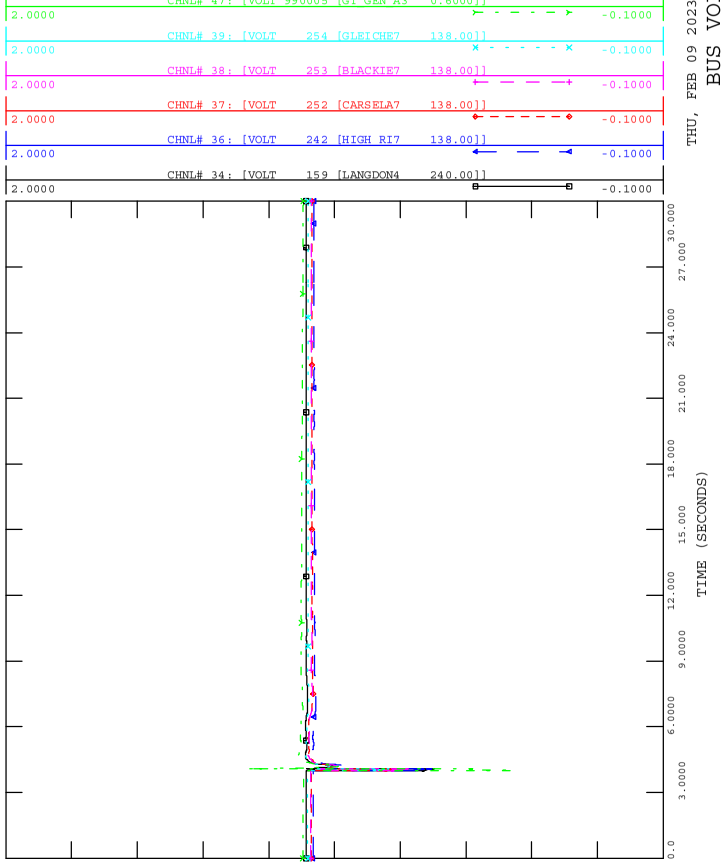


SCENARIO #3: 2023 SP/POST PROJECT
CATB -1005L_FAULT_AT_MILO 356S

FILE: 1005L_Fault_at_Milo 356S.out

THU, FEB 09 2023 13:54

BUS VOLTAGE

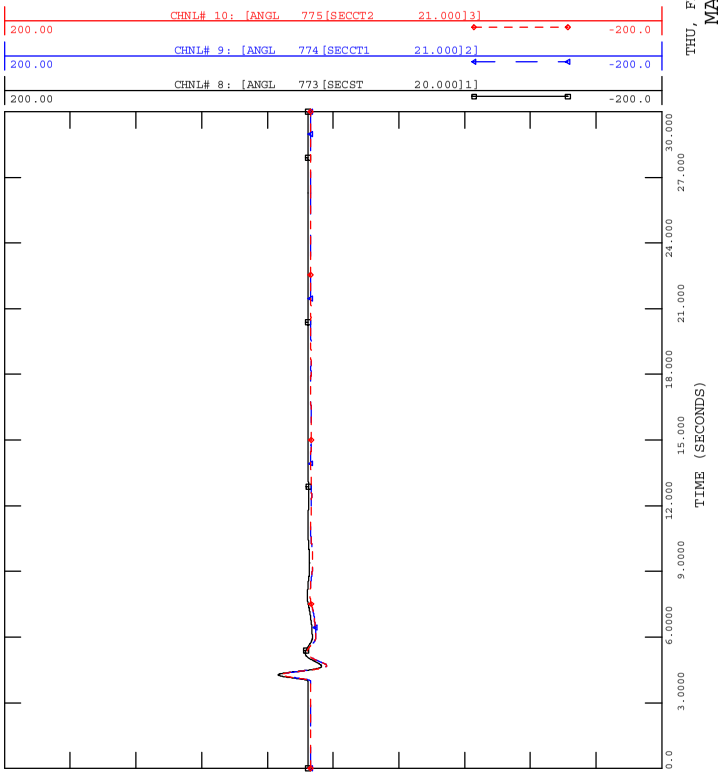


SCENARIO #3: 2023 SP/POST PROJECT
CATB -1005L_FAULT_AT_MILO 356S

FILE: 1005L_Fault_at_Milo 356S.out

THU, FEB 09 2023 13:54

MACHINE ANGLE

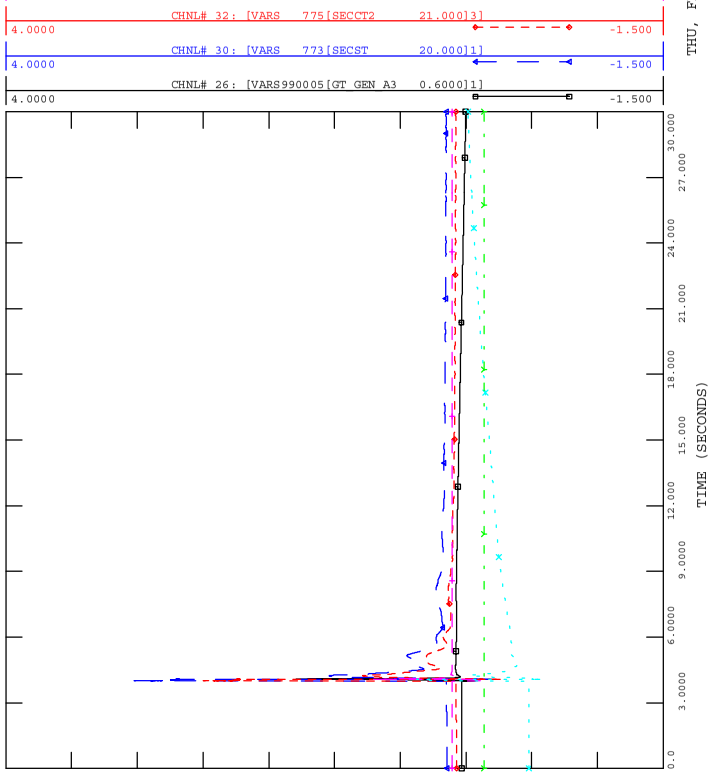


SCENARIO #3: 2023 SP/POST PROJECT
CATB -1005L_FAULT_AT_MILO 356S

FILE: 1005L_Fault_at_Milo 356S.out

THU, FEB 09 2023 13:54

MACHINE VAR



SCENARIO #3: 2023 SP/POST PROJECT
CATB -1005L_FAULT_AT_MILO 356S

FILE: 1005L_Fault_at_Milo 356S.out

CHNL# 72: [VARS 943 TO 1012 CKT '23'] 600.00 -400.0
CHNL# 70: [VARS 943 TO 547026 CKT '05'] 600.00 -400.0
CHNL# 68: [VARS 943 TO 737 CKT '36'] 600.00 -400.0
CHNL# 66: [VARS 159 TO 943 CKT '27'] 600.00 -400.0
CHNL# 64: [VARS 159 TO 990011 CKT '24'] 600.00 -400.0
CHNL# 62: [VARS 943 TO 990011 CKT '24'] 600.00 -400.0

0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000
TIME (SECONDS)

THU, FEB 09 2023 13:54
LINE VAR

SCENARIO #3: 2023 SP/POST PROJECT
CATB -1005L_FAULT_AT_PICTURE BUTTE 120S

FILE: 1005L_Fault_at_Picture Butte 120S.out

CHNL# 22: [POWR 80000[MONTANA1 230.00]1] 4.0000 -1.000
CHNL# 14: [POWR 61736[BSR 4 0.6900]1] 4.0000 -1.000
CHNL# 12: [POWR560041[BUFFALO6 0.6900]G1] 4.0000 -1.000
CHNL# 21: [POWR 775[SECCT2 21.000]3] 4.0000 -1.000
CHNL# 19: [POWR 773[SECST 20.000]1] 4.0000 -1.000
CHNL# 15: [POWR990005[GT_GEN_A3 0.6000]1] 5.0000 -1.000

0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000
TIME (SECONDS)

THU, FEB 09 2023 13:54
MACHINE POWER

SCENARIO #3: 2023 SP/POST PROJECT
CATB -1005L_FAULT_AT_MILO 356S

FILE: 1005L_Fault_at_Milo 356S.out

CHNL# 71: [POWR 943 TO 1012 CKT '23'] 600.00 -600.0
CHNL# 69: [POWR 943 TO 547026 CKT '05'] 600.00 -600.0
CHNL# 67: [POWR 943 TO 737 CKT '36'] 600.00 -600.0
CHNL# 65: [POWR 159 TO 943 CKT '27'] 600.00 -600.0
CHNL# 63: [POWR 159 TO 990011 CKT '24'] 600.00 -600.0
CHNL# 61: [POWR 943 TO 990011 CKT '24'] 800.00 -600.0

0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000
TIME (SECONDS)

THU, FEB 09 2023 13:54
LINE POWER

SCENARIO #3: 2023 SP/POST PROJECT
CATB -1005L_FAULT_AT_PICTURE BUTTE 120S

FILE: 1005L_Fault_at_Picture Butte 120S.out

CHNL# 10: [ANGL 775[SECCT2 21.000]3] 200.00 -200.0
CHNL# 9: [ANGL 774[SECCT1 21.000]2] 200.00 -200.0
CHNL# 8: [ANGL 773[SECST 20.000]1] 200.00 -200.0

0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000
TIME (SECONDS)

THU, FEB 09 2023 13:54
MACHINE ANGLE

SCENARIO #3: 2023 SP/POST PROJECT
CATB -1005L_FAULT_AT_PICTURE BUTTE 120S

FILE: 1005L_Fault_at_Picture Butte 120S.out

CHNL# 47: [VOLT 990005 [GT GEN A3 0.6000]]
CHNL# 39: [VOLT 254 [GLEICHE7 138.00]]
CHNL# 38: [VOLT 253 [BLACKIE7 138.00]]
CHNL# 37: [VOLT 252 [CARSELA7 138.00]]
CHNL# 36: [VOLT 242 [HIGH RI7 138.00]]
CHNL# 34: [VOLT 159 [LANGDON4 240.00]]

2.0000 -0.1000

THU, FEB 09 2023 13:54
BUS VOLTAGE

TIME (SECONDS)
0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

SCENARIO #3: 2023 SP/POST PROJECT
CATB -1005L_FAULT_AT_PICTURE BUTTE 120S

FILE: 1005L_Fault_at_Picture Butte 120S.out

CHNL# 72: [VARS 943 TO 1012 CKT '23']
CHNL# 70: [VARS 943 TO 547026 CKT '05']
CHNL# 68: [VARS 943 TO 737 CKT '36']
CHNL# 66: [VARS 159 TO 943 CKT '27']
CHNL# 64: [VARS 159 TO 990011 CKT '24']
CHNL# 62: [VARS 943 TO 990011 CKT '24']

600.00 -400.0

THU, FEB 09 2023 13:54
LINE VAR

TIME (SECONDS)
0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

SCENARIO #3: 2023 SP/POST PROJECT
CATB -1005L_FAULT_AT_PICTURE BUTTE 120S

FILE: 1005L_Fault_at_Picture Butte 120S.out

CHNL# 33: [VARS 80000[MONTANA1 230.00]1]
CHNL# 25: [VARS 61736[BSR 4 0.6900]1]
CHNL# 23: [VARS560041[BUFFALO6 0.6900]G1]
CHNL# 32: [VARS 775[SECCT2 21.000]3]
CHNL# 30: [VARS 773[SECST 20.000]1]
CHNL# 26: [VARS990005[GT GEN A3 0.6000]1]

4.0000 -1.500

THU, FEB 09 2023 13:54
MACHINE VAR

TIME (SECONDS)
0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

SCENARIO #3: 2023 SP/POST PROJECT
CATB -1005L_FAULT_AT_PICTURE BUTTE 120S

FILE: 1005L_Fault_at_Picture Butte 120S.out

CHNL# 71: [POWR 943 TO 1012 CKT '23']
CHNL# 69: [POWR 943 TO 547026 CKT '05']
CHNL# 67: [POWR 943 TO 737 CKT '36']
CHNL# 65: [POWR 159 TO 943 CKT '27']
CHNL# 63: [POWR 159 TO 990011 CKT '24']
CHNL# 61: [POWR 943 TO 990011 CKT '24']

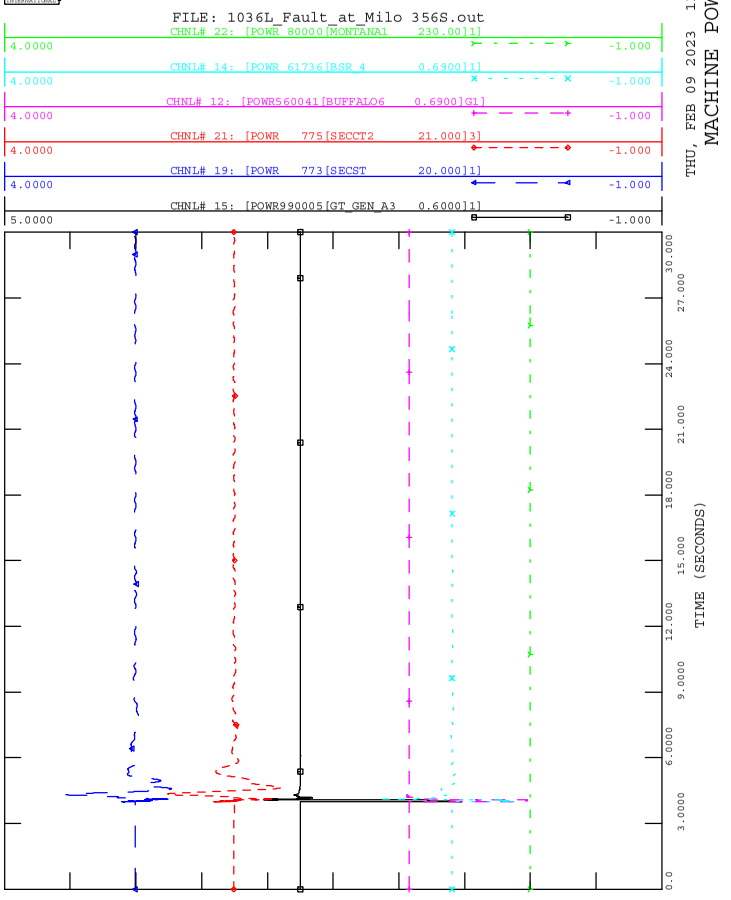
600.00 -600.0

THU, FEB 09 2023 13:54
LINE POWER

TIME (SECONDS)
0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

SCENARIO #3: 2023 SP/POST PROJECT
CATB -1036L_FAULT_AT_MILO 356S

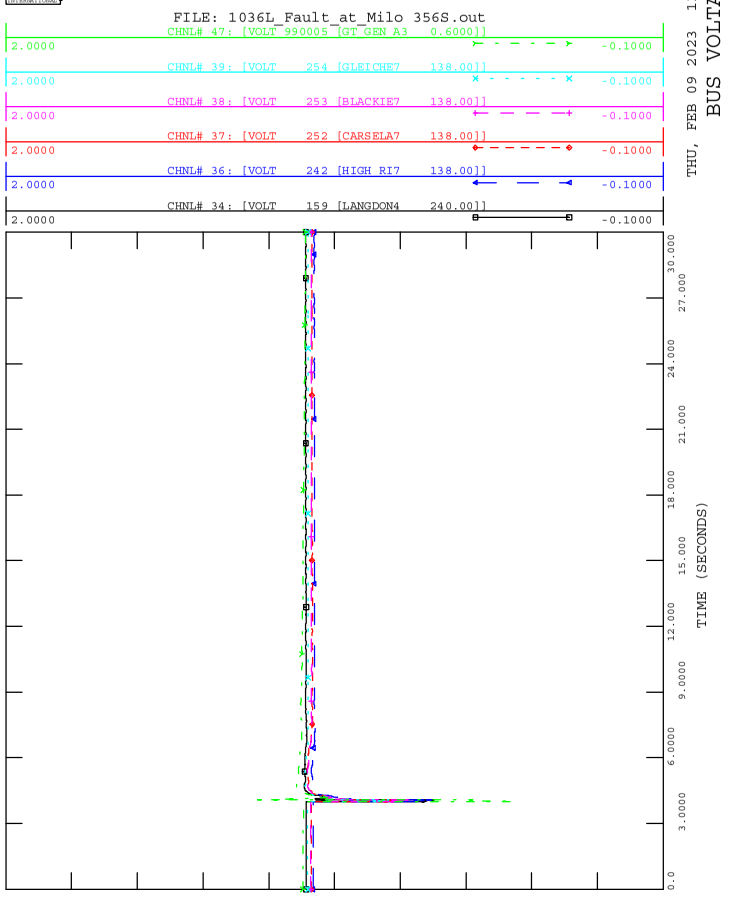
FILE: 1036L_Fault_at_Milo 356S.out



THU, FEB 09 2023 13:54
MACHINE POWER

SCENARIO #3: 2023 SP/POST PROJECT
CATB -1036L_FAULT_AT_MILO 356S

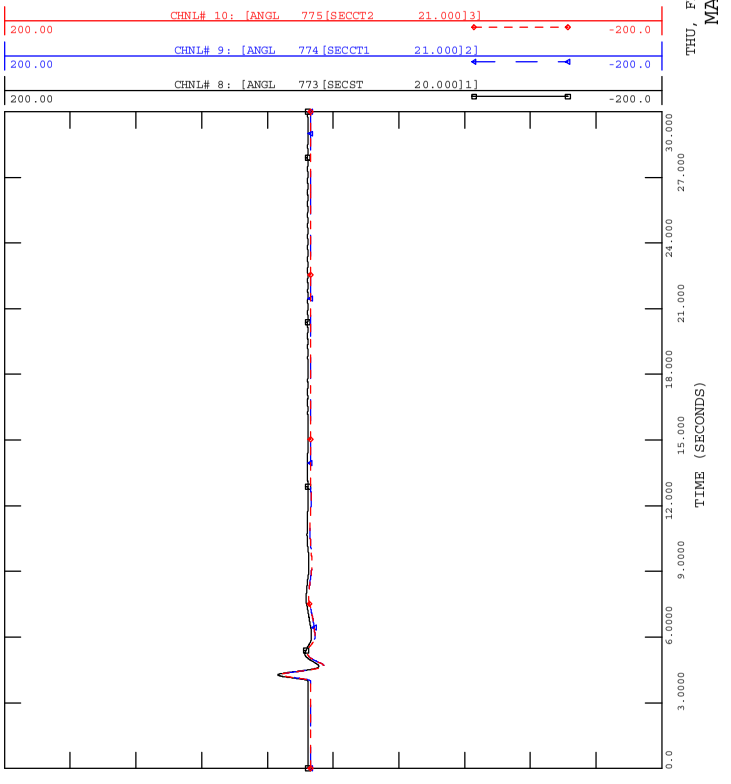
FILE: 1036L_Fault_at_Milo 356S.out



THU, FEB 09 2023 13:54
BUS VOLTAGE

SCENARIO #3: 2023 SP/POST PROJECT
CATB -1036L_FAULT_AT_MILO 356S

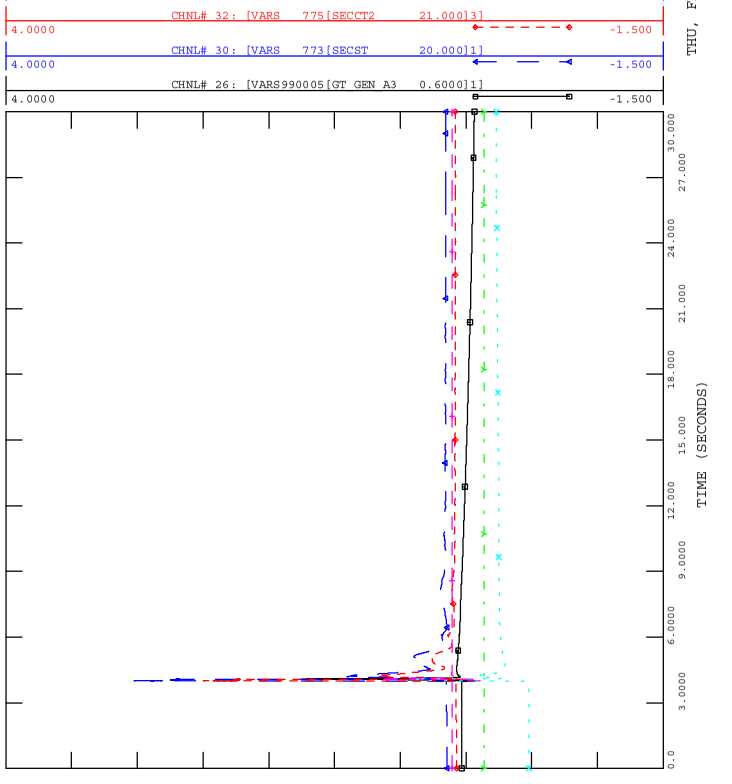
FILE: 1036L_Fault_at_Milo 356S.out



THU, FEB 09 2023 13:54
MACHINE ANGLE

SCENARIO #3: 2023 SP/POST PROJECT
CATB -1036L_FAULT_AT_MILO 356S

FILE: 1036L_Fault_at_Milo 356S.out



THU, FEB 09 2023 13:54
MACHINE VAR

SCENARIO #3: 2023 SP/POST PROJECT
CATB -1036L_FAULT_AT_MILO 356S

FILE: 1036L_Fault_at_Milo 356S.out

CHNL# 72: [VARS 943 TO 1012 CKT '23'] 600.00 -400.0
CHNL# 70: [VARS 943 TO 547026 CKT '05'] 600.00 -400.0
CHNL# 68: [VARS 943 TO 737 CKT '36'] 600.00 -400.0
CHNL# 66: [VARS 159 TO 943 CKT '27'] 600.00 -400.0
CHNL# 64: [VARS 159 TO 990011 CKT '24'] 600.00 -400.0
CHNL# 62: [VARS 943 TO 990011 CKT '24'] 600.00 -400.0

0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000
TIME (SECONDS)

THU, FEB 09 2023 13:54
LINE VAR

SCENARIO #3: 2023 SP/POST PROJECT
CATB -1036L_FAULT_AT_TRAVERS 554S

FILE: 1036L_Fault_at_Travers 554S.out

CHNL# 22: [POWR 80000[MONTANA1 230.00]1] 4.0000 -1.000
CHNL# 14: [POWR 61736[BSR_4 0.6900]1] 4.0000 -1.000
CHNL# 12: [POWR560041[BUFFALO6 0.6900]G1] 4.0000 -1.000
CHNL# 21: [POWR 775[SECCT2 21.000]3] 4.0000 -1.000
CHNL# 19: [POWR 773[SECST 20.000]1] 4.0000 -1.000
CHNL# 15: [POWR990005[GT_GEN_A3 0.6000]1] 5.0000 -1.000

0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000
TIME (SECONDS)

THU, FEB 09 2023 13:54
MACHINE POWER

SCENARIO #3: 2023 SP/POST PROJECT
CATB -1036L_FAULT_AT_MILO 356S

FILE: 1036L_Fault_at_Milo 356S.out

CHNL# 71: [POWR 943 TO 1012 CKT '23'] 600.00 -600.0
CHNL# 69: [POWR 943 TO 547026 CKT '05'] 600.00 -600.0
CHNL# 67: [POWR 943 TO 737 CKT '36'] 600.00 -600.0
CHNL# 65: [POWR 159 TO 943 CKT '27'] 600.00 -600.0
CHNL# 63: [POWR 159 TO 990011 CKT '24'] 600.00 -600.0
CHNL# 61: [POWR 943 TO 990011 CKT '24'] 800.00 -600.0

0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000
TIME (SECONDS)

THU, FEB 09 2023 13:54
LINE POWER

SCENARIO #3: 2023 SP/POST PROJECT
CATB -1036L_FAULT_AT_TRAVERS 554S

FILE: 1036L_Fault_at_Travers 554S.out

CHNL# 10: [ANGL 775[SECCT2 21.000]3] 200.00 -200.0
CHNL# 9: [ANGL 774[SECCT1 21.000]2] 200.00 -200.0
CHNL# 8: [ANGL 773[SECST 20.000]1] 200.00 -200.0

0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000
TIME (SECONDS)

THU, FEB 09 2023 13:54
MACHINE ANGLE

SCENARIO #3: 2023 SP/POST PROJECT
CATB -1036L_FAULT_AT_TRAVERS 554S

FILE: 1036L_Fault_at_Travers 554S.out

CHNL# 47: [VOLT 990005 [GT GEN A3 0.6000]]
CHNL# 39: [VOLT 254 [GLEICHE7 138.00]]
CHNL# 38: [VOLT 253 [BLACKIE7 138.00]]
CHNL# 37: [VOLT 252 [CARSELA7 138.00]]
CHNL# 36: [VOLT 242 [HIGH RI7 138.00]]
CHNL# 34: [VOLT 159 [LANGDON4 240.00]]

2.0000 -0.1000

THU, FEB 09 2023 13:54
BUS VOLTAGE

TIME (SECONDS)
0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

SCENARIO #3: 2023 SP/POST PROJECT
CATB -1036L_FAULT_AT_TRAVERS 554S

FILE: 1036L_Fault_at_Travers 554S.out

CHNL# 72: [VARS 943 TO 1012 CKT '23']
CHNL# 70: [VARS 943 TO 547026 CKT '05']
CHNL# 68: [VARS 943 TO 737 CKT '36']
CHNL# 66: [VARS 159 TO 943 CKT '27']
CHNL# 64: [VARS 159 TO 990011 CKT '24']
CHNL# 62: [VARS 943 TO 990011 CKT '24']

600.00 -400.0

THU, FEB 09 2023 13:54
LINE VAR

TIME (SECONDS)
0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

SCENARIO #3: 2023 SP/POST PROJECT
CATB -1036L_FAULT_AT_TRAVERS 554S

FILE: 1036L_Fault_at_Travers 554S.out

CHNL# 33: [VARS 80000[MONTANA1 230.00]1]
CHNL# 25: [VARS 61736[BSR 4 0.6900]1]
CHNL# 23: [VARS560041[BUFFALO6 0.6900]G1]
CHNL# 32: [VARS 775[SECCT2 21.000]3]
CHNL# 30: [VARS 773[SECST 20.000]1]
CHNL# 26: [VARS990005[GT GEN A3 0.6000]1]

4.0000 -1.500

THU, FEB 09 2023 13:54
MACHINE VAR

TIME (SECONDS)
0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

SCENARIO #3: 2023 SP/POST PROJECT
CATB -1036L_FAULT_AT_TRAVERS 554S

FILE: 1036L_Fault_at_Travers 554S.out

CHNL# 71: [POWR 943 TO 1012 CKT '23']
CHNL# 69: [POWR 943 TO 547026 CKT '05']
CHNL# 67: [POWR 943 TO 737 CKT '36']
CHNL# 65: [POWR 159 TO 943 CKT '27']
CHNL# 63: [POWR 159 TO 990011 CKT '24']
CHNL# 61: [POWR 943 TO 990011 CKT '24']

600.00 -600.0

THU, FEB 09 2023 13:54
LINE POWER

TIME (SECONDS)
0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

SCENARIO #3: 2023 SP/POST PROJECT
CATB -923L_FAULT_AT_MILO 356S

FILE: 923L_Fault_at_Milo 356S.out

CHNL# 22: [POWR 80000[MONTANA1 230.00]1]
CHNL# 14: [POWR 61736[BSR 4 0.6900]1]
CHNL# 12: [POWR560041[BUFFALO6 0.6900]G1]
CHNL# 21: [POWR 775[SECCT2 21.000]3]
CHNL# 19: [POWR 773[SECST 20.000]1]
CHNL# 15: [POWR990005[GT_GEN_A3 0.6000]1]

4.0000 / 4.0000 / 4.0000 / 4.0000 / 4.0000 / 5.0000
-1.000 / -1.000 / -1.000 / -1.000 / -1.000 / -1.000

0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

TIME (SECONDS)

THU, FEB 09 2023 13:54
MACHINE POWER

SCENARIO #3: 2023 SP/POST PROJECT
CATB -923L_FAULT_AT_MILO 356S

FILE: 923L_Fault_at_Milo 356S.out

CHNL# 47: [VOLT 990005[GT_GEN_A3 0.6000]]
CHNL# 39: [VOLT 254 [GLEICHE7 138.00]]
CHNL# 38: [VOLT 253 [BLACKIE7 138.00]]
CHNL# 37: [VOLT 252 [CARSELA7 138.00]]
CHNL# 36: [VOLT 242 [HIGH_RI7 138.00]]
CHNL# 34: [VOLT 159 [LANGDON4 240.00]]

2.0000 / 2.0000 / 2.0000 / 2.0000 / 2.0000 / 2.0000
-0.1000 / -0.1000 / -0.1000 / -0.1000 / -0.1000 / -0.1000

0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

TIME (SECONDS)

THU, FEB 09 2023 13:54
BUS VOLTAGE

SCENARIO #3: 2023 SP/POST PROJECT
CATB -923L_FAULT_AT_MILO 356S

FILE: 923L_Fault_at_Milo 356S.out

CHNL# 10: [ANGL 775[SECCT2 21.000]3]
CHNL# 9: [ANGL 774[SECCT1 21.000]2]
CHNL# 8: [ANGL 773[SECST 20.000]1]

200.00 / 200.00 / 200.00
-200.0 / -200.0 / -200.0

0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

TIME (SECONDS)

THU, FEB 09 2023 13:54
MACHINE ANGLE

SCENARIO #3: 2023 SP/POST PROJECT
CATB -923L_FAULT_AT_MILO 356S

FILE: 923L_Fault_at_Milo 356S.out

CHNL# 33: [VARS 80000[MONTANA1 230.00]1]
CHNL# 25: [VARS 61736[BSR 4 0.6900]1]
CHNL# 23: [VARS560041[BUFFALO6 0.6900]G1]
CHNL# 32: [VARS 775[SECCT2 21.000]3]
CHNL# 30: [VARS 773[SECST 20.000]1]
CHNL# 26: [VARS990005[GT_GEN_A3 0.6000]1]

4.0000 / 4.0000 / 4.0000 / 4.0000 / 4.0000 / 4.0000
-1.500 / -1.500 / -1.500 / -1.500 / -1.500 / -1.500

0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

TIME (SECONDS)

THU, FEB 09 2023 13:54
MACHINE VAR

SCENARIO #3: 2023 SP/POST PROJECT
CATB -923L_FAULT_AT_MILO 356S

FILE: 923L_Fault_at_Milo 356S.out

CHNL# 72: [VARS 943 TO 1012 CKT '23'] 600.00 -400.0
CHNL# 70: [VARS 943 TO 547026 CKT '05'] 600.00 -400.0
CHNL# 68: [VARS 943 TO 737 CKT '36'] 600.00 -400.0
CHNL# 66: [VARS 159 TO 943 CKT '27'] 600.00 -400.0
CHNL# 64: [VARS 159 TO 990011 CKT '24'] 600.00 -400.0
CHNL# 62: [VARS 943 TO 990011 CKT '24'] 600.00 -400.0

TIME (SECONDS) 0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

THU, FEB 09 2023 13:54 LINE VAR

SCENARIO #3: 2023 SP/POST PROJECT
CATB -923L_FAULT_AT_NEWELL 2075S

FILE: 923L_Fault_at_Newell 2075S.out

CHNL# 22: [POWR 80000[MONTANA1 230.00]1] 4.0000 -1.000
CHNL# 14: [POWR 61736[BSR_4 0.6900]1] 4.0000 -1.000
CHNL# 12: [POWR560041[BUFFALO6 0.6900]G1] 4.0000 -1.000
CHNL# 21: [POWR 775[SECCT2 21.000]3] 4.0000 -1.000
CHNL# 19: [POWR 773[SECST 20.000]1] 4.0000 -1.000
CHNL# 15: [POWR990005[GT_GEN_A3 0.6000]1] 5.0000 -1.000

TIME (SECONDS) 0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

THU, FEB 09 2023 13:54 MACHINE POWER

SCENARIO #3: 2023 SP/POST PROJECT
CATB -923L_FAULT_AT_MILO 356S

FILE: 923L_Fault_at_Milo 356S.out

CHNL# 71: [POWR 943 TO 1012 CKT '23'] 600.00 -600.0
CHNL# 69: [POWR 943 TO 547026 CKT '05'] 600.00 -600.0
CHNL# 67: [POWR 943 TO 737 CKT '36'] 600.00 -600.0
CHNL# 65: [POWR 159 TO 943 CKT '27'] 600.00 -600.0
CHNL# 63: [POWR 159 TO 990011 CKT '24'] 600.00 -600.0
CHNL# 61: [POWR 943 TO 990011 CKT '24'] 800.00 -600.0

TIME (SECONDS) 0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

THU, FEB 09 2023 13:54 LINE POWER

SCENARIO #3: 2023 SP/POST PROJECT
CATB -923L_FAULT_AT_NEWELL 2075S

FILE: 923L_Fault_at_Newell 2075S.out

CHNL# 10: [ANGL 775[SECCT2 21.000]3] 200.00 -200.0
CHNL# 9: [ANGL 774[SECCT1 21.000]2] 200.00 -200.0
CHNL# 8: [ANGL 773[SECST 20.000]1] 200.00 -200.0

TIME (SECONDS) 0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

THU, FEB 09 2023 13:54 MACHINE ANGLE

SCENARIO #3: 2023 SP/POST PROJECT
CATB -923L_FAULT_AT_NEWELL 2075S

FILE: 923L_Fault_at_Newell 2075S.out

CHNL# 47: [VOLT 990005 [GT GEN A3 0.6000]]
CHNL# 39: [VOLT 254 [GLEICHE7 138.00]]
CHNL# 38: [VOLT 253 [BLACKIE7 138.00]]
CHNL# 37: [VOLT 252 [CARSELA7 138.00]]
CHNL# 36: [VOLT 242 [HIGH RI7 138.00]]
CHNL# 34: [VOLT 159 [LANGDON4 240.00]]

2.0000 -0.1000

0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

TIME (SECONDS)

THU, FEB 09 2023 13:55

BUS VOLTAGE

SCENARIO #3: 2023 SP/POST PROJECT
CATB -923L_FAULT_AT_NEWELL 2075S

FILE: 923L_Fault_at_Newell 2075S.out

CHNL# 72: [VARS 943 TO 1012 CKT '23']
CHNL# 70: [VARS 943 TO 547026 CKT '05']
CHNL# 68: [VARS 943 TO 737 CKT '36']
CHNL# 66: [VARS 159 TO 943 CKT '27']
CHNL# 64: [VARS 159 TO 990011 CKT '24']
CHNL# 62: [VARS 943 TO 990011 CKT '24']

600.00 -400.0

0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

TIME (SECONDS)

THU, FEB 09 2023 13:55

LINE VAR

SCENARIO #3: 2023 SP/POST PROJECT
CATB -923L_FAULT_AT_NEWELL 2075S

FILE: 923L_Fault_at_Newell 2075S.out

CHNL# 33: [VARS 80000[MONTANA1 230.00]1]
CHNL# 25: [VARS 61736[BSR 4 0.6900]1]
CHNL# 23: [VARS560041[BUFFALO6 0.6900]G1]
CHNL# 32: [VARS 775[SECCT2 21.000]3]
CHNL# 30: [VARS 773[SECST 20.000]1]
CHNL# 26: [VARS990005[GT GEN A3 0.6000]1]

4.0000 -1.500

0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

TIME (SECONDS)

THU, FEB 09 2023 13:55

MACHINE VAR

SCENARIO #3: 2023 SP/POST PROJECT
CATB -923L_FAULT_AT_NEWELL 2075S

FILE: 923L_Fault_at_Newell 2075S.out

CHNL# 71: [POWR 943 TO 1012 CKT '23']
CHNL# 69: [POWR 943 TO 547026 CKT '05']
CHNL# 67: [POWR 943 TO 737 CKT '36']
CHNL# 65: [POWR 159 TO 943 CKT '27']
CHNL# 63: [POWR 159 TO 990011 CKT '24']
CHNL# 61: [POWR 943 TO 990011 CKT '24']

600.00 -600.0

0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

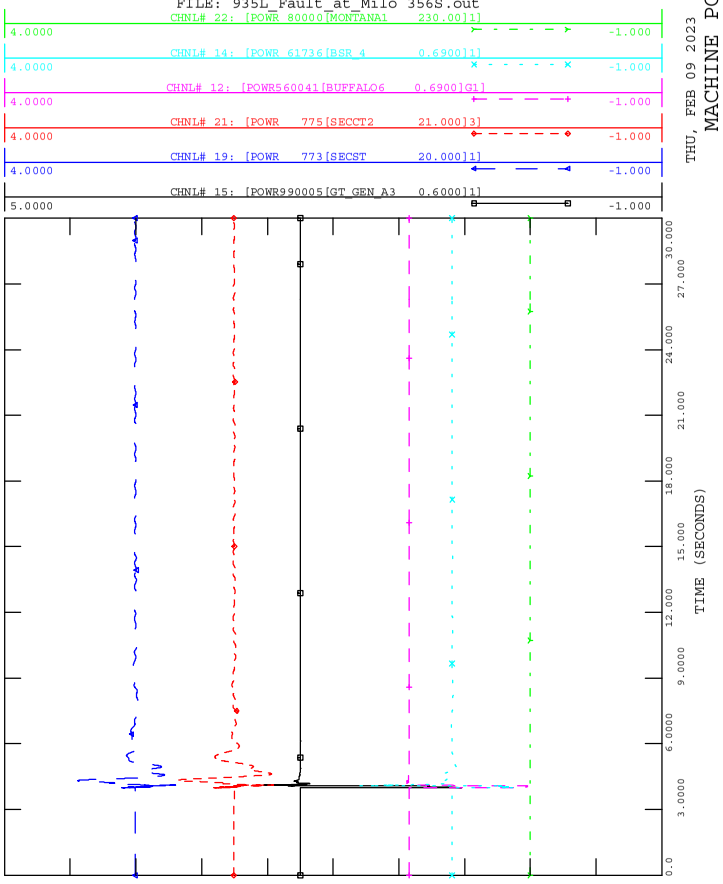
TIME (SECONDS)

THU, FEB 09 2023 13:55

LINE POWER

SCENARIO #3: 2023 SP/POST PROJECT
CATB -935L_FAULT_AT_MILO 356S

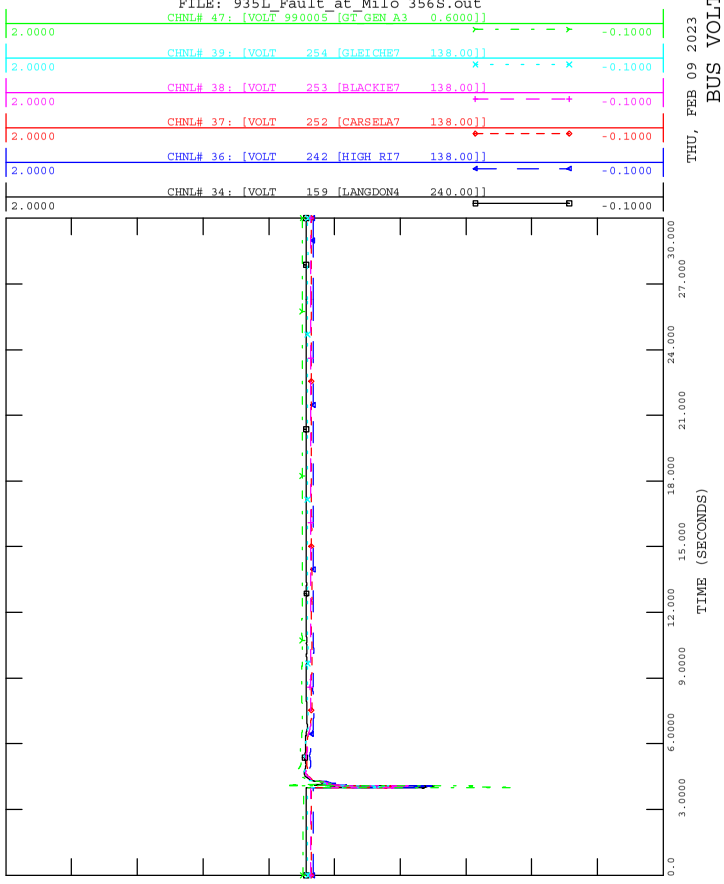
FILE: 935L_Fault_at_Milo 356S.out



THU, FEB 09 2023 13:55
MACHINE POWER

SCENARIO #3: 2023 SP/POST PROJECT
CATB -935L_FAULT_AT_MILO 356S

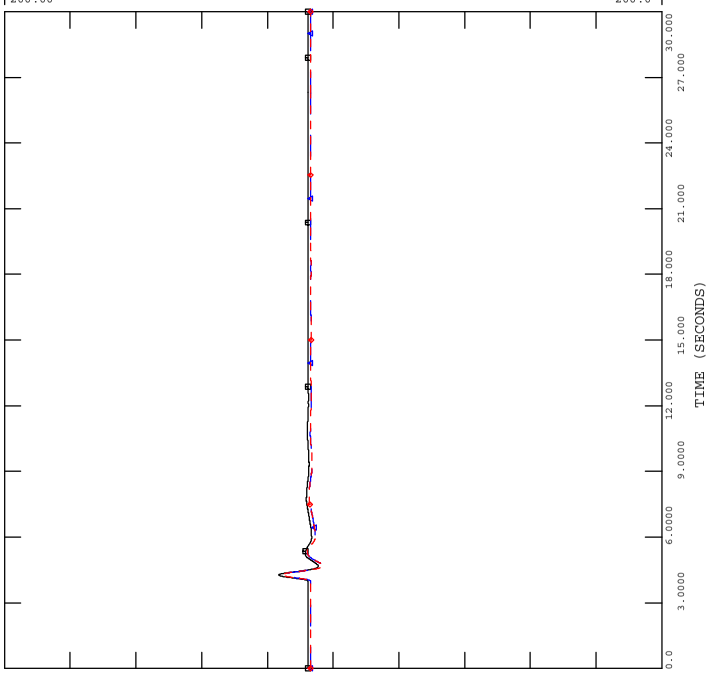
FILE: 935L_Fault_at_Milo 356S.out



THU, FEB 09 2023 13:55
BUS VOLTAGE

SCENARIO #3: 2023 SP/POST PROJECT
CATB -935L_FAULT_AT_MILO 356S

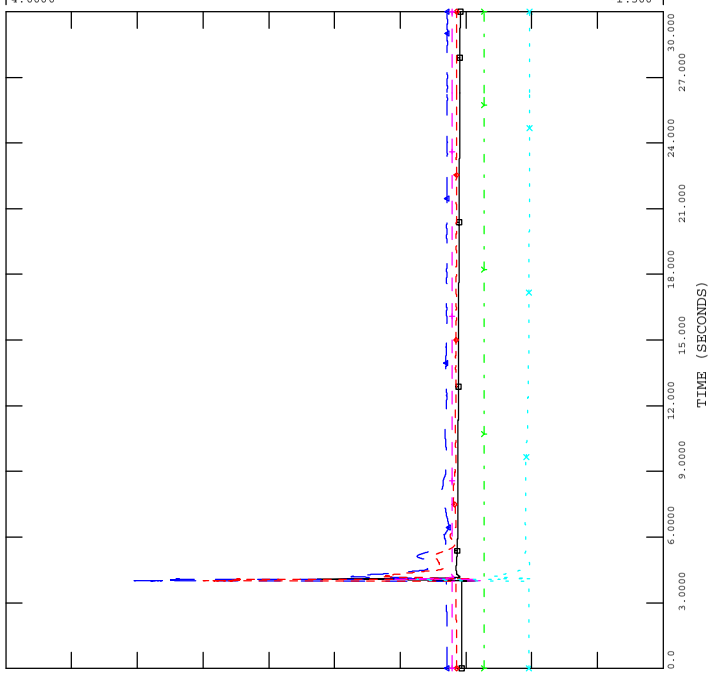
FILE: 935L_Fault_at_Milo 356S.out



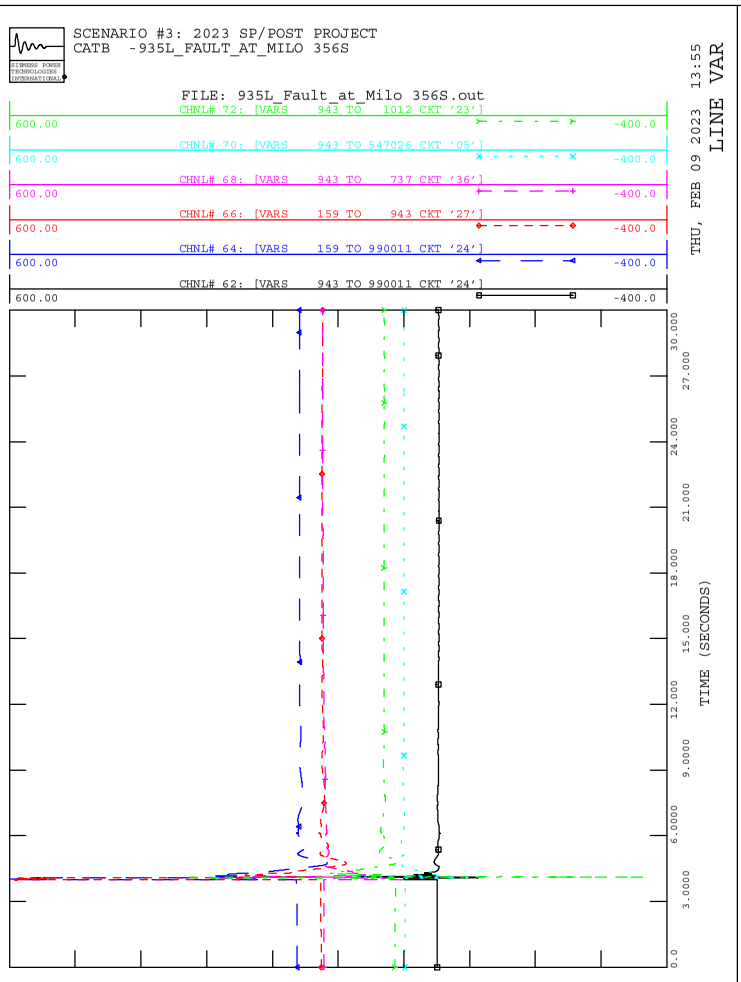
THU, FEB 09 2023 13:55
MACHINE ANGLE

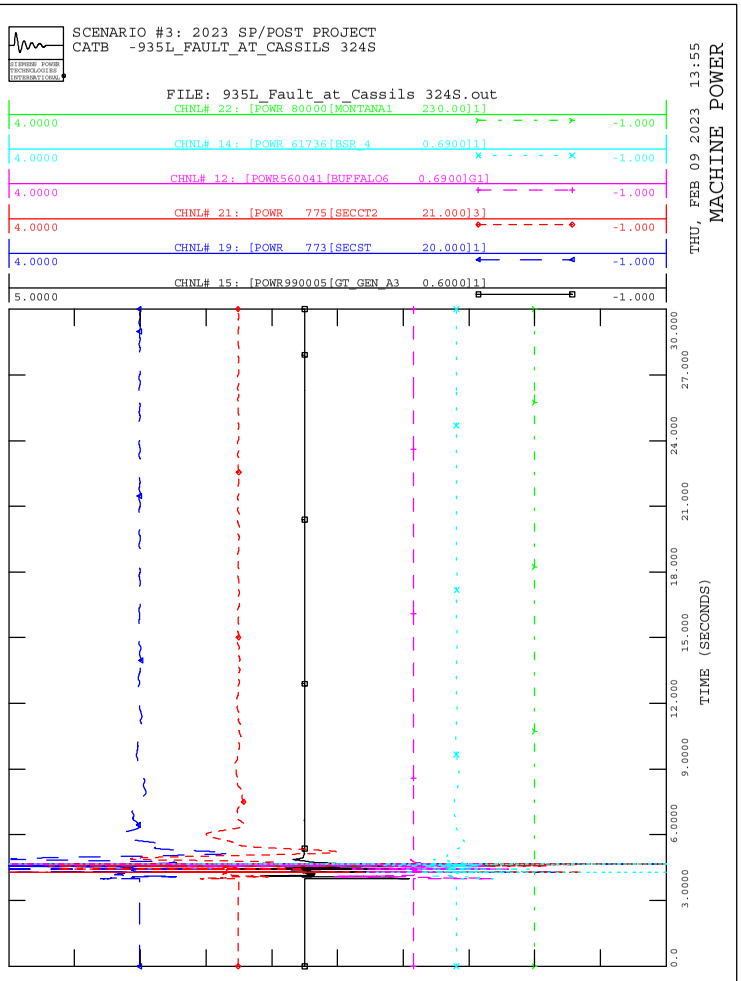
SCENARIO #3: 2023 SP/POST PROJECT
CATB -935L_FAULT_AT_MILO 356S

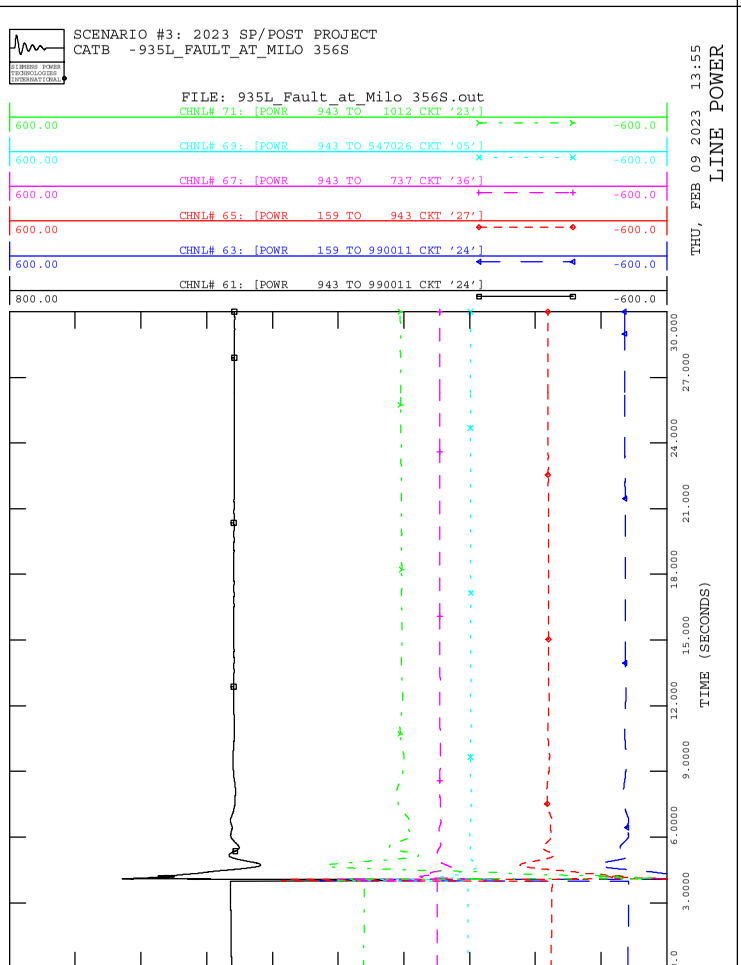
FILE: 935L_Fault_at_Milo 356S.out

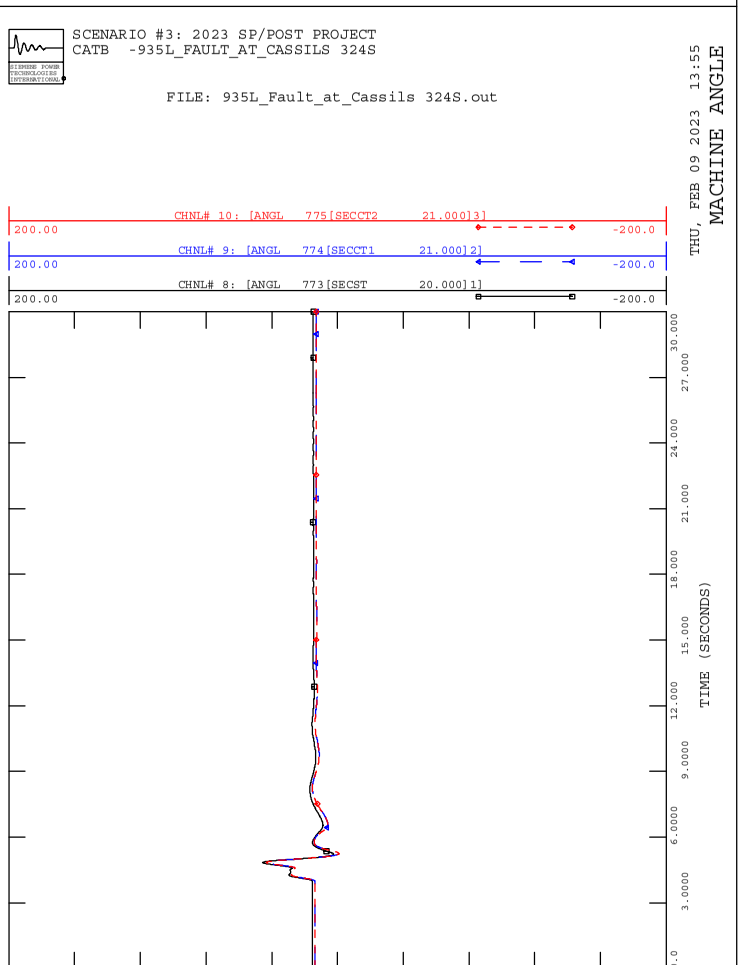


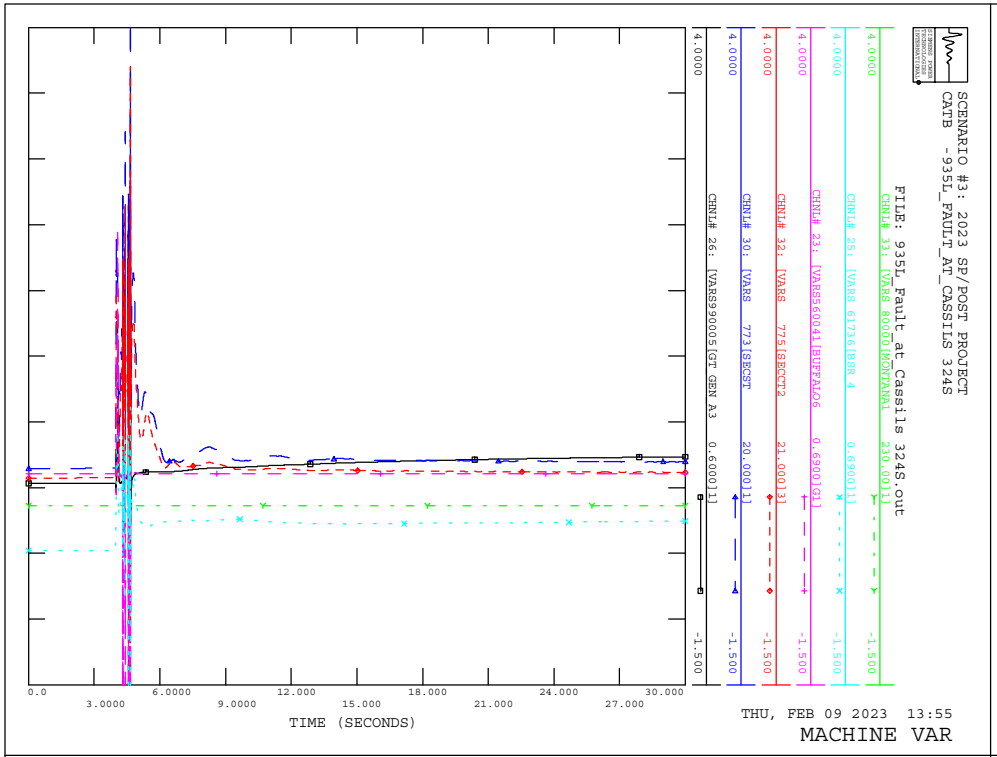
THU, FEB 09 2023 13:55
MACHINE VAR

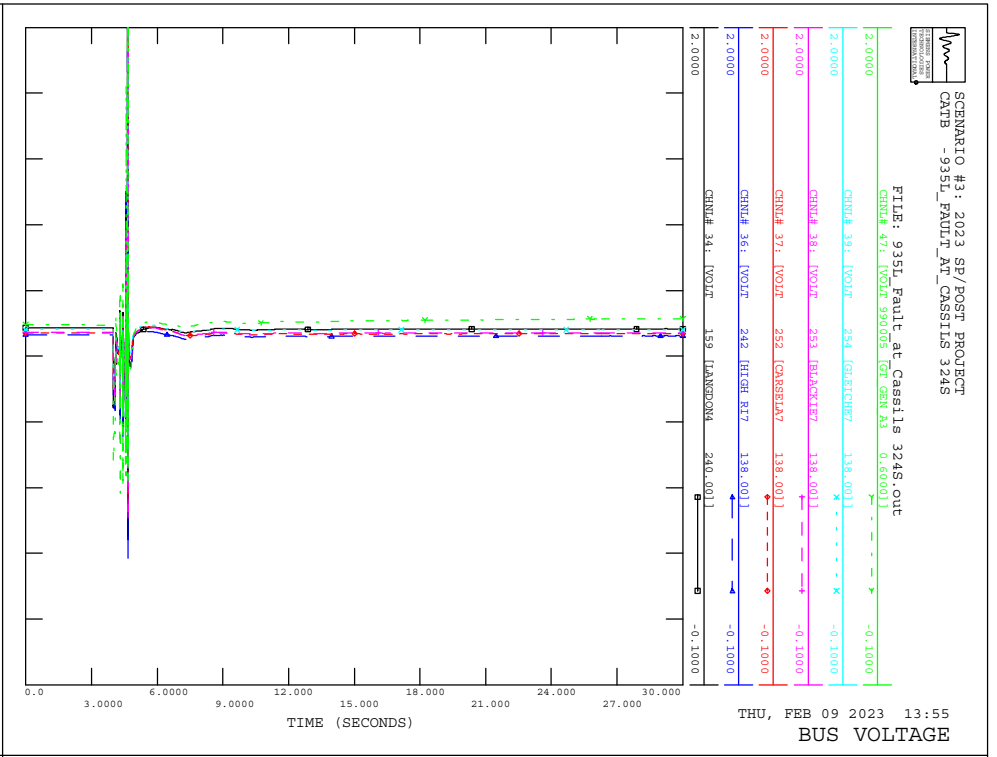

SCENARIO #3: 2023 SP/POST PROJECT
CATB -935L_FAULT_AT_MILO 356S
FILE: 935L_Fault_at_Milo 356S.out
CHNL# 72: [VARS 943 TO 1012 CKT '23']
CHNL# 70: [VARS 943 TO 547026 CKT '05']
CHNL# 68: [VARS 943 TO 737 CKT '36']
CHNL# 66: [VARS 159 TO 943 CKT '27']
CHNL# 64: [VARS 159 TO 990011 CKT '24']
CHNL# 62: [VARS 943 TO 990011 CKT '24']
600.00
-400.0
TIME (SECONDS)
0.0
3.0000
6.0000
9.0000
12.000
15.000
18.000
21.000
24.000
27.000
30.000
THU, FEB 09 2023 13:55
LINE VAR

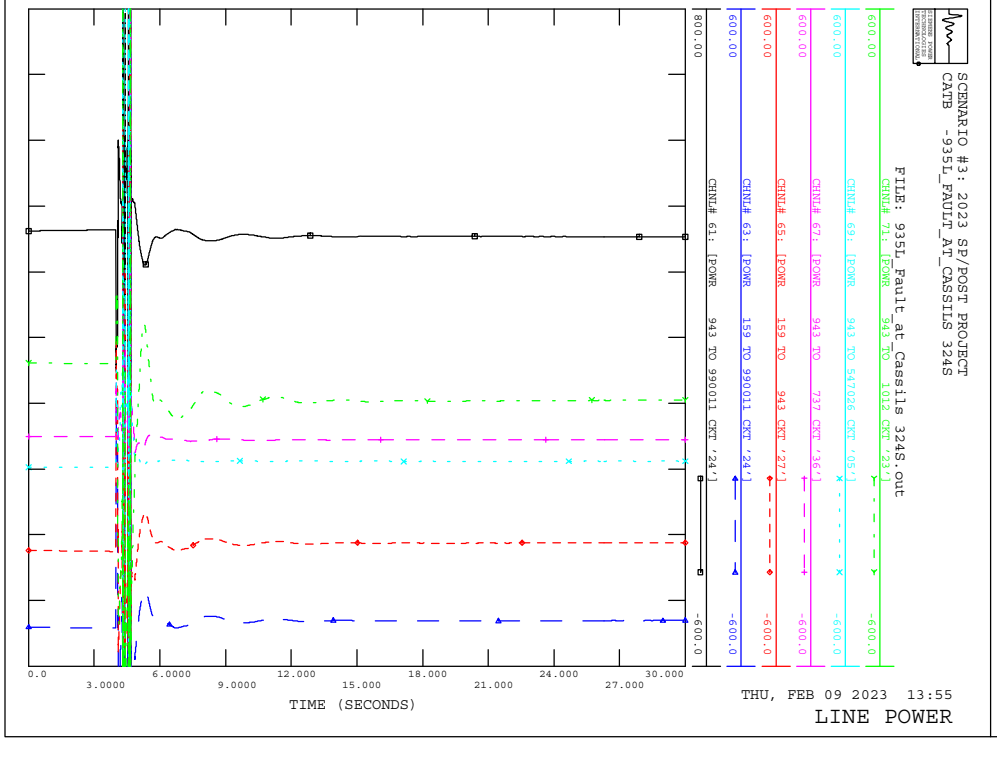

SCENARIO #3: 2023 SP/POST PROJECT
CATB -935L_FAULT_AT_CASSILS 324S
FILE: 935L_Fault_at_Cassils 324S.out
CHNL# 22: [POWR 80000[MONTANA1 230.00]1]
CHNL# 14: [POWR 61736[BSR_4 0.6900]1]
CHNL# 12: [POWR560041[BUFFALO6 0.6900]G1]
CHNL# 21: [POWR 775[SECCT2 21.000]3]
CHNL# 19: [POWR 773[SECST 20.000]1]
CHNL# 15: [POWR990005[GT_GEN_A3 0.6000]1]
4.0000
5.0000
-1.000
TIME (SECONDS)
0.0
3.0000
6.0000
9.0000
12.000
15.000
18.000
21.000
24.000
27.000
30.000
THU, FEB 09 2023 13:55
MACHINE POWER

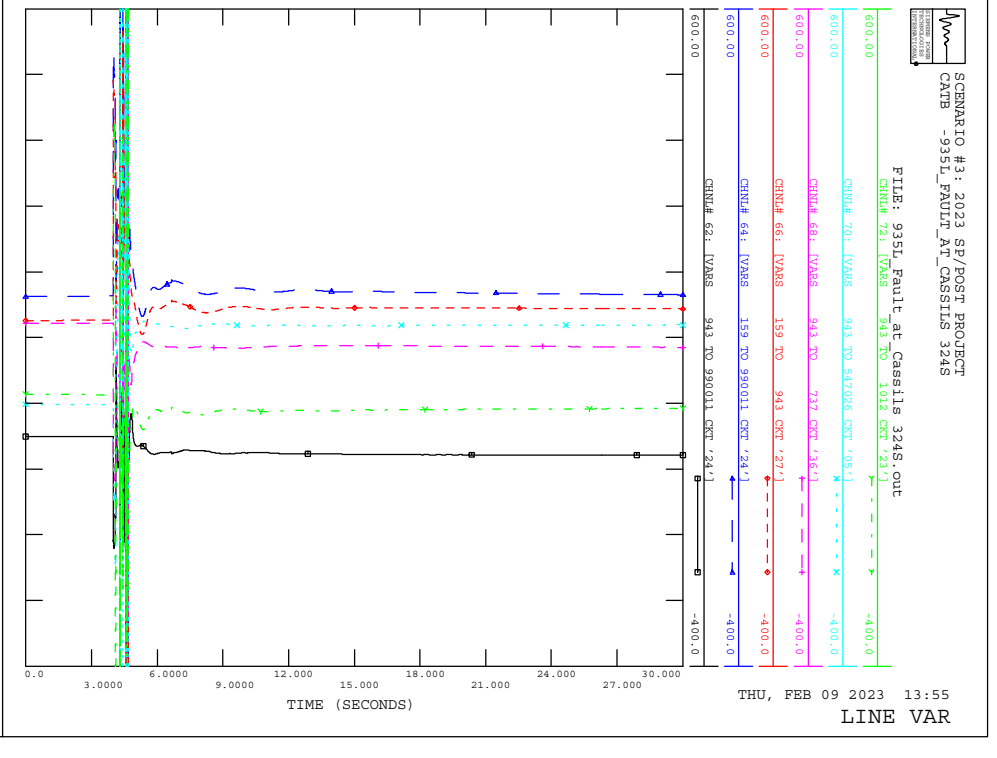

SCENARIO #3: 2023 SP/POST PROJECT
CATB -935L_FAULT_AT_MILO 356S
FILE: 935L_Fault_at_Milo 356S.out
CHNL# 71: [POWR 943 TO 1012 CKT '23']
CHNL# 69: [POWR 943 TO 547026 CKT '05']
CHNL# 67: [POWR 943 TO 737 CKT '36']
CHNL# 65: [POWR 159 TO 943 CKT '27']
CHNL# 63: [POWR 159 TO 990011 CKT '24']
CHNL# 61: [POWR 943 TO 990011 CKT '24']
600.00
800.00
-600.0
TIME (SECONDS)
0.0
3.0000
6.0000
9.0000
12.000
15.000
18.000
21.000
24.000
27.000
30.000
THU, FEB 09 2023 13:55
LINE POWER


SCENARIO #3: 2023 SP/POST PROJECT
CATB -935L_FAULT_AT_CASSILS 324S
FILE: 935L_Fault_at_Cassils 324S.out
CHNL# 10: [ANGL 775[SECCT2 21.000]3]
CHNL# 9: [ANGL 774[SECCT1 21.000]2]
CHNL# 8: [ANGL 773[SECST 20.000]1]
200.00
-200.0
TIME (SECONDS)
0.0
3.0000
6.0000
9.0000
12.000
15.000
18.000
21.000
24.000
27.000
30.000
THU, FEB 09 2023 13:55
MACHINE ANGLE


SCENARIO #3: 2023 SP/POST PROJECT
CATB -935L_FAULT_AT_CASSILS 324S
FILE: 935L_Fault_at_Cassils 324S.out
CHNL# 33: [VARS 80000 MONTANA1 230.001]
CHNL# 26: [VARS990005[GT GEN A3 0.69001]
TIME (SECONDS)
THU, FEB 09 2023 13:55
MACHINE VAR

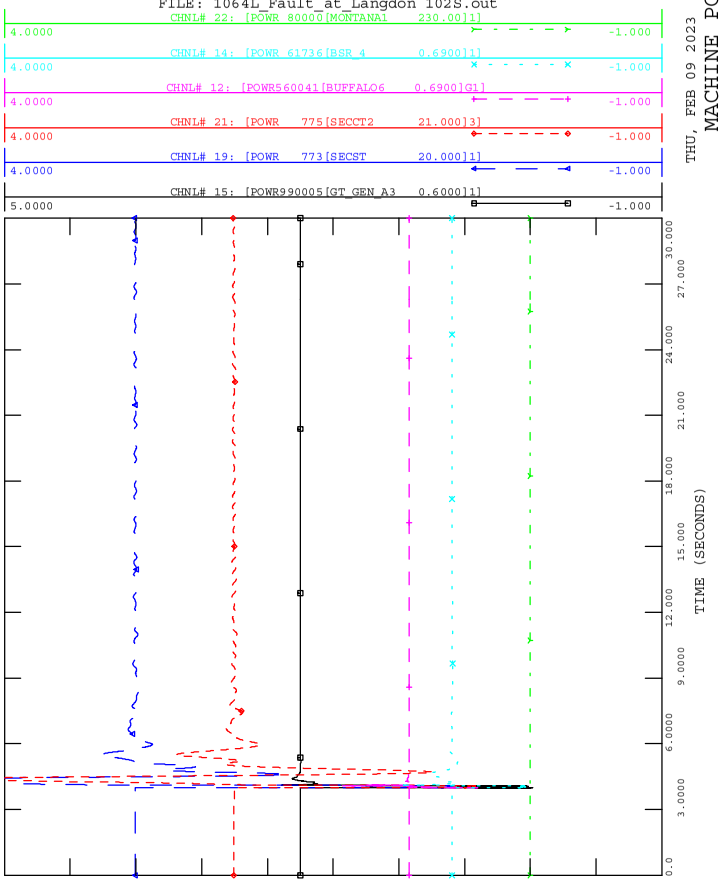

SCENARIO #3: 2023 SP/POST PROJECT
CATB -935L_FAULT_AT_CASSILS 324S
FILE: 935L_Fault_at_Cassils 324S.out
CHNL# 47: [VOLT 990005 [GT GEN A3 0.69001]
CHNL# 34: [VOLT 159 [ANSDON4 240.001]
TIME (SECONDS)
THU, FEB 09 2023 13:55
BUS VOLTAGE


SCENARIO #3: 2023 SP/POST PROJECT
CATB -935L_FAULT_AT_CASSILS 324S
FILE: 935L_Fault_at_Cassils 324S.out
CHNL# 71: [POWR 943 TO 1012 CKT '23']
CHNL# 61: [POWR 943 TO 990011 CKT '24']
TIME (SECONDS)
THU, FEB 09 2023 13:55
LINE POWER


SCENARIO #3: 2023 SP/POST PROJECT
CATB -935L_FAULT_AT_CASSILS 324S
FILE: 935L_Fault_at_Cassils 324S.out
CHNL# 72: [VARS 943 TO 1012 CKT '23']
CHNL# 62: [VARS 943 TO 990011 CKT '24']
TIME (SECONDS)
THU, FEB 09 2023 13:55
LINE VAR

SCENARIO #3: 2023 SP/POST PROJECT
CATB -1064L_FAULT_AT_LANGDON 102S

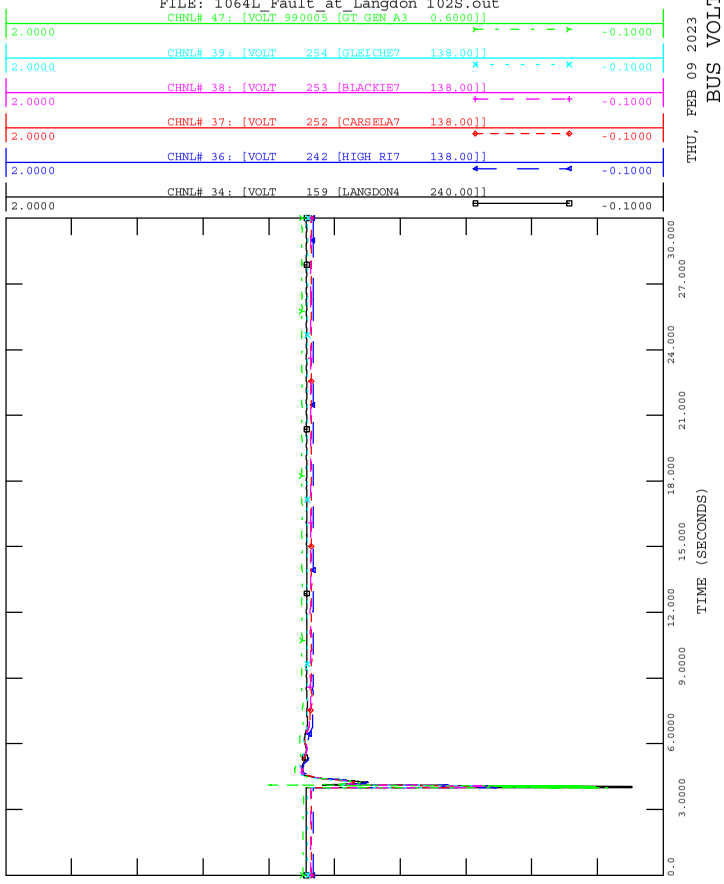
FILE: 1064L_Fault_at_Langdon 102S.out



THU, FEB 09 2023 13:55
MACHINE POWER

SCENARIO #3: 2023 SP/POST PROJECT
CATB -1064L_FAULT_AT_LANGDON 102S

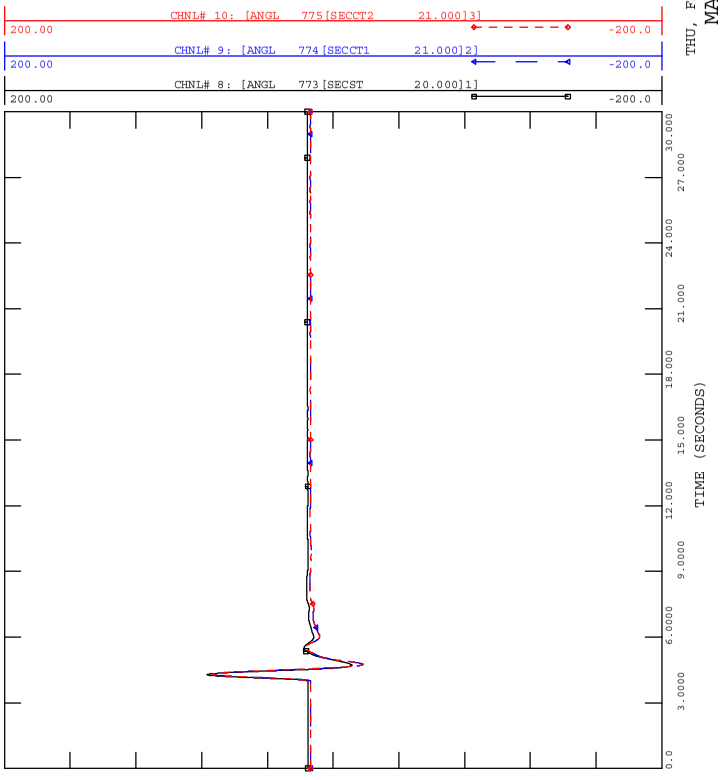
FILE: 1064L_Fault_at_Langdon 102S.out



THU, FEB 09 2023 13:55
BUS VOLTAGE

SCENARIO #3: 2023 SP/POST PROJECT
CATB -1064L_FAULT_AT_LANGDON 102S

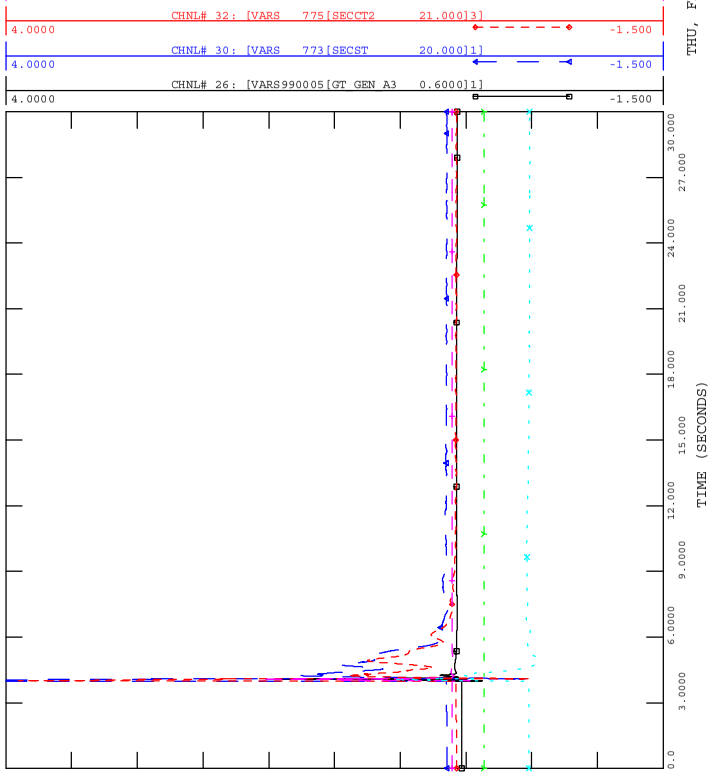
FILE: 1064L_Fault_at_Langdon 102S.out



THU, FEB 09 2023 13:55
MACHINE ANGLE

SCENARIO #3: 2023 SP/POST PROJECT
CATB -1064L_FAULT_AT_LANGDON 102S

FILE: 1064L_Fault_at_Langdon 102S.out



THU, FEB 09 2023 13:55
MACHINE VAR

SCENARIO #3: 2023 SP/POST PROJECT
CATB -1064L_FAULT_AT_LANGDON 102S

FILE: 1064L_Fault_at_Langdon 102S.out

CHNL# 72: [VARS 943 TO 1012 CKT '23'] 600.00 -400.0
CHNL# 70: [VARS 943 TO 547026 CKT '05'] 600.00 -400.0
CHNL# 68: [VARS 943 TO 737 CKT '36'] 600.00 -400.0
CHNL# 66: [VARS 159 TO 943 CKT '27'] 600.00 -400.0
CHNL# 64: [VARS 159 TO 990011 CKT '24'] 600.00 -400.0
CHNL# 62: [VARS 943 TO 990011 CKT '24'] 600.00 -400.0

TIME (SECONDS) 0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

THU, FEB 09 2023 13:55 LINE VAR

SCENARIO #3: 2023 SP/POST PROJECT
CATB -1065L_FAULT_AT_LANGDON 102S

FILE: 1065L_Fault_at_Langdon 102S.out

CHNL# 22: [POWR 80000[MONTANA1 230.00]1] 4.0000 -1.000
CHNL# 14: [POWR 61736[BSR_4 0.6900]1] 4.0000 -1.000
CHNL# 12: [POWR560041[BUFFALO6 0.6900]G1] 4.0000 -1.000
CHNL# 21: [POWR 775[SECCT2 21.000]3] 4.0000 -1.000
CHNL# 19: [POWR 773[SECST 20.000]1] 4.0000 -1.000
CHNL# 15: [POWR990005[GT_GEN_A3 0.6000]1] 5.0000 -1.000

TIME (SECONDS) 0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

THU, FEB 09 2023 13:55 MACHINE POWER

SCENARIO #3: 2023 SP/POST PROJECT
CATB -1064L_FAULT_AT_LANGDON 102S

FILE: 1064L_Fault_at_Langdon 102S.out

CHNL# 71: [POWR 943 TO 1012 CKT '23'] 600.00 -600.0
CHNL# 69: [POWR 943 TO 547026 CKT '05'] 600.00 -600.0
CHNL# 67: [POWR 943 TO 737 CKT '36'] 600.00 -600.0
CHNL# 65: [POWR 159 TO 943 CKT '27'] 600.00 -600.0
CHNL# 63: [POWR 159 TO 990011 CKT '24'] 600.00 -600.0
CHNL# 61: [POWR 943 TO 990011 CKT '24'] 800.00 -600.0

TIME (SECONDS) 0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

THU, FEB 09 2023 13:55 LINE POWER

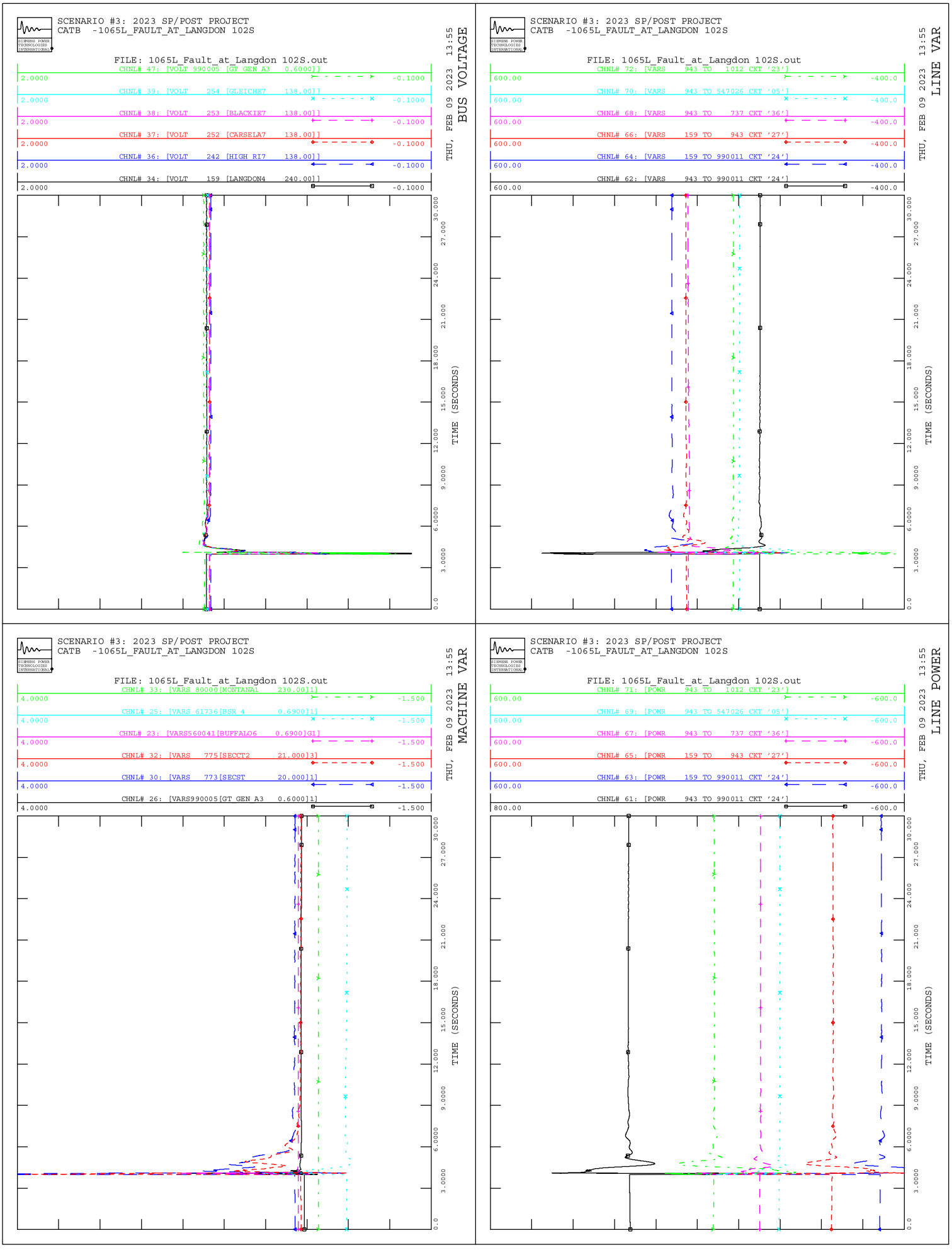
SCENARIO #3: 2023 SP/POST PROJECT
CATB -1065L_FAULT_AT_LANGDON 102S

FILE: 1065L_Fault_at_Langdon 102S.out

CHNL# 10: [ANGL 775[SECCT2 21.000]3] 200.00 -200.0
CHNL# 9: [ANGL 774[SECCT1 21.000]2] 200.00 -200.0
CHNL# 8: [ANGL 773[SECST 20.000]1] 200.00 -200.0

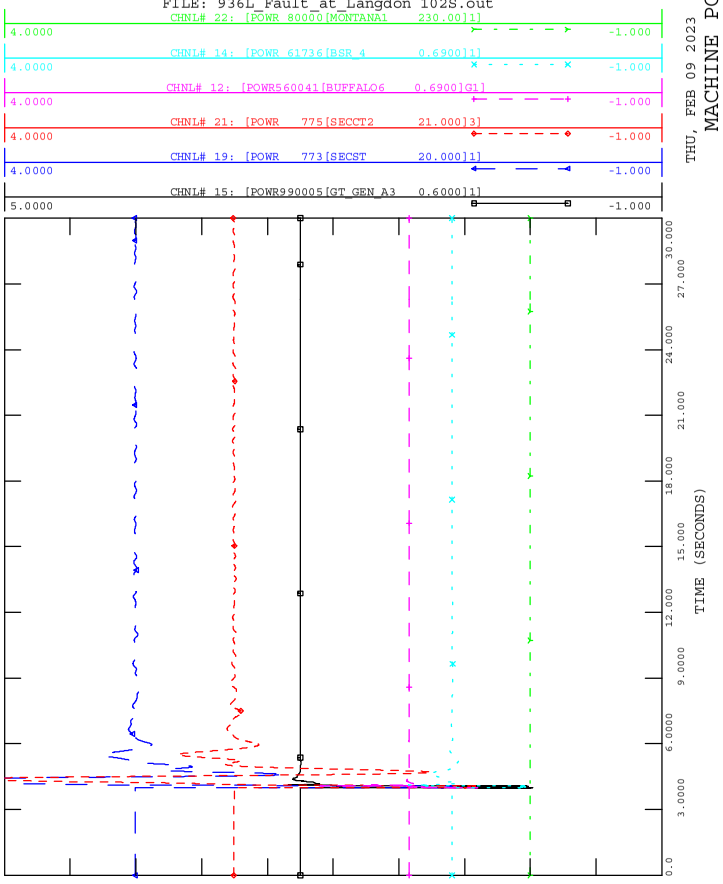
TIME (SECONDS) 0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

THU, FEB 09 2023 13:55 MACHINE ANGLE


SCENARIO #3: 2023 SP/POST PROJECT
CATB -1065L_FAULT_AT_LANGDON 102S
SIEMENS POWER TECHNOLOGIES INTERNATIONAL
FILE: 1065L_Fault_at_Langdon 102S.out
CHNL# 47: [VOLT 990005 [GT GEN A3 0.6000]]
CHNL# 39: [VOLT 254 [GLEICHE7 138.00]]
CHNL# 38: [VOLT 253 [BLACKIE7 138.00]]
CHNL# 37: [VOLT 252 [CARSELA7 138.00]]
CHNL# 36: [VOLT 242 [HIGH RI7 138.00]]
CHNL# 34: [VOLT 159 [LANGDON4 240.00]]
2.0000
-0.1000
THU, FEB 09 2023 13:55
BUS VOLTAGE
TIME (SECONDS)
0.0
3.0000
6.0000
9.0000
12.000
15.000
18.000
21.000
24.000
27.000
30.000
SCENARIO #3: 2023 SP/POST PROJECT
CATB -1065L_FAULT_AT_LANGDON 102S
SIEMENS POWER TECHNOLOGIES INTERNATIONAL
FILE: 1065L_Fault_at_Langdon 102S.out
CHNL# 72: [VARS 943 TO 1012 CKT '23']
CHNL# 70: [VARS 943 TO 547026 CKT '05']
CHNL# 68: [VARS 943 TO 737 CKT '36']
CHNL# 66: [VARS 159 TO 943 CKT '27']
CHNL# 64: [VARS 159 TO 990011 CKT '24']
CHNL# 62: [VARS 943 TO 990011 CKT '24']
600.00
-400.0
THU, FEB 09 2023 13:55
LINE VAR
TIME (SECONDS)
0.0
3.0000
6.0000
9.0000
12.000
15.000
18.000
21.000
24.000
27.000
30.000
SCENARIO #3: 2023 SP/POST PROJECT
CATB -1065L_FAULT_AT_LANGDON 102S
SIEMENS POWER TECHNOLOGIES INTERNATIONAL
FILE: 1065L_Fault_at_Langdon 102S.out
CHNL# 33: [VARS 80000[MONTANA1 230.00]1]
CHNL# 25: [VARS 61736[BSR 4 0.6900]1]
CHNL# 23: [VARS560041[BUFFALO6 0.6900]G1]
CHNL# 32: [VARS 775[SECCT2 21.000]3]
CHNL# 30: [VARS 773[SECST 20.000]1]
CHNL# 26: [VARS990005[GT GEN A3 0.6000]1]
4.0000
-1.500
THU, FEB 09 2023 13:55
MACHINE VAR
TIME (SECONDS)
0.0
3.0000
6.0000
9.0000
12.000
15.000
18.000
21.000
24.000
27.000
30.000
SCENARIO #3: 2023 SP/POST PROJECT
CATB -1065L_FAULT_AT_LANGDON 102S
SIEMENS POWER TECHNOLOGIES INTERNATIONAL
FILE: 1065L_Fault_at_Langdon 102S.out
CHNL# 71: [POWR 943 TO 1012 CKT '23']
CHNL# 69: [POWR 943 TO 547026 CKT '05']
CHNL# 67: [POWR 943 TO 737 CKT '36']
CHNL# 65: [POWR 159 TO 943 CKT '27']
CHNL# 63: [POWR 159 TO 990011 CKT '24']
CHNL# 61: [POWR 943 TO 990011 CKT '24']
600.00
800.00
-600.0
THU, FEB 09 2023 13:55
LINE POWER
TIME (SECONDS)
0.0
3.0000
6.0000
9.0000
12.000
15.000
18.000
21.000
24.000
27.000
30.000

SCENARIO #3: 2023 SP/POST PROJECT
CATB -936L_FAULT_AT_LANGDON 102S

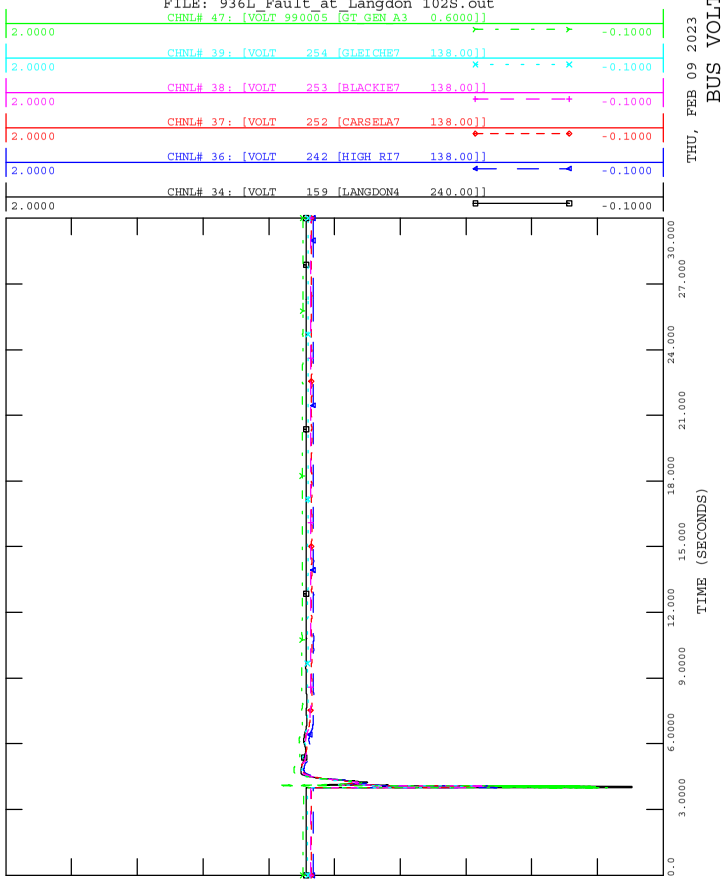
FILE: 936L_Fault_at_Langdon 102S.out



THU, FEB 09 2023 13:55
MACHINE POWER

SCENARIO #3: 2023 SP/POST PROJECT
CATB -936L_FAULT_AT_LANGDON 102S

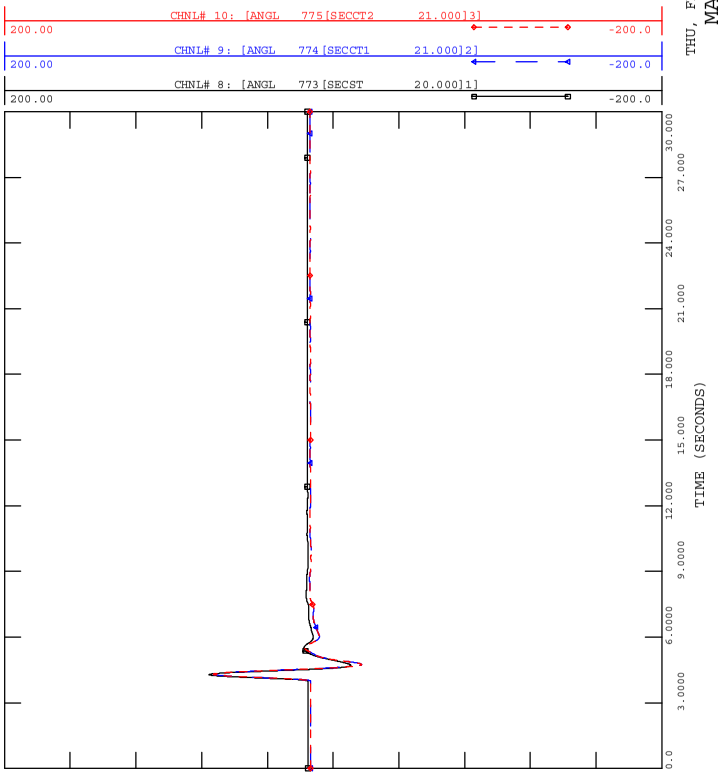
FILE: 936L_Fault_at_Langdon 102S.out



THU, FEB 09 2023 13:55
BUS VOLTAGE

SCENARIO #3: 2023 SP/POST PROJECT
CATB -936L_FAULT_AT_LANGDON 102S

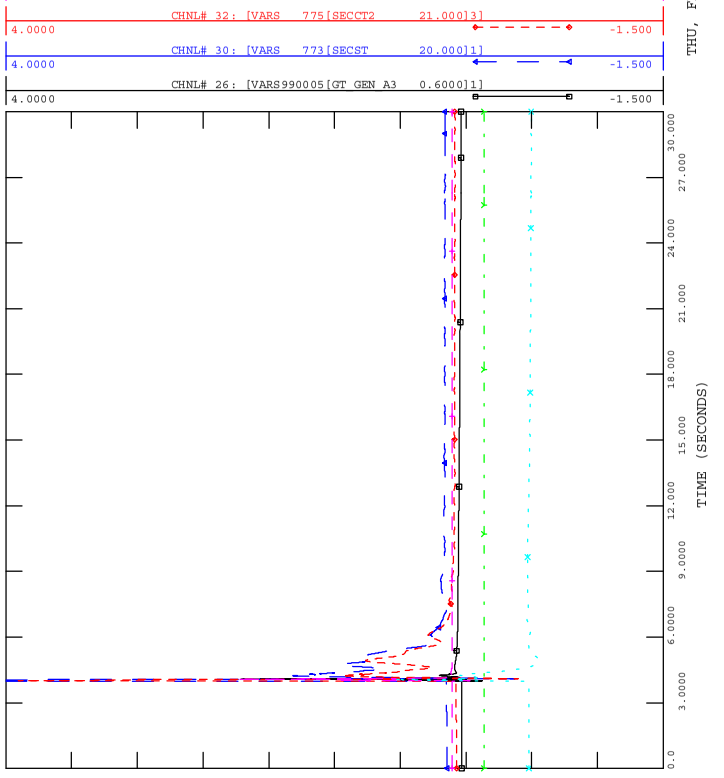
FILE: 936L_Fault_at_Langdon 102S.out



THU, FEB 09 2023 13:55
MACHINE ANGLE

SCENARIO #3: 2023 SP/POST PROJECT
CATB -936L_FAULT_AT_LANGDON 102S

FILE: 936L_Fault_at_Langdon 102S.out



THU, FEB 09 2023 13:55
MACHINE VAR

SCENARIO #3: 2023 SP/POST PROJECT
CATB -936L_FAULT_AT_LANGDON 102S

FILE: 936L_Fault_at_Langdon 102S.out

CHNL# 72: [VARS 943 TO 1012 CKT '23'] 600.00 -400.0
CHNL# 70: [VARS 943 TO 547026 CKT '05'] 600.00 -400.0
CHNL# 68: [VARS 943 TO 737 CKT '36'] 600.00 -400.0
CHNL# 66: [VARS 159 TO 943 CKT '27'] 600.00 -400.0
CHNL# 64: [VARS 159 TO 990011 CKT '24'] 600.00 -400.0
CHNL# 62: [VARS 943 TO 990011 CKT '24'] 600.00 -400.0

TIME (SECONDS) 0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

THU, FEB 09 2023 13:55 LINE VAR

SCENARIO #3: 2023 SP/POST PROJECT
CATB -937L_FAULT_AT_LANGDON 102S

FILE: 937L_Fault_at_Langdon 102S.out

CHNL# 22: [POWR 80000[MONTANA1 230.00]1] 4.0000 -1.000
CHNL# 14: [POWR 61736[BSR_4 0.6900]1] 4.0000 -1.000
CHNL# 12: [POWR560041[BUFFALO6 0.6900]G1] 4.0000 -1.000
CHNL# 21: [POWR 775[SECCT2 21.000]3] 4.0000 -1.000
CHNL# 19: [POWR 773[SECST 20.000]1] 4.0000 -1.000
CHNL# 15: [POWR990005[GT_GEN_A3 0.6000]1] 5.0000 -1.000

TIME (SECONDS) 0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

THU, FEB 09 2023 13:55 MACHINE POWER

SCENARIO #3: 2023 SP/POST PROJECT
CATB -936L_FAULT_AT_LANGDON 102S

FILE: 936L_Fault_at_Langdon 102S.out

CHNL# 71: [POWR 943 TO 1012 CKT '23'] 600.00 -600.0
CHNL# 69: [POWR 943 TO 547026 CKT '05'] 600.00 -600.0
CHNL# 67: [POWR 943 TO 737 CKT '36'] 600.00 -600.0
CHNL# 65: [POWR 159 TO 943 CKT '27'] 600.00 -600.0
CHNL# 63: [POWR 159 TO 990011 CKT '24'] 600.00 -600.0
CHNL# 61: [POWR 943 TO 990011 CKT '24'] 800.00 -600.0

TIME (SECONDS) 0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

THU, FEB 09 2023 13:55 LINE POWER

SCENARIO #3: 2023 SP/POST PROJECT
CATB -937L_FAULT_AT_LANGDON 102S

FILE: 937L_Fault_at_Langdon 102S.out

CHNL# 10: [ANGL 775[SECCT2 21.000]3] 200.00 -200.0
CHNL# 9: [ANGL 774[SECCT1 21.000]2] 200.00 -200.0
CHNL# 8: [ANGL 773[SECST 20.000]1] 200.00 -200.0

TIME (SECONDS) 0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

THU, FEB 09 2023 13:55 MACHINE ANGLE

SCENARIO #3: 2023 SP/POST PROJECT
CATB -937L_FAULT_AT_LANGDON 102S

FILE: 937L_Fault_at_Langdon 102S.out

CHNL# 47: [VOLT 990005 [GT GEN A3 0.6000]]
CHNL# 39: [VOLT 254 [GLEICHE7 138.00]]
CHNL# 38: [VOLT 253 [BLACKIE7 138.00]]
CHNL# 37: [VOLT 252 [CARSELA7 138.00]]
CHNL# 36: [VOLT 242 [HIGH RI7 138.00]]
CHNL# 34: [VOLT 159 [LANGDON4 240.00]]

2.0000 -0.1000

THU, FEB 09 2023 13:55
BUS VOLTAGE

TIME (SECONDS)
0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

SCENARIO #3: 2023 SP/POST PROJECT
CATB -937L_FAULT_AT_LANGDON 102S

FILE: 937L_Fault_at_Langdon 102S.out

CHNL# 72: [VARS 943 TO 1012 CKT '23']
CHNL# 70: [VARS 943 TO 547026 CKT '05']
CHNL# 68: [VARS 943 TO 737 CKT '36']
CHNL# 66: [VARS 159 TO 943 CKT '27']
CHNL# 64: [VARS 159 TO 990011 CKT '24']
CHNL# 62: [VARS 943 TO 990011 CKT '24']

600.00 -400.0

THU, FEB 09 2023 13:55
LINE VAR

TIME (SECONDS)
0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

SCENARIO #3: 2023 SP/POST PROJECT
CATB -937L_FAULT_AT_LANGDON 102S

FILE: 937L_Fault_at_Langdon 102S.out

CHNL# 33: [VARS 80000[MONTANA1 230.00]1]
CHNL# 25: [VARS 61736[BSR 4 0.6900]1]
CHNL# 23: [VARS560041[BUFFALO6 0.6900]G1]
CHNL# 32: [VARS 775[SECCT2 21.000]3]
CHNL# 30: [VARS 773[SECST 20.000]1]
CHNL# 26: [VARS990005[GT GEN A3 0.6000]1]

4.0000 -1.500

THU, FEB 09 2023 13:55
MACHINE VAR

TIME (SECONDS)
0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

SCENARIO #3: 2023 SP/POST PROJECT
CATB -937L_FAULT_AT_LANGDON 102S

FILE: 937L_Fault_at_Langdon 102S.out

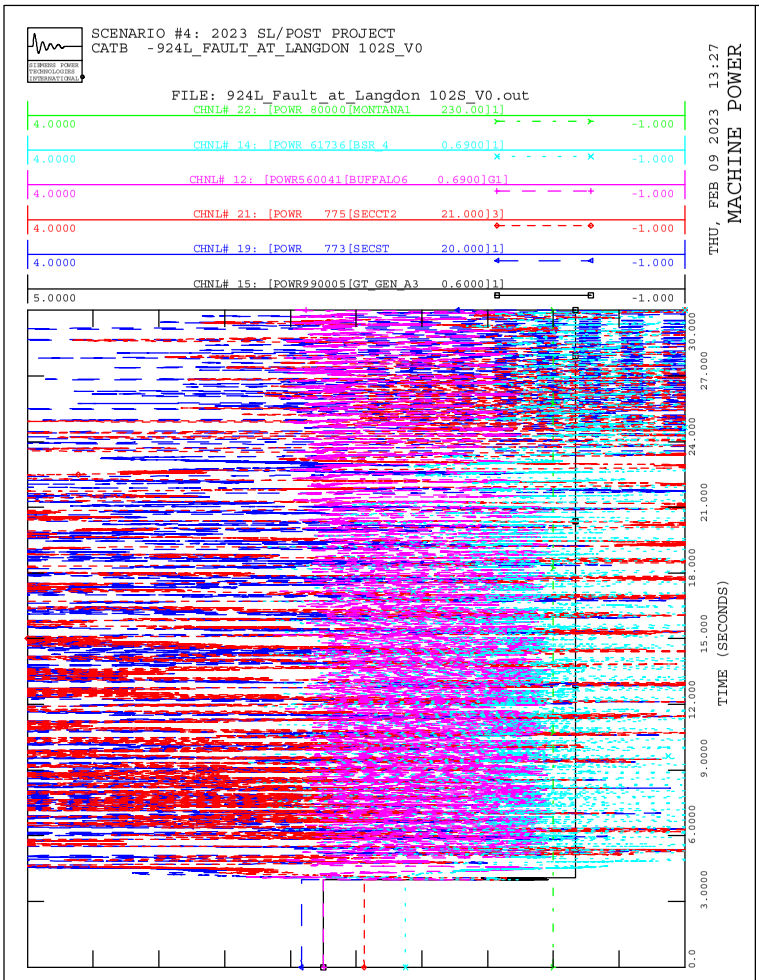
CHNL# 71: [POWR 943 TO 1012 CKT '23']
CHNL# 69: [POWR 943 TO 547026 CKT '05']
CHNL# 67: [POWR 943 TO 737 CKT '36']
CHNL# 65: [POWR 159 TO 943 CKT '27']
CHNL# 63: [POWR 159 TO 990011 CKT '24']
CHNL# 61: [POWR 943 TO 990011 CKT '24']

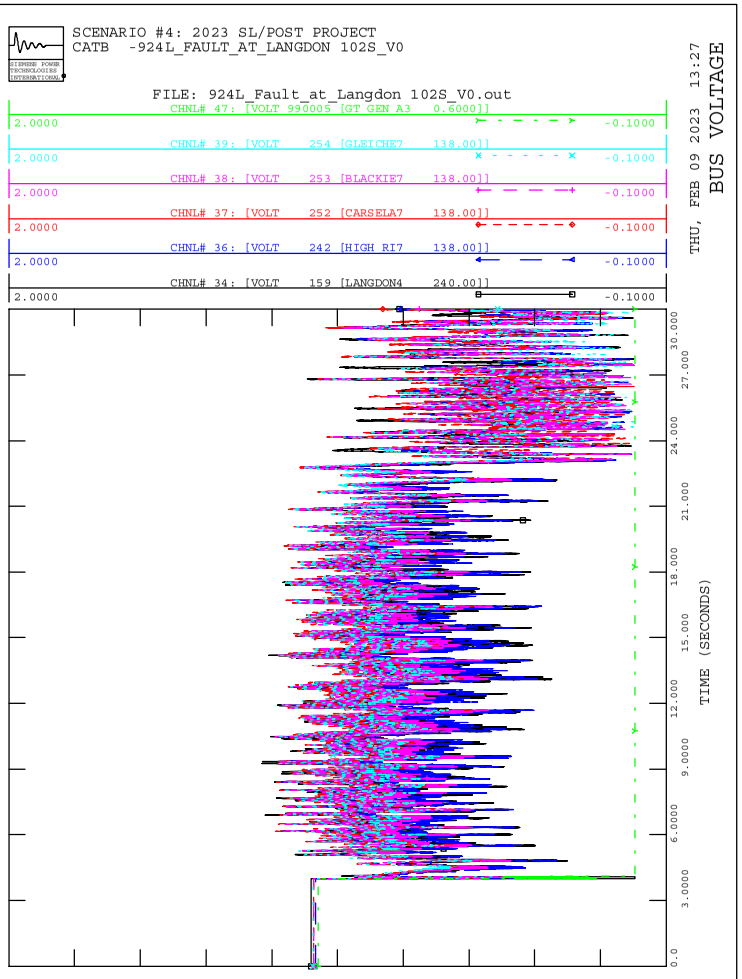
600.00 -600.0

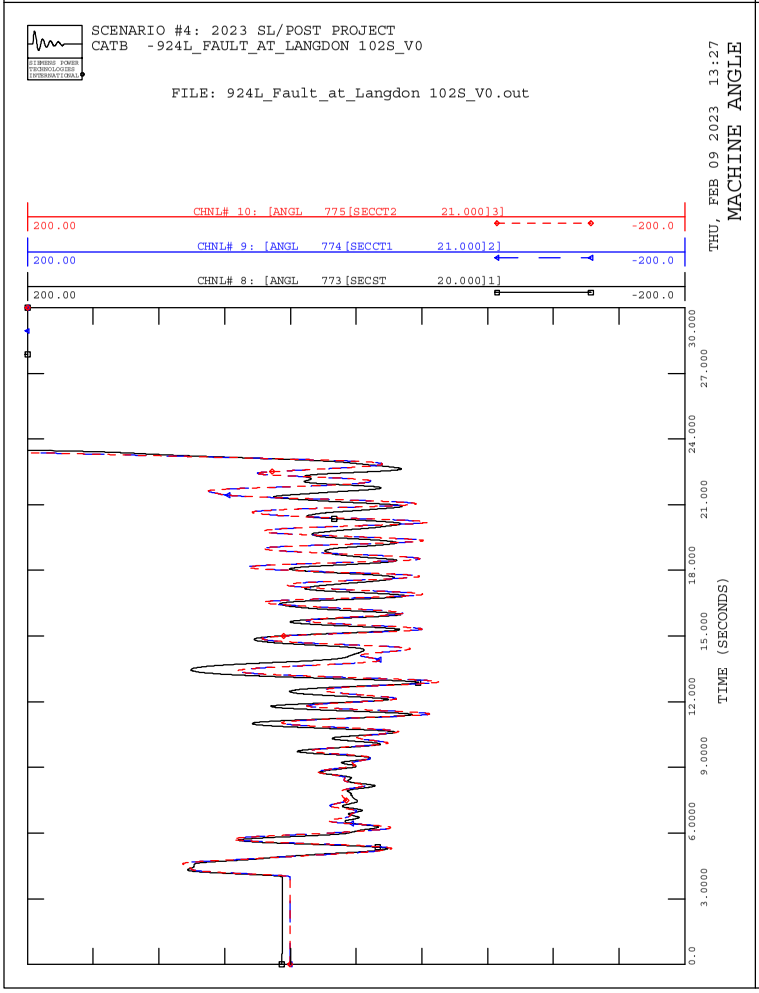
THU, FEB 09 2023 13:55
LINE POWER

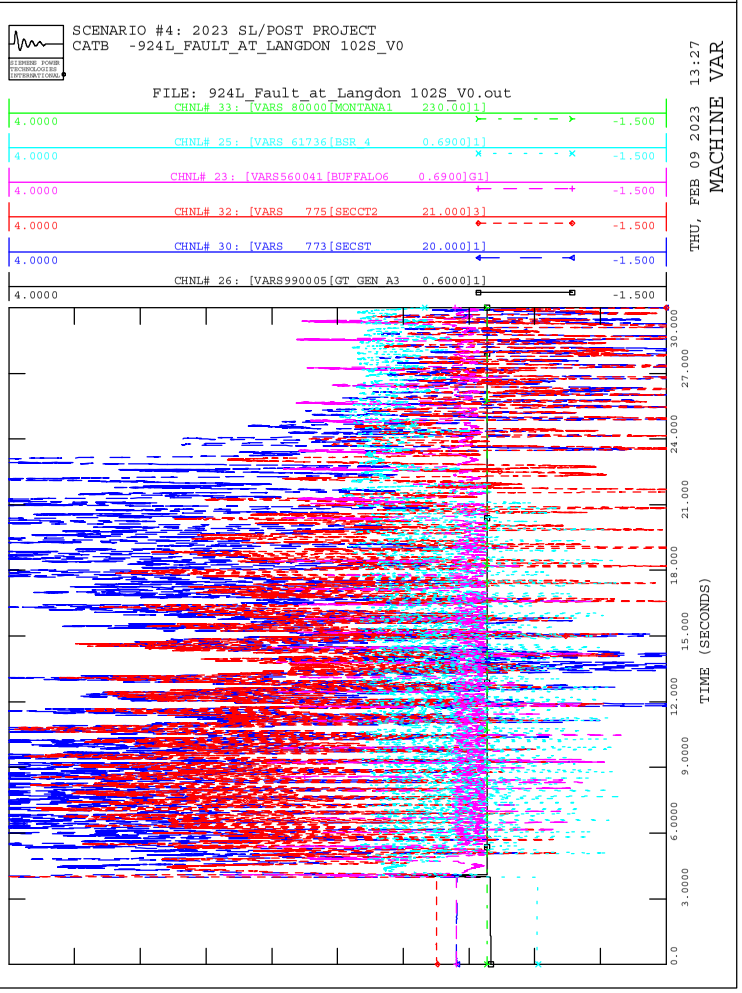
TIME (SECONDS)
0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

Plots for P2396 SL_Post_Pre-RAS (Scenario 4)


SCENARIO #4: 2023 SL/POST PROJECT
CATB -924L_FAULT_AT_LANGDON 102S_V0
FILE: 924L_Fault_at_Langdon 102S_V0.out
CHNL# 22: [POWR 80000[MONTANA1 230.00]1]
CHNL# 14: [POWR 61736[BSR 4 0.6900]1]
CHNL# 12: [POWR560041[BUFFALO6 0.6900]G1]
CHNL# 21: [POWR 775[SECCT2 21.000]3]
CHNL# 19: [POWR 773[SECST 20.000]1]
CHNL# 15: [POWR990005[GT_GEN_A3 0.6000]1]
THU, FEB 09 2023 13:27
MACHINE POWER
TIME (SECONDS)


SCENARIO #4: 2023 SL/POST PROJECT
CATB -924L_FAULT_AT_LANGDON 102S_V0
FILE: 924L_Fault_at_Langdon 102S_V0.out
CHNL# 47: [VOLT 990005[GT_GEN_A3 0.6000]]
CHNL# 39: [VOLT 254 [GLEICHE7 138.00]]
CHNL# 38: [VOLT 253 [BLACKIE7 138.00]]
CHNL# 37: [VOLT 252 [CARSELA7 138.00]]
CHNL# 36: [VOLT 242 [HIGH_RI7 138.00]]
CHNL# 34: [VOLT 159 [LANGDON4 240.00]]
THU, FEB 09 2023 13:27
BUS VOLTAGE
TIME (SECONDS)


SCENARIO #4: 2023 SL/POST PROJECT
CATB -924L_FAULT_AT_LANGDON 102S_V0
FILE: 924L_Fault_at_Langdon 102S_V0.out
CHNL# 10: [ANGL 775[SECCT2 21.000]3]
CHNL# 9: [ANGL 774[SECCT1 21.000]2]
CHNL# 8: [ANGL 773[SECST 20.000]1]
THU, FEB 09 2023 13:27
MACHINE ANGLE
TIME (SECONDS)


SCENARIO #4: 2023 SL/POST PROJECT
CATB -924L_FAULT_AT_LANGDON 102S_V0
FILE: 924L_Fault_at_Langdon 102S_V0.out
CHNL# 33: [VARS 80000[MONTANA1 230.00]1]
CHNL# 25: [VARS 61736[BSR 4 0.6900]1]
CHNL# 23: [VARS560041[BUFFALO6 0.6900]G1]
CHNL# 32: [VARS 775[SECCT2 21.000]3]
CHNL# 30: [VARS 773[SECST 20.000]1]
CHNL# 26: [VARS990005[GT_GEN_A3 0.6000]1]
THU, FEB 09 2023 13:27
MACHINE VAR
TIME (SECONDS)

SCENARIO #4: 2023 SL/POST PROJECT
CATB -924L_FAULT_AT_LANGDON 102S_V0

FILE: 924L_Fault_at_Langdon 102S_V0.out

CHNL# 72: [VARS 943 TO 1012 CKT '23']
CHNL# 70: [VARS 943 TO 547026 CKT '05']
CHNL# 68: [VARS 943 TO 737 CKT '36']
CHNL# 66: [VARS 159 TO 943 CKT '27']
CHNL# 64: [VARS 159 TO 990011 CKT '24']
CHNL# 62: [VARS 943 TO 990011 CKT '24']

600.00 / -400.0

THU, FEB 09 2023 13:27
LINE VAR

TIME (SECONDS)
0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

SCENARIO #4: 2023 SL/POST PROJECT
CATB -924L_FAULT_AT_MILO 356S_V1

FILE: 924L_Fault_at_Milo 356S_V1.out

CHNL# 22: [POWR 80000[MONTANA1 230.00]1]
CHNL# 14: [POWR 61736[BSR_4 0.6900]1]
CHNL# 12: [POWR560041[BUFFALO6 0.6900]G1]
CHNL# 21: [POWR 775[SECCT2 21.000]3]
CHNL# 19: [POWR 773[SECST 20.000]1]
CHNL# 15: [POWR990005[GT_GEN_A3 0.6000]1]

4.0000 / 5.0000 / -1.000

THU, FEB 09 2023 13:27
MACHINE POWER

TIME (SECONDS)
0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

SCENARIO #4: 2023 SL/POST PROJECT
CATB -924L_FAULT_AT_LANGDON 102S_V0

FILE: 924L_Fault_at_Langdon 102S_V0.out

CHNL# 71: [POWR 943 TO 1012 CKT '23']
CHNL# 69: [POWR 943 TO 547026 CKT '05']
CHNL# 67: [POWR 943 TO 737 CKT '36']
CHNL# 65: [POWR 159 TO 943 CKT '27']
CHNL# 63: [POWR 159 TO 990011 CKT '24']
CHNL# 61: [POWR 943 TO 990011 CKT '24']

600.00 / 800.00 / -600.0

THU, FEB 09 2023 13:27
LINE POWER

TIME (SECONDS)
0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

SCENARIO #4: 2023 SL/POST PROJECT
CATB -924L_FAULT_AT_MILO 356S_V1

FILE: 924L_Fault_at_Milo 356S_V1.out

CHNL# 10: [ANGL 775[SECCT2 21.000]3]
CHNL# 9: [ANGL 774[SECCT1 21.000]2]
CHNL# 8: [ANGL 773[SECST 20.000]1]

200.00 / -200.0

THU, FEB 09 2023 13:27
MACHINE ANGLE

TIME (SECONDS)
0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

SCENARIO #4: 2023 SL/POST PROJECT
CATB -924L_FAULT_AT_MILO 356S_V1

FILE: 924L_Fault_at_Milo 356S_V1.out

CHNL# 47: [VOLT 990005 [GT GEN A3 0.6000]]
CHNL# 39: [VOLT 254 [GLEICHE7 138.00]]
CHNL# 38: [VOLT 253 [BLACKIE7 138.00]]
CHNL# 37: [VOLT 252 [CARSELA7 138.00]]
CHNL# 36: [VOLT 242 [HIGH RI7 138.00]]
CHNL# 34: [VOLT 159 [LANGDON4 240.00]]

2.0000 -0.1000

THU, FEB 09 2023 13:27
BUS VOLTAGE

TIME (SECONDS)
0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

SCENARIO #4: 2023 SL/POST PROJECT
CATB -924L_FAULT_AT_MILO 356S_V1

FILE: 924L_Fault_at_Milo 356S_V1.out

CHNL# 72: [VARS 943 TO 1012 CKT '23']
CHNL# 70: [VARS 943 TO 547026 CKT '05']
CHNL# 68: [VARS 943 TO 737 CKT '36']
CHNL# 66: [VARS 159 TO 943 CKT '27']
CHNL# 64: [VARS 159 TO 990011 CKT '24']
CHNL# 62: [VARS 943 TO 990011 CKT '24']

600.00 -400.0

THU, FEB 09 2023 13:27
LINE VAR

TIME (SECONDS)
0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

SCENARIO #4: 2023 SL/POST PROJECT
CATB -924L_FAULT_AT_MILO 356S_V1

FILE: 924L_Fault_at_Milo 356S_V1.out

CHNL# 33: [VARS 80000[MONTANA1 230.00]1]
CHNL# 25: [VARS 61736[BSR 4 0.6900]1]
CHNL# 23: [VARS560041[BUFFALO6 0.6900]G1]
CHNL# 32: [VARS 775[SECCT2 21.000]3]
CHNL# 30: [VARS 773[SECST 20.000]1]
CHNL# 26: [VARS990005[GT GEN A3 0.6000]1]

4.0000 -1.500

THU, FEB 09 2023 13:27
MACHINE VAR

TIME (SECONDS)
0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

SCENARIO #4: 2023 SL/POST PROJECT
CATB -924L_FAULT_AT_MILO 356S_V1

FILE: 924L_Fault_at_Milo 356S_V1.out

CHNL# 71: [POWR 943 TO 1012 CKT '23']
CHNL# 69: [POWR 943 TO 547026 CKT '05']
CHNL# 67: [POWR 943 TO 737 CKT '36']
CHNL# 65: [POWR 159 TO 943 CKT '27']
CHNL# 63: [POWR 159 TO 990011 CKT '24']
CHNL# 61: [POWR 943 TO 990011 CKT '24']

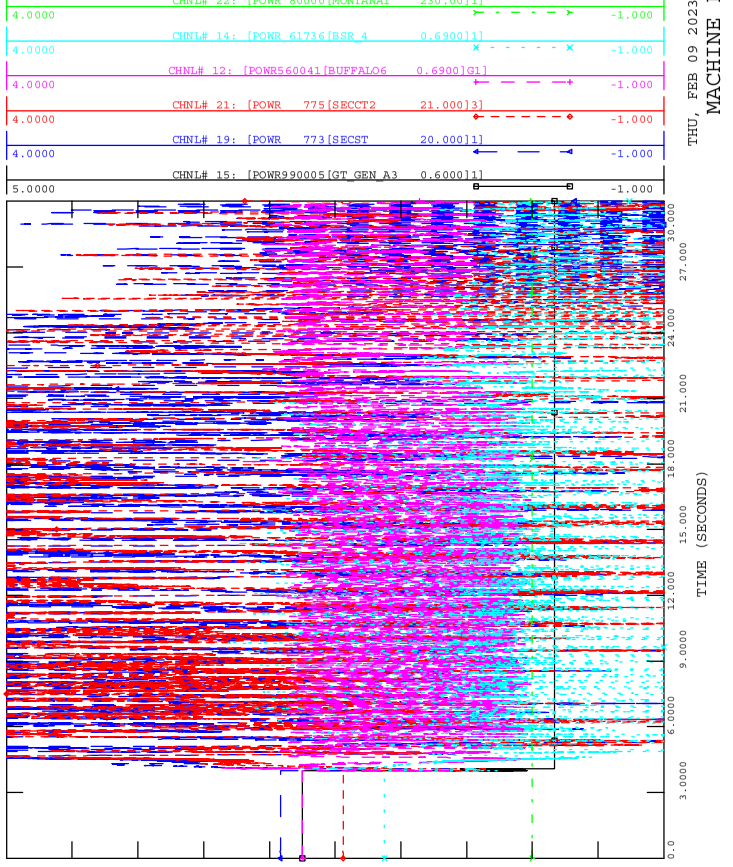
600.00 -600.0

THU, FEB 09 2023 13:27
LINE POWER

TIME (SECONDS)
0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

SCENARIO #4: 2023 SL/POST PROJECT
CATB -927L_FAULT_AT_LANGDON 102S_V0

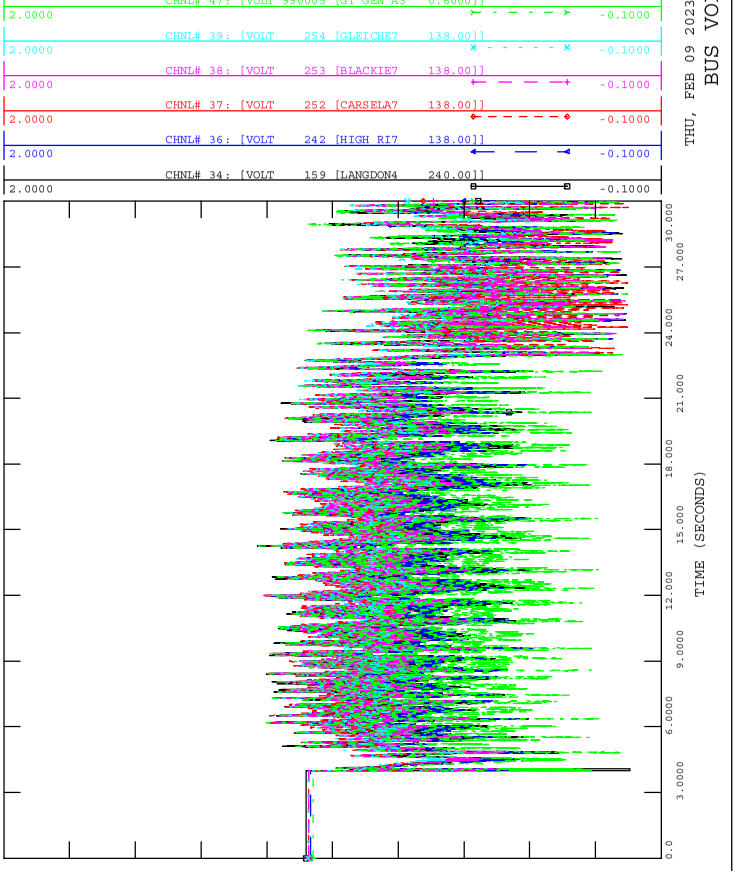
FILE: 927L_Fault_at_Langdon 102S_V0.out



THU, FEB 09 2023 13:27
MACHINE POWER

SCENARIO #4: 2023 SL/POST PROJECT
CATB -927L_FAULT_AT_LANGDON 102S_V0

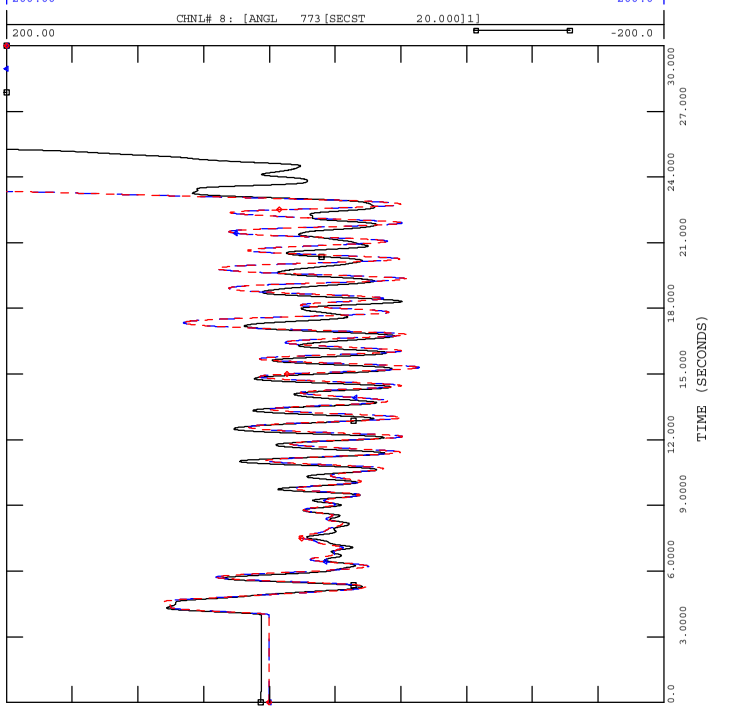
FILE: 927L_Fault_at_Langdon 102S_V0.out



THU, FEB 09 2023 13:27
BUS VOLTAGE

SCENARIO #4: 2023 SL/POST PROJECT
CATB -927L_FAULT_AT_LANGDON 102S_V0

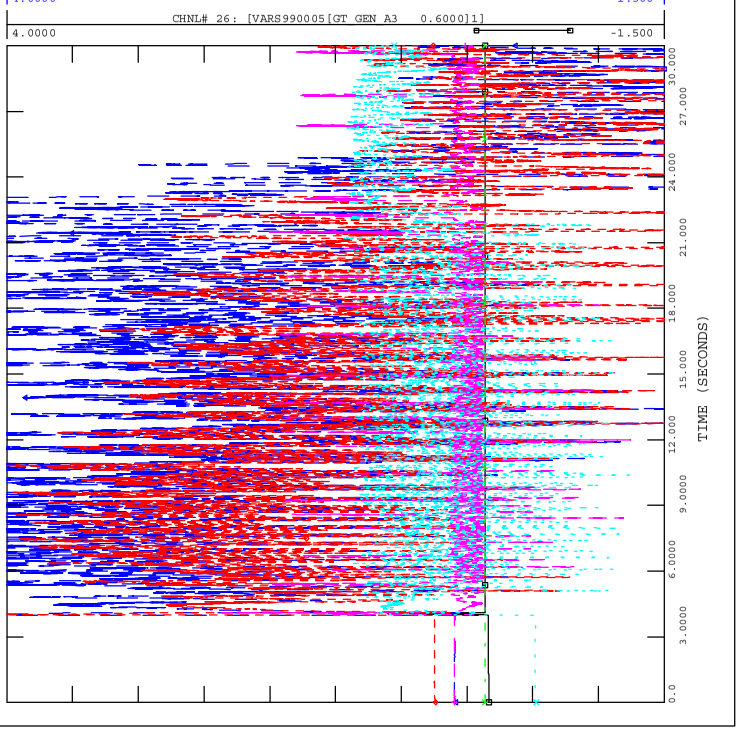
FILE: 927L_Fault_at_Langdon 102S_V0.out



THU, FEB 09 2023 13:27
MACHINE ANGLE

SCENARIO #4: 2023 SL/POST PROJECT
CATB -927L_FAULT_AT_LANGDON 102S_V0

FILE: 927L_Fault_at_Langdon 102S_V0.out



THU, FEB 09 2023 13:27
MACHINE VAR

SCENARIO #4: 2023 SL/POST PROJECT
CATB -927L_FAULT_AT_LANGDON 102S_V0

FILE: 927L_Fault_at_Langdon 102S_V0.out

CHNL# 72: [VARS 943 TO 1012 CKT '23'] 600.00 -400.0
CHNL# 70: [VARS 943 TO 547026 CKT '05'] 600.00 -400.0
CHNL# 68: [VARS 943 TO 737 CKT '36'] 600.00 -400.0
CHNL# 66: [VARS 159 TO 943 CKT '27'] 600.00 -400.0
CHNL# 64: [VARS 159 TO 990011 CKT '24'] 600.00 -400.0
CHNL# 62: [VARS 943 TO 990011 CKT '24'] 600.00 -400.0

TIME (SECONDS) 0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

THU, FEB 09 2023 13:27 LINE VAR

SCENARIO #4: 2023 SL/POST PROJECT
CATB -927L_FAULT_AT_MILO 356S

FILE: 927L_Fault_at_Milo 356S.out

CHNL# 22: [POWR 80000[MONTANA1 230.00]1] 4.0000 -1.000
CHNL# 14: [POWR 61736[BSR_4 0.6900]1] 4.0000 -1.000
CHNL# 12: [POWR560041[BUFFALO6 0.6900]G1] 4.0000 -1.000
CHNL# 21: [POWR 775[SECCT2 21.000]3] 4.0000 -1.000
CHNL# 19: [POWR 773[SECST 20.000]1] 4.0000 -1.000
CHNL# 15: [POWR990005[GT_GEN_A3 0.6000]1] 5.0000 -1.000

TIME (SECONDS) 0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

THU, FEB 09 2023 13:27 MACHINE POWER

SCENARIO #4: 2023 SL/POST PROJECT
CATB -927L_FAULT_AT_LANGDON 102S_V0

FILE: 927L_Fault_at_Langdon 102S_V0.out

CHNL# 71: [POWR 943 TO 1012 CKT '23'] 600.00 -600.0
CHNL# 69: [POWR 943 TO 547026 CKT '05'] 600.00 -600.0
CHNL# 67: [POWR 943 TO 737 CKT '36'] 600.00 -600.0
CHNL# 65: [POWR 159 TO 943 CKT '27'] 600.00 -600.0
CHNL# 63: [POWR 159 TO 990011 CKT '24'] 600.00 -600.0
CHNL# 61: [POWR 943 TO 990011 CKT '24'] 800.00 -600.0

TIME (SECONDS) 0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

THU, FEB 09 2023 13:27 LINE POWER

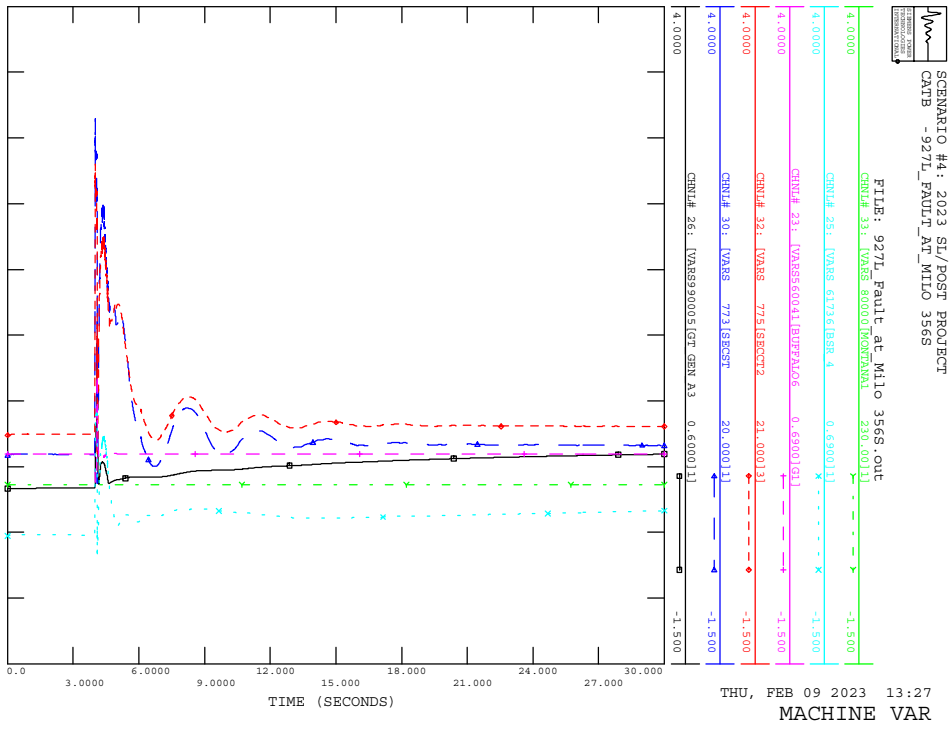
SCENARIO #4: 2023 SL/POST PROJECT
CATB -927L_FAULT_AT_MILO 356S

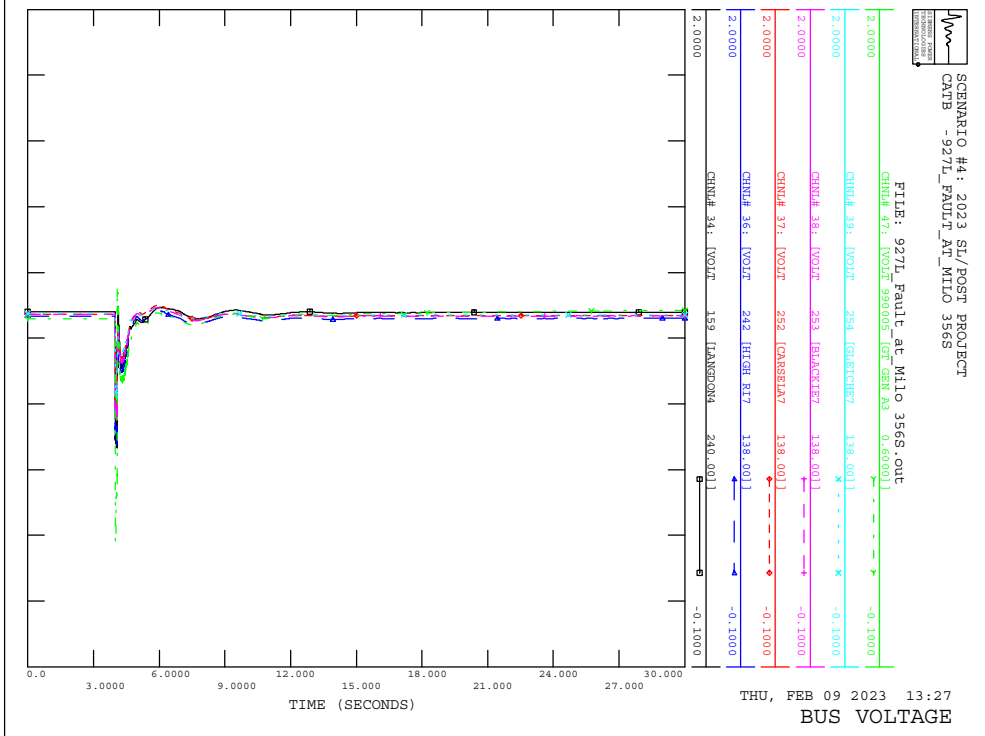
FILE: 927L_Fault_at_Milo 356S.out

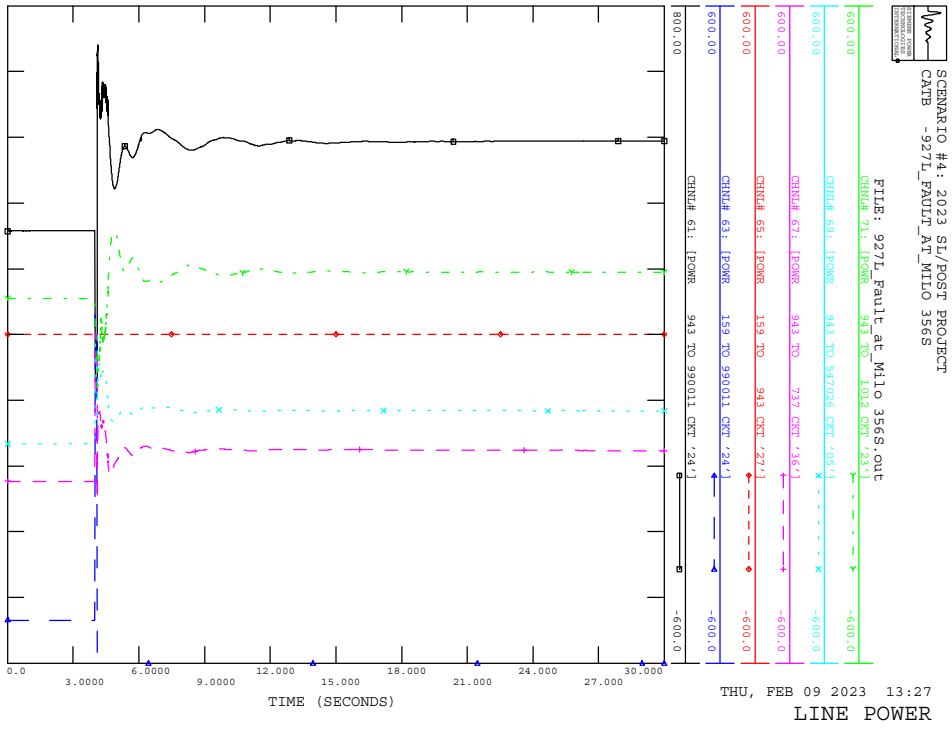
CHNL# 10: [ANGL 775[SECCT2 21.000]3] 200.00 -200.0
CHNL# 9: [ANGL 774[SECCT1 21.000]2] 200.00 -200.0
CHNL# 8: [ANGL 773[SECST 20.000]1] 200.00 -200.0

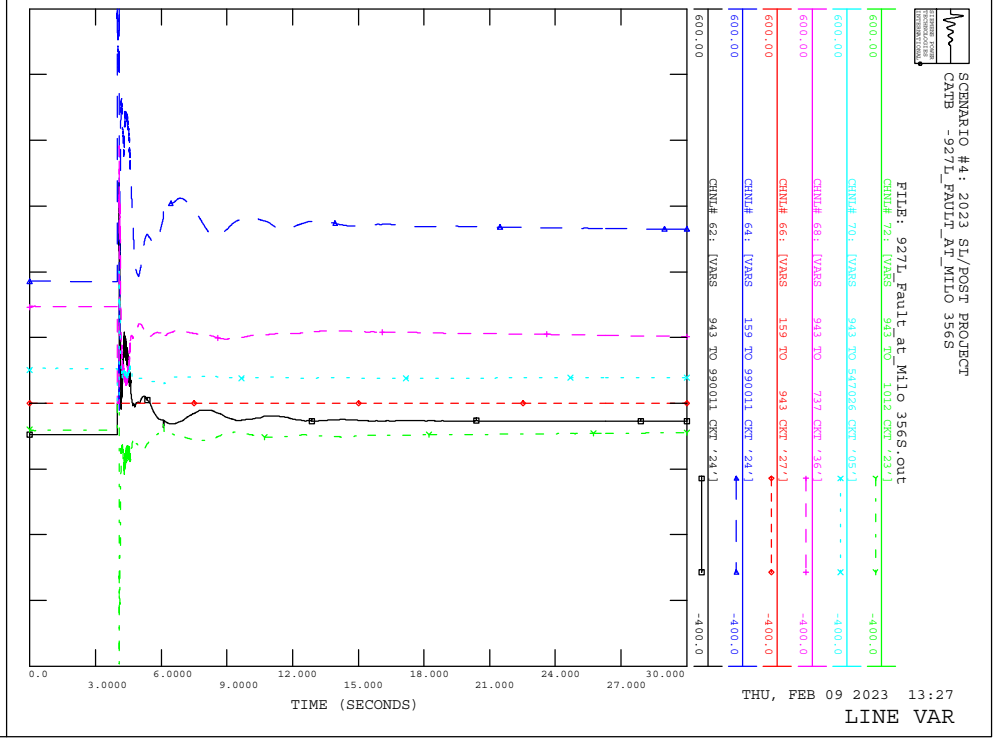
TIME (SECONDS) 0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

THU, FEB 09 2023 13:27 MACHINE ANGLE


SCENARIO #4: 2023 SL/POST PROJECT
CATB -927L_FAULT_AT_MILO 356S
FILE: 927L_Fault_at_Milo 356S.out
TIME (SECONDS)
THU, FEB 09 2023 13:27
MACHINE VAR

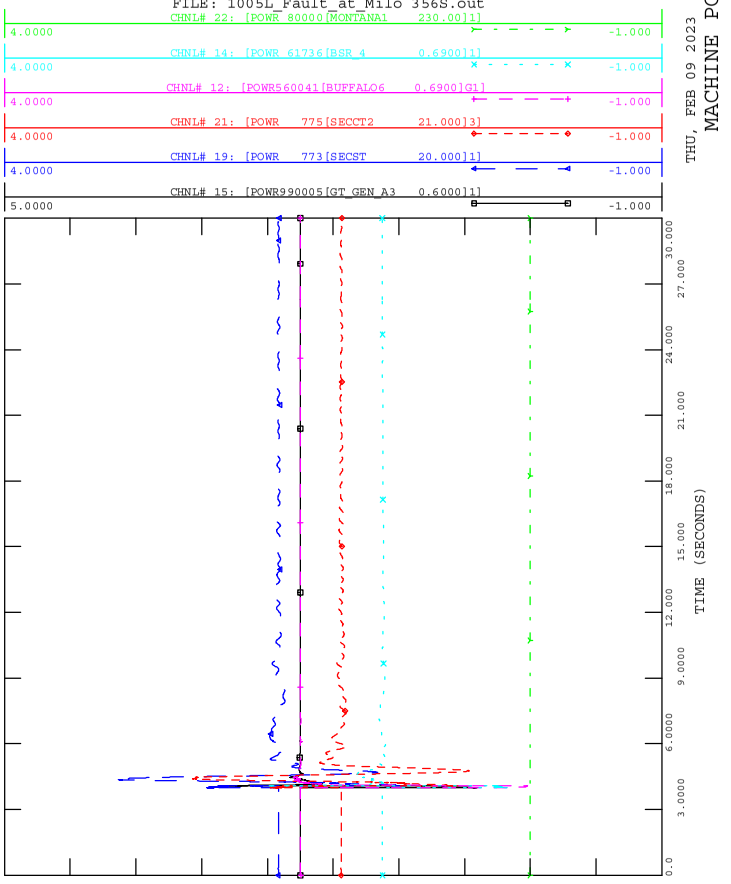

SCENARIO #4: 2023 SL/POST PROJECT
CATB -927L_FAULT_AT_MILO 356S
FILE: 927L_Fault_at_Milo 356S.out
TIME (SECONDS)
THU, FEB 09 2023 13:27
BUS VOLTAGE


SCENARIO #4: 2023 SL/POST PROJECT
CATB -927L_FAULT_AT_MILO 356S
FILE: 927L_Fault_at_Milo 356S.out
TIME (SECONDS)
THU, FEB 09 2023 13:27
LINE POWER


SCENARIO #4: 2023 SL/POST PROJECT
CATB -927L_FAULT_AT_MILO 356S
FILE: 927L_Fault_at_Milo 356S.out
TIME (SECONDS)
THU, FEB 09 2023 13:27
LINE VAR

SCENARIO #4: 2023 SL/POST PROJECT
CATB -1005L_FAULT_AT_MILO 356S

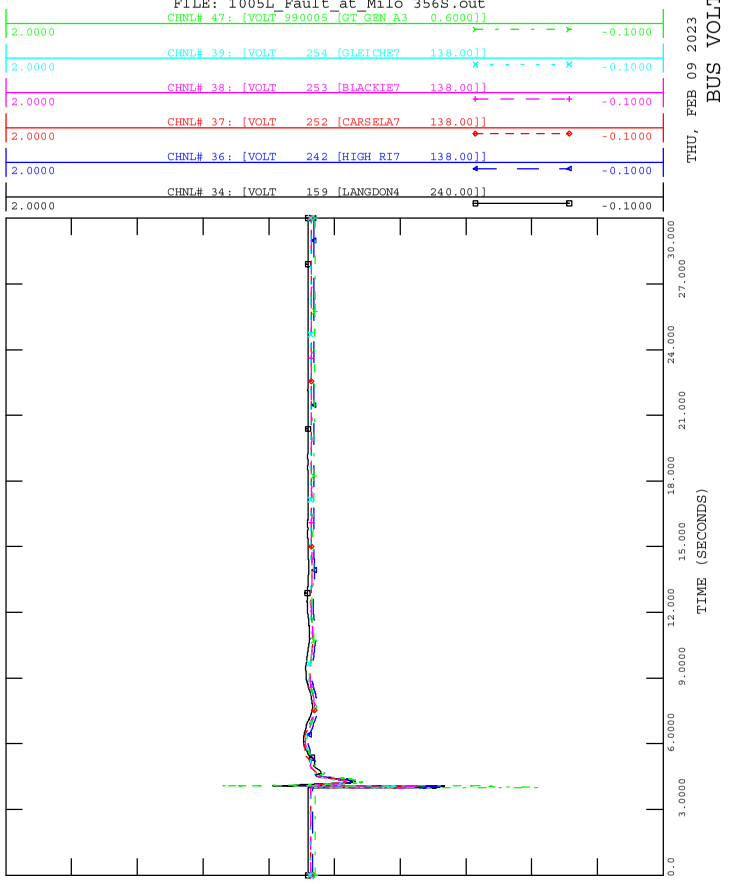
FILE: 1005L_Fault_at_Milo 356S.out



THU, FEB 09 2023 13:27
MACHINE POWER

SCENARIO #4: 2023 SL/POST PROJECT
CATB -1005L_FAULT_AT_MILO 356S

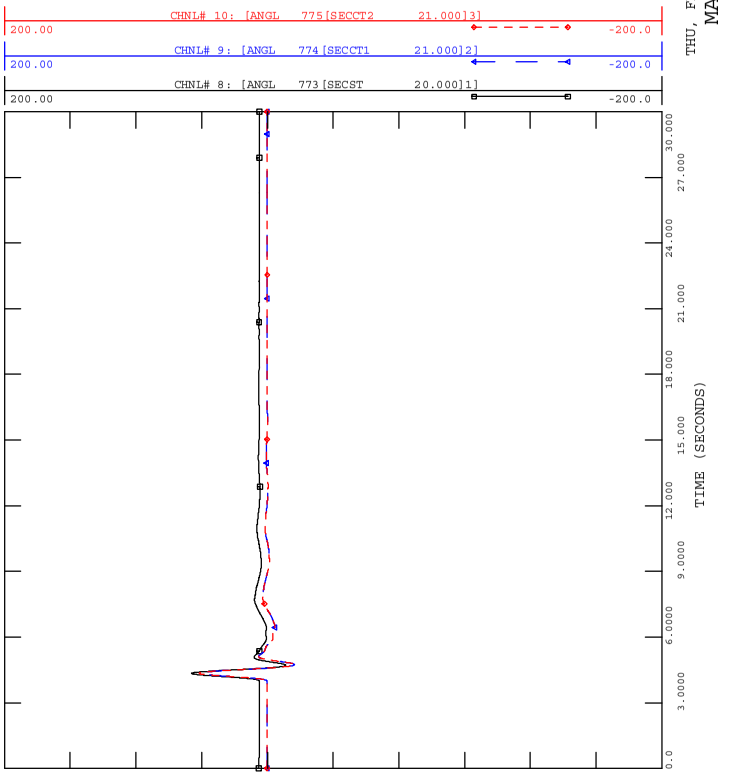
FILE: 1005L_Fault_at_Milo 356S.out



THU, FEB 09 2023 13:27
BUS VOLTAGE

SCENARIO #4: 2023 SL/POST PROJECT
CATB -1005L_FAULT_AT_MILO 356S

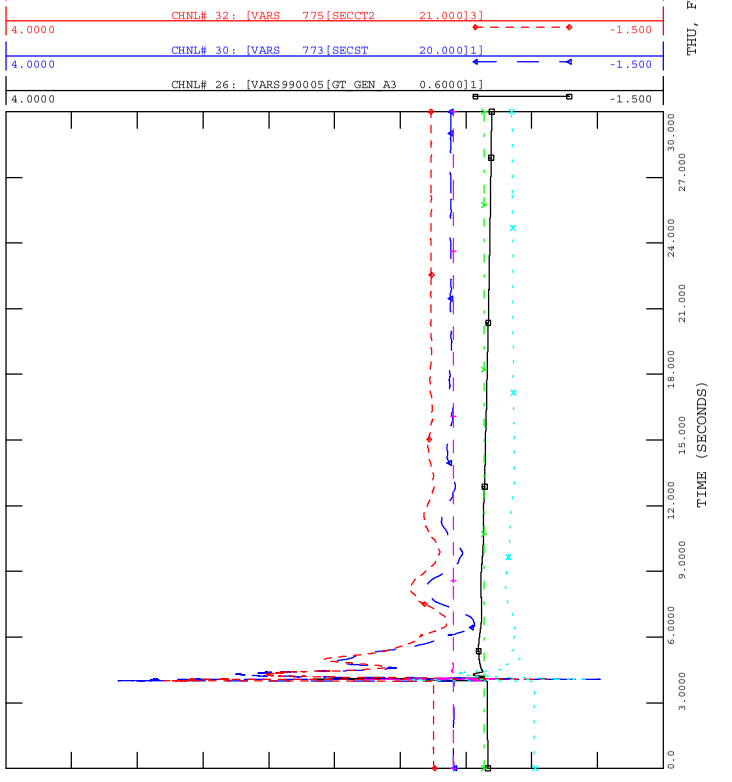
FILE: 1005L_Fault_at_Milo 356S.out



THU, FEB 09 2023 13:27
MACHINE ANGLE

SCENARIO #4: 2023 SL/POST PROJECT
CATB -1005L_FAULT_AT_MILO 356S

FILE: 1005L_Fault_at_Milo 356S.out



THU, FEB 09 2023 13:27
MACHINE VAR

SCENARIO #4: 2023 SL/POST PROJECT
CATB -1005L_FAULT_AT_MILO 356S

FILE: 1005L_Fault_at_Milo 356S.out

CHNL# 72: [VARS 943 TO 1012 CKT '23'] 600.00 -400.0
CHNL# 70: [VARS 943 TO 547026 CKT '05'] 600.00 -400.0
CHNL# 68: [VARS 943 TO 737 CKT '36'] 600.00 -400.0
CHNL# 66: [VARS 159 TO 943 CKT '27'] 600.00 -400.0
CHNL# 64: [VARS 159 TO 990011 CKT '24'] 600.00 -400.0
CHNL# 62: [VARS 943 TO 990011 CKT '24'] 600.00 -400.0

0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000
TIME (SECONDS)

THU, FEB 09 2023 13:27
LINE VAR

SCENARIO #4: 2023 SL/POST PROJECT
CATB -1005L_FAULT_AT_PICTURE BUTTE 120S

FILE: 1005L_Fault_at_Picture Butte 120S.out

CHNL# 22: [POWR 80000[MONTANA1 230.00]1] 4.0000 -1.000
CHNL# 14: [POWR 61736[BSR_4 0.6900]1] 4.0000 -1.000
CHNL# 12: [POWR560041[BUFFALO6 0.6900]G1] 4.0000 -1.000
CHNL# 21: [POWR 775[SECCT2 21.000]3] 4.0000 -1.000
CHNL# 19: [POWR 773[SECST 20.000]1] 4.0000 -1.000
CHNL# 15: [POWR990005[GT_GEN_A3 0.6000]1] 5.0000 -1.000

0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000
TIME (SECONDS)

THU, FEB 09 2023 13:27
MACHINE POWER

SCENARIO #4: 2023 SL/POST PROJECT
CATB -1005L_FAULT_AT_MILO 356S

FILE: 1005L_Fault_at_Milo 356S.out

CHNL# 71: [POWR 943 TO 1012 CKT '23'] 600.00 -600.0
CHNL# 69: [POWR 943 TO 547026 CKT '05'] 600.00 -600.0
CHNL# 67: [POWR 943 TO 737 CKT '36'] 600.00 -600.0
CHNL# 65: [POWR 159 TO 943 CKT '27'] 600.00 -600.0
CHNL# 63: [POWR 159 TO 990011 CKT '24'] 600.00 -600.0
CHNL# 61: [POWR 943 TO 990011 CKT '24'] 800.00 -600.0

0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000
TIME (SECONDS)

THU, FEB 09 2023 13:27
LINE POWER

SCENARIO #4: 2023 SL/POST PROJECT
CATB -1005L_FAULT_AT_PICTURE BUTTE 120S

FILE: 1005L_Fault_at_Picture Butte 120S.out

CHNL# 10: [ANGL 775[SECCT2 21.000]3] 200.00 -200.0
CHNL# 9: [ANGL 774[SECCT1 21.000]2] 200.00 -200.0
CHNL# 8: [ANGL 773[SECST 20.000]1] 200.00 -200.0

0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000
TIME (SECONDS)

THU, FEB 09 2023 13:27
MACHINE ANGLE

SCENARIO #4: 2023 SL/POST PROJECT
CATB -1005L_FAULT_AT_PICTURE BUTTE 120S

FILE: 1005L_Fault_at_Picture Butte 120S.out

CHNL# 47: [VOLT 990005 [GT GEN A3 0.6000]]
CHNL# 39: [VOLT 254 [GLEICHE7 138.00]]
CHNL# 38: [VOLT 253 [BLACKIE7 138.00]]
CHNL# 37: [VOLT 252 [CARSELA7 138.00]]
CHNL# 36: [VOLT 242 [HIGH RI7 138.00]]
CHNL# 34: [VOLT 159 [LANGDON4 240.00]]

2.0000 -0.1000

THU, FEB 09 2023 13:27
BUS VOLTAGE

TIME (SECONDS)
0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

SCENARIO #4: 2023 SL/POST PROJECT
CATB -1005L_FAULT_AT_PICTURE BUTTE 120S

FILE: 1005L_Fault_at_Picture Butte 120S.out

CHNL# 72: [VARS 943 TO 1012 CKT '23']
CHNL# 70: [VARS 943 TO 547026 CKT '05']
CHNL# 68: [VARS 943 TO 737 CKT '36']
CHNL# 66: [VARS 159 TO 943 CKT '27']
CHNL# 64: [VARS 159 TO 990011 CKT '24']
CHNL# 62: [VARS 943 TO 990011 CKT '24']

600.00 -400.0

THU, FEB 09 2023 13:27
LINE VAR

TIME (SECONDS)
0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

SCENARIO #4: 2023 SL/POST PROJECT
CATB -1005L_FAULT_AT_PICTURE BUTTE 120S

FILE: 1005L_Fault_at_Picture Butte 120S.out

CHNL# 33: [VARS 80000[MONTANA1 230.00]1]
CHNL# 25: [VARS 61736[BSR 4 0.6900]1]
CHNL# 23: [VARS560041[BUFFALO6 0.6900]G1]
CHNL# 32: [VARS 775[SECCT2 21.000]3]
CHNL# 30: [VARS 773[SECST 20.000]1]
CHNL# 26: [VARS990005[GT GEN A3 0.6000]1]

4.0000 -1.500

THU, FEB 09 2023 13:27
MACHINE VAR

TIME (SECONDS)
0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

SCENARIO #4: 2023 SL/POST PROJECT
CATB -1005L_FAULT_AT_PICTURE BUTTE 120S

FILE: 1005L_Fault_at_Picture Butte 120S.out

CHNL# 71: [POWR 943 TO 1012 CKT '23']
CHNL# 69: [POWR 943 TO 547026 CKT '05']
CHNL# 67: [POWR 943 TO 737 CKT '36']
CHNL# 65: [POWR 159 TO 943 CKT '27']
CHNL# 63: [POWR 159 TO 990011 CKT '24']
CHNL# 61: [POWR 943 TO 990011 CKT '24']

600.00 -600.0

THU, FEB 09 2023 13:27
LINE POWER

TIME (SECONDS)
0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

SCENARIO #4: 2023 SL/POST PROJECT
CATB -1036L_FAULT_AT_MILO 356S

FILE: 1036L_Fault_at_Milo 356S.out

CHNL# 22: [POWR 80000[MONTANA1 230.00]1]
CHNL# 14: [POWR 61736[BSR 4 0.6900]1]
CHNL# 12: [POWR560041[BUFFALO6 0.6900]G1]
CHNL# 21: [POWR 775[SECCT2 21.000]3]
CHNL# 19: [POWR 773[SECST 20.000]1]
CHNL# 15: [POWR990005[GT_GEN_A3 0.6000]1]

THU, FEB 09 2023 13:27

MACHINE POWER

TIME (SECONDS)

SCENARIO #4: 2023 SL/POST PROJECT
CATB -1036L_FAULT_AT_MILO 356S

FILE: 1036L_Fault_at_Milo 356S.out

CHNL# 47: [VOLT 990005[GT_GEN_A3 0.6000]]
CHNL# 39: [VOLT 254 [GLEICHE7 138.00]]
CHNL# 38: [VOLT 253 [BLACKIE7 138.00]]
CHNL# 37: [VOLT 252 [CARSELA7 138.00]]
CHNL# 36: [VOLT 242 [HIGH_RI7 138.00]]
CHNL# 34: [VOLT 159 [LANGDON4 240.00]]

THU, FEB 09 2023 13:27

BUS VOLTAGE

TIME (SECONDS)

SCENARIO #4: 2023 SL/POST PROJECT
CATB -1036L_FAULT_AT_MILO 356S

FILE: 1036L_Fault_at_Milo 356S.out

CHNL# 10: [ANGL 775[SECCT2 21.000]3]
CHNL# 9: [ANGL 774[SECCT1 21.000]2]
CHNL# 8: [ANGL 773[SECST 20.000]1]

THU, FEB 09 2023 13:27

MACHINE ANGLE

TIME (SECONDS)

SCENARIO #4: 2023 SL/POST PROJECT
CATB -1036L_FAULT_AT_MILO 356S

FILE: 1036L_Fault_at_Milo 356S.out

CHNL# 33: [VARS 80000[MONTANA1 230.00]1]
CHNL# 25: [VARS 61736[BSR 4 0.6900]1]
CHNL# 23: [VARS560041[BUFFALO6 0.6900]G1]
CHNL# 32: [VARS 775[SECCT2 21.000]3]
CHNL# 30: [VARS 773[SECST 20.000]1]
CHNL# 26: [VARS990005[GT_GEN_A3 0.6000]1]

THU, FEB 09 2023 13:27

MACHINE VAR

TIME (SECONDS)

SCENARIO #4: 2023 SL/POST PROJECT
CATB -1036L_FAULT_AT_MILO 356S

FILE: 1036L_Fault_at_Milo 356S.out

THU, FEB 09 2023 13:27 LINE VAR

CHNL# 72: [VARS 943 TO 1012 CKT '23'] 600.00 -400.0
CHNL# 70: [VARS 943 TO 547026 CKT '05'] 600.00 -400.0
CHNL# 68: [VARS 943 TO 737 CKT '36'] 600.00 -400.0
CHNL# 66: [VARS 159 TO 943 CKT '27'] 600.00 -400.0
CHNL# 64: [VARS 159 TO 990011 CKT '24'] 600.00 -400.0
CHNL# 62: [VARS 943 TO 990011 CKT '24'] 600.00 -400.0

TIME (SECONDS) 0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

SCENARIO #4: 2023 SL/POST PROJECT
CATB -1036L_FAULT_AT_TRAVERS 554S

FILE: 1036L_Fault_at_Travers 554S.out

THU, FEB 09 2023 13:27 MACHINE POWER

CHNL# 22: [POWR 80000[MONTANA1 230.00]1] 4.0000 -1.000
CHNL# 14: [POWR 61736[BSR_4 0.6900]1] 4.0000 -1.000
CHNL# 12: [POWR560041[BUFFALO6 0.6900]G1] 4.0000 -1.000
CHNL# 21: [POWR 775[SECCT2 21.000]3] 4.0000 -1.000
CHNL# 19: [POWR 773[SECST 20.000]1] 4.0000 -1.000
CHNL# 15: [POWR990005[GT_GEN_A3 0.6000]1] 5.0000 -1.000

TIME (SECONDS) 0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

SCENARIO #4: 2023 SL/POST PROJECT
CATB -1036L_FAULT_AT_MILO 356S

FILE: 1036L_Fault_at_Milo 356S.out

THU, FEB 09 2023 13:27 LINE POWER

CHNL# 71: [POWR 943 TO 1012 CKT '23'] 600.00 -600.0
CHNL# 69: [POWR 943 TO 547026 CKT '05'] 600.00 -600.0
CHNL# 67: [POWR 943 TO 737 CKT '36'] 600.00 -600.0
CHNL# 65: [POWR 159 TO 943 CKT '27'] 600.00 -600.0
CHNL# 63: [POWR 159 TO 990011 CKT '24'] 600.00 -600.0
CHNL# 61: [POWR 943 TO 990011 CKT '24'] 800.00 -600.0

TIME (SECONDS) 0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

SCENARIO #4: 2023 SL/POST PROJECT
CATB -1036L_FAULT_AT_TRAVERS 554S

FILE: 1036L_Fault_at_Travers 554S.out

THU, FEB 09 2023 13:27 MACHINE ANGLE

CHNL# 10: [ANGL 775[SECCT2 21.000]3] 200.00 -200.0
CHNL# 9: [ANGL 774[SECCT1 21.000]2] 200.00 -200.0
CHNL# 8: [ANGL 773[SECST 20.000]1] 200.00 -200.0

TIME (SECONDS) 0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

SCENARIO #4: 2023 SL/POST PROJECT
CATB -1036L_FAULT_AT_TRAVERS 554S

FILE: 1036L_Fault_at_Travers 554S.out

CHNL# 47: [VOLT 990005 [GT GEN A3 0.6000]]
CHNL# 39: [VOLT 254 [GLEICHE7 138.00]]
CHNL# 38: [VOLT 253 [BLACKIE7 138.00]]
CHNL# 37: [VOLT 252 [CARSELA7 138.00]]
CHNL# 36: [VOLT 242 [HIGH RI7 138.00]]
CHNL# 34: [VOLT 159 [LANGDON4 240.00]]

2.0000 -0.1000

TIME (SECONDS)
0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

THU, FEB 09 2023 13:27
BUS VOLTAGE

SCENARIO #4: 2023 SL/POST PROJECT
CATB -1036L_FAULT_AT_TRAVERS 554S

FILE: 1036L_Fault_at_Travers 554S.out

CHNL# 72: [VARS 943 TO 1012 CKT '23']
CHNL# 70: [VARS 943 TO 547026 CKT '05']
CHNL# 68: [VARS 943 TO 737 CKT '36']
CHNL# 66: [VARS 159 TO 943 CKT '27']
CHNL# 64: [VARS 159 TO 990011 CKT '24']
CHNL# 62: [VARS 943 TO 990011 CKT '24']

600.00 -400.0

TIME (SECONDS)
0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

THU, FEB 09 2023 13:27
LINE VAR

SCENARIO #4: 2023 SL/POST PROJECT
CATB -1036L_FAULT_AT_TRAVERS 554S

FILE: 1036L_Fault_at_Travers 554S.out

CHNL# 33: [VARS 80000[MONTANA1 230.00]1]
CHNL# 25: [VARS 61736[BSR 4 0.6900]1]
CHNL# 23: [VARS560041[BUFFALO6 0.6900]G1]
CHNL# 32: [VARS 775[SECCT2 21.000]3]
CHNL# 30: [VARS 773[SECST 20.000]1]
CHNL# 26: [VARS990005[GT GEN A3 0.6000]1]

4.0000 -1.500

TIME (SECONDS)
0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

THU, FEB 09 2023 13:27
MACHINE VAR

SCENARIO #4: 2023 SL/POST PROJECT
CATB -1036L_FAULT_AT_TRAVERS 554S

FILE: 1036L_Fault_at_Travers 554S.out

CHNL# 71: [POWR 943 TO 1012 CKT '23']
CHNL# 69: [POWR 943 TO 547026 CKT '05']
CHNL# 67: [POWR 943 TO 737 CKT '36']
CHNL# 65: [POWR 159 TO 943 CKT '27']
CHNL# 63: [POWR 159 TO 990011 CKT '24']
CHNL# 61: [POWR 943 TO 990011 CKT '24']

600.00 -600.0

TIME (SECONDS)
0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

THU, FEB 09 2023 13:27
LINE POWER

SCENARIO #4: 2023 SL/POST PROJECT
CATB -923L_FAULT_AT_MILO 356S

FILE: 923L_Fault_at_Milo 356S.out

CHNL# 22: [POWR 80000[MONTANA1 230.00]1]
CHNL# 14: [POWR 61736[BSR 4 0.6900]1]
CHNL# 12: [POWR560041[BUFFALO6 0.6900]G1]
CHNL# 21: [POWR 775[SECCT2 21.000]3]
CHNL# 19: [POWR 773[SECST 20.000]1]
CHNL# 15: [POWR990005[GT_GEN_A3 0.6000]1]

THU, FEB 09 2023 13:27
MACHINE POWER

TIME (SECONDS)

SCENARIO #4: 2023 SL/POST PROJECT
CATB -923L_FAULT_AT_MILO 356S

FILE: 923L_Fault_at_Milo 356S.out

CHNL# 47: [VOLT 990005[GT_GEN_A3 0.6000]]
CHNL# 39: [VOLT 254 [GLEICHE7 138.00]]
CHNL# 38: [VOLT 253 [BLACKIE7 138.00]]
CHNL# 37: [VOLT 252 [CARSELA7 138.00]]
CHNL# 36: [VOLT 242 [HIGH_RI7 138.00]]
CHNL# 34: [VOLT 159 [LANGDON4 240.00]]

THU, FEB 09 2023 13:27
BUS VOLTAGE

TIME (SECONDS)

SCENARIO #4: 2023 SL/POST PROJECT
CATB -923L_FAULT_AT_MILO 356S

FILE: 923L_Fault_at_Milo 356S.out

CHNL# 10: [ANGL 775[SECCT2 21.000]3]
CHNL# 9: [ANGL 774[SECCT1 21.000]2]
CHNL# 8: [ANGL 773[SECST 20.000]1]

THU, FEB 09 2023 13:27
MACHINE ANGLE

TIME (SECONDS)

SCENARIO #4: 2023 SL/POST PROJECT
CATB -923L_FAULT_AT_MILO 356S

FILE: 923L_Fault_at_Milo 356S.out

CHNL# 33: [VARS 80000[MONTANA1 230.00]1]
CHNL# 25: [VARS 61736[BSR 4 0.6900]1]
CHNL# 23: [VARS560041[BUFFALO6 0.6900]G1]
CHNL# 32: [VARS 775[SECCT2 21.000]3]
CHNL# 30: [VARS 773[SECST 20.000]1]
CHNL# 26: [VARS990005[GT_GEN_A3 0.6000]1]

THU, FEB 09 2023 13:27
MACHINE VAR

TIME (SECONDS)

SCENARIO #4: 2023 SL/POST PROJECT
CATB -923L_FAULT_AT_MILO 356S

FILE: 923L_Fault_at_Milo 356S.out

CHNL# 72: [VARS 943 TO 1012 CKT '23']
CHNL# 70: [VARS 943 TO 547026 CKT '05']
CHNL# 68: [VARS 943 TO 737 CKT '36']
CHNL# 66: [VARS 159 TO 943 CKT '27']
CHNL# 64: [VARS 159 TO 990011 CKT '24']
CHNL# 62: [VARS 943 TO 990011 CKT '24']

600.00 / -400.0

TIME (SECONDS)
0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

THU, FEB 09 2023 13:27
LINE VAR

SCENARIO #4: 2023 SL/POST PROJECT
CATB -923L_FAULT_AT_NEWELL 2075S

FILE: 923L_Fault_at_Newell 2075S.out

CHNL# 22: [POWR 80000[MONTANA1 230.00]1]
CHNL# 14: [POWR 61736[BSR_4 0.6900]1]
CHNL# 12: [POWR560041[BUFFALO6 0.6900]G1]
CHNL# 21: [POWR 775[SECCT2 21.000]3]
CHNL# 19: [POWR 773[SECST 20.000]1]
CHNL# 15: [POWR990005[GT_GEN_A3 0.6000]1]

4.0000 / 5.0000 / -1.000

TIME (SECONDS)
0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

THU, FEB 09 2023 13:27
MACHINE POWER

SCENARIO #4: 2023 SL/POST PROJECT
CATB -923L_FAULT_AT_MILO 356S

FILE: 923L_Fault_at_Milo 356S.out

CHNL# 71: [POWR 943 TO 1012 CKT '23']
CHNL# 69: [POWR 943 TO 547026 CKT '05']
CHNL# 67: [POWR 943 TO 737 CKT '36']
CHNL# 65: [POWR 159 TO 943 CKT '27']
CHNL# 63: [POWR 159 TO 990011 CKT '24']
CHNL# 61: [POWR 943 TO 990011 CKT '24']

600.00 / 800.00 / -600.0

TIME (SECONDS)
0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

THU, FEB 09 2023 13:27
LINE POWER

SCENARIO #4: 2023 SL/POST PROJECT
CATB -923L_FAULT_AT_NEWELL 2075S

FILE: 923L_Fault_at_Newell 2075S.out

CHNL# 10: [ANGL 775[SECCT2 21.000]3]
CHNL# 9: [ANGL 774[SECCT1 21.000]2]
CHNL# 8: [ANGL 773[SECST 20.000]1]

200.00 / -200.0

TIME (SECONDS)
0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

THU, FEB 09 2023 13:27
MACHINE ANGLE

SCENARIO #4: 2023 SL/POST PROJECT
CATB -923L_FAULT_AT_NEWELL 2075S

FILE: 923L_Fault_at_Newell 2075S.out

CHNL# 47: [VOLT 990005 [GT GEN A3 0.6000]]
CHNL# 39: [VOLT 254 [GLEICHE7 138.00]]
CHNL# 38: [VOLT 253 [BLACKIE7 138.00]]
CHNL# 37: [VOLT 252 [CARSELA7 138.00]]
CHNL# 36: [VOLT 242 [HIGH RI7 138.00]]
CHNL# 34: [VOLT 159 [LANGDON4 240.00]]

2.0000 -0.1000

TIME (SECONDS)
0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

THU, FEB 09 2023 13:27
BUS VOLTAGE

SCENARIO #4: 2023 SL/POST PROJECT
CATB -923L_FAULT_AT_NEWELL 2075S

FILE: 923L_Fault_at_Newell 2075S.out

CHNL# 72: [VARS 943 TO 1012 CKT '23']
CHNL# 70: [VARS 943 TO 547026 CKT '05']
CHNL# 68: [VARS 943 TO 737 CKT '36']
CHNL# 66: [VARS 159 TO 943 CKT '27']
CHNL# 64: [VARS 159 TO 990011 CKT '24']
CHNL# 62: [VARS 943 TO 990011 CKT '24']

600.00 -400.0

TIME (SECONDS)
0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

THU, FEB 09 2023 13:27
LINE VAR

SCENARIO #4: 2023 SL/POST PROJECT
CATB -923L_FAULT_AT_NEWELL 2075S

FILE: 923L_Fault_at_Newell 2075S.out

CHNL# 33: [VARS 80000[MONTANA1 230.00]1]
CHNL# 25: [VARS 61736[BSR 4 0.6900]1]
CHNL# 23: [VARS560041[BUFFALO6 0.6900]G1]
CHNL# 32: [VARS 775[SECCT2 21.000]3]
CHNL# 30: [VARS 773[SECST 20.000]1]
CHNL# 26: [VARS990005[GT GEN A3 0.6000]1]

4.0000 -1.500

TIME (SECONDS)
0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

THU, FEB 09 2023 13:27
MACHINE VAR

SCENARIO #4: 2023 SL/POST PROJECT
CATB -923L_FAULT_AT_NEWELL 2075S

FILE: 923L_Fault_at_Newell 2075S.out

CHNL# 71: [POWR 943 TO 1012 CKT '23']
CHNL# 69: [POWR 943 TO 547026 CKT '05']
CHNL# 67: [POWR 943 TO 737 CKT '36']
CHNL# 65: [POWR 159 TO 943 CKT '27']
CHNL# 63: [POWR 159 TO 990011 CKT '24']
CHNL# 61: [POWR 943 TO 990011 CKT '24']

600.00 -600.0

TIME (SECONDS)
0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

THU, FEB 09 2023 13:27
LINE POWER

SCENARIO #4: 2023 SL/POST PROJECT
CATB -935L_FAULT_AT_MILO 356S

FILE: 935L_Fault_at_Milo 356S.out

CHNL# 22: [POWR 80000[MONTANA1 230.00]1] 4.0000 -1.000
CHNL# 14: [POWR 61736[BSR 4 0.6900]1] 4.0000 -1.000
CHNL# 12: [POWR560041[BUFFALO6 0.6900]G1] 4.0000 -1.000
CHNL# 21: [POWR 775[SECCT2 21.000]3] 4.0000 -1.000
CHNL# 19: [POWR 773[SECST 20.000]1] 4.0000 -1.000
CHNL# 15: [POWR990005[GT_GEN_A3 0.6000]1] 5.0000 -1.000

TIME (SECONDS) 0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

THU, FEB 09 2023 13:27
MACHINE POWER

SCENARIO #4: 2023 SL/POST PROJECT
CATB -935L_FAULT_AT_MILO 356S

FILE: 935L_Fault_at_Milo 356S.out

CHNL# 47: [VOLT 990005[GT_GEN_A3 0.6000]] 2.0000 -0.1000
CHNL# 39: [VOLT 254 [GLEICHE7 138.00]] 2.0000 -0.1000
CHNL# 38: [VOLT 253 [BLACKIE7 138.00]] 2.0000 -0.1000
CHNL# 37: [VOLT 252 [CARSELA7 138.00]] 2.0000 -0.1000
CHNL# 36: [VOLT 242 [HIGH_RI7 138.00]] 2.0000 -0.1000
CHNL# 34: [VOLT 159 [LANGDON4 240.00]] 2.0000 -0.1000

TIME (SECONDS) 0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

THU, FEB 09 2023 13:27
BUS VOLTAGE

SCENARIO #4: 2023 SL/POST PROJECT
CATB -935L_FAULT_AT_MILO 356S

FILE: 935L_Fault_at_Milo 356S.out

CHNL# 10: [ANGL 775[SECCT2 21.000]3] 200.00 -200.0
CHNL# 9: [ANGL 774[SECCT1 21.000]2] 200.00 -200.0
CHNL# 8: [ANGL 773[SECST 20.000]1] 200.00 -200.0

TIME (SECONDS) 0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

THU, FEB 09 2023 13:27
MACHINE ANGLE

SCENARIO #4: 2023 SL/POST PROJECT
CATB -935L_FAULT_AT_MILO 356S

FILE: 935L_Fault_at_Milo 356S.out

CHNL# 33: [VARS 80000[MONTANA1 230.00]1] 4.0000 -1.500
CHNL# 25: [VARS 61736[BSR 4 0.6900]1] 4.0000 -1.500
CHNL# 23: [VARS560041[BUFFALO6 0.6900]G1] 4.0000 -1.500
CHNL# 32: [VARS 775[SECCT2 21.000]3] 4.0000 -1.500
CHNL# 30: [VARS 773[SECST 20.000]1] 4.0000 -1.500
CHNL# 26: [VARS990005[GT_GEN_A3 0.6000]1] 4.0000 -1.500

TIME (SECONDS) 0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

THU, FEB 09 2023 13:27
MACHINE VAR

SCENARIO #4: 2023 SL/POST PROJECT
CATB -935L_FAULT_AT_MILO 356S

FILE: 935L_Fault_at_Milo 356S.out

CHNL# 72: [VARS 943 TO 1012 CKT '23'] 600.00 -400.0
CHNL# 70: [VARS 943 TO 547026 CKT '05'] 600.00 -400.0
CHNL# 68: [VARS 943 TO 737 CKT '36'] 600.00 -400.0
CHNL# 66: [VARS 159 TO 943 CKT '27'] 600.00 -400.0
CHNL# 64: [VARS 159 TO 990011 CKT '24'] 600.00 -400.0
CHNL# 62: [VARS 943 TO 990011 CKT '24'] 600.00 -400.0

TIME (SECONDS) 0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

THU, FEB 09 2023 13:27 LINE VAR

SCENARIO #4: 2023 SL/POST PROJECT
CATB -935L_FAULT_AT_CASSILS 324S

FILE: 935L_Fault_at_Cassils 324S.out

CHNL# 22: [POWR 80000[MONTANA1 230.00]1] 4.0000 -1.000
CHNL# 14: [POWR 61736[BSR_4 0.6900]1] 4.0000 -1.000
CHNL# 12: [POWR560041[BUFFALO6 0.6900]G1] 4.0000 -1.000
CHNL# 21: [POWR 775[SECCT2 21.000]3] 4.0000 -1.000
CHNL# 19: [POWR 773[SECST 20.000]1] 4.0000 -1.000
CHNL# 15: [POWR990005[GT_GEN_A3 0.6000]1] 5.0000 -1.000

TIME (SECONDS) 0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

THU, FEB 09 2023 13:27 MACHINE POWER

SCENARIO #4: 2023 SL/POST PROJECT
CATB -935L_FAULT_AT_MILO 356S

FILE: 935L_Fault_at_Milo 356S.out

CHNL# 71: [POWR 943 TO 1012 CKT '23'] 600.00 -600.0
CHNL# 69: [POWR 943 TO 547026 CKT '05'] 600.00 -600.0
CHNL# 67: [POWR 943 TO 737 CKT '36'] 600.00 -600.0
CHNL# 65: [POWR 159 TO 943 CKT '27'] 600.00 -600.0
CHNL# 63: [POWR 159 TO 990011 CKT '24'] 600.00 -600.0
CHNL# 61: [POWR 943 TO 990011 CKT '24'] 800.00 -600.0

TIME (SECONDS) 0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

THU, FEB 09 2023 13:27 LINE POWER

SCENARIO #4: 2023 SL/POST PROJECT
CATB -935L_FAULT_AT_CASSILS 324S

FILE: 935L_Fault_at_Cassils 324S.out

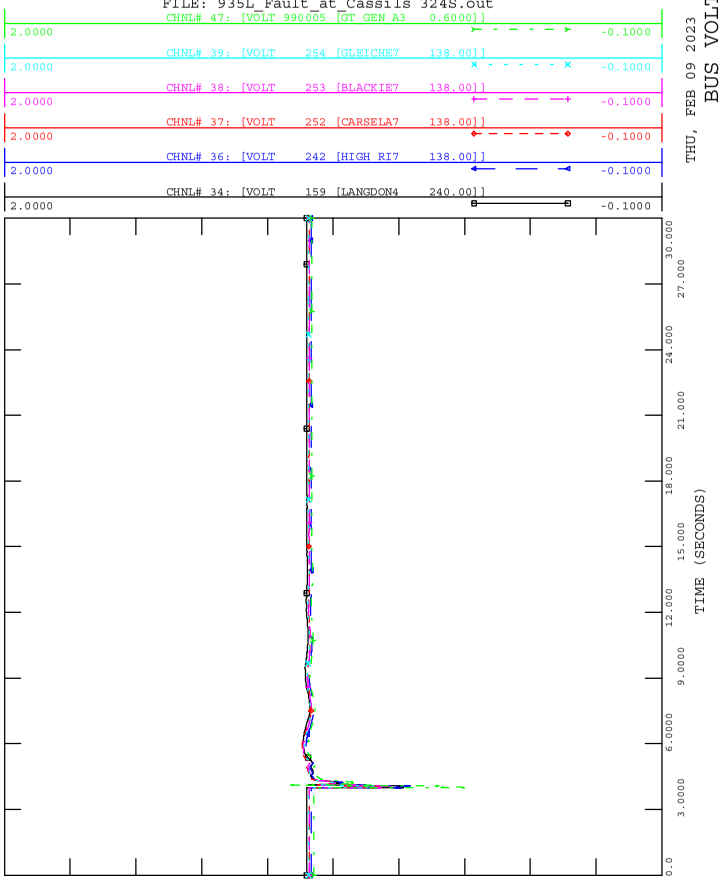
CHNL# 10: [ANGL 775[SECCT2 21.000]3] 200.00 -200.0
CHNL# 9: [ANGL 774[SECCT1 21.000]2] 200.00 -200.0
CHNL# 8: [ANGL 773[SECST 20.000]1] 200.00 -200.0

TIME (SECONDS) 0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

THU, FEB 09 2023 13:27 MACHINE ANGLE

SCENARIO #4: 2023 SL/POST PROJECT
CATB -935L_FAULT_AT_CASSILS 324S

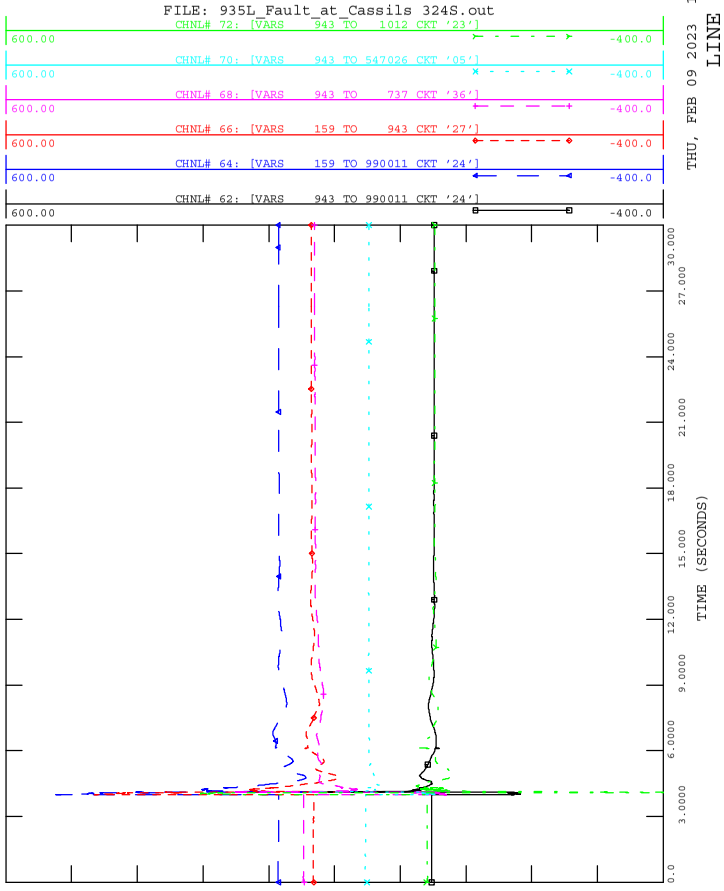
FILE: 935L_Fault_at_Cassils 324S.out



THU, FEB 09 2023 13:27
BUS VOLTAGE

SCENARIO #4: 2023 SL/POST PROJECT
CATB -935L_FAULT_AT_CASSILS 324S

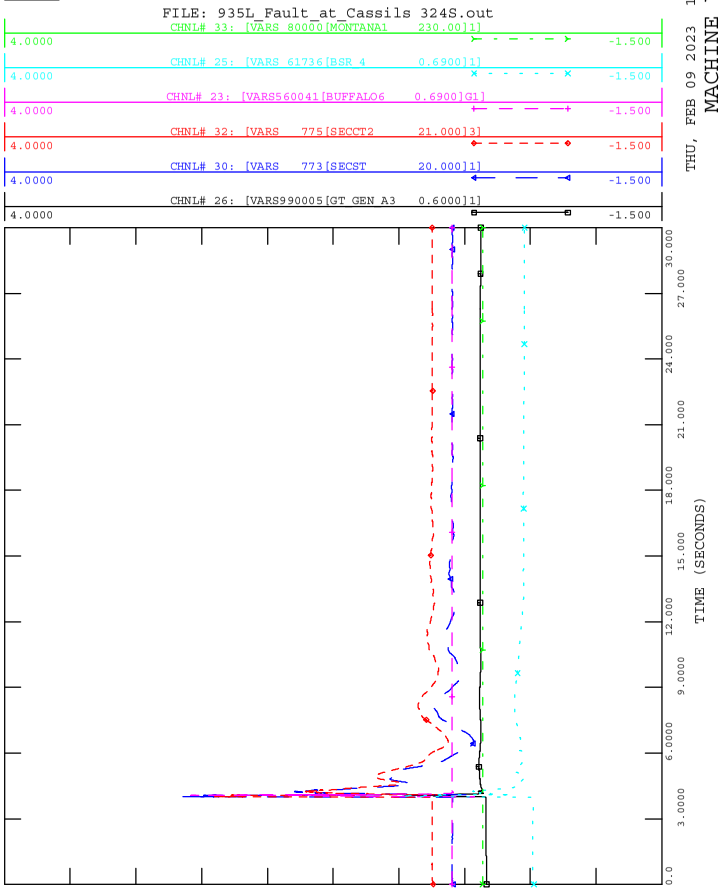
FILE: 935L_Fault_at_Cassils 324S.out



THU, FEB 09 2023 13:27
LINE VAR

SCENARIO #4: 2023 SL/POST PROJECT
CATB -935L_FAULT_AT_CASSILS 324S

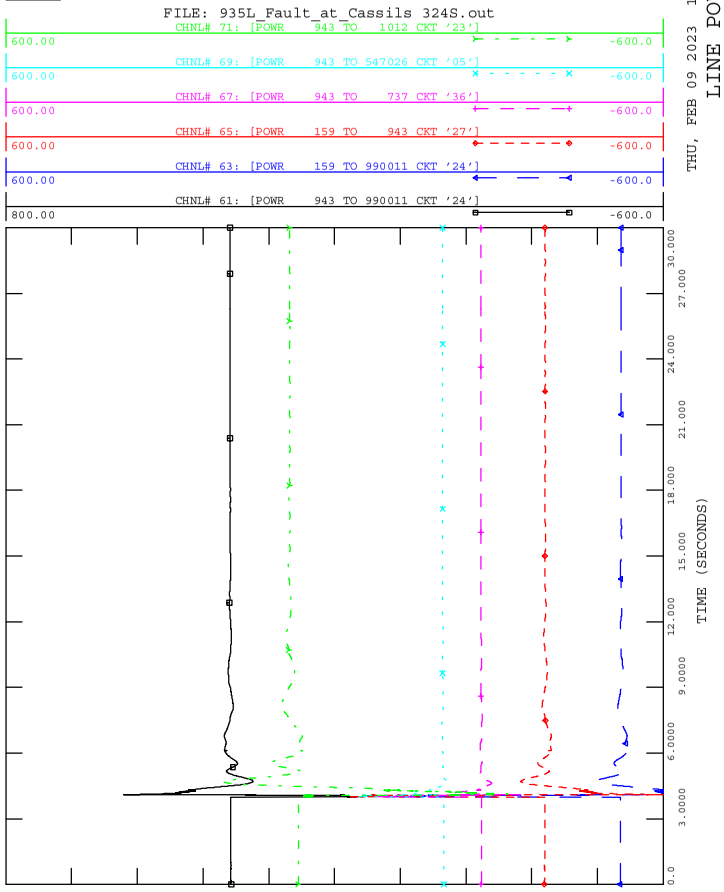
FILE: 935L_Fault_at_Cassils 324S.out



THU, FEB 09 2023 13:27
MACHINE VAR

SCENARIO #4: 2023 SL/POST PROJECT
CATB -935L_FAULT_AT_CASSILS 324S

FILE: 935L_Fault_at_Cassils 324S.out



THU, FEB 09 2023 13:27
LINE POWER

SCENARIO #4: 2023 SL/POST PROJECT
CATB -1064L_FAULT_AT_LANGDON 102S

FILE: 1064L_Fault_at_Langdon 102S.out

CHNL# 22: [POWR 80000[MONTANA1 230.00]1]
CHNL# 14: [POWR 61736[BSR 4 0.6900]1]
CHNL# 12: [POWR560041[BUFFALO6 0.6900]G1]
CHNL# 21: [POWR 775[SECCT2 21.000]3]
CHNL# 19: [POWR 773[SECST 20.000]1]
CHNL# 15: [POWR990005[GT GEN A3 0.6000]1]

THU, FEB 09 2023 13:27
MACHINE POWER

TIME (SECONDS)

SCENARIO #4: 2023 SL/POST PROJECT
CATB -1064L_FAULT_AT_LANGDON 102S

FILE: 1064L_Fault_at_Langdon 102S.out

CHNL# 47: [VOLT 990005 [GT GEN A3 0.6000]]
CHNL# 39: [VOLT 254 [GLEICHE7 138.00]]
CHNL# 38: [VOLT 253 [BLACKIE7 138.00]]
CHNL# 37: [VOLT 252 [CARSELA7 138.00]]
CHNL# 36: [VOLT 242 [HIGH RI7 138.00]]
CHNL# 34: [VOLT 159 [LANGDON4 240.00]]

THU, FEB 09 2023 13:27
BUS VOLTAGE

TIME (SECONDS)

SCENARIO #4: 2023 SL/POST PROJECT
CATB -1064L_FAULT_AT_LANGDON 102S

FILE: 1064L_Fault_at_Langdon 102S.out

CHNL# 10: [ANGL 775[SECCT2 21.000]3]
CHNL# 9: [ANGL 774[SECCT1 21.000]2]
CHNL# 8: [ANGL 773[SECST 20.000]1]

THU, FEB 09 2023 13:27
MACHINE ANGLE

TIME (SECONDS)

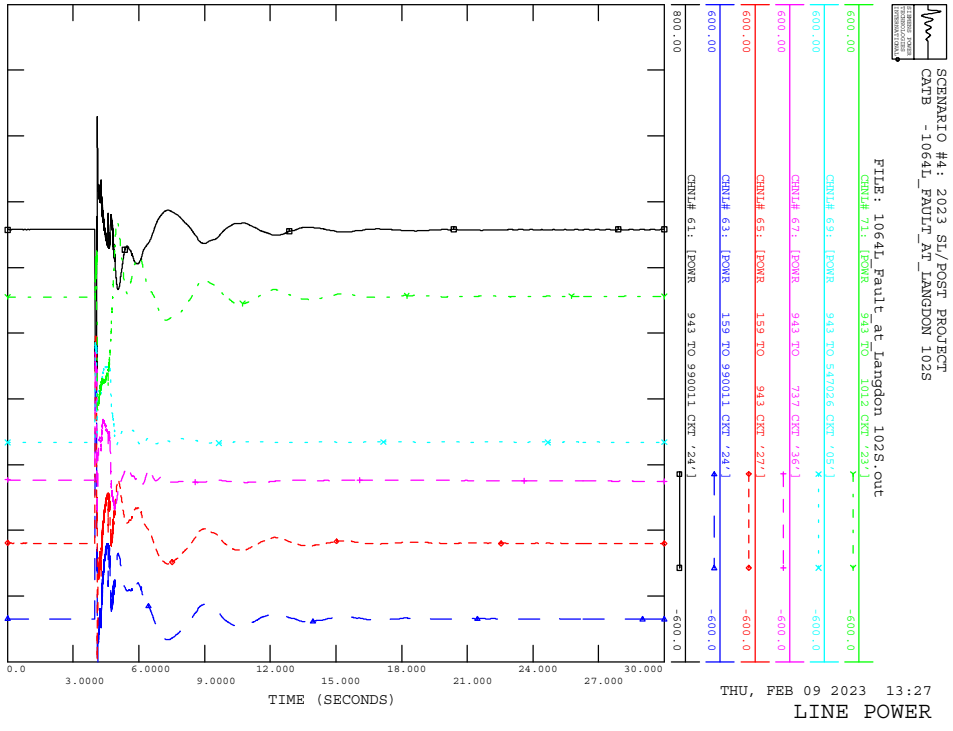
SCENARIO #4: 2023 SL/POST PROJECT
CATB -1064L_FAULT_AT_LANGDON 102S

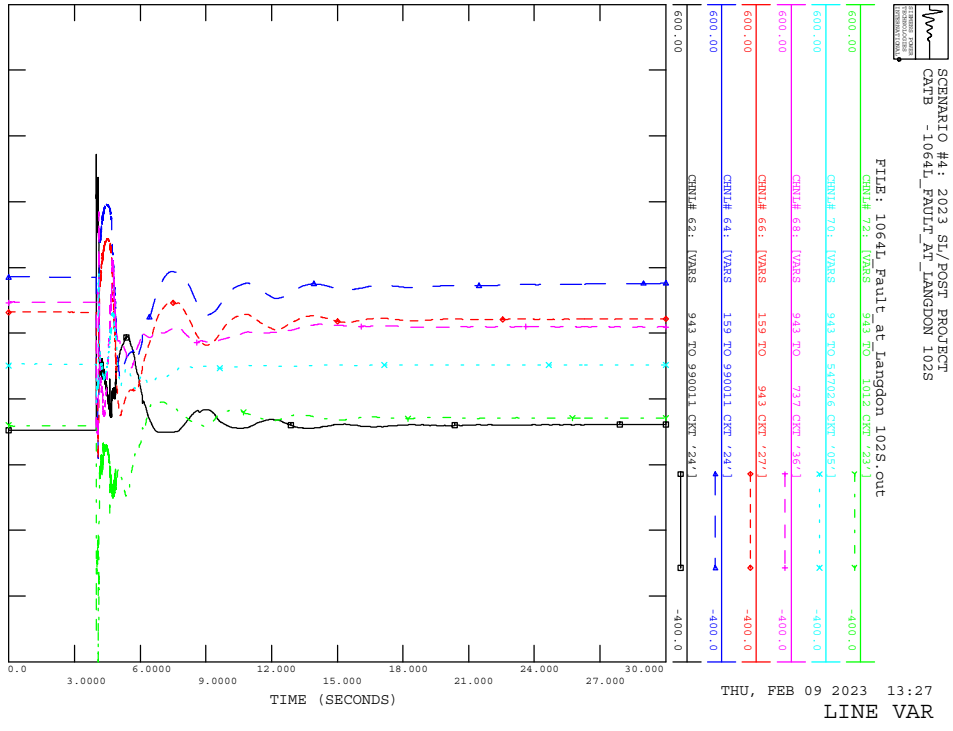
FILE: 1064L_Fault_at_Langdon 102S.out

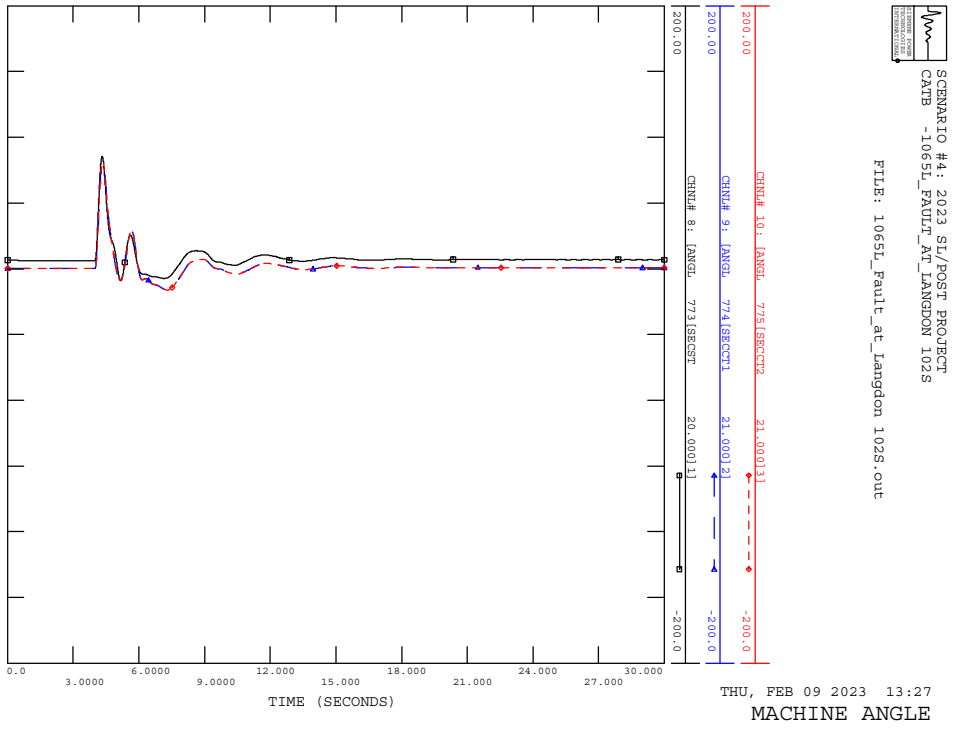
CHNL# 33: [VARS 80000[MONTANA1 230.00]1]
CHNL# 25: [VARS 61736[BSR 4 0.6900]1]
CHNL# 23: [VARS560041[BUFFALO6 0.6900]G1]
CHNL# 32: [VARS 775[SECCT2 21.000]3]
CHNL# 30: [VARS 773[SECST 20.000]1]
CHNL# 26: [VARS990005[GT GEN A3 0.6000]1]

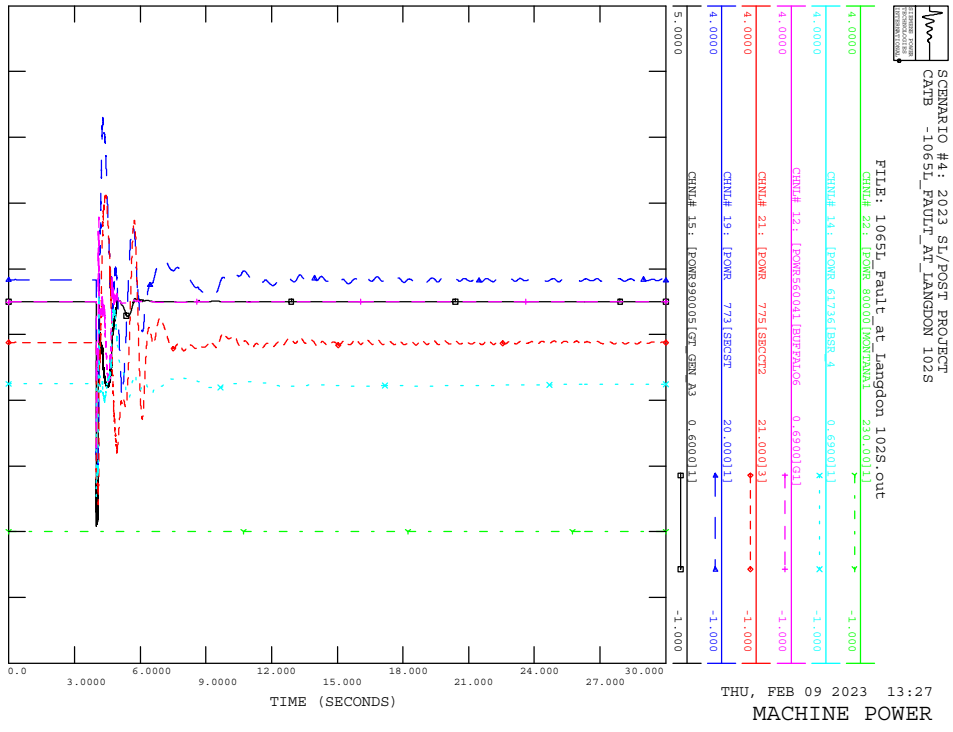
THU, FEB 09 2023 13:27
MACHINE VAR

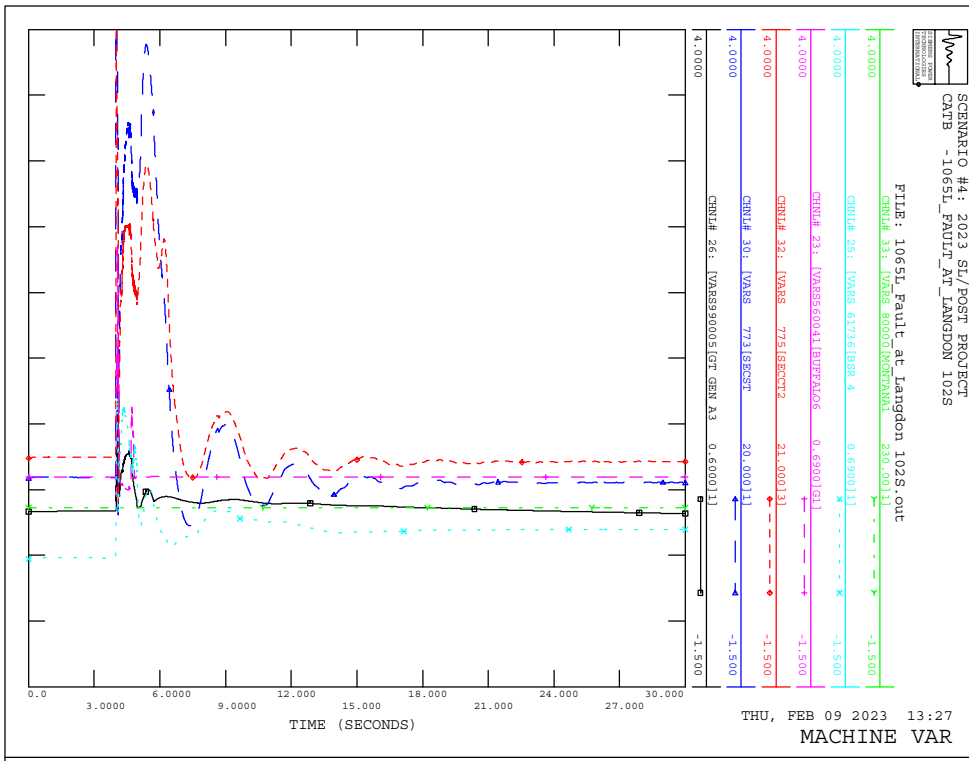
TIME (SECONDS)

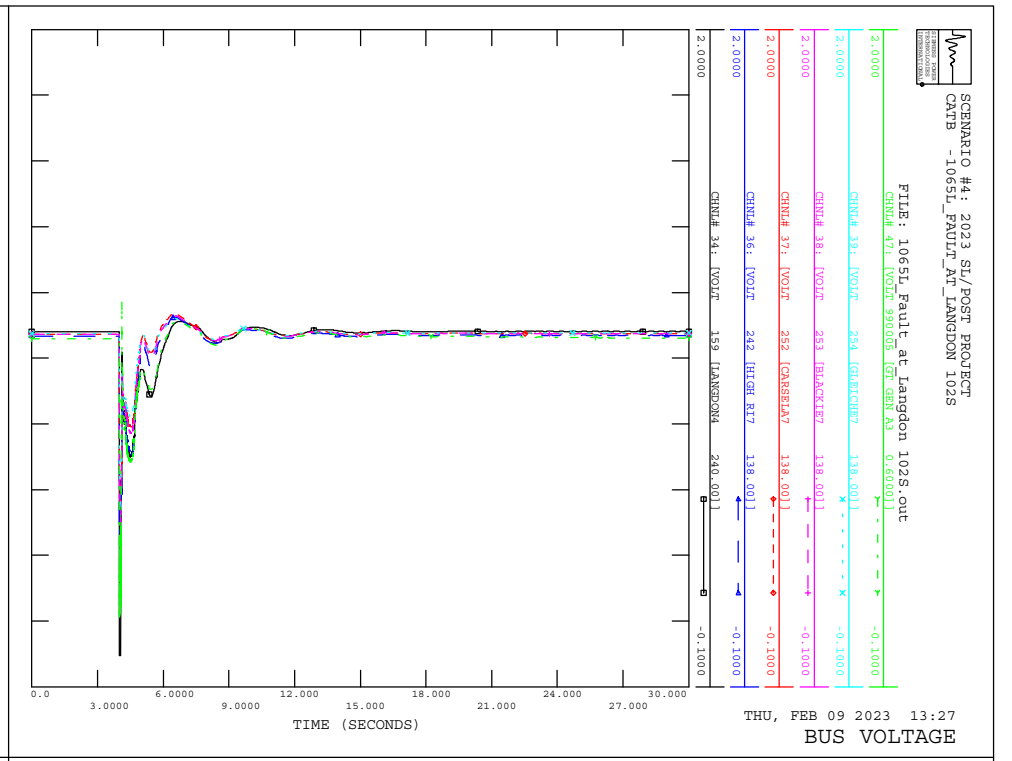

SCENARIO #4: 2023 SL/POST PROJECT
CATB -1064L_FAULT_AT_LANGDON 102S
FILE: 1064L_Fault_at_Langdon 102S.out
CHNL# 61: [POWR 943 TO 990011 CKT '24']
CHNL# 63: [POWR 159 TO 990011 CKT '24']
CHNL# 65: [POWR 159 TO 943 CKT '27']
CHNL# 67: [POWR 943 TO 737 CKT '36']
CHNL# 69: [POWR 943 TO 547026 CKT '05']
CHNL# 71: [POWR 943 TO 1012 CKT '23']
TIME (SECONDS)
THU, FEB 09 2023 13:27
LINE POWER

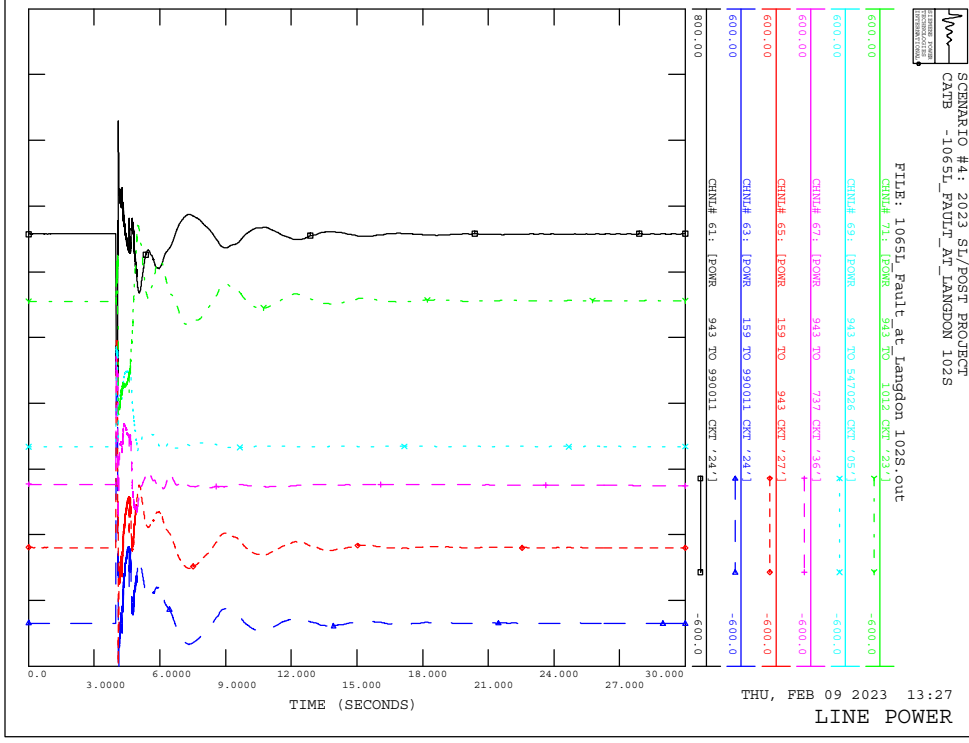

SCENARIO #4: 2023 SL/POST PROJECT
CATB -1064L_FAULT_AT_LANGDON 102S
FILE: 1064L_Fault_at_Langdon 102S.out
CHNL# 62: [VARS 943 TO 990011 CKT '24']
CHNL# 64: [VARS 159 TO 990011 CKT '24']
CHNL# 66: [VARS 159 TO 943 CKT '27']
CHNL# 68: [VARS 943 TO 737 CKT '36']
CHNL# 70: [VARS 943 TO 547026 CKT '05']
CHNL# 72: [VARS 943 TO 1012 CKT '23']
TIME (SECONDS)
THU, FEB 09 2023 13:27
LINE VAR

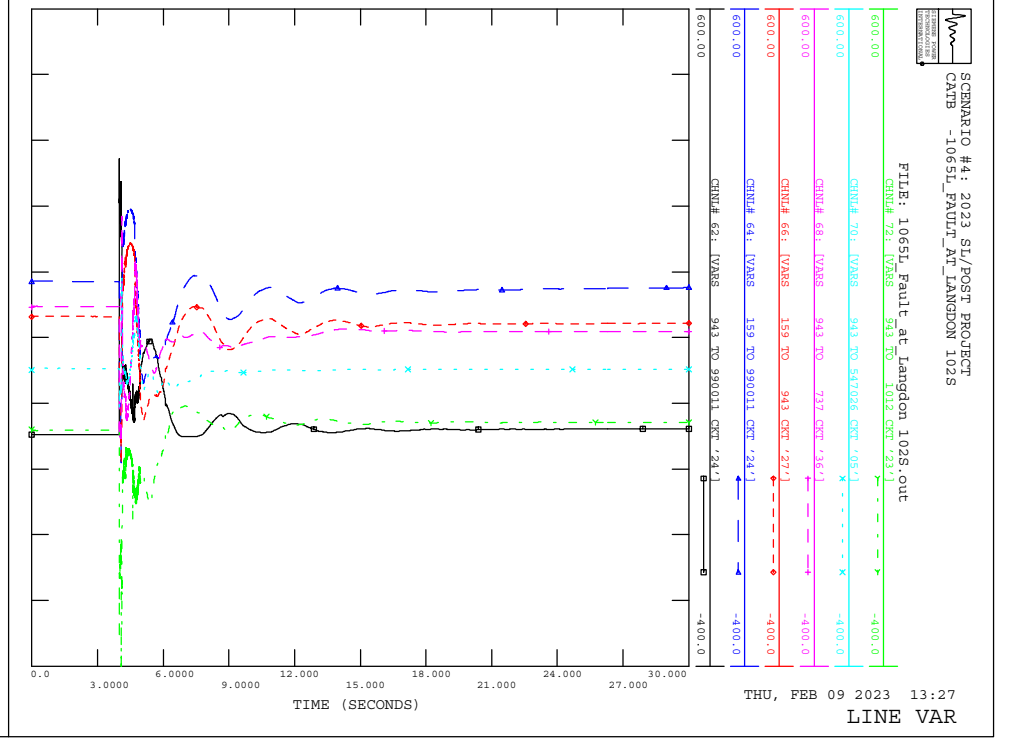

SCENARIO #4: 2023 SL/POST PROJECT
CATB -1065L_FAULT_AT_LANGDON 102S
FILE: 1065L_Fault_at_Langdon 102S.out
CHNL# 8: [ANGL 773[SECST 20.000[1]
CHNL# 9: [ANGL 774[SECCT1 21.000[2]
CHNL# 10: [ANGL 775[SECCT2 21.000[3]
TIME (SECONDS)
THU, FEB 09 2023 13:27
MACHINE ANGLE


SCENARIO #4: 2023 SL/POST PROJECT
CATB -1065L_FAULT_AT_LANGDON 102S
FILE: 1065L_Fault_at_Langdon 102S.out
CHNL# 15: [POWR990005[GT_GEN_A3 0.600[1]
CHNL# 19: [POWR 773[SECST 20.000[1]
CHNL# 21: [POWR 775[SECCT2 21.000[3]
CHNL# 12: [POWR560041[BUFFALO6 0.690[101]
CHNL# 14: [POWR 61736[BSR_4 0.690[1]
CHNL# 22: [POWR 800001[MONTANA1 230.00[1]
TIME (SECONDS)
THU, FEB 09 2023 13:27
MACHINE POWER


SCENARIO #4: 2023 SL/POST PROJECT
CATB -1065L_FAULT_AT_LANGDON 102S
FILE: 1065L_Fault_at_Langdon 102S.out
TIME (SECONDS)
THU, FEB 09 2023 13:27
MACHINE VAR


SCENARIO #4: 2023 SL/POST PROJECT
CATB -1065L_FAULT_AT_LANGDON 102S
FILE: 1065L_Fault_at_Langdon 102S.out
TIME (SECONDS)
THU, FEB 09 2023 13:27
BUS VOLTAGE


SCENARIO #4: 2023 SL/POST PROJECT
CATB -1065L_FAULT_AT_LANGDON 102S
FILE: 1065L_Fault_at_Langdon 102S.out
TIME (SECONDS)
THU, FEB 09 2023 13:27
LINE POWER


SCENARIO #4: 2023 SL/POST PROJECT
CATB -1065L_FAULT_AT_LANGDON 102S
FILE: 1065L_Fault_at_Langdon 102S.out
TIME (SECONDS)
THU, FEB 09 2023 13:27
LINE VAR

SCENARIO #4: 2023 SL/POST PROJECT
CATB -936L_FAULT_AT_LANGDON 102S

FILE: 936L_Fault_at_Langdon 102S.out

CHNL# 22: [POWR 80000[MONTANA1 230.00]1]
CHNL# 14: [POWR 61736[BSR 4 0.6900]1]
CHNL# 12: [POWR560041[BUFFALO6 0.6900]G1]
CHNL# 21: [POWR 775[SECCT2 21.000]3]
CHNL# 19: [POWR 773[SECST 20.000]1]
CHNL# 15: [POWR990005[GT GEN A3 0.6000]1]

THU, FEB 09 2023 13:27
MACHINE POWER

TIME (SECONDS)

SCENARIO #4: 2023 SL/POST PROJECT
CATB -936L_FAULT_AT_LANGDON 102S

FILE: 936L_Fault_at_Langdon 102S.out

CHNL# 47: [VOLT 990005 [GT GEN A3 0.6000]]
CHNL# 39: [VOLT 254 [GLEICHE7 138.00]]
CHNL# 38: [VOLT 253 [BLACKIE7 138.00]]
CHNL# 37: [VOLT 252 [CARSELA7 138.00]]
CHNL# 36: [VOLT 242 [HIGH RI7 138.00]]
CHNL# 34: [VOLT 159 [LANGDON4 240.00]]

THU, FEB 09 2023 13:27
BUS VOLTAGE

TIME (SECONDS)

SCENARIO #4: 2023 SL/POST PROJECT
CATB -936L_FAULT_AT_LANGDON 102S

FILE: 936L_Fault_at_Langdon 102S.out

CHNL# 10: [ANGL 775[SECCT2 21.000]3]
CHNL# 9: [ANGL 774[SECCT1 21.000]2]
CHNL# 8: [ANGL 773[SECST 20.000]1]

THU, FEB 09 2023 13:27
MACHINE ANGLE

TIME (SECONDS)

SCENARIO #4: 2023 SL/POST PROJECT
CATB -936L_FAULT_AT_LANGDON 102S

FILE: 936L_Fault_at_Langdon 102S.out

CHNL# 33: [VARS 80000[MONTANA1 230.00]1]
CHNL# 25: [VARS 61736[BSR 4 0.6900]1]
CHNL# 23: [VARS560041[BUFFALO6 0.6900]G1]
CHNL# 32: [VARS 775[SECCT2 21.000]3]
CHNL# 30: [VARS 773[SECST 20.000]1]
CHNL# 26: [VARS990005[GT GEN A3 0.6000]1]

THU, FEB 09 2023 13:27
MACHINE VAR

TIME (SECONDS)

SCENARIO #4: 2023 SL/POST PROJECT
CATB -936L_FAULT_AT_LANGDON 102S

FILE: 936L_Fault_at_Langdon 102S.out

CHNL# 72: [VARS 943 TO 1012 CKT '23']
CHNL# 70: [VARS 943 TO 547026 CKT '05']
CHNL# 68: [VARS 943 TO 737 CKT '36']
CHNL# 66: [VARS 159 TO 943 CKT '27']
CHNL# 64: [VARS 159 TO 990011 CKT '24']
CHNL# 62: [VARS 943 TO 990011 CKT '24']

600.00 -400.0

TIME (SECONDS) 0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

THU, FEB 09 2023 13:27 LINE VAR

SCENARIO #4: 2023 SL/POST PROJECT
CATB -937L_FAULT_AT_LANGDON 102S

FILE: 937L_Fault_at_Langdon 102S.out

CHNL# 22: [POWR 80000[MONTANA1 230.00]1]
CHNL# 14: [POWR 61736[BSR_4 0.6900]1]
CHNL# 12: [POWR560041[BUFFALO6 0.6900]G1]
CHNL# 21: [POWR 775[SECCT2 21.000]3]
CHNL# 19: [POWR 773[SECST 20.000]1]
CHNL# 15: [POWR990005[GT_GEN_A3 0.6000]1]

4.0000 -1.000
5.0000 -1.000

TIME (SECONDS) 0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

THU, FEB 09 2023 13:27 MACHINE POWER

SCENARIO #4: 2023 SL/POST PROJECT
CATB -936L_FAULT_AT_LANGDON 102S

FILE: 936L_Fault_at_Langdon 102S.out

CHNL# 71: [POWR 943 TO 1012 CKT '23']
CHNL# 69: [POWR 943 TO 547026 CKT '05']
CHNL# 67: [POWR 943 TO 737 CKT '36']
CHNL# 65: [POWR 159 TO 943 CKT '27']
CHNL# 63: [POWR 159 TO 990011 CKT '24']
CHNL# 61: [POWR 943 TO 990011 CKT '24']

600.00 -600.0
800.00 -600.0

TIME (SECONDS) 0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

THU, FEB 09 2023 13:27 LINE POWER

SCENARIO #4: 2023 SL/POST PROJECT
CATB -937L_FAULT_AT_LANGDON 102S

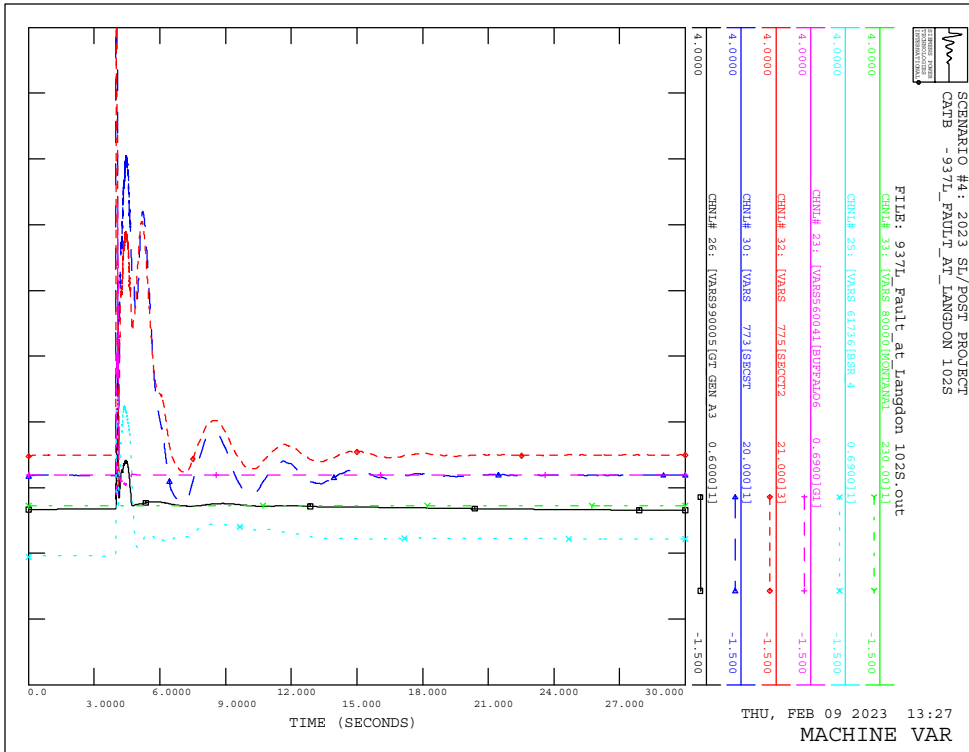
FILE: 937L_Fault_at_Langdon 102S.out

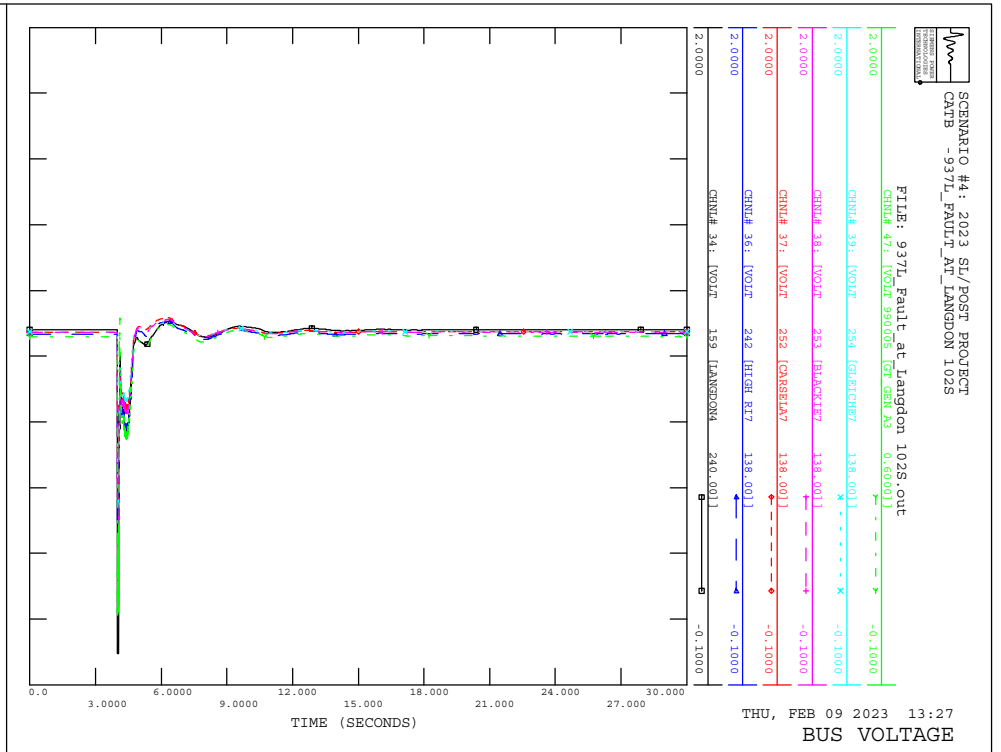
CHNL# 10: [ANGL 775[SECCT2 21.000]3]
CHNL# 9: [ANGL 774[SECCT1 21.000]2]
CHNL# 8: [ANGL 773[SECST 20.000]1]

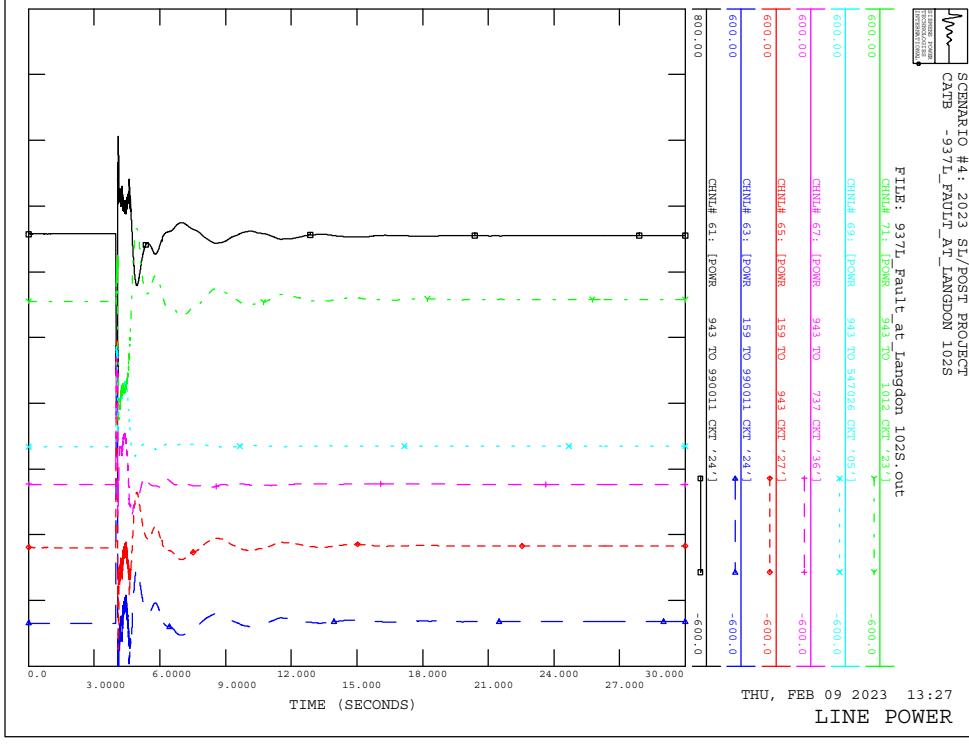
200.00 -200.0

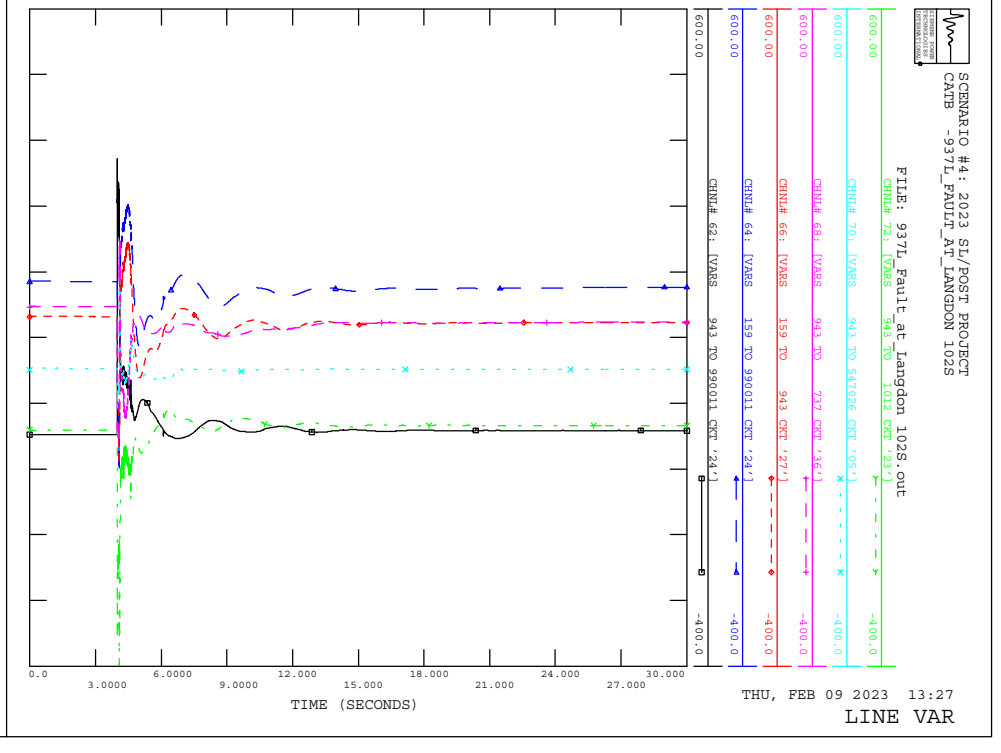
TIME (SECONDS) 0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

THU, FEB 09 2023 13:27 MACHINE ANGLE


SCENARIO #4: 2023 SL/POST PROJECT
CATB -937L_FAULT_AT_LANGDON 102S
FILE: 937L_Fault_at_Langdon 102S.out
TIME (SECONDS)
THU, FEB 09 2023 13:27
MACHINE VAR


SCENARIO #4: 2023 SL/POST PROJECT
CATB -937L_FAULT_AT_LANGDON 102S
FILE: 937L_Fault_at_Langdon 102S.out
TIME (SECONDS)
THU, FEB 09 2023 13:27
BUS VOLTAGE

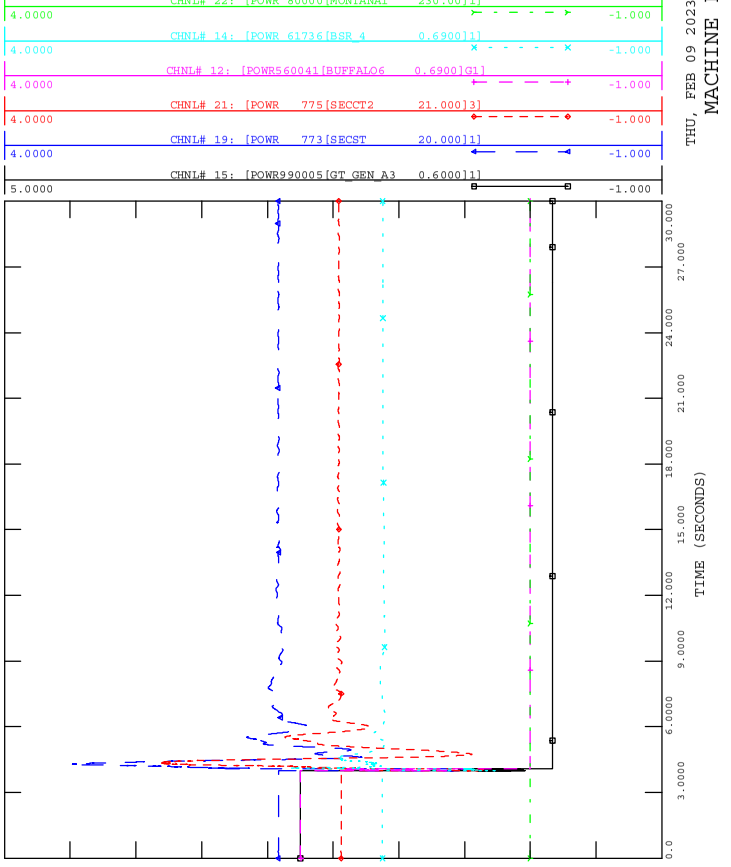

SCENARIO #4: 2023 SL/POST PROJECT
CATB -937L_FAULT_AT_LANGDON 102S
FILE: 937L_Fault_at_Langdon 102S.out
TIME (SECONDS)
THU, FEB 09 2023 13:27
LINE POWER


SCENARIO #4: 2023 SL/POST PROJECT
CATB -937L_FAULT_AT_LANGDON 102S
FILE: 937L_Fault_at_Langdon 102S.out
TIME (SECONDS)
THU, FEB 09 2023 13:27
LINE VAR

Plots for P2396 SL_Post_Post_RAS (Scenario 4)

SCENARIO #4: 2023 SL/POST PROJECT
CATB -924L_FAULT_AT_LANGDON 102S_V1

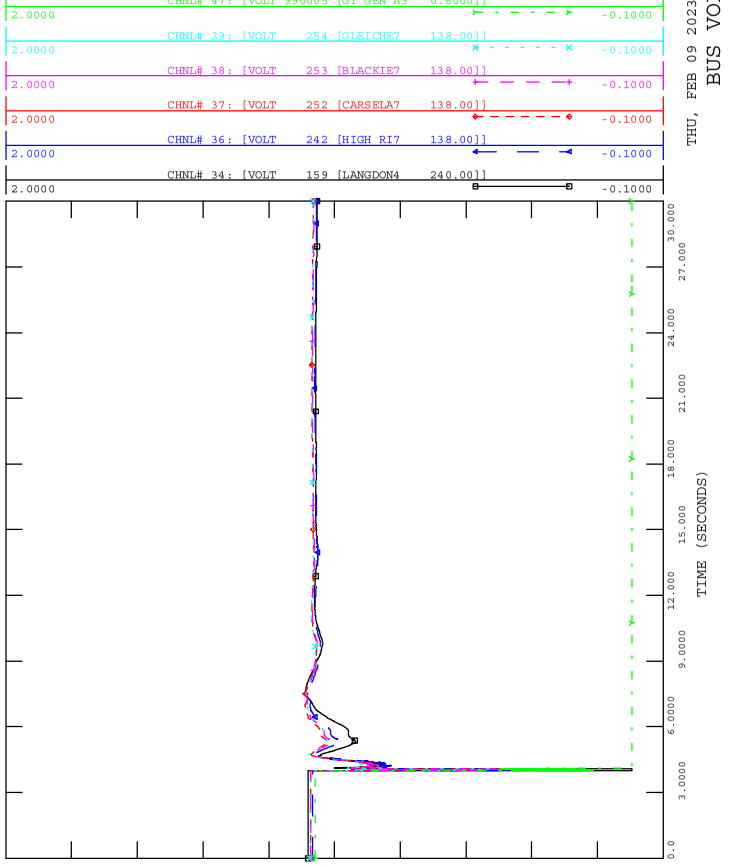
FILE: 924L_Fault_at_Langdon 102S_V1.out



THU, FEB 09 2023 11:13
MACHINE POWER

SCENARIO #4: 2023 SL/POST PROJECT
CATB -924L_FAULT_AT_LANGDON 102S_V1

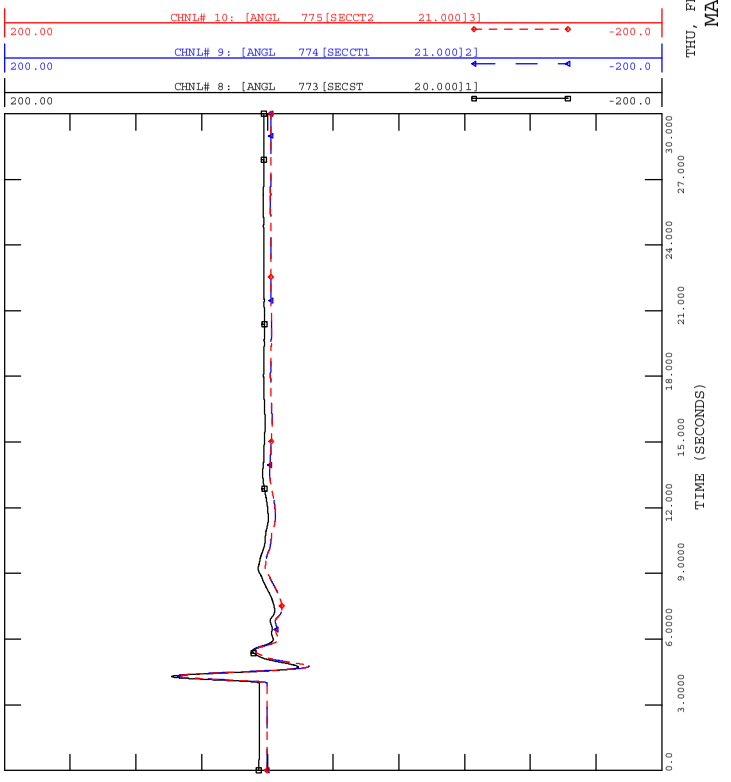
FILE: 924L_Fault_at_Langdon 102S_V1.out



THU, FEB 09 2023 11:13
BUS VOLTAGE

SCENARIO #4: 2023 SL/POST PROJECT
CATB -924L_FAULT_AT_LANGDON 102S_V1

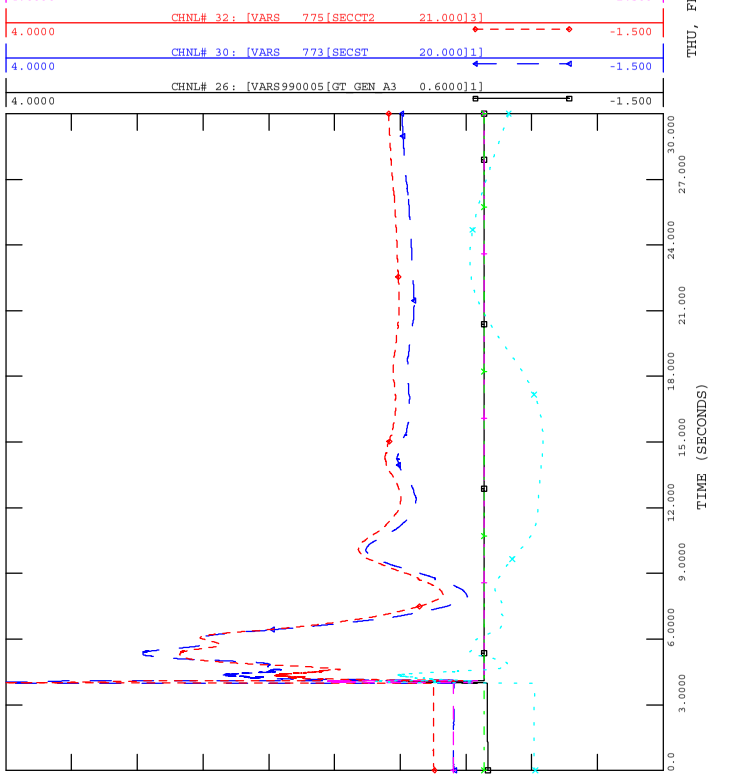
FILE: 924L_Fault_at_Langdon 102S_V1.out



THU, FEB 09 2023 11:13
MACHINE ANGLE

SCENARIO #4: 2023 SL/POST PROJECT
CATB -924L_FAULT_AT_LANGDON 102S_V1

FILE: 924L_Fault_at_Langdon 102S_V1.out



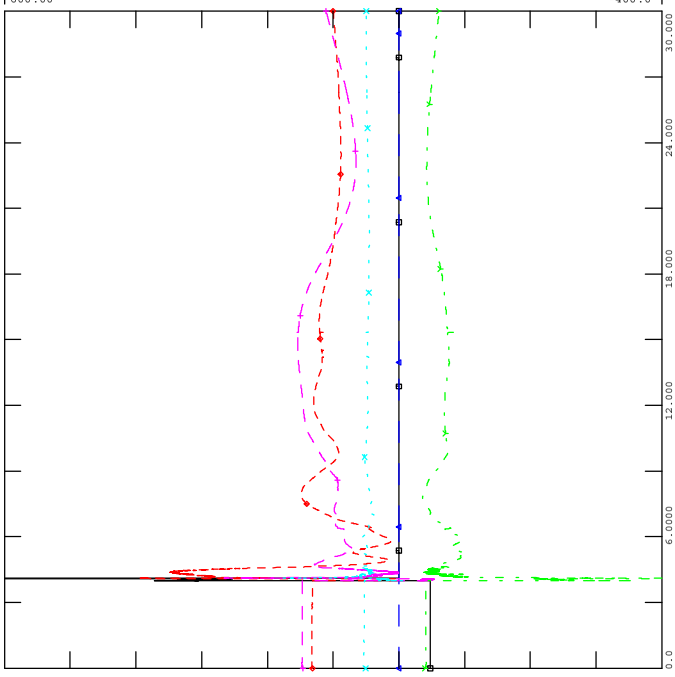
THU, FEB 09 2023 11:13
MACHINE VAR

SCENARIO #4: 2023 SL/POST PROJECT
CATB -924L_FAULT_AT_LANGDON 102S_V1

FILE: 924L_Fault_at_Langdon 102S_V1.out

THU, FEB 09 2023 11:13 LINE VAR

CHNL# 72: [VARS 943 TO 1012 CKT '23']
CHNL# 70: [VARS 943 TO 547026 CKT '05']
CHNL# 68: [VARS 943 TO 737 CKT '36']
CHNL# 66: [VARS 159 TO 943 CKT '27']
CHNL# 64: [VARS 159 TO 990011 CKT '24']
CHNL# 62: [VARS 943 TO 990011 CKT '24']

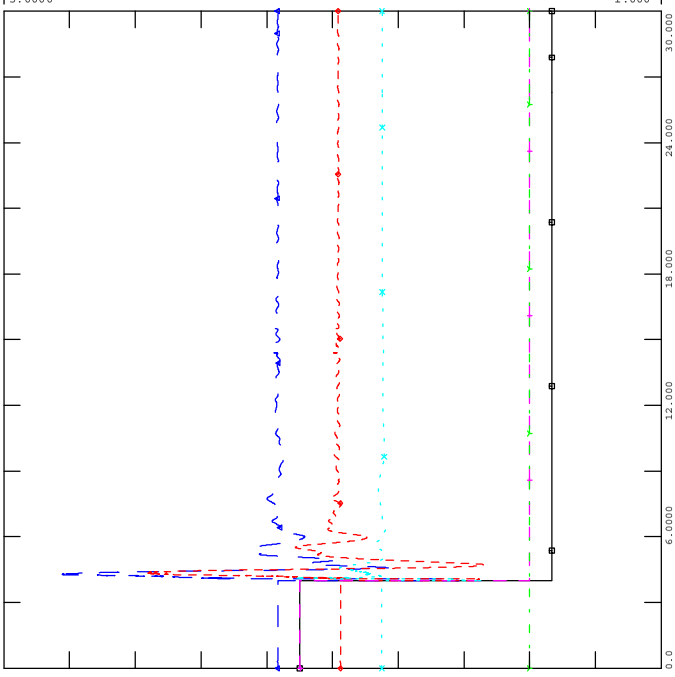


SCENARIO #4: 2023 SL/POST PROJECT
CATB -927L_FAULT_AT_LANGDON 102S_V1

FILE: 927L_Fault_at_Langdon 102S_V1.out

THU, FEB 09 2023 11:13 MACHINE POWER

CHNL# 22: [POWR 80000[MONTANA1 230.00]1]
CHNL# 14: [POWR 61736[BSR_4 0.6900]1]
CHNL# 12: [POWR560041[BUFFALO6 0.6900]G1]
CHNL# 21: [POWR 775[SECCT2 21.000]3]
CHNL# 19: [POWR 773[SECST 20.000]1]
CHNL# 15: [POWR990005[GT_GEN_A3 0.6000]1]

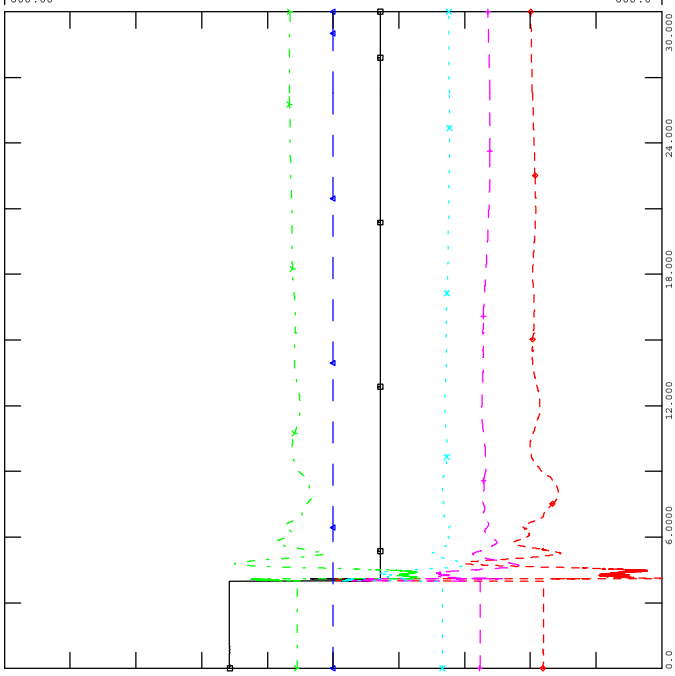


SCENARIO #4: 2023 SL/POST PROJECT
CATB -924L_FAULT_AT_LANGDON 102S_V1

FILE: 924L_Fault_at_Langdon 102S_V1.out

THU, FEB 09 2023 11:13 LINE POWER

CHNL# 71: [POWR 943 TO 1012 CKT '23']
CHNL# 69: [POWR 943 TO 547026 CKT '05']
CHNL# 67: [POWR 943 TO 737 CKT '36']
CHNL# 65: [POWR 159 TO 943 CKT '27']
CHNL# 63: [POWR 159 TO 990011 CKT '24']
CHNL# 61: [POWR 943 TO 990011 CKT '24']

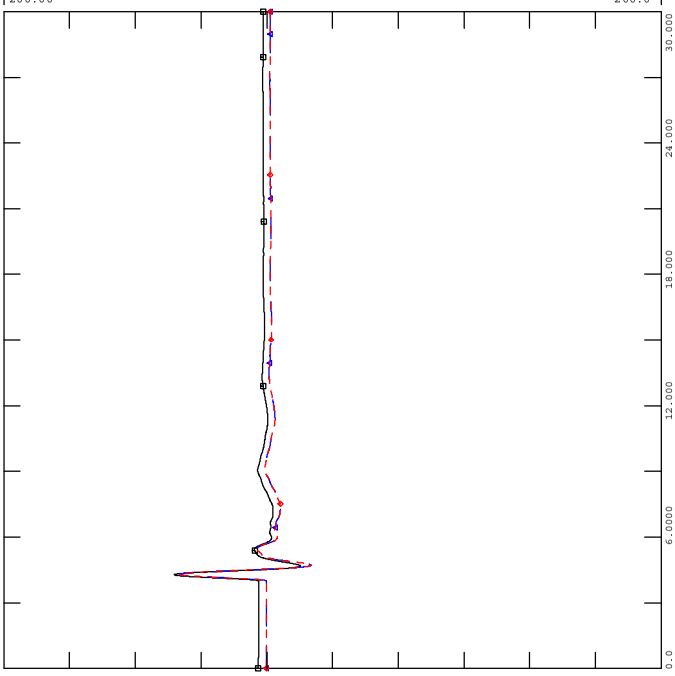


SCENARIO #4: 2023 SL/POST PROJECT
CATB -927L_FAULT_AT_LANGDON 102S_V1

FILE: 927L_Fault_at_Langdon 102S_V1.out

THU, FEB 09 2023 11:13 MACHINE ANGLE

CHNL# 10: [ANGL 775[SECCT2 21.000]3]
CHNL# 9: [ANGL 774[SECCT1 21.000]2]
CHNL# 8: [ANGL 773[SECST 20.000]1]



SCENARIO #4: 2023 SL/POST PROJECT
CATB -927L_FAULT_AT_LANGDON 102S_V1

FILE: 927L_Fault_at_Langdon 102S_V1.out

CHNL# 47: [VOLT 990005 [GT GEN A3 0.6000]]
CHNL# 39: [VOLT 254 [GLEICHE7 138.00]]
CHNL# 38: [VOLT 253 [BLACKIE7 138.00]]
CHNL# 37: [VOLT 252 [CARSELA7 138.00]]
CHNL# 36: [VOLT 242 [HIGH RI7 138.00]]
CHNL# 34: [VOLT 159 [LANGDON4 240.00]]

2.0000 / -0.1000

THU, FEB 09 2023 11:13
BUS VOLTAGE

TIME (SECONDS)
0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

SCENARIO #4: 2023 SL/POST PROJECT
CATB -927L_FAULT_AT_LANGDON 102S_V1

FILE: 927L_Fault_at_Langdon 102S_V1.out

CHNL# 72: [VARS 943 TO 1012 CKT '23']
CHNL# 70: [VARS 943 TO 547026 CKT '05']
CHNL# 68: [VARS 943 TO 737 CKT '36']
CHNL# 66: [VARS 159 TO 943 CKT '27']
CHNL# 64: [VARS 159 TO 990011 CKT '24']
CHNL# 62: [VARS 943 TO 990011 CKT '24']

600.00 / -400.0

THU, FEB 09 2023 11:13
LINE VAR

TIME (SECONDS)
0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

SCENARIO #4: 2023 SL/POST PROJECT
CATB -927L_FAULT_AT_LANGDON 102S_V1

FILE: 927L_Fault_at_Langdon 102S_V1.out

CHNL# 33: [VARS 80000[MONTANA1 230.00]1]
CHNL# 25: [VARS 61736[BSR 4 0.6900]1]
CHNL# 23: [VARS560041[BUFFALO6 0.6900]G1]
CHNL# 32: [VARS 775[SECCT2 21.000]3]
CHNL# 30: [VARS 773[SECST 20.000]1]
CHNL# 26: [VARS990005[GT GEN A3 0.6000]1]

4.0000 / -1.500

THU, FEB 09 2023 11:13
MACHINE VAR

TIME (SECONDS)
0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

SCENARIO #4: 2023 SL/POST PROJECT
CATB -927L_FAULT_AT_LANGDON 102S_V1

FILE: 927L_Fault_at_Langdon 102S_V1.out

CHNL# 71: [POWR 943 TO 1012 CKT '23']
CHNL# 69: [POWR 943 TO 547026 CKT '05']
CHNL# 67: [POWR 943 TO 737 CKT '36']
CHNL# 65: [POWR 159 TO 943 CKT '27']
CHNL# 63: [POWR 159 TO 990011 CKT '24']
CHNL# 61: [POWR 943 TO 990011 CKT '24']

600.00 / 800.00 / -600.0

THU, FEB 09 2023 11:13
LINE POWER

TIME (SECONDS)
0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

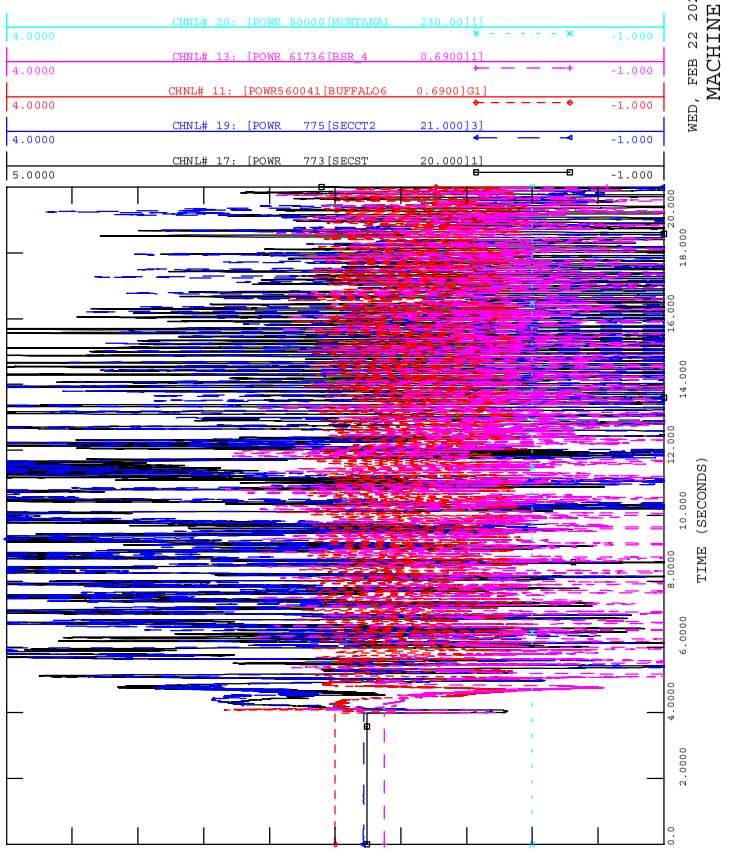
Plots for P2396 SL_Sensitivity_Pre (Scenario 7)

SCENARIO #7: 2023 SL SEN/PRE PROJECT
CATB -924L_FAULT_AT_LANGDON 102S

FILE: 924L_Fault_at_Langdon 102S.out

WED, FEB 22 2023 14:51

MACHINE POWER

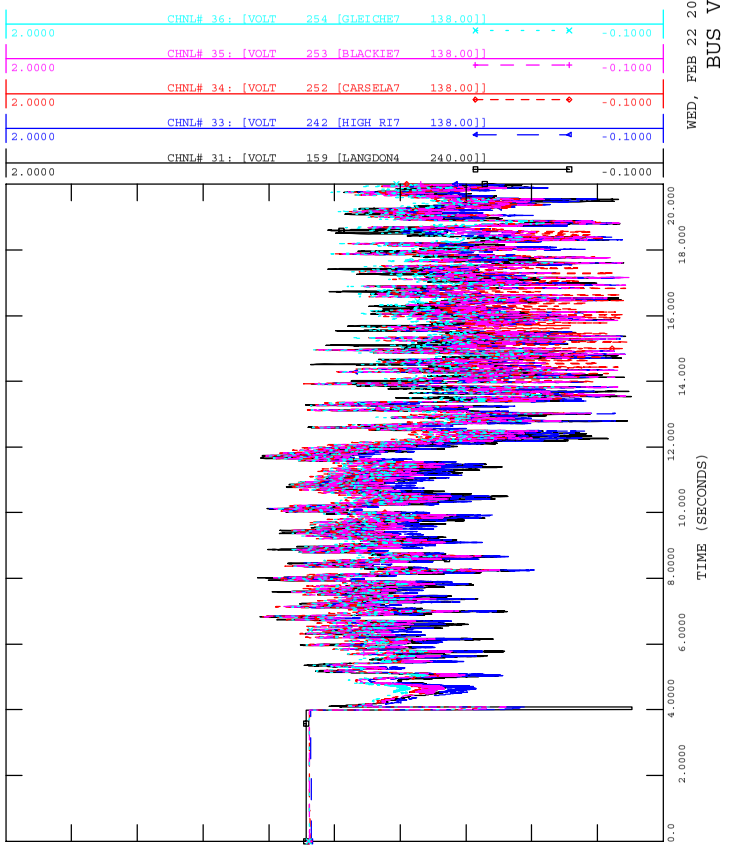


SCENARIO #7: 2023 SL SEN/PRE PROJECT
CATB -924L_FAULT_AT_LANGDON 102S

FILE: 924L_Fault_at_Langdon 102S.out

WED, FEB 22 2023 14:51

BUS VOLTAGE

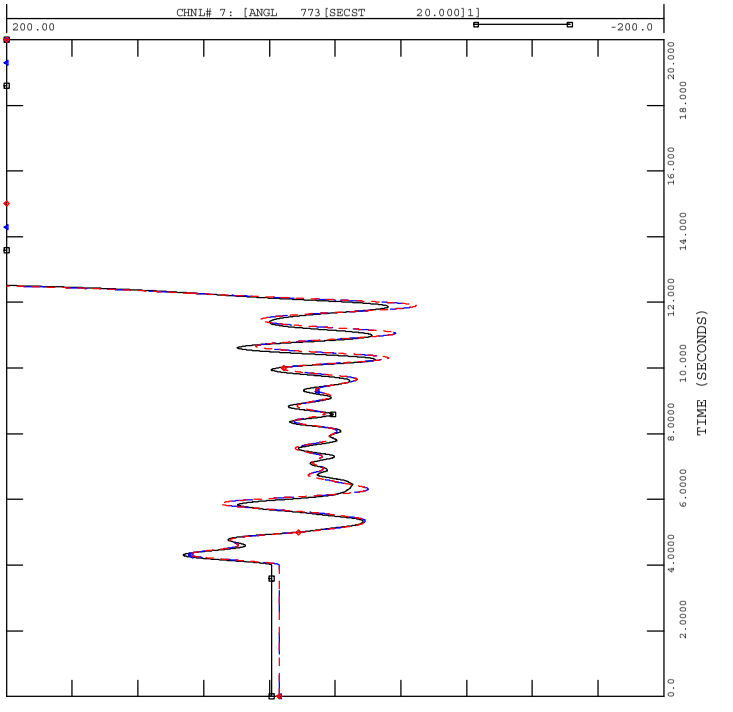


SCENARIO #7: 2023 SL SEN/PRE PROJECT
CATB -924L_FAULT_AT_LANGDON 102S

FILE: 924L_Fault_at_Langdon 102S.out

WED, FEB 22 2023 14:51

MACHINE ANGLE

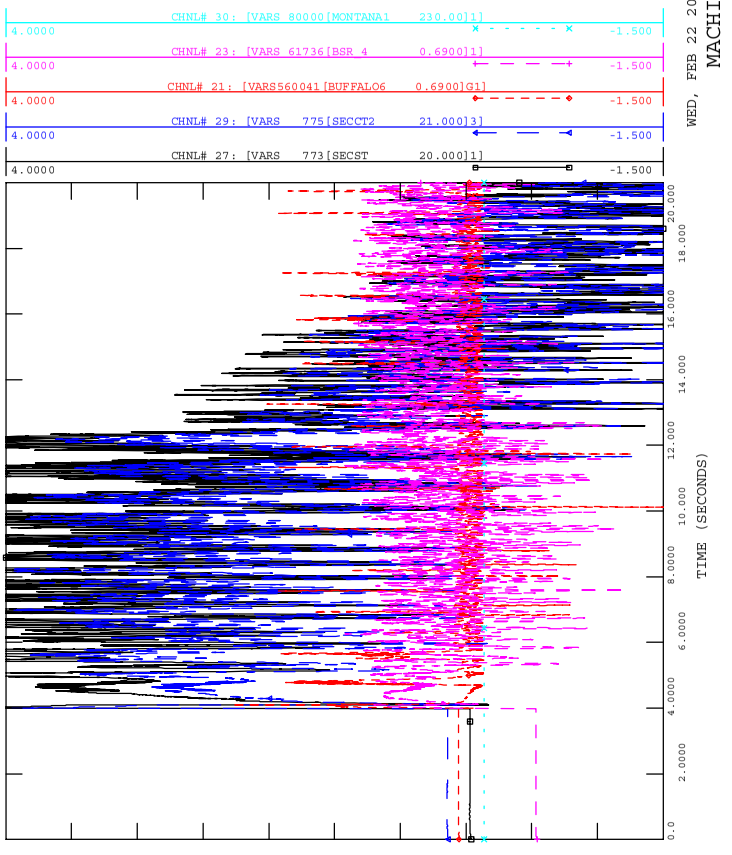


SCENARIO #7: 2023 SL SEN/PRE PROJECT
CATB -924L_FAULT_AT_LANGDON 102S

FILE: 924L_Fault_at_Langdon 102S.out

WED, FEB 22 2023 14:51

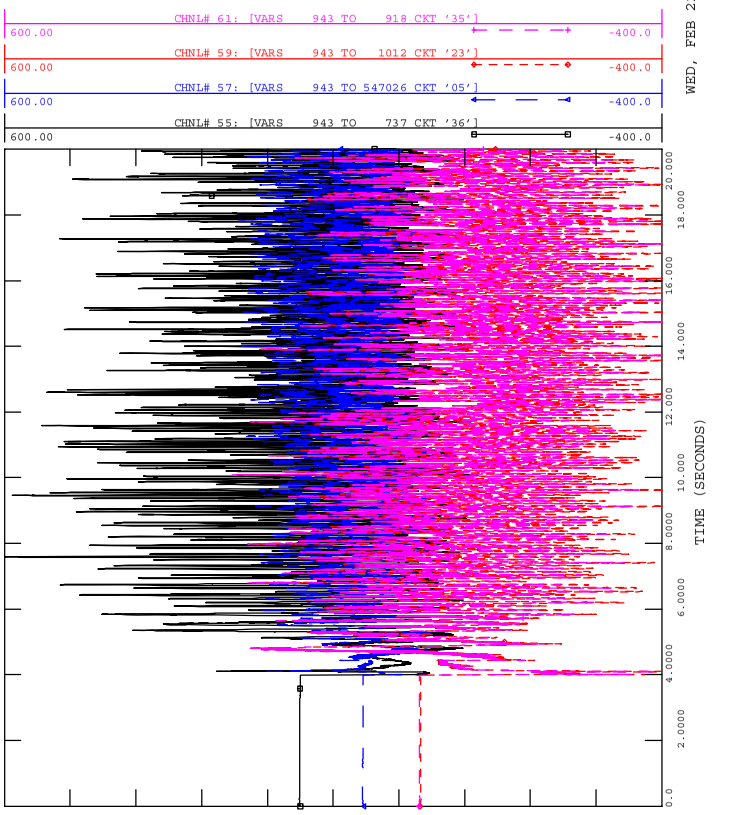
MACHINE VAR



SCENARIO #7: 2023 SL SEN/PRE PROJECT
CATB -924L_FAULT_AT_LANGDON 102S

FILE: 924L_Fault_at_Langdon 102S.out

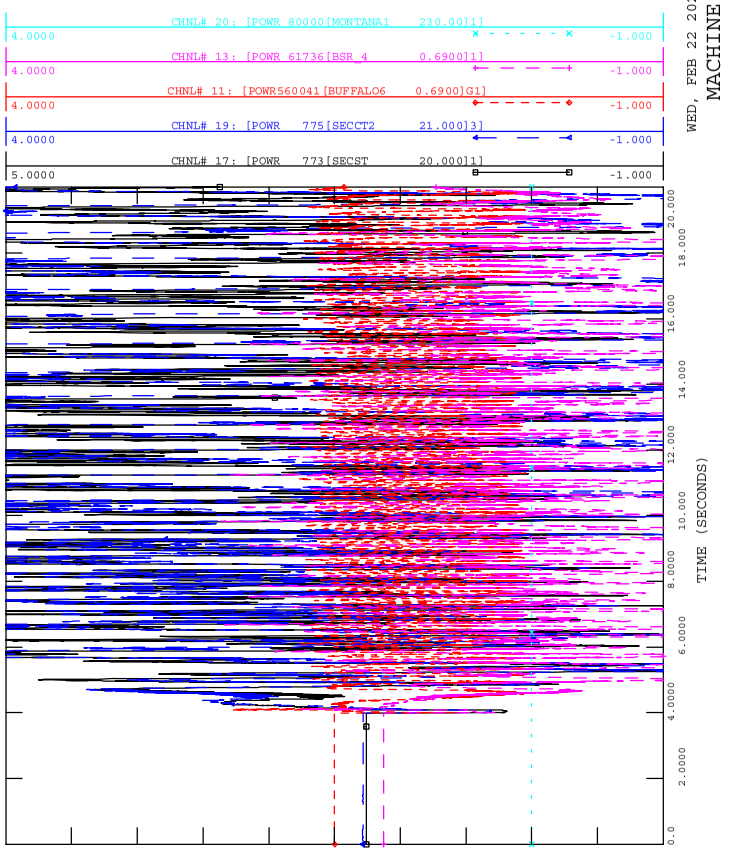
WED, FEB 22 2023 14:51 LINE VAR



SCENARIO #7: 2023 SL SEN/PRE PROJECT
CATB -927L_FAULT_AT_LANGDON 102S_V1

FILE: 927L_Fault_at_Langdon 102S_V1.out

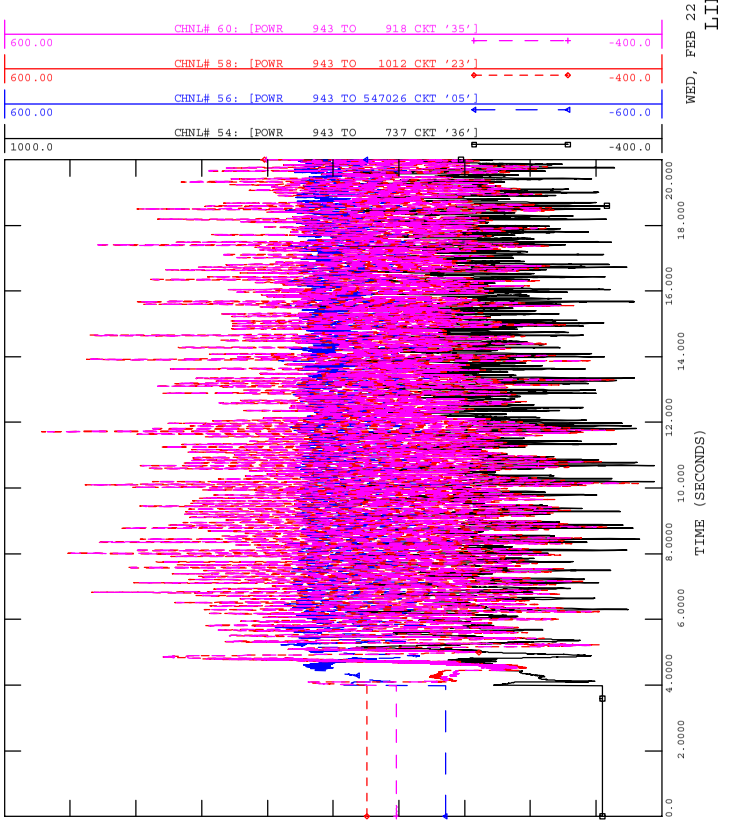
WED, FEB 22 2023 14:51 MACHINE POWER



SCENARIO #7: 2023 SL SEN/PRE PROJECT
CATB -924L_FAULT_AT_LANGDON 102S

FILE: 924L_Fault_at_Langdon 102S.out

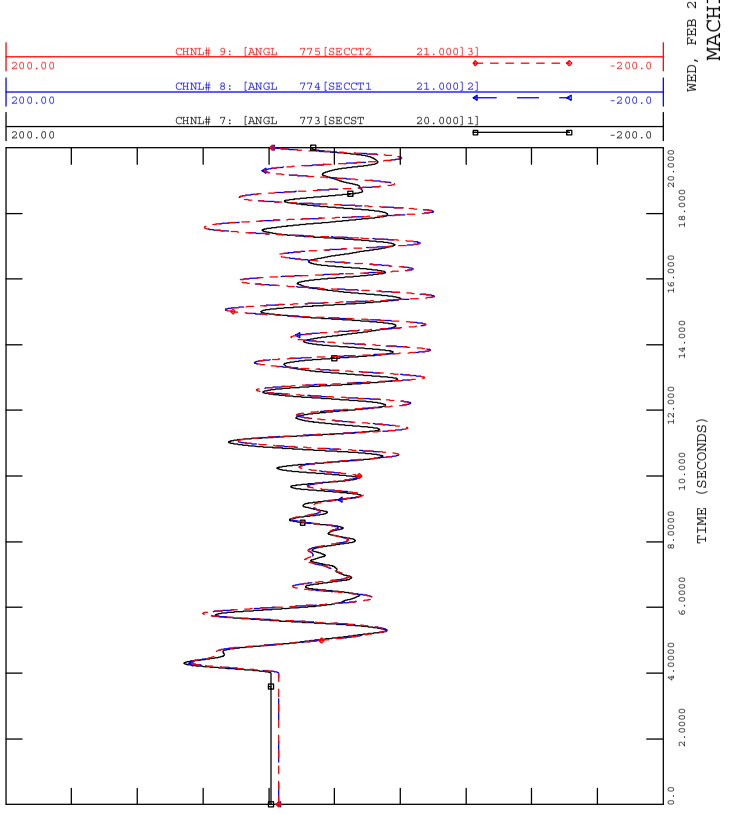
WED, FEB 22 2023 14:51 LINE POWER



SCENARIO #7: 2023 SL SEN/PRE PROJECT
CATB -927L_FAULT_AT_LANGDON 102S_V1

FILE: 927L_Fault_at_Langdon 102S_V1.out

WED, FEB 22 2023 14:51 MACHINE ANGLE

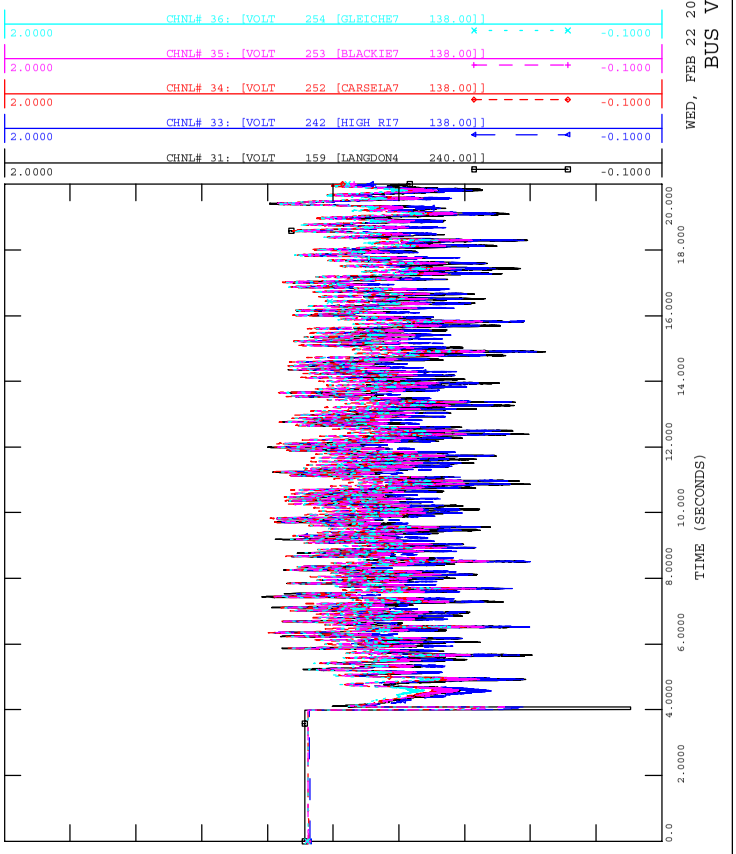


SCENARIO #7: 2023 SL SEN/PRE PROJECT
CATB -927L_FAULT_AT_LANGDON 102S_V1

FILE: 927L_Fault_at_Langdon 102S_V1.out

WED, FEB 22 2023 14:52

BUS VOLTAGE

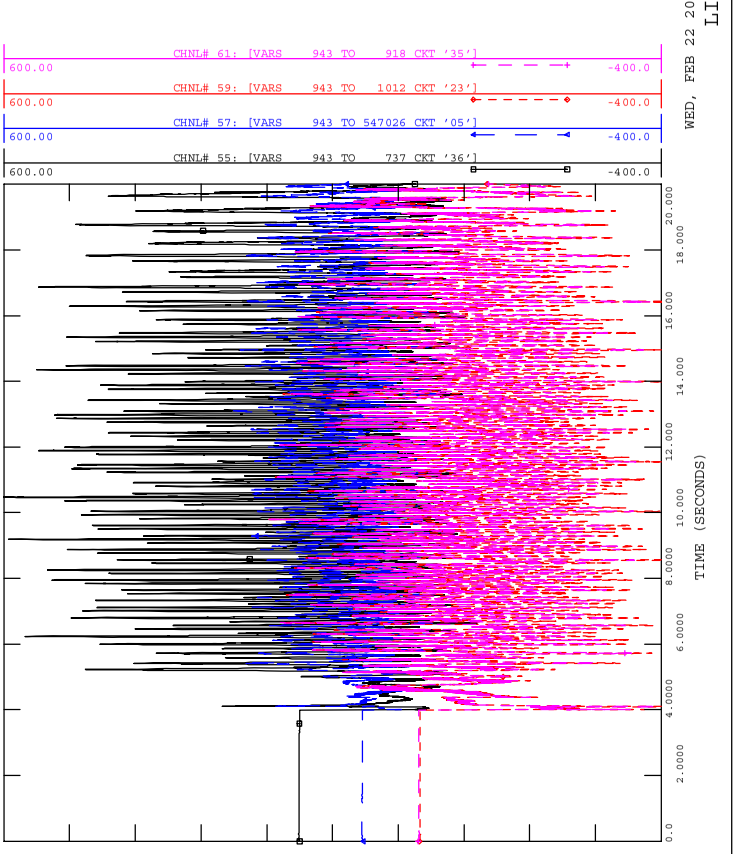


SCENARIO #7: 2023 SL SEN/PRE PROJECT
CATB -927L_FAULT_AT_LANGDON 102S_V1

FILE: 927L_Fault_at_Langdon 102S_V1.out

WED, FEB 22 2023 14:52

LINE VAR

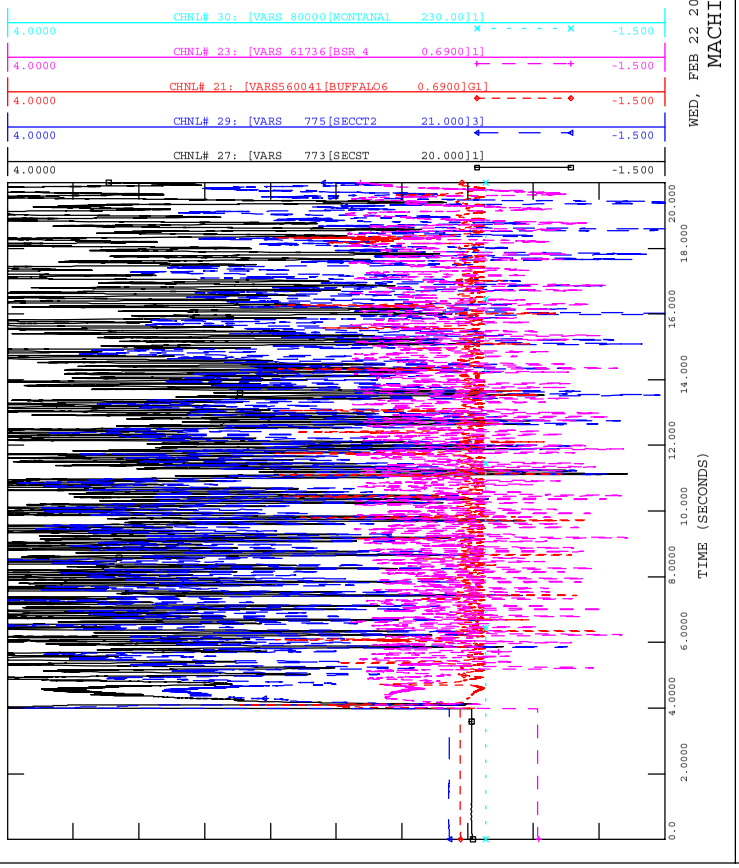


SCENARIO #7: 2023 SL SEN/PRE PROJECT
CATB -927L_FAULT_AT_LANGDON 102S_V1

FILE: 927L_Fault_at_Langdon 102S_V1.out

WED, FEB 22 2023 14:51

MACHINE VAR

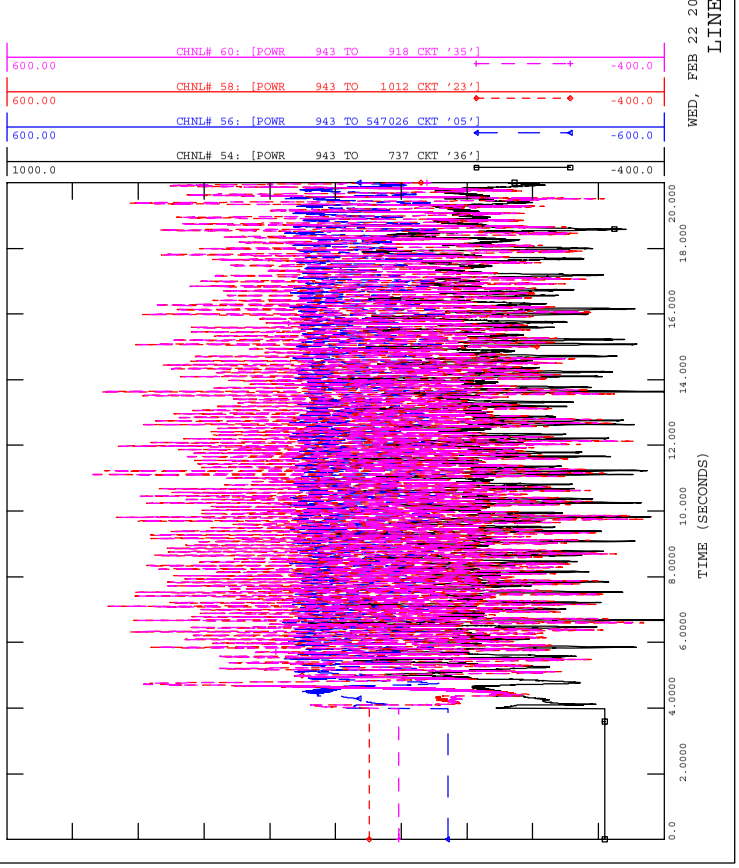


SCENARIO #7: 2023 SL SEN/PRE PROJECT
CATB -927L_FAULT_AT_LANGDON 102S_V1

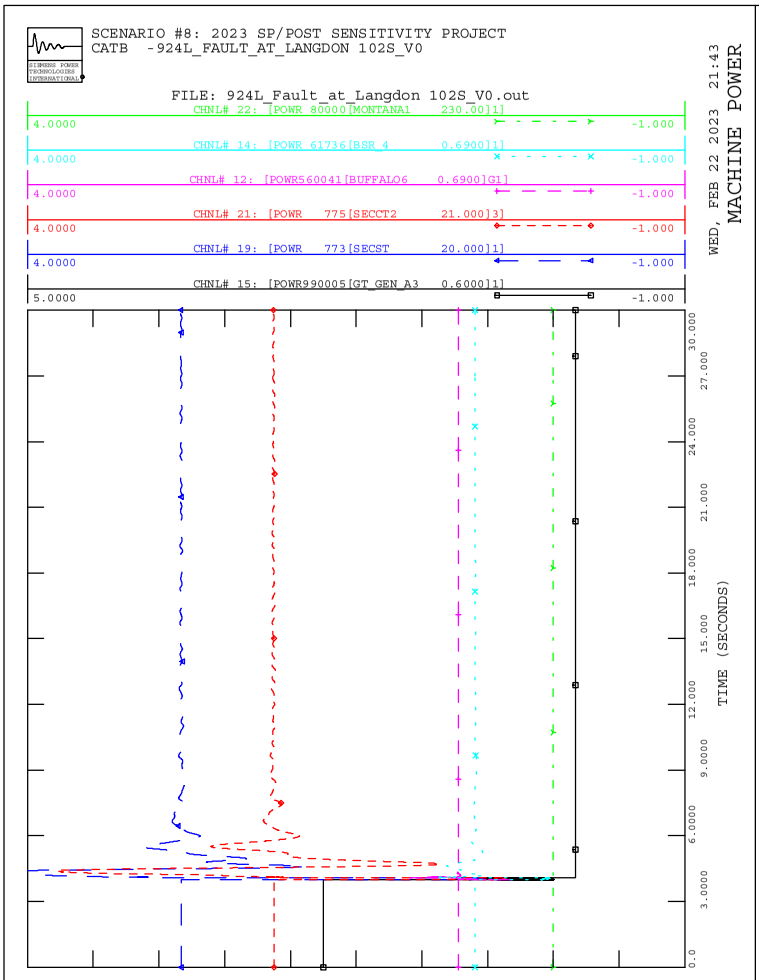
FILE: 927L_Fault_at_Langdon 102S_V1.out

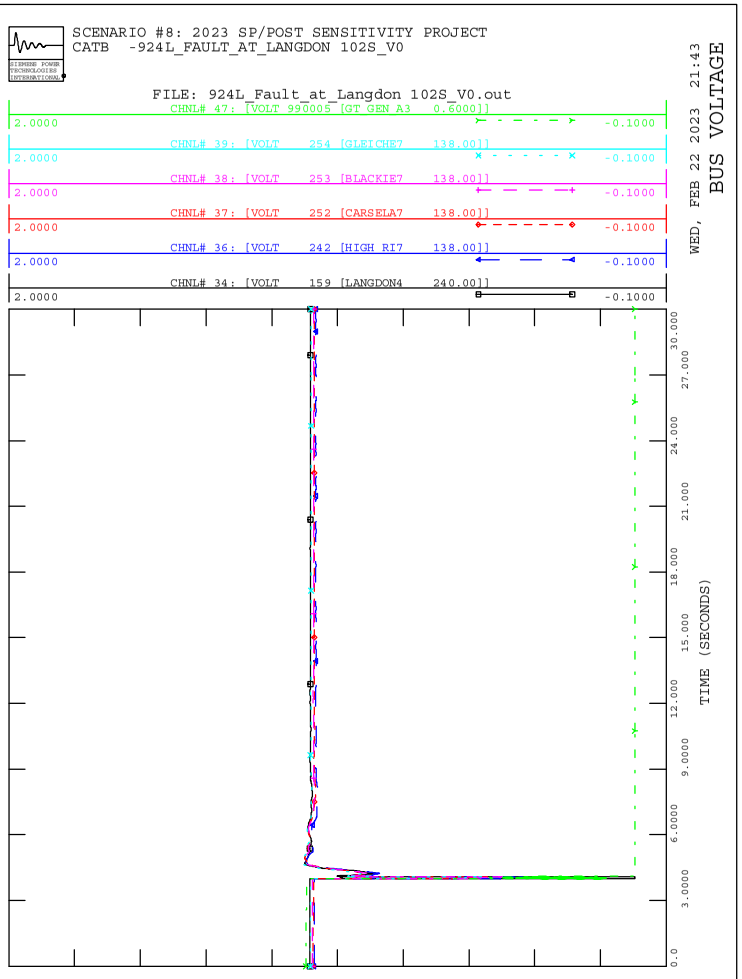
WED, FEB 22 2023 14:52

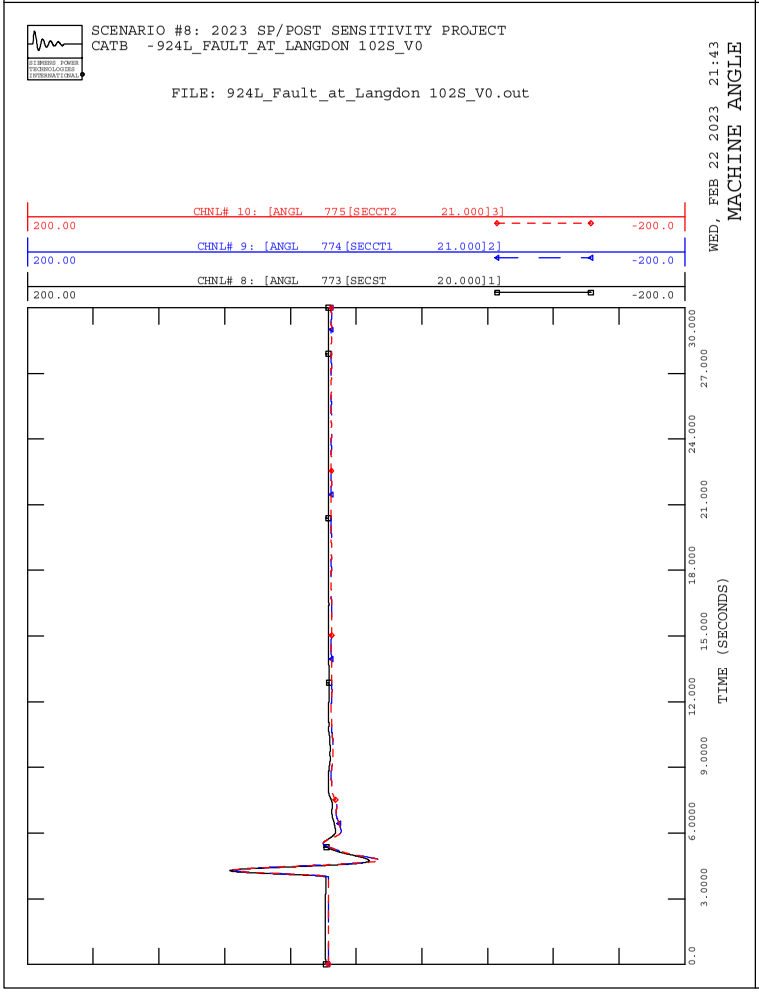
LINE POWER

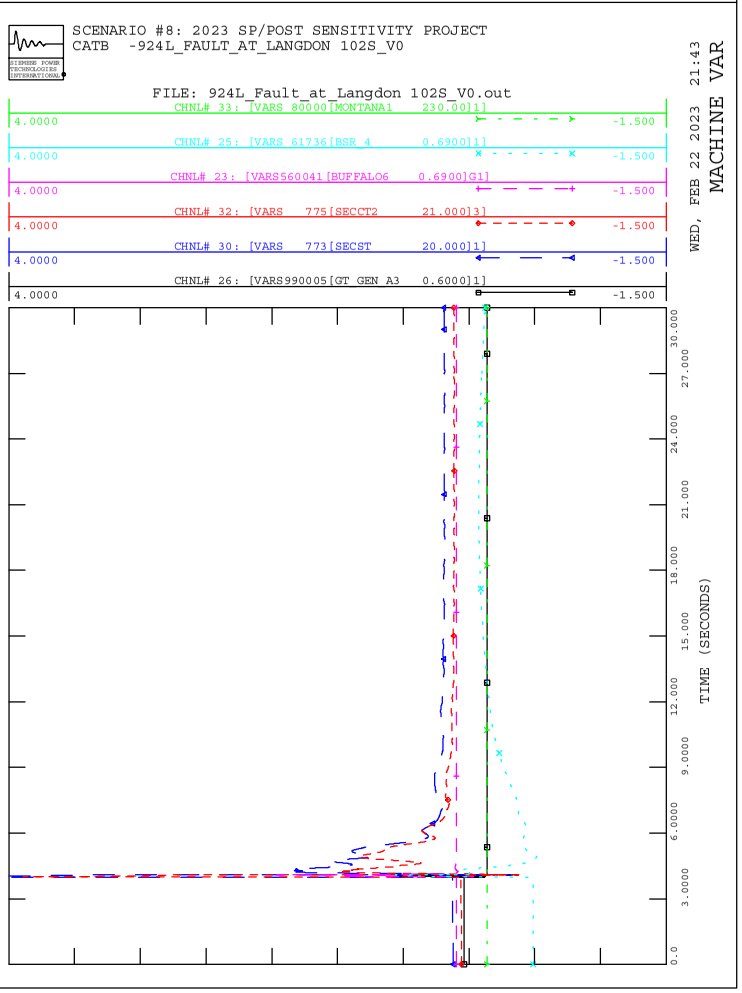


Plots for P2396 SP_Sensitivity_Pre-RAS (Scenario 8)


SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -924L_FAULT_AT_LANGDON 102S_V0
FILE: 924L_Fault_at_Langdon 102S_V0.out
CHNL# 22: [POWR 80000[MONTANA1 230.00]1]
CHNL# 14: [POWR 61736[BSR 4 0.6900]1]
CHNL# 12: [POWR560041[BUFFALO6 0.6900]G1]
CHNL# 21: [POWR 775[SECCT2 21.000]3]
CHNL# 19: [POWR 773[SECST 20.000]1]
CHNL# 15: [POWR990005[GT_GEN_A3 0.6000]1]
WED, FEB 22 2023 21:43
MACHINE POWER
TIME (SECONDS)

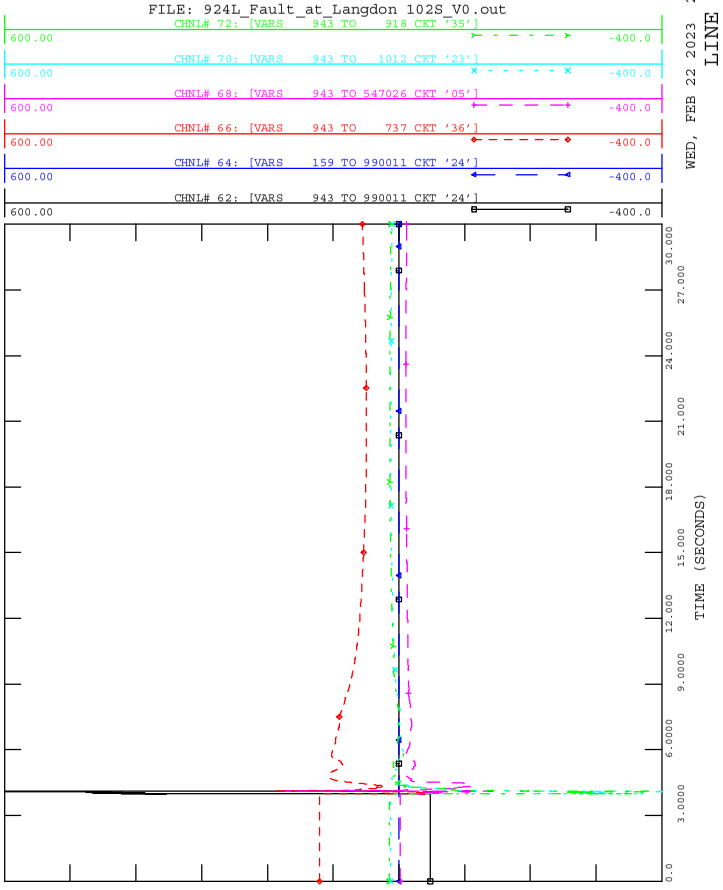

SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -924L_FAULT_AT_LANGDON 102S_V0
FILE: 924L_Fault_at_Langdon 102S_V0.out
CHNL# 47: [VOLT 990005[GT_GEN_A3 0.6000]]
CHNL# 39: [VOLT 254 [GLEICHE7 138.00]]
CHNL# 38: [VOLT 253 [BLACKIE7 138.00]]
CHNL# 37: [VOLT 252 [CARSELA7 138.00]]
CHNL# 36: [VOLT 242 [HIGH_RI7 138.00]]
CHNL# 34: [VOLT 159 [LANGDON4 240.00]]
WED, FEB 22 2023 21:43
BUS VOLTAGE
TIME (SECONDS)


SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -924L_FAULT_AT_LANGDON 102S_V0
FILE: 924L_Fault_at_Langdon 102S_V0.out
CHNL# 10: [ANGL 775[SECCT2 21.000]3]
CHNL# 9: [ANGL 774[SECCT1 21.000]2]
CHNL# 8: [ANGL 773[SECST 20.000]1]
WED, FEB 22 2023 21:43
MACHINE ANGLE
TIME (SECONDS)


SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -924L_FAULT_AT_LANGDON 102S_V0
FILE: 924L_Fault_at_Langdon 102S_V0.out
CHNL# 33: [VARS 80000[MONTANA1 230.00]1]
CHNL# 25: [VARS 61736[BSR 4 0.6900]1]
CHNL# 23: [VARS560041[BUFFALO6 0.6900]G1]
CHNL# 32: [VARS 775[SECCT2 21.000]3]
CHNL# 30: [VARS 773[SECST 20.000]1]
CHNL# 26: [VARS990005[GT_GEN_A3 0.6000]1]
WED, FEB 22 2023 21:43
MACHINE VAR
TIME (SECONDS)

SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -924L_FAULT_AT_LANGDON 102S_V0

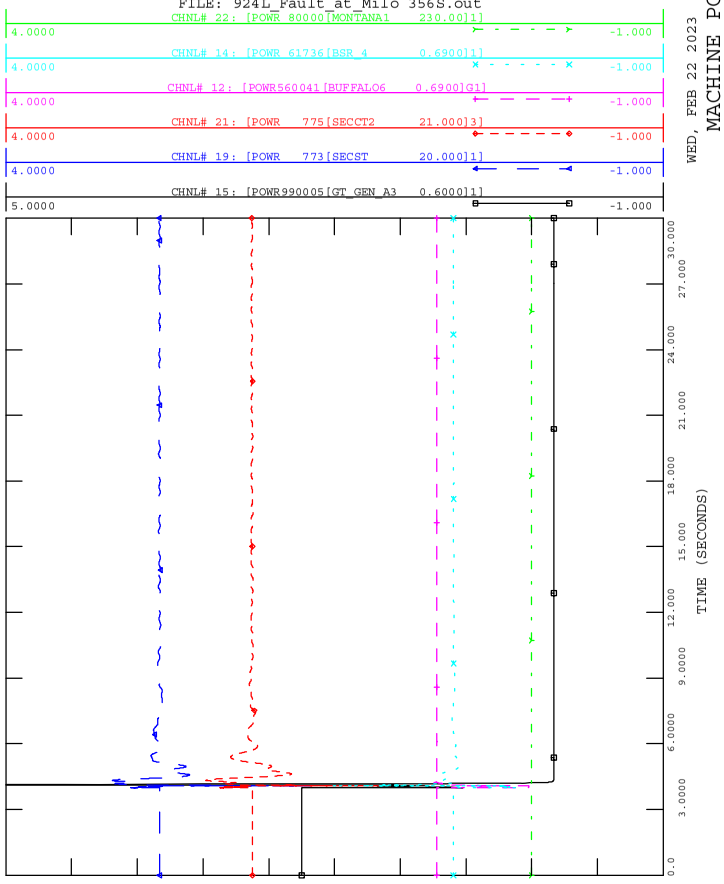
FILE: 924L_Fault_at_Langdon 102S_V0.out



WED, FEB 22 2023 21:43
LINE VAR

SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -924L_FAULT_AT_MILO 356S

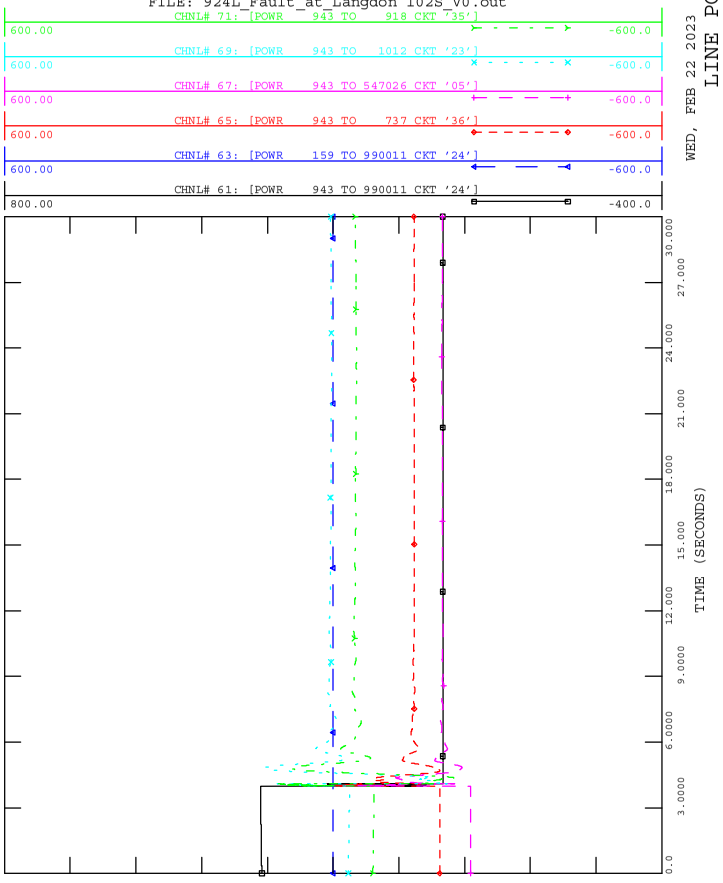
FILE: 924L_Fault_at_Milo 356S.out



WED, FEB 22 2023 21:43
MACHINE POWER

SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -924L_FAULT_AT_LANGDON 102S_V0

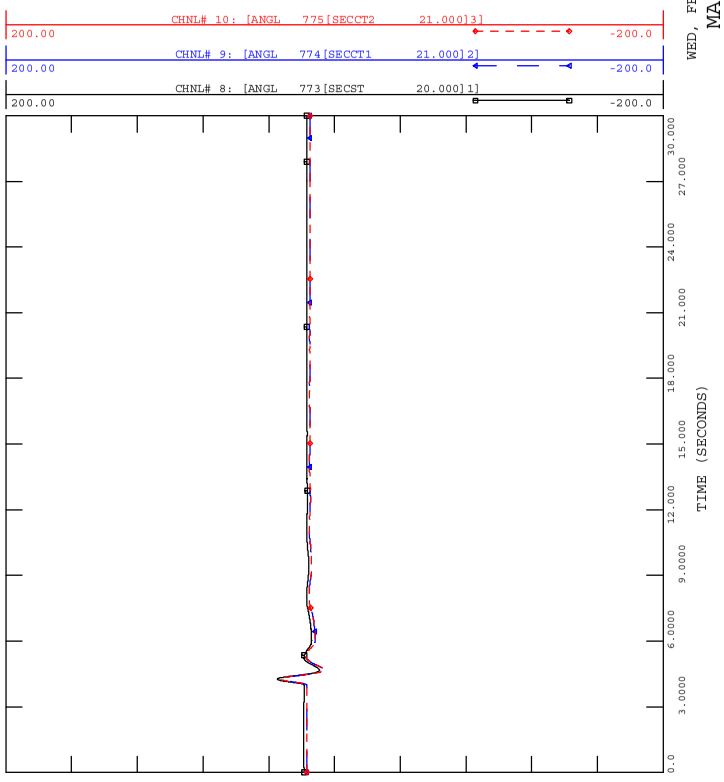
FILE: 924L_Fault_at_Langdon 102S_V0.out



WED, FEB 22 2023 21:43
LINE POWER

SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -924L_FAULT_AT_MILO 356S

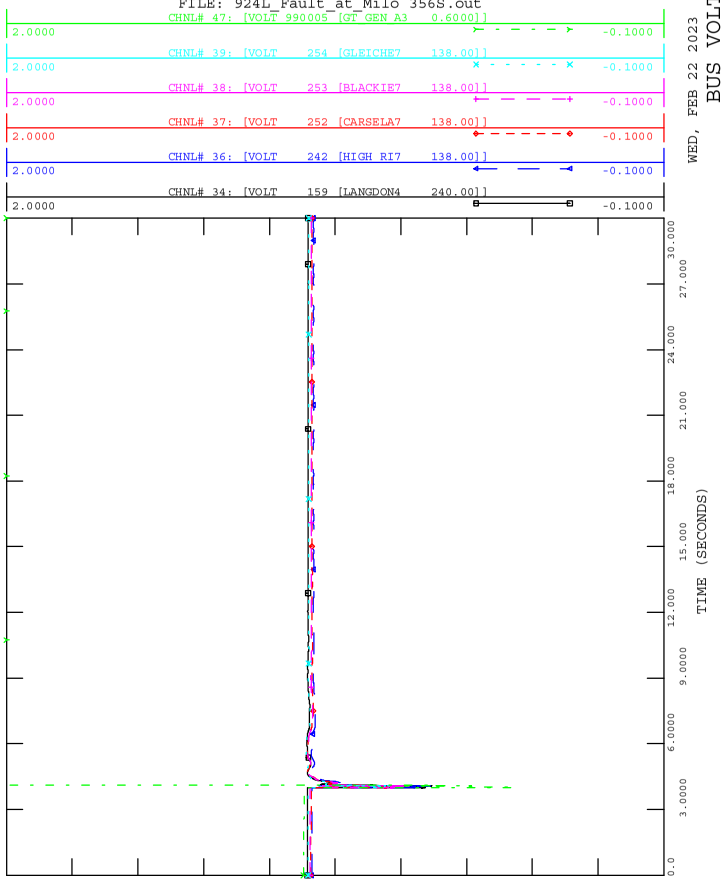
FILE: 924L_Fault_at_Milo 356S.out



WED, FEB 22 2023 21:43
MACHINE ANGLE

SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -924L_FAULT_AT_MILO 356S

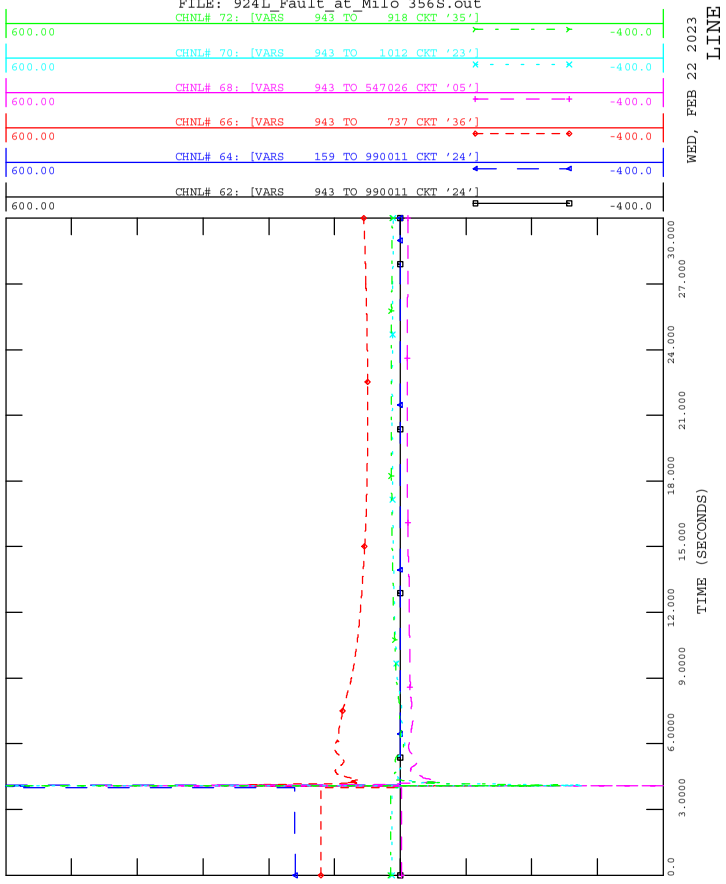
FILE: 924L_Fault_at_Milo 356S.out



WED, FEB 22 2023 21:43
BUS VOLTAGE

SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -924L_FAULT_AT_MILO 356S

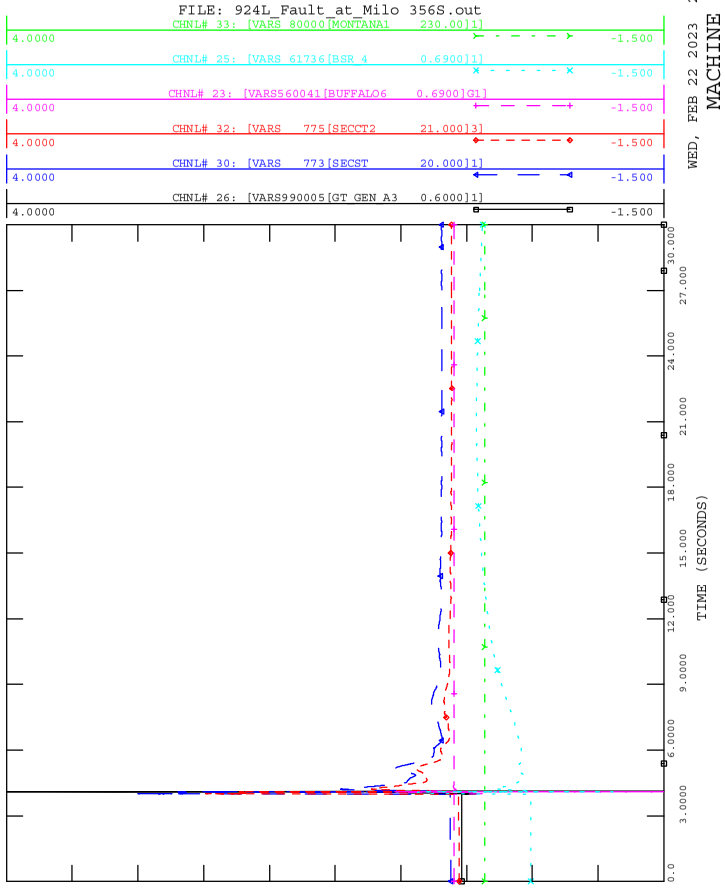
FILE: 924L_Fault_at_Milo 356S.out



WED, FEB 22 2023 21:43
LINE VAR

SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -924L_FAULT_AT_MILO 356S

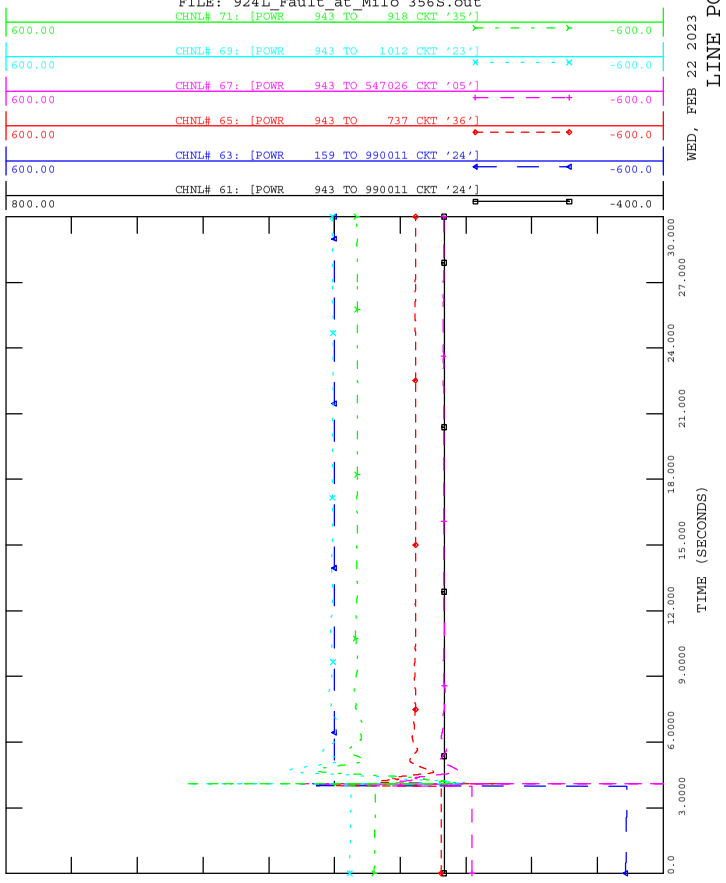
FILE: 924L_Fault_at_Milo 356S.out



WED, FEB 22 2023 21:43
MACHINE VAR

SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -924L_FAULT_AT_MILO 356S

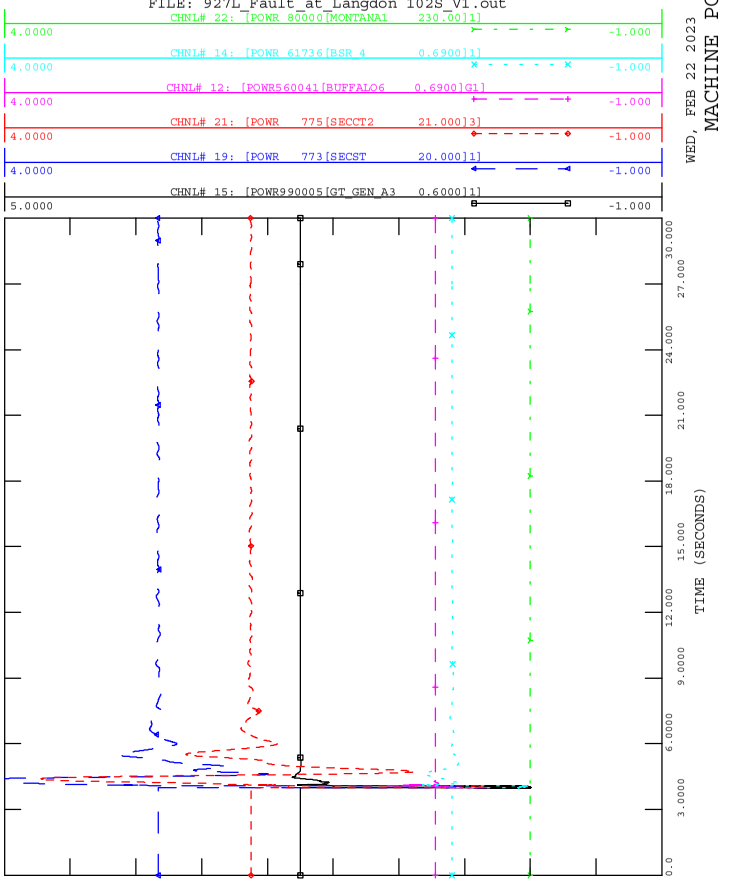
FILE: 924L_Fault_at_Milo 356S.out



WED, FEB 22 2023 21:43
LINE POWER

SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -927L_FAULT_AT_LANGDON 102S_V1

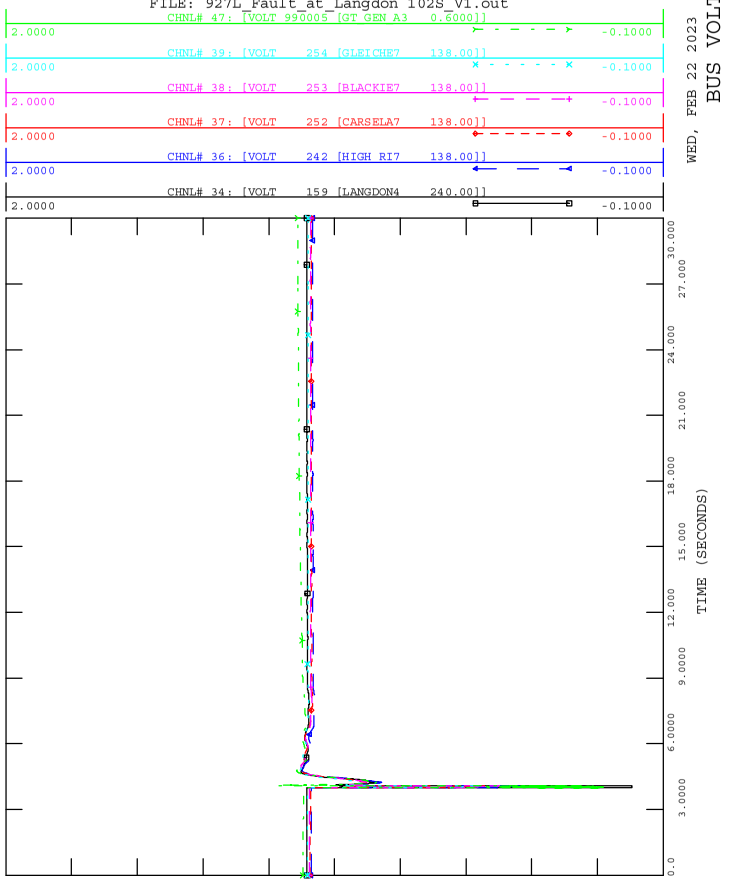
FILE: 927L_Fault_at_Langdon 102S_V1.out



WED, FEB 22 2023 21:43
MACHINE POWER

SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -927L_FAULT_AT_LANGDON 102S_V1

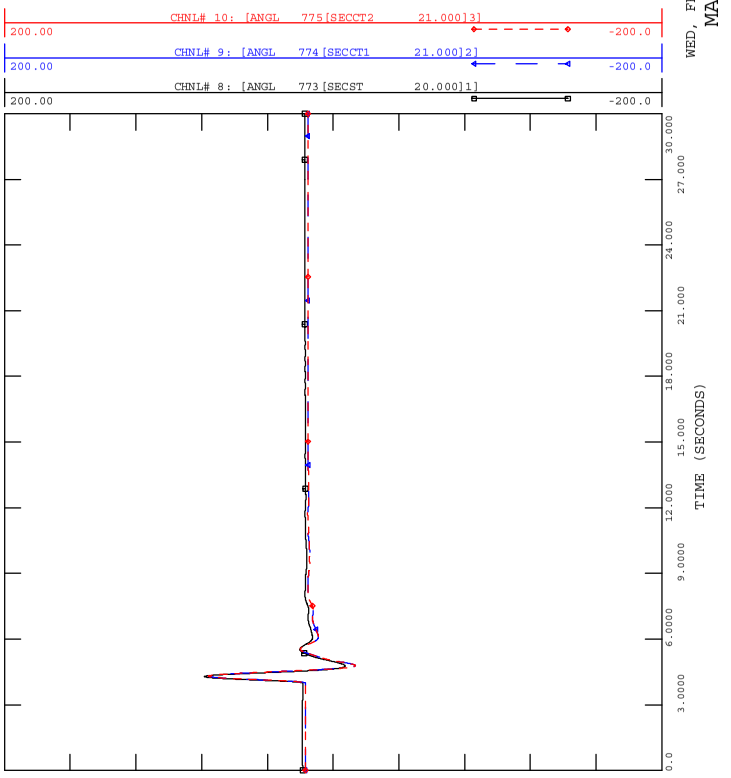
FILE: 927L_Fault_at_Langdon 102S_V1.out



WED, FEB 22 2023 21:43
BUS VOLTAGE

SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -927L_FAULT_AT_LANGDON 102S_V1

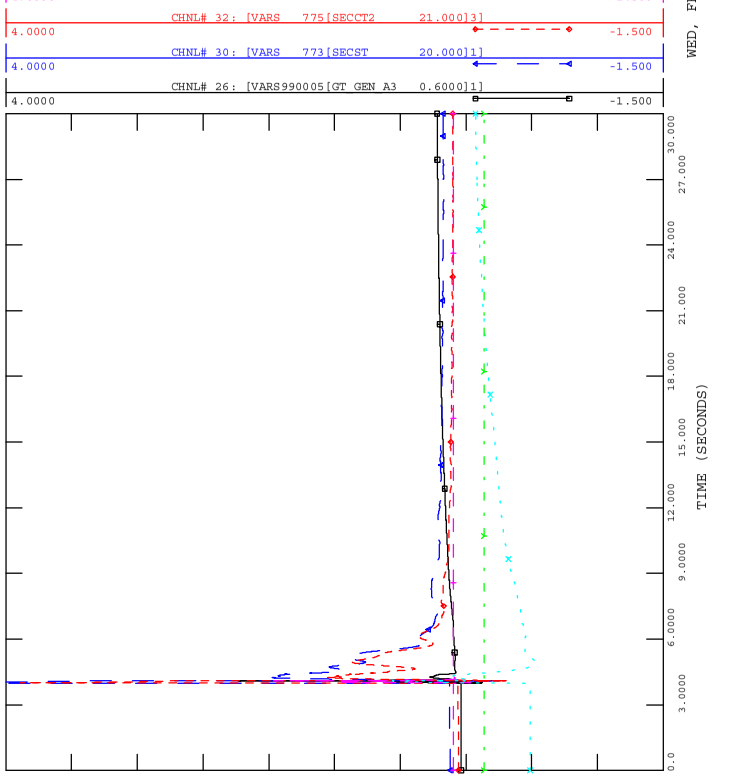
FILE: 927L_Fault_at_Langdon 102S_V1.out



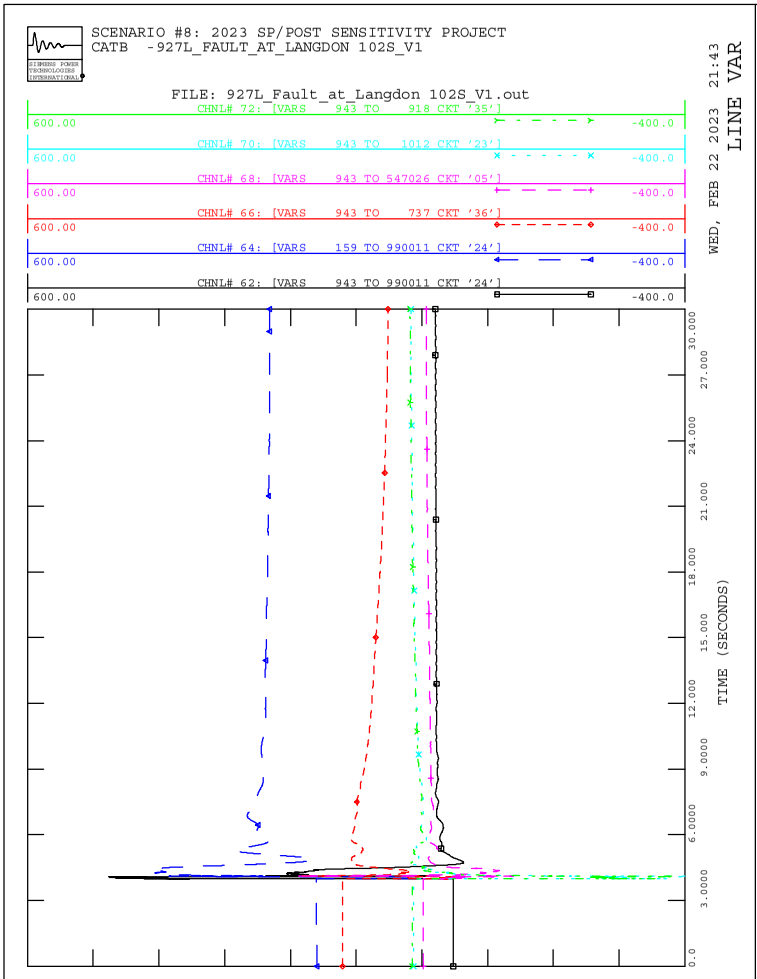
WED, FEB 22 2023 21:43
MACHINE ANGLE

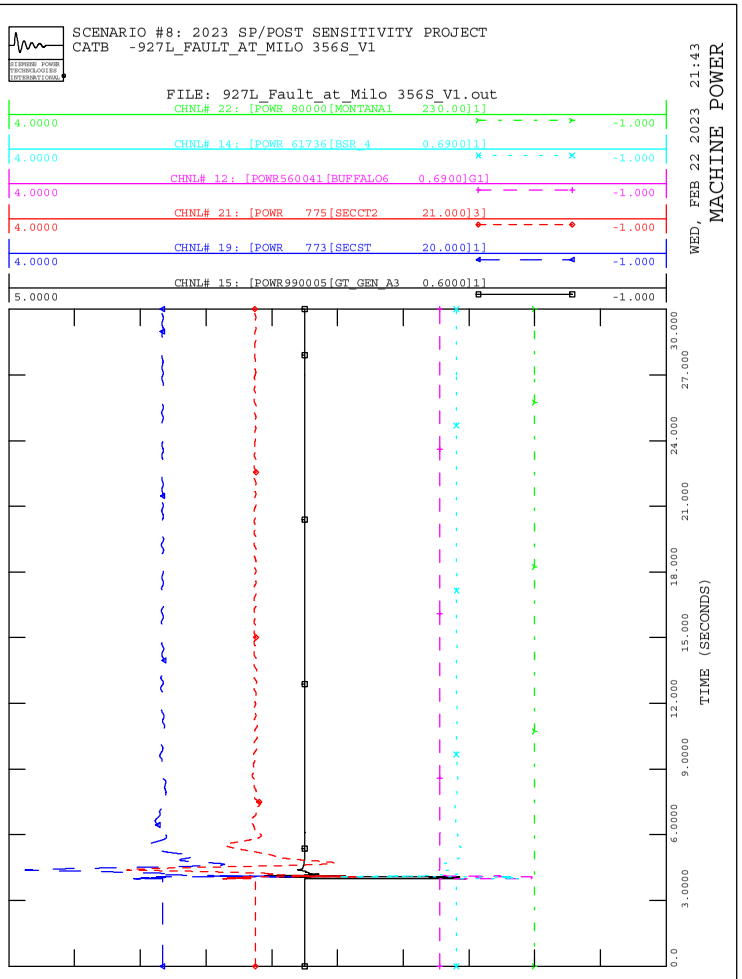
SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -927L_FAULT_AT_LANGDON 102S_V1

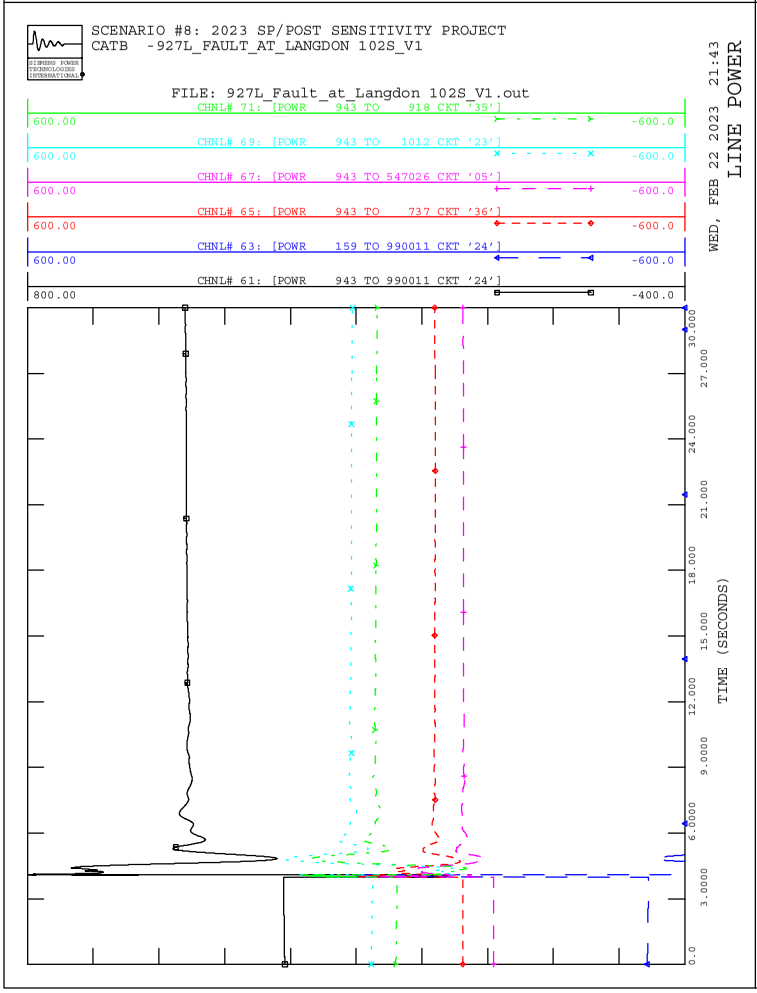
FILE: 927L_Fault_at_Langdon 102S_V1.out

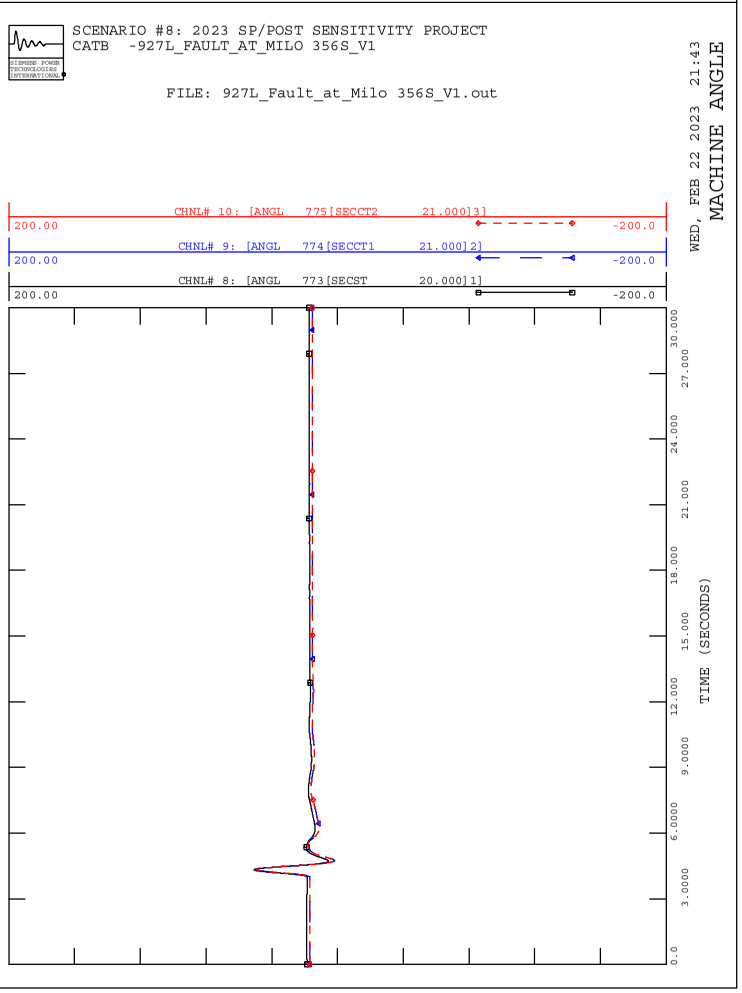


WED, FEB 22 2023 21:43
MACHINE VAR


SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -927L_FAULT_AT_LANGDON 102S_V1
FILE: 927L_Fault_at_Langdon 102S_V1.out
CHNL# 72: [VARS 943 TO 918 CKT '35']
CHNL# 70: [VARS 943 TO 1012 CKT '23']
CHNL# 68: [VARS 943 TO 547026 CKT '05']
CHNL# 66: [VARS 943 TO 737 CKT '36']
CHNL# 64: [VARS 159 TO 990011 CKT '24']
CHNL# 62: [VARS 943 TO 990011 CKT '24']
600.00
-400.0
TIME (SECONDS)
WED, FEB 22 2023 21:43
LINE VAR


SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -927L_FAULT_AT_MILO 356S_V1
FILE: 927L_Fault_at_Milo 356S_V1.out
CHNL# 22: [POWR 80000[MONTANA1 230.00]1]
CHNL# 14: [POWR 61736[BSR_4 0.6900]1]
CHNL# 12: [POWR560041[BUFFALO6 0.6900]G1]
CHNL# 21: [POWR 775[SECCT2 21.000]3]
CHNL# 19: [POWR 773[SECST 20.000]1]
CHNL# 15: [POWR990005[GT_GEN_A3 0.6000]1]
4.0000
5.0000
-1.000
TIME (SECONDS)
WED, FEB 22 2023 21:43
MACHINE POWER


SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -927L_FAULT_AT_LANGDON 102S_V1
FILE: 927L_Fault_at_Langdon 102S_V1.out
CHNL# 71: [POWR 943 TO 918 CKT '35']
CHNL# 69: [POWR 943 TO 1012 CKT '23']
CHNL# 67: [POWR 943 TO 547026 CKT '05']
CHNL# 65: [POWR 943 TO 737 CKT '36']
CHNL# 63: [POWR 159 TO 990011 CKT '24']
CHNL# 61: [POWR 943 TO 990011 CKT '24']
600.00
800.00
-600.0
-400.0
TIME (SECONDS)
WED, FEB 22 2023 21:43
LINE POWER


SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -927L_FAULT_AT_MILO 356S_V1
FILE: 927L_Fault_at_Milo 356S_V1.out
CHNL# 10: [ANGL 775[SECCT2 21.000]3]
CHNL# 9: [ANGL 774[SECCT1 21.000]2]
CHNL# 8: [ANGL 773[SECST 20.000]1]
200.00
-200.0
TIME (SECONDS)
WED, FEB 22 2023 21:43
MACHINE ANGLE

SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -927L_FAULT_AT_MILO 356S_V1

FILE: 927L_Fault_at_Milo 356S_V1.out

CHNL# 47: [VOLT 990005 [GT GEN A3 0.6000]]
CHNL# 39: [VOLT 254 [GLEICHE7 138.00]]
CHNL# 38: [VOLT 253 [BLACKIE7 138.00]]
CHNL# 37: [VOLT 252 [CARSELA7 138.00]]
CHNL# 36: [VOLT 242 [HIGH RI7 138.00]]
CHNL# 34: [VOLT 159 [LANGDON4 240.00]]

2.0000 -0.1000

WED, FEB 22 2023 21:43
BUS VOLTAGE

TIME (SECONDS)
0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -927L_FAULT_AT_MILO 356S_V1

FILE: 927L_Fault_at_Milo 356S_V1.out

CHNL# 72: [VARS 943 TO 918 CKT '35']
CHNL# 70: [VARS 943 TO 1012 CKT '23']
CHNL# 68: [VARS 943 TO 547026 CKT '05']
CHNL# 66: [VARS 943 TO 737 CKT '36']
CHNL# 64: [VARS 159 TO 990011 CKT '24']
CHNL# 62: [VARS 943 TO 990011 CKT '24']

600.00 -400.0

WED, FEB 22 2023 21:43
LINE VAR

TIME (SECONDS)
0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -927L_FAULT_AT_MILO 356S_V1

FILE: 927L_Fault_at_Milo 356S_V1.out

CHNL# 33: [VARS 80000[MONTANA1 230.00]1]
CHNL# 25: [VARS 61736[BSR 4 0.6900]1]
CHNL# 23: [VARS560041[BUFFALO6 0.6900]G1]
CHNL# 32: [VARS 775[SECCT2 21.000]3]
CHNL# 30: [VARS 773[SECST 20.000]1]
CHNL# 26: [VARS990005[GT GEN A3 0.6000]1]

4.0000 -1.500

WED, FEB 22 2023 21:43
MACHINE VAR

TIME (SECONDS)
0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -927L_FAULT_AT_MILO 356S_V1

FILE: 927L_Fault_at_Milo 356S_V1.out

CHNL# 71: [POWR 943 TO 918 CKT '35']
CHNL# 69: [POWR 943 TO 1012 CKT '23']
CHNL# 67: [POWR 943 TO 547026 CKT '05']
CHNL# 65: [POWR 943 TO 737 CKT '36']
CHNL# 63: [POWR 159 TO 990011 CKT '24']
CHNL# 61: [POWR 943 TO 990011 CKT '24']

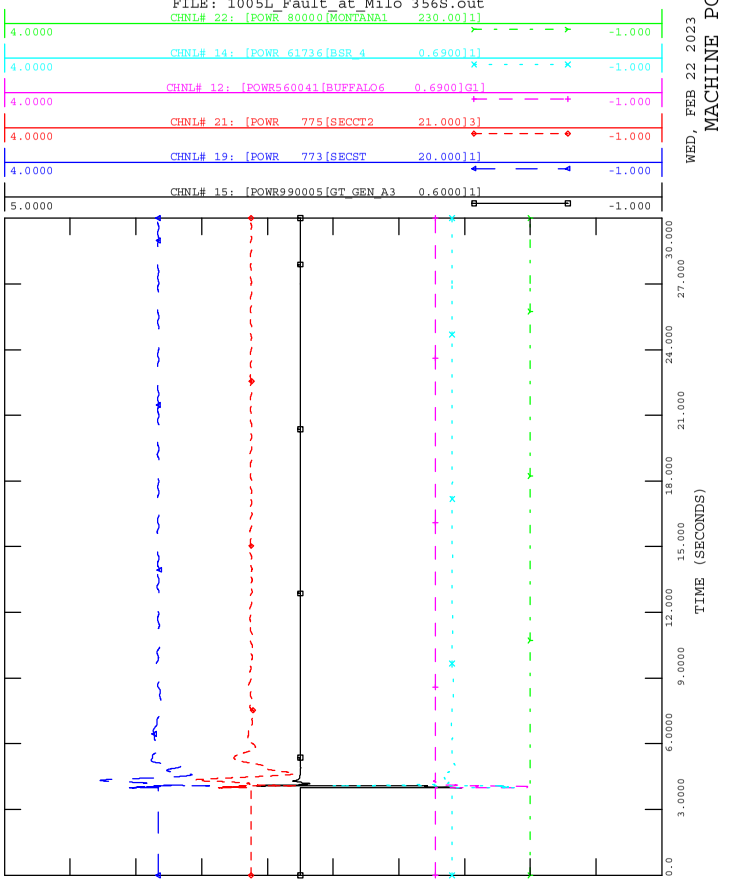
600.00 -600.0
800.00 -400.0

WED, FEB 22 2023 21:43
LINE POWER

TIME (SECONDS)
0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -1005L_FAULT_AT_MILO 356S

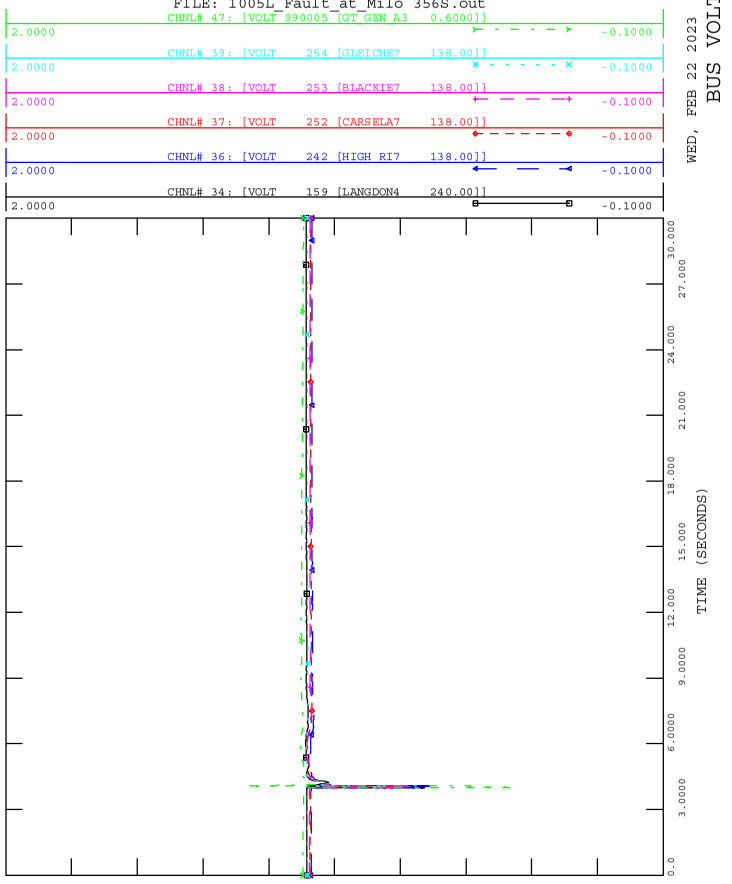
FILE: 1005L_Fault_at_Milo 356S.out



WED, FEB 22 2023 21:43
MACHINE POWER

SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -1005L_FAULT_AT_MILO 356S

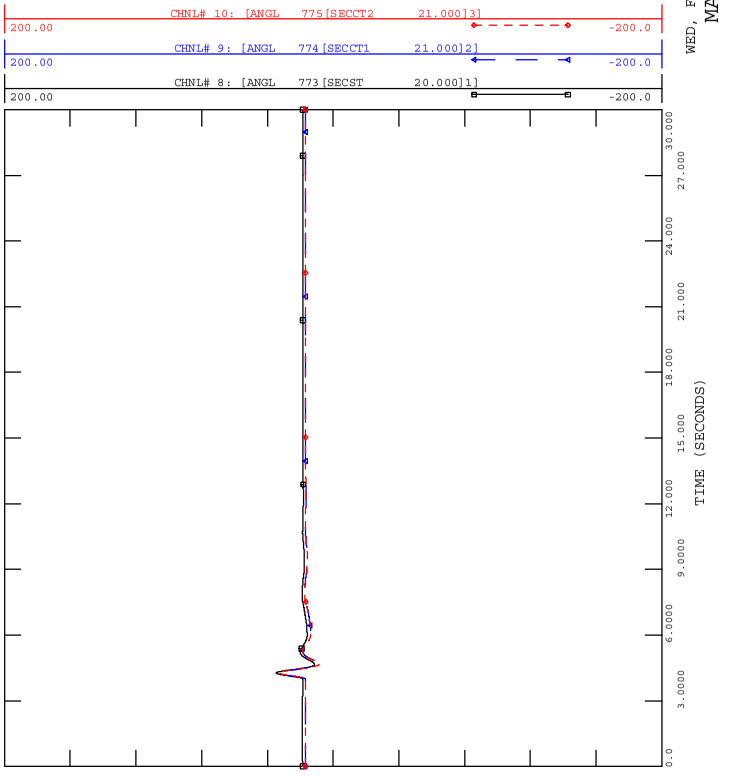
FILE: 1005L_Fault_at_Milo 356S.out



WED, FEB 22 2023 21:43
BUS VOLTAGE

SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -1005L_FAULT_AT_MILO 356S

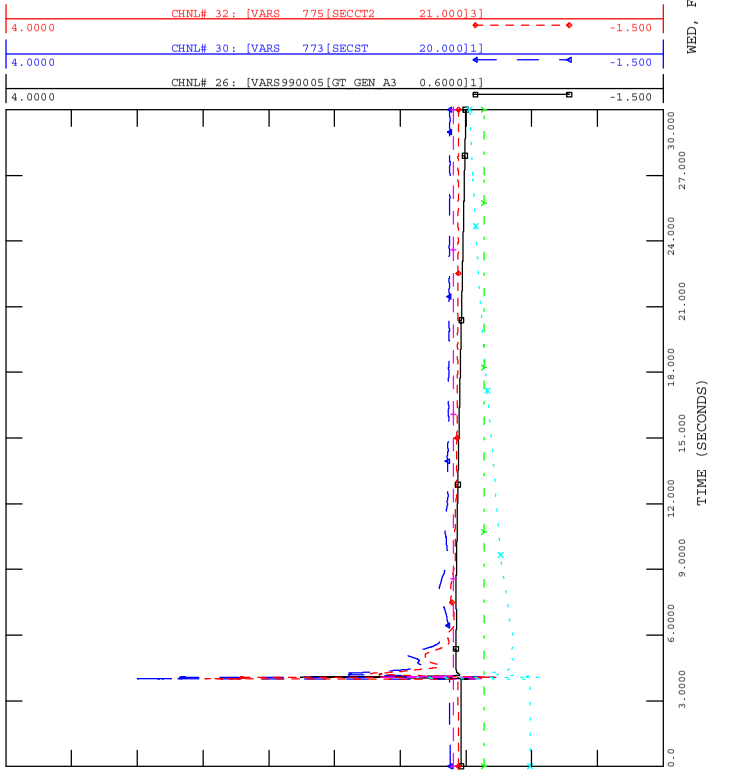
FILE: 1005L_Fault_at_Milo 356S.out



WED, FEB 22 2023 21:43
MACHINE ANGLE

SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -1005L_FAULT_AT_MILO 356S

FILE: 1005L_Fault_at_Milo 356S.out

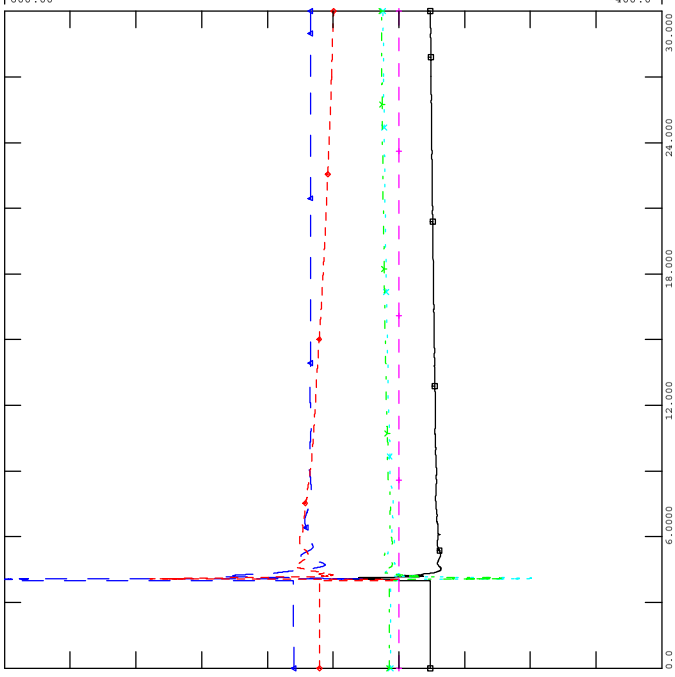


WED, FEB 22 2023 21:43
MACHINE VAR

SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -1005L_FAULT_AT_MILO 356S

FILE: 1005L_Fault_at_Milo 356S.out

CHNL# 72: [VARS 943 TO 918 CKT '35'] 600.00 -400.0
CHNL# 70: [VARS 943 TO 1012 CKT '23'] 600.00 -400.0
CHNL# 68: [VARS 943 TO 547026 CKT '05'] 600.00 -400.0
CHNL# 66: [VARS 943 TO 737 CKT '36'] 600.00 -400.0
CHNL# 64: [VARS 159 TO 990011 CKT '24'] 600.00 -400.0
CHNL# 62: [VARS 943 TO 990011 CKT '24'] 600.00 -400.0

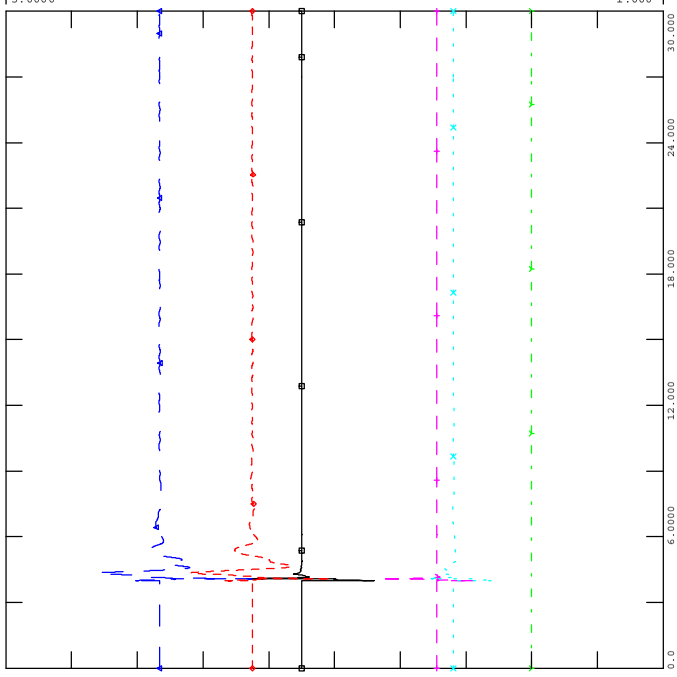


WED, FEB 22 2023 21:43
LINE VAR

SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -1005L_FAULT_AT_PICTURE BUTTE 120S

FILE: 1005L_Fault_at_Picture Butte 120S.out

CHNL# 22: [POWR 80000[MONTANA1 230.00]1] 4.0000 -1.000
CHNL# 14: [POWR 61736[BSR 4 0.6900]1] 4.0000 -1.000
CHNL# 12: [POWR560041[BUFFALO6 0.6900]G1] 4.0000 -1.000
CHNL# 21: [POWR 775[SECCT2 21.000]3] 4.0000 -1.000
CHNL# 19: [POWR 773[SECST 20.000]1] 4.0000 -1.000
CHNL# 15: [POWR990005[GT_GEN_A3 0.6000]1] 5.0000 -1.000

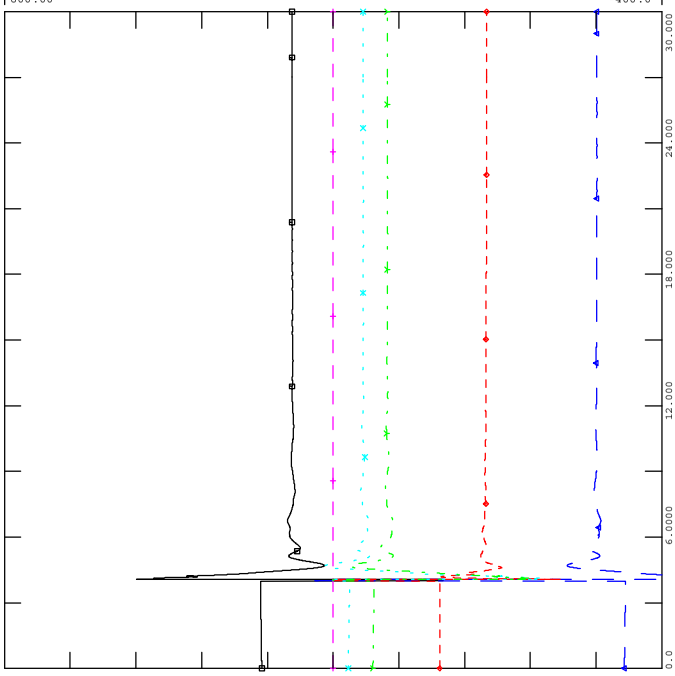


WED, FEB 22 2023 21:43
MACHINE POWER

SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -1005L_FAULT_AT_MILO 356S

FILE: 1005L_Fault_at_Milo 356S.out

CHNL# 71: [POWR 943 TO 918 CKT '35'] 600.00 -600.0
CHNL# 69: [POWR 943 TO 1012 CKT '23'] 600.00 -600.0
CHNL# 67: [POWR 943 TO 547026 CKT '05'] 600.00 -600.0
CHNL# 65: [POWR 943 TO 737 CKT '36'] 600.00 -600.0
CHNL# 63: [POWR 159 TO 990011 CKT '24'] 600.00 -600.0
CHNL# 61: [POWR 943 TO 990011 CKT '24'] 800.00 -400.0

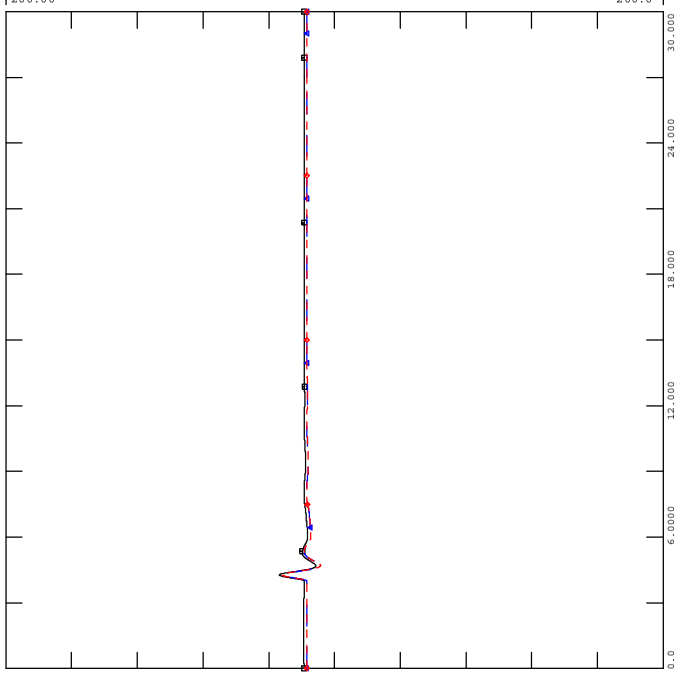


WED, FEB 22 2023 21:43
LINE POWER

SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -1005L_FAULT_AT_PICTURE BUTTE 120S

FILE: 1005L_Fault_at_Picture Butte 120S.out

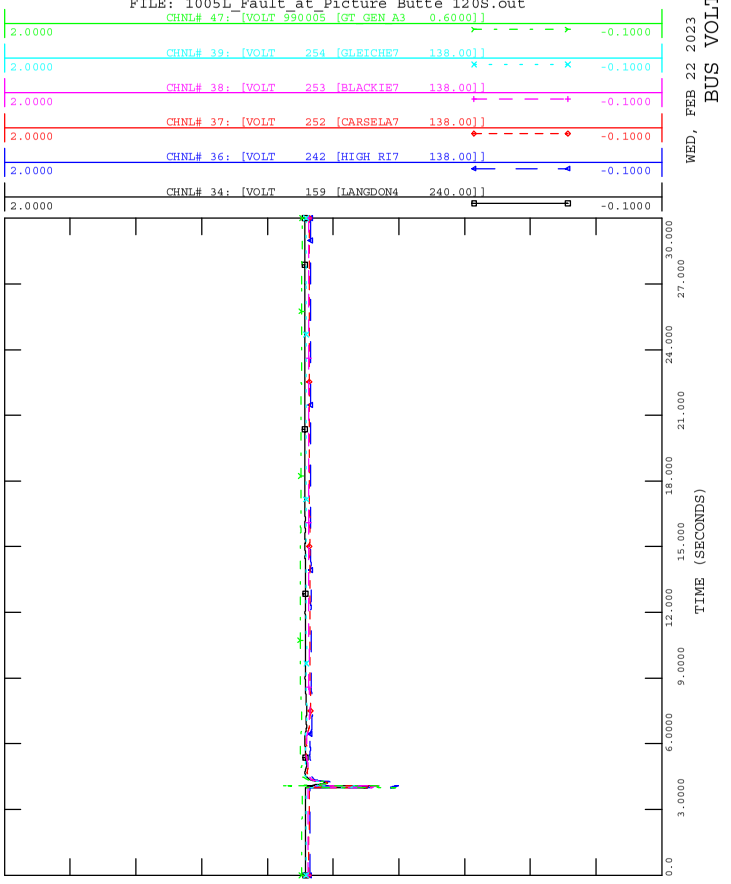
CHNL# 10: [ANGL 775[SECCT2 21.000]3] 200.00 -200.0
CHNL# 9: [ANGL 774[SECCT1 21.000]2] 200.00 -200.0
CHNL# 8: [ANGL 773[SECST 20.000]1] 200.00 -200.0



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MACHINE ANGLE

SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -1005L_FAULT_AT_PICTURE BUTTE 120S

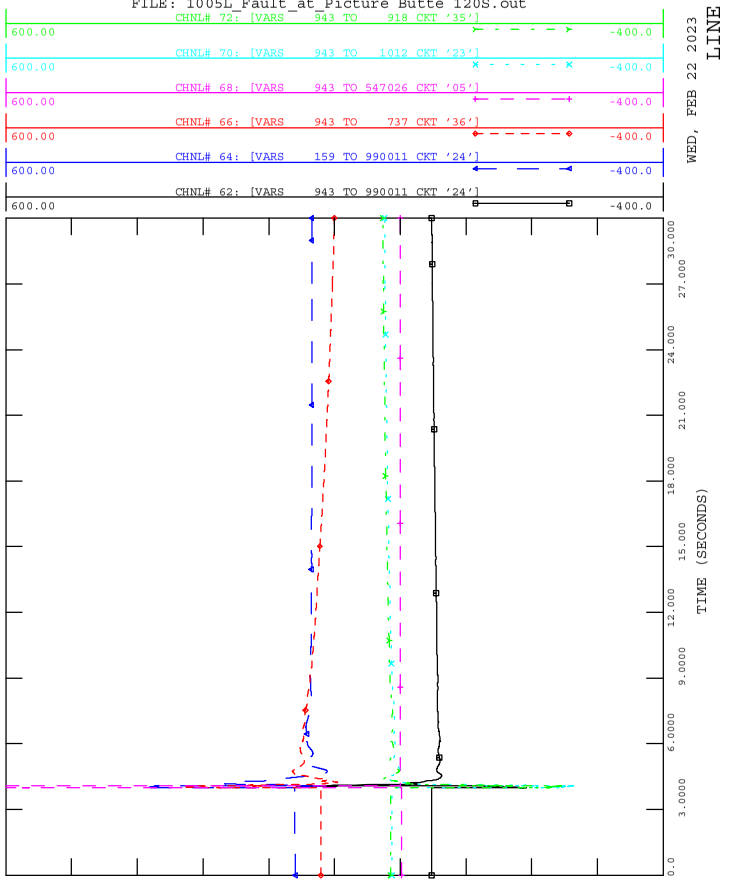
FILE: 1005L_Fault_at_Picture Butte 120S.out



WED, FEB 22 2023 21:43
BUS VOLTAGE

SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -1005L_FAULT_AT_PICTURE BUTTE 120S

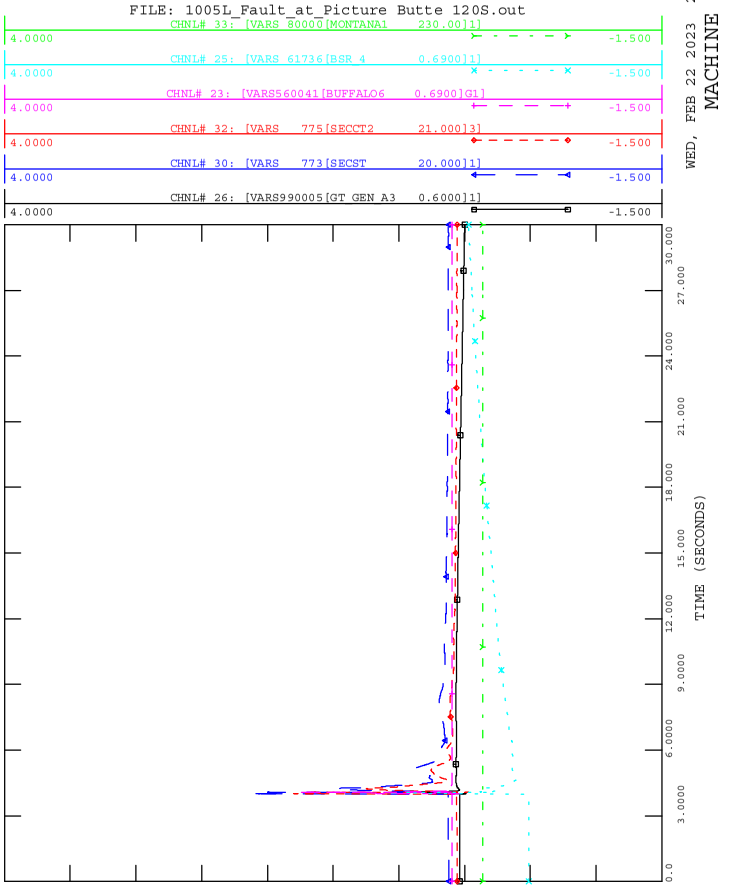
FILE: 1005L_Fault_at_Picture Butte 120S.out



WED, FEB 22 2023 21:43
LINE VAR

SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -1005L_FAULT_AT_PICTURE BUTTE 120S

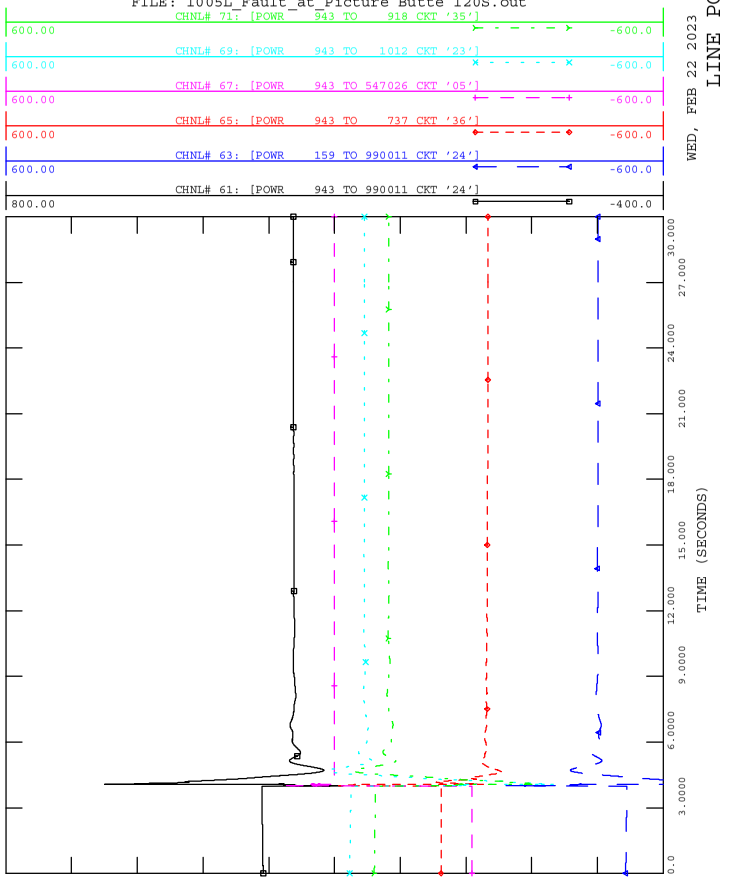
FILE: 1005L_Fault_at_Picture Butte 120S.out



WED, FEB 22 2023 21:43
MACHINE VAR

SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -1005L_FAULT_AT_PICTURE BUTTE 120S

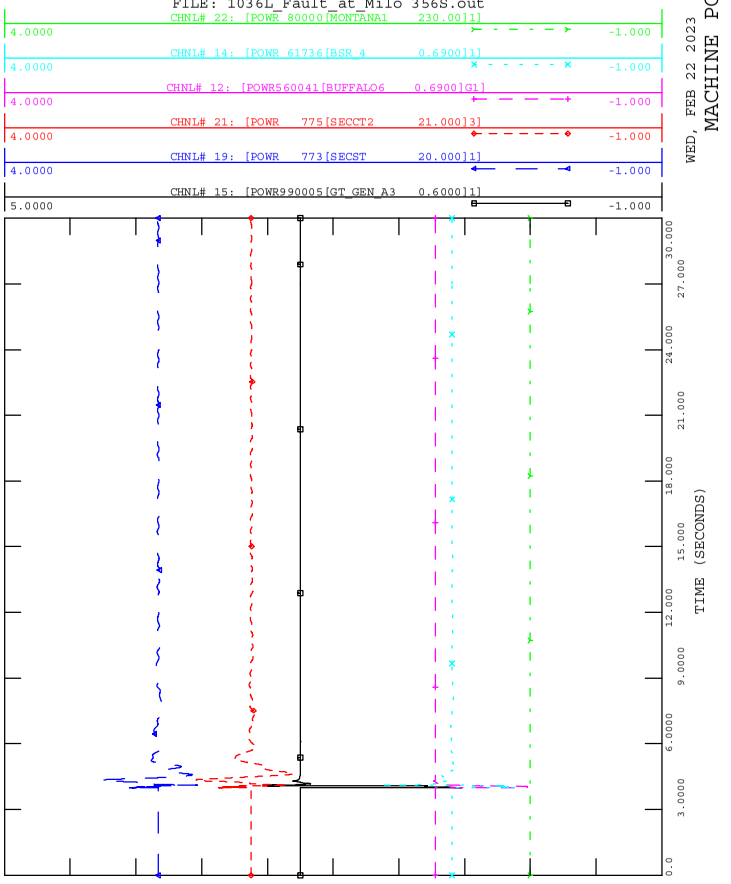
FILE: 1005L_Fault_at_Picture Butte 120S.out



WED, FEB 22 2023 21:43
LINE POWER

SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -1036L_FAULT_AT_MILO 356S

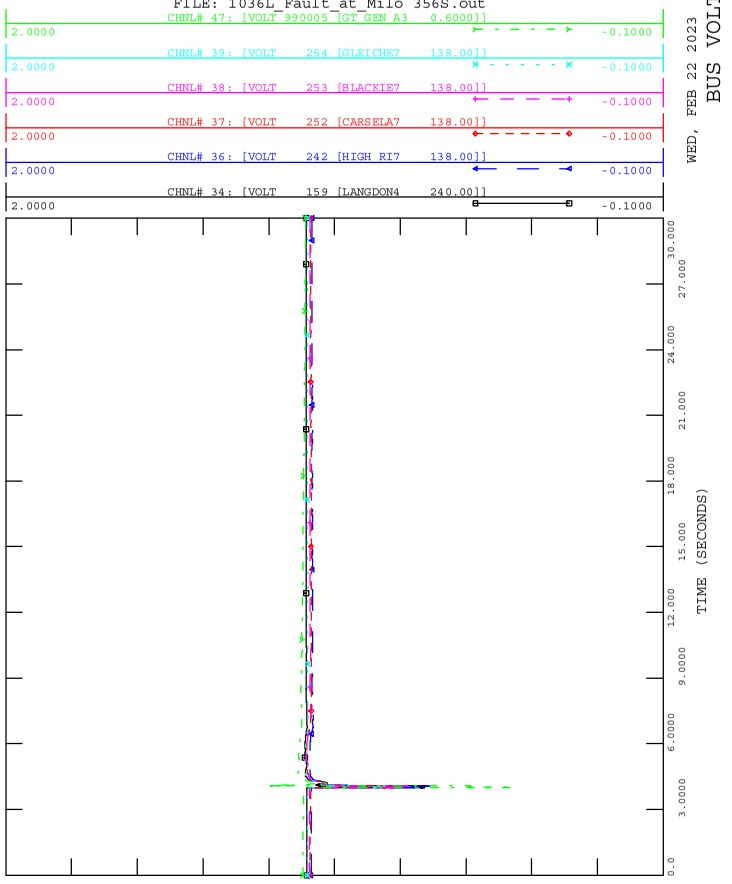
FILE: 1036L_Fault_at_Milo 356S.out



WED, FEB 22 2023 21:43
MACHINE POWER

SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -1036L_FAULT_AT_MILO 356S

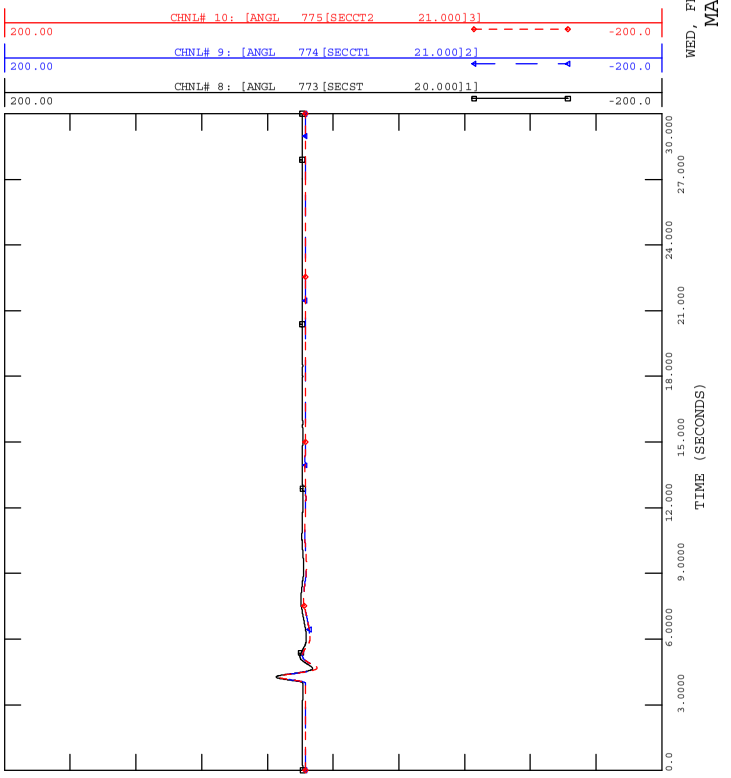
FILE: 1036L_Fault_at_Milo 356S.out



WED, FEB 22 2023 21:43
BUS VOLTAGE

SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -1036L_FAULT_AT_MILO 356S

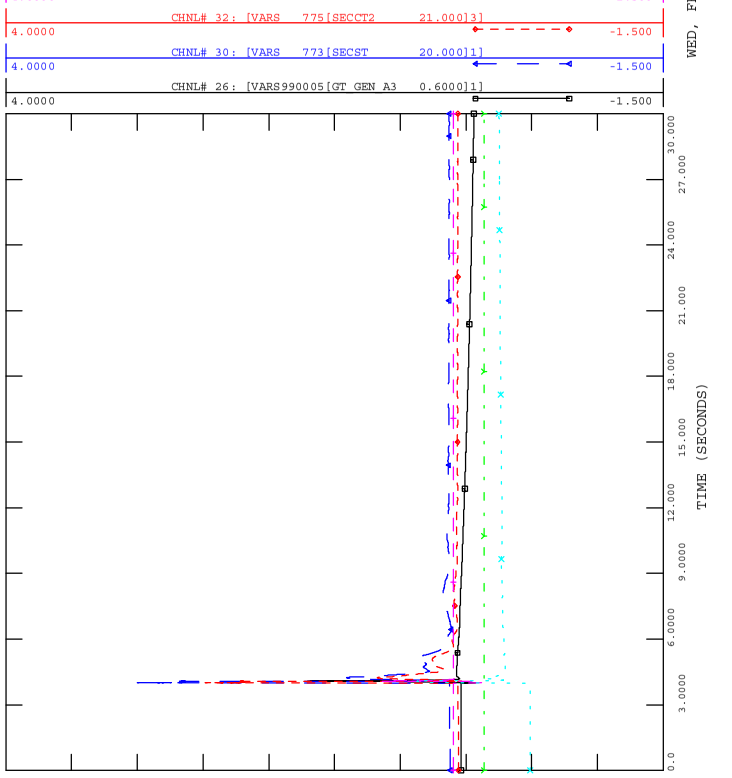
FILE: 1036L_Fault_at_Milo 356S.out



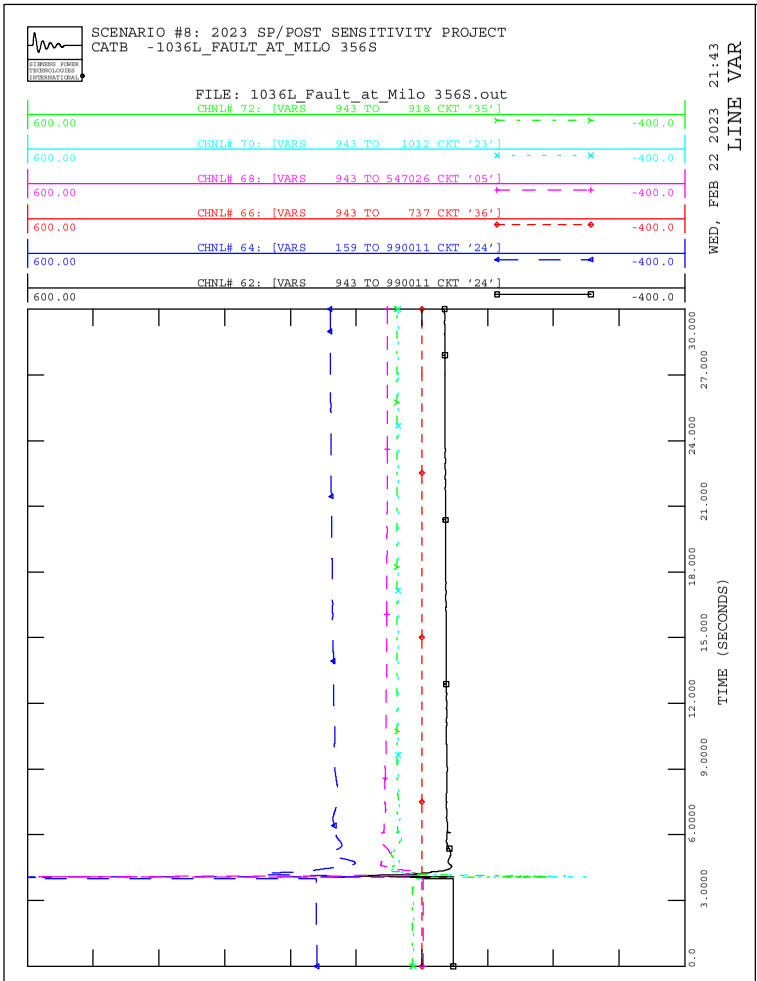
WED, FEB 22 2023 21:43
MACHINE ANGLE

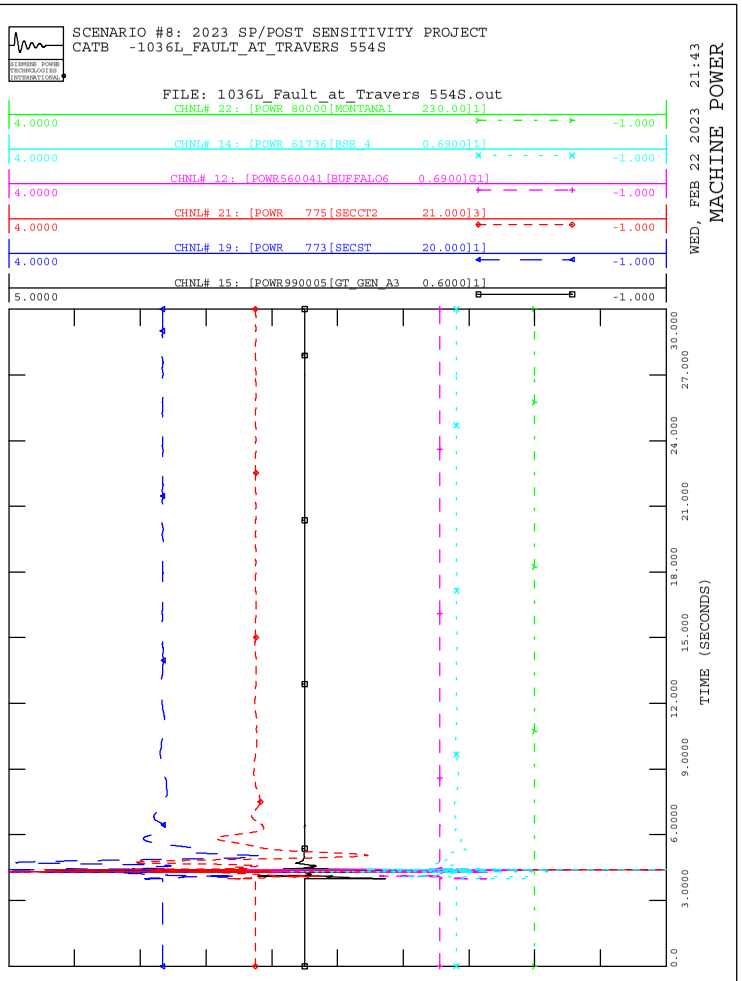
SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -1036L_FAULT_AT_MILO 356S

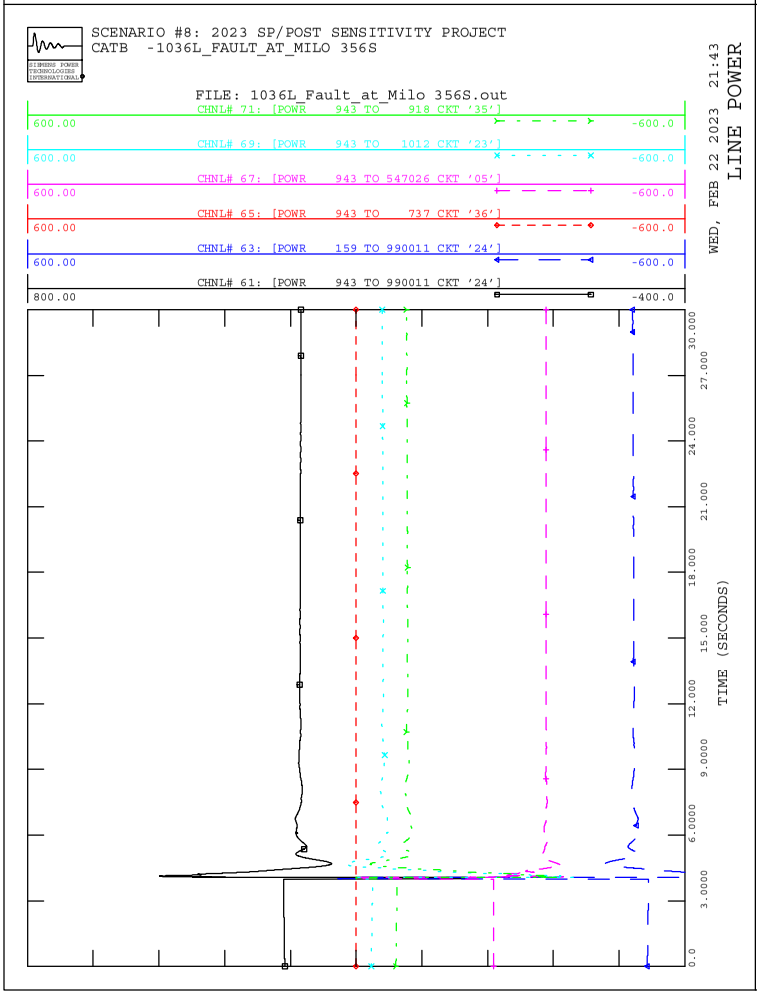
FILE: 1036L_Fault_at_Milo 356S.out

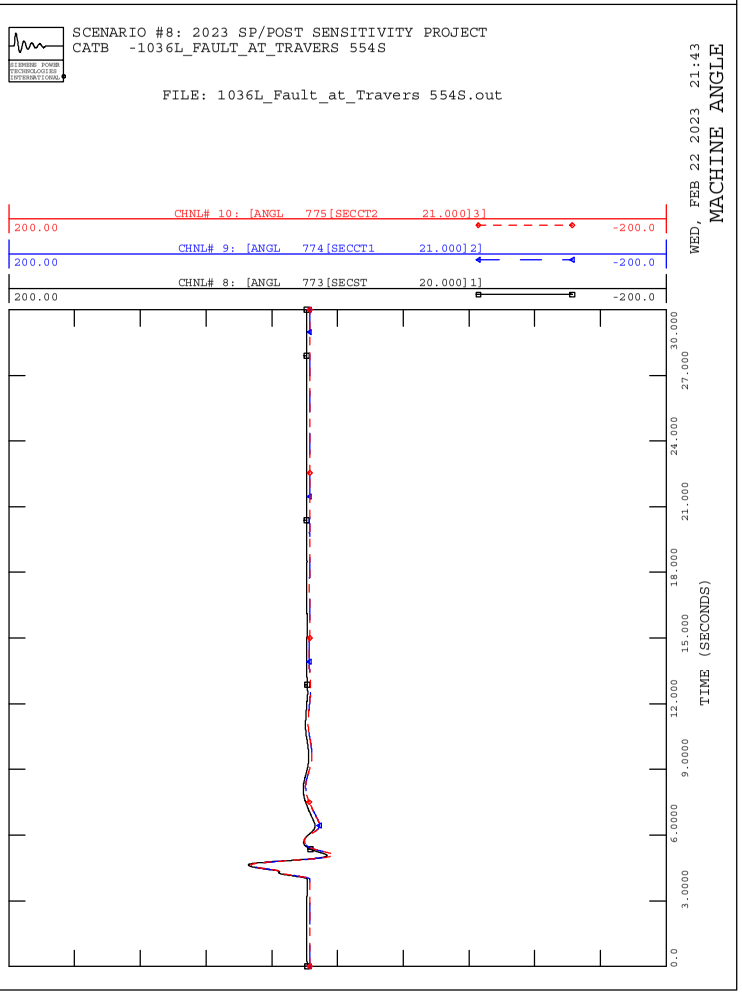


WED, FEB 22 2023 21:43
MACHINE VAR


SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -1036L_FAULT_AT_MILO 356S
FILE: 1036L_Fault_at_Milo 356S.out
CHNL# 72: [VARS 943 TO 918 CKT '35']
CHNL# 70: [VARS 943 TO 1012 CKT '23']
CHNL# 68: [VARS 943 TO 547026 CKT '05']
CHNL# 66: [VARS 943 TO 737 CKT '36']
CHNL# 64: [VARS 159 TO 990011 CKT '24']
CHNL# 62: [VARS 943 TO 990011 CKT '24']
600.00
-400.0
TIME (SECONDS)
0.0
3.0000
6.0000
9.0000
12.000
15.000
18.000
21.000
24.000
27.000
30.000
WED, FEB 22 2023 21:43
LINE VAR


SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -1036L_FAULT_AT_TRAVERS 554S
FILE: 1036L_Fault_at_Travers 554S.out
CHNL# 22: [POWR 80000[MONTANA1 230.00]1]
CHNL# 14: [POWR 61736[BSR_4 0.6900]1]
CHNL# 12: [POWR560041[BUFFALO6 0.6900]G1]
CHNL# 21: [POWR 775[SECCT2 21.000]3]
CHNL# 19: [POWR 773[SECST 20.000]1]
CHNL# 15: [POWR990005[GT_GEN_A3 0.6000]1]
4.0000
5.0000
-1.000
TIME (SECONDS)
0.0
3.0000
6.0000
9.0000
12.000
15.000
18.000
21.000
24.000
27.000
30.000
WED, FEB 22 2023 21:43
MACHINE POWER


SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -1036L_FAULT_AT_MILO 356S
FILE: 1036L_Fault_at_Milo 356S.out
CHNL# 71: [POWR 943 TO 918 CKT '35']
CHNL# 69: [POWR 943 TO 1012 CKT '23']
CHNL# 67: [POWR 943 TO 547026 CKT '05']
CHNL# 65: [POWR 943 TO 737 CKT '36']
CHNL# 63: [POWR 159 TO 990011 CKT '24']
CHNL# 61: [POWR 943 TO 990011 CKT '24']
600.00
800.00
-600.0
-400.0
TIME (SECONDS)
0.0
3.0000
6.0000
9.0000
12.000
15.000
18.000
21.000
24.000
27.000
30.000
WED, FEB 22 2023 21:43
LINE POWER


SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -1036L_FAULT_AT_TRAVERS 554S
FILE: 1036L_Fault_at_Travers 554S.out
CHNL# 10: [ANGL 775[SECCT2 21.000]3]
CHNL# 9: [ANGL 774[SECCT1 21.000]2]
CHNL# 8: [ANGL 773[SECST 20.000]1]
200.00
-200.0
TIME (SECONDS)
0.0
3.0000
6.0000
9.0000
12.000
15.000
18.000
21.000
24.000
27.000
30.000
WED, FEB 22 2023 21:43
MACHINE ANGLE

SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -1036L_FAULT_AT_TRAVERS 554S

FILE: 1036L_Fault_at_Travers 554S.out

CHNL# 47: [VOLT 990005 [GT GEN A3 0.6000]]
CHNL# 39: [VOLT 254 [GLEICHE7 138.00]]
CHNL# 38: [VOLT 253 [BLACKIE7 138.00]]
CHNL# 37: [VOLT 252 [CARSELA7 138.00]]
CHNL# 36: [VOLT 242 [HIGH RI7 138.00]]
CHNL# 34: [VOLT 159 [LANGDON4 240.00]]

2.0000 -0.1000

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BUS VOLTAGE

TIME (SECONDS)
0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -1036L_FAULT_AT_TRAVERS 554S

FILE: 1036L_Fault_at_Travers 554S.out

CHNL# 72: [VARS 943 TO 918 CKT '35']
CHNL# 70: [VARS 943 TO 1012 CKT '23']
CHNL# 68: [VARS 943 TO 547026 CKT '05']
CHNL# 66: [VARS 943 TO 737 CKT '36']
CHNL# 64: [VARS 159 TO 990011 CKT '24']
CHNL# 62: [VARS 943 TO 990011 CKT '24']

600.00 -400.0

WED, FEB 22 2023 21:43
LINE VAR

TIME (SECONDS)
0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -1036L_FAULT_AT_TRAVERS 554S

FILE: 1036L_Fault_at_Travers 554S.out

CHNL# 33: [VARS 80000[MONTANA1 230.00]1]
CHNL# 25: [VARS 61736[BSR 4 0.6900]1]
CHNL# 23: [VARS560041[BUFFALO6 0.6900]G1]
CHNL# 32: [VARS 775[SECCT2 21.000]3]
CHNL# 30: [VARS 773[SECST 20.000]1]
CHNL# 26: [VARS990005[GT GEN A3 0.6000]1]

4.0000 -1.500

WED, FEB 22 2023 21:43
MACHINE VAR

TIME (SECONDS)
0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -1036L_FAULT_AT_TRAVERS 554S

FILE: 1036L_Fault_at_Travers 554S.out

CHNL# 71: [POWR 943 TO 918 CKT '35']
CHNL# 69: [POWR 943 TO 1012 CKT '23']
CHNL# 67: [POWR 943 TO 547026 CKT '05']
CHNL# 65: [POWR 943 TO 737 CKT '36']
CHNL# 63: [POWR 159 TO 990011 CKT '24']
CHNL# 61: [POWR 943 TO 990011 CKT '24']

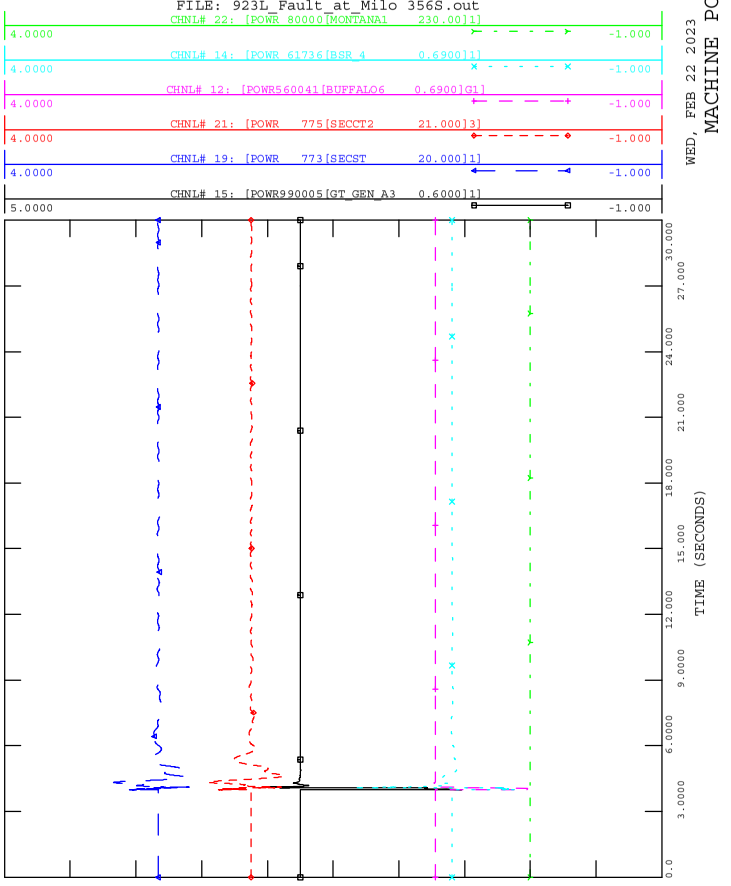
600.00 -600.0

WED, FEB 22 2023 21:43
LINE POWER

TIME (SECONDS)
0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -923L_FAULT_AT_MILO 356S

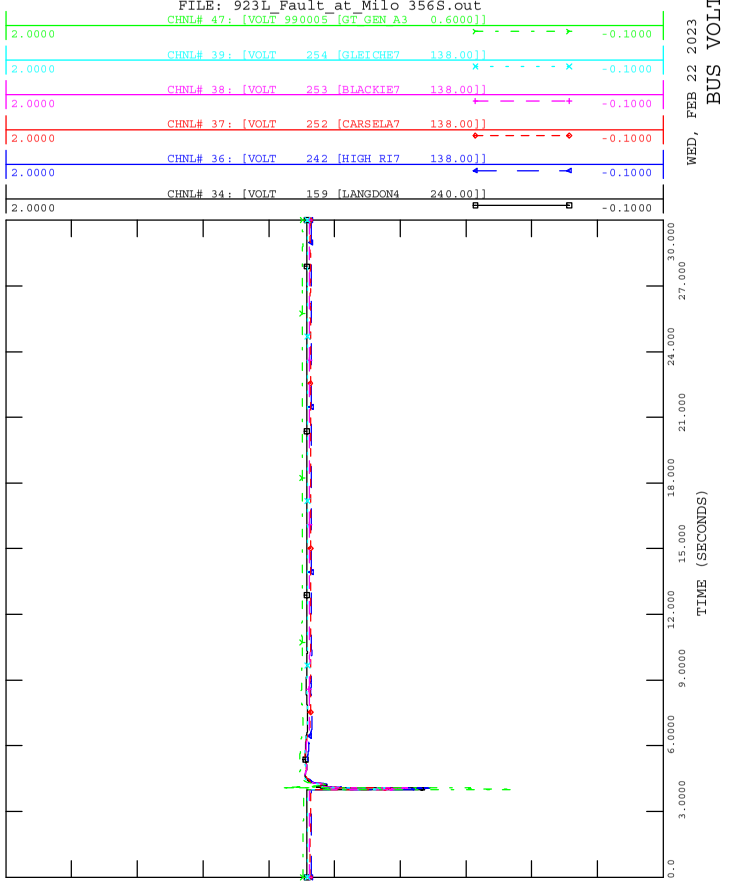
FILE: 923L_Fault_at_Milo 356S.out



WED, FEB 22 2023 21:43
MACHINE POWER

SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -923L_FAULT_AT_MILO 356S

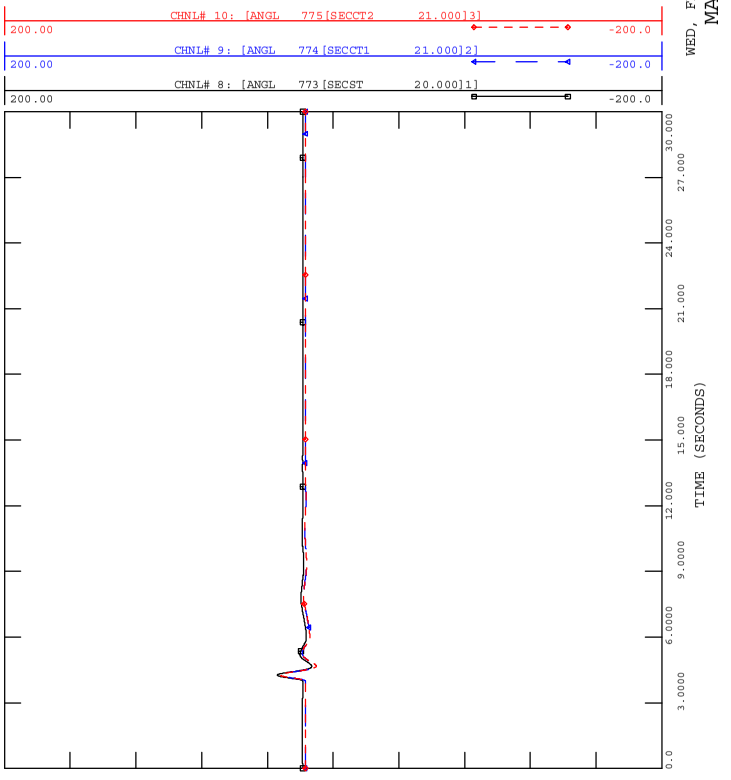
FILE: 923L_Fault_at_Milo 356S.out



WED, FEB 22 2023 21:43
BUS VOLTAGE

SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -923L_FAULT_AT_MILO 356S

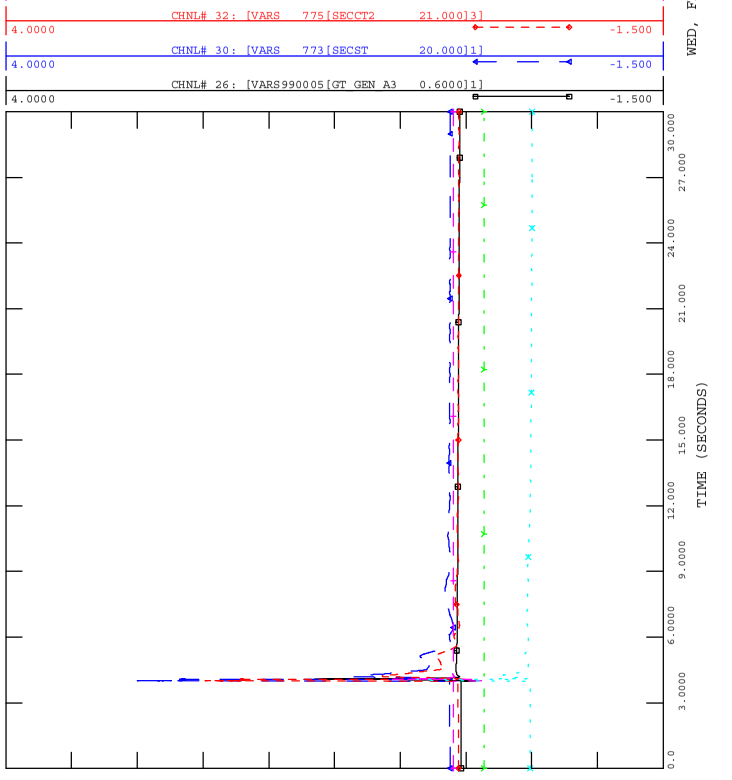
FILE: 923L_Fault_at_Milo 356S.out



WED, FEB 22 2023 21:43
MACHINE ANGLE

SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -923L_FAULT_AT_MILO 356S

FILE: 923L_Fault_at_Milo 356S.out



WED, FEB 22 2023 21:43
MACHINE VAR

SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -923L_FAULT_AT_MILO 356S

FILE: 923L_Fault_at_Milo 356S.out

CHNL# 72: [VARS 943 TO 918 CKT '35'] 600.00 -400.0
CHNL# 70: [VARS 943 TO 1012 CKT '23'] 600.00 -400.0
CHNL# 68: [VARS 943 TO 547026 CKT '05'] 600.00 -400.0
CHNL# 66: [VARS 943 TO 737 CKT '36'] 600.00 -400.0
CHNL# 64: [VARS 159 TO 990011 CKT '24'] 600.00 -400.0
CHNL# 62: [VARS 943 TO 990011 CKT '24'] 600.00 -400.0

TIME (SECONDS) 0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

WED, FEB 22 2023 21:43 LINE VAR

SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -923L_FAULT_AT_NEWELL 2075S

FILE: 923L_Fault_at_Newell 2075S.out

CHNL# 22: [POWR 80000[MONTANA1 230.00]1] 4.0000 -1.000
CHNL# 14: [POWR 61736[BSR_4 0.6900]1] 4.0000 -1.000
CHNL# 12: [POWR560041[BUFFALO6 0.6900]G1] 4.0000 -1.000
CHNL# 21: [POWR 775[SECCT2 21.000]3] 4.0000 -1.000
CHNL# 19: [POWR 773[SECST 20.000]1] 4.0000 -1.000
CHNL# 15: [POWR990005[GT_GEN_A3 0.6000]1] 5.0000 -1.000

TIME (SECONDS) 0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

WED, FEB 22 2023 21:43 MACHINE POWER

SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -923L_FAULT_AT_MILO 356S

FILE: 923L_Fault_at_Milo 356S.out

CHNL# 71: [POWR 943 TO 918 CKT '35'] 600.00 -600.0
CHNL# 69: [POWR 943 TO 1012 CKT '23'] 600.00 -600.0
CHNL# 67: [POWR 943 TO 547026 CKT '05'] 600.00 -600.0
CHNL# 65: [POWR 943 TO 737 CKT '36'] 600.00 -600.0
CHNL# 63: [POWR 159 TO 990011 CKT '24'] 600.00 -600.0
CHNL# 61: [POWR 943 TO 990011 CKT '24'] 800.00 -400.0

TIME (SECONDS) 0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

WED, FEB 22 2023 21:43 LINE POWER

SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -923L_FAULT_AT_NEWELL 2075S

FILE: 923L_Fault_at_Newell 2075S.out

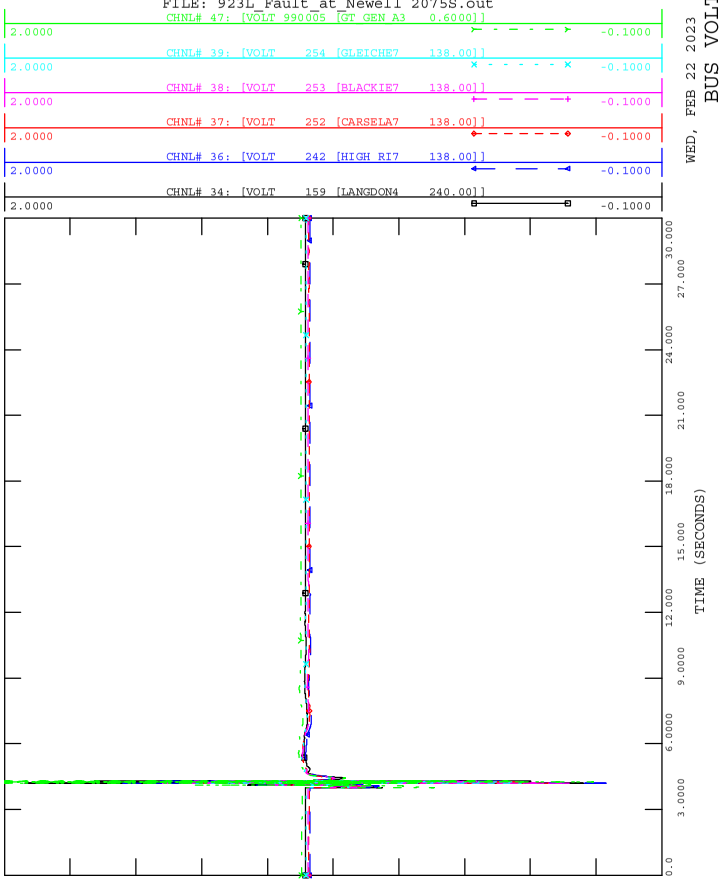
CHNL# 10: [ANGL 775[SECCT2 21.000]3] 200.00 -200.0
CHNL# 9: [ANGL 774[SECCT1 21.000]2] 200.00 -200.0
CHNL# 8: [ANGL 773[SECST 20.000]1] 200.00 -200.0

TIME (SECONDS) 0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

WED, FEB 22 2023 21:43 MACHINE ANGLE

SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -923L_FAULT_AT_NEWELL 2075S

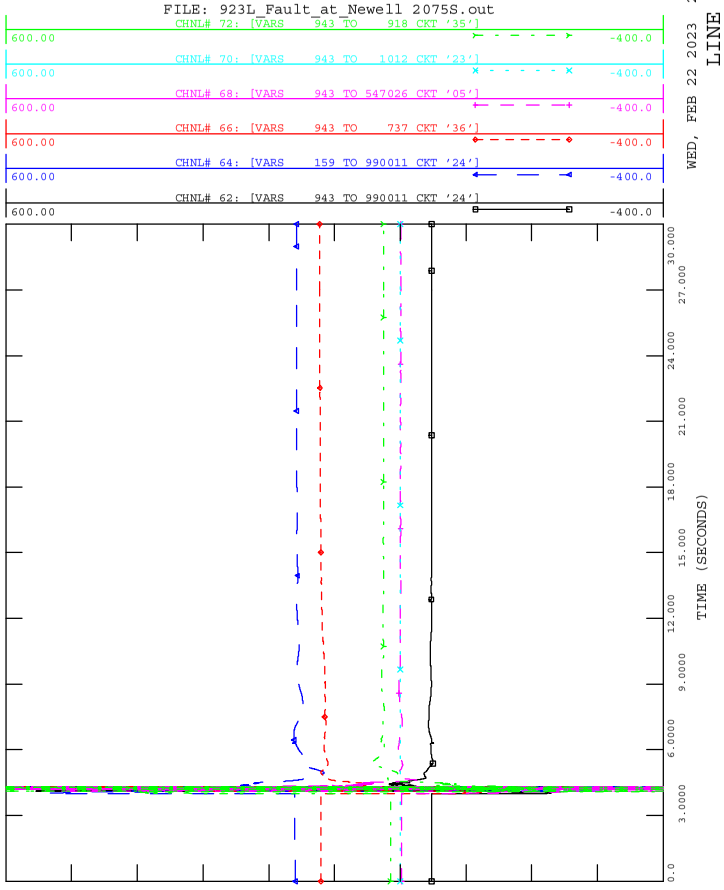
FILE: 923L_Fault_at_Newell 2075S.out



WED, FEB 22 2023 21:43
BUS VOLTAGE

SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -923L_FAULT_AT_NEWELL 2075S

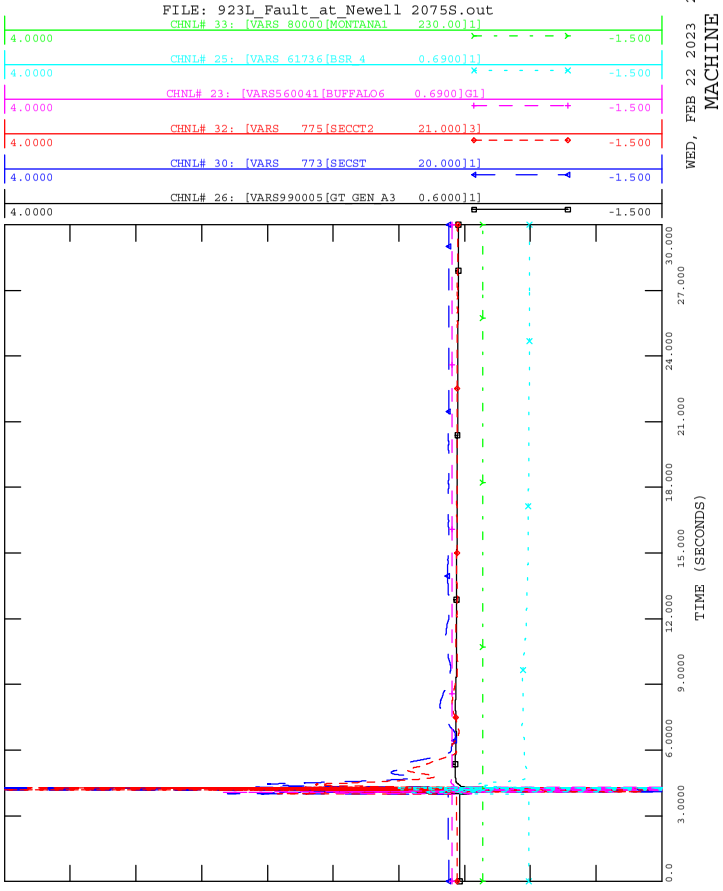
FILE: 923L_Fault_at_Newell 2075S.out



WED, FEB 22 2023 21:43
LINE VAR

SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -923L_FAULT_AT_NEWELL 2075S

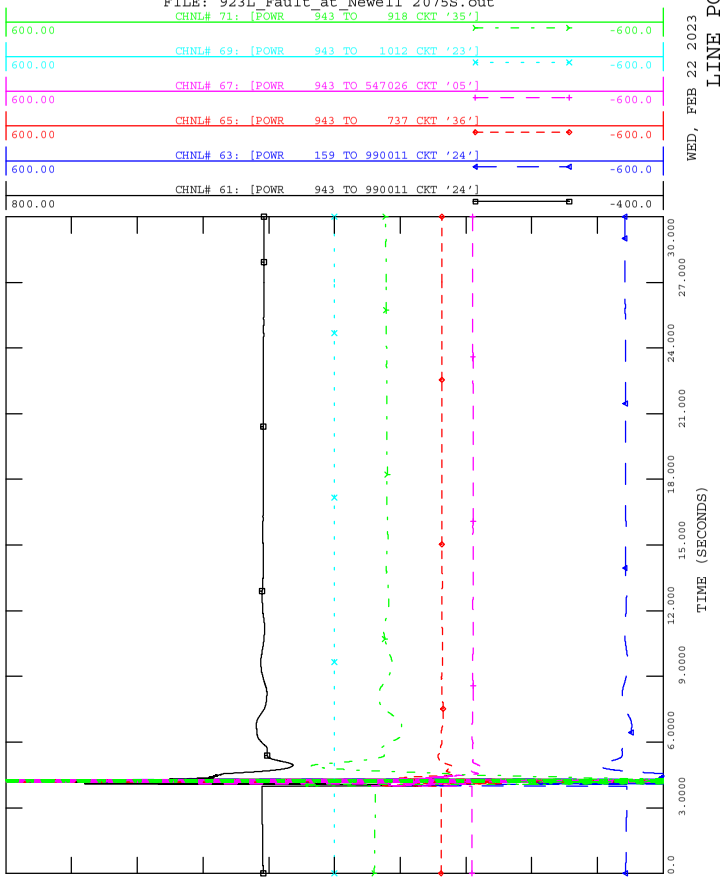
FILE: 923L_Fault_at_Newell 2075S.out



WED, FEB 22 2023 21:43
MACHINE VAR

SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -923L_FAULT_AT_NEWELL 2075S

FILE: 923L_Fault_at_Newell 2075S.out



WED, FEB 22 2023 21:43
LINE POWER

SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -935L_FAULT_AT_MILO 356S

FILE: 935L_Fault_at_Milo 356S.out

CHNL# 22: [POWR 80000[MONTANA1 230.00]1]
CHNL# 14: [POWR 61736[BSR 4 0.6900]1]
CHNL# 12: [POWR560041[BUFFALO6 0.6900]G1]
CHNL# 21: [POWR 775[SECCT2 21.000]3]
CHNL# 19: [POWR 773[SECST 20.000]1]
CHNL# 15: [POWR990005[GT_GEN_A3 0.6000]1]

WED, FEB 22 2023 21:43
MACHINE POWER

TIME (SECONDS)

SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -935L_FAULT_AT_MILO 356S

FILE: 935L_Fault_at_Milo 356S.out

CHNL# 47: [VOLT 990005[GT_GEN_A3 0.6000]]
CHNL# 39: [VOLT 254 [GLEICHE7 138.00]]
CHNL# 38: [VOLT 253 [BLACKIE7 138.00]]
CHNL# 37: [VOLT 252 [CARSELA7 138.00]]
CHNL# 36: [VOLT 242 [HIGH_RI7 138.00]]
CHNL# 34: [VOLT 159 [LANGDON4 240.00]]

WED, FEB 22 2023 21:43
BUS VOLTAGE

TIME (SECONDS)

SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -935L_FAULT_AT_MILO 356S

FILE: 935L_Fault_at_Milo 356S.out

CHNL# 10: [ANGL 775[SECCT2 21.000]3]
CHNL# 9: [ANGL 774[SECCT1 21.000]2]
CHNL# 8: [ANGL 773[SECST 20.000]1]

WED, FEB 22 2023 21:43
MACHINE ANGLE

TIME (SECONDS)

SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -935L_FAULT_AT_MILO 356S

FILE: 935L_Fault_at_Milo 356S.out

CHNL# 33: [VARS 80000[MONTANA1 230.00]1]
CHNL# 25: [VARS 61736[BSR 4 0.6900]1]
CHNL# 23: [VARS560041[BUFFALO6 0.6900]G1]
CHNL# 32: [VARS 775[SECCT2 21.000]3]
CHNL# 30: [VARS 773[SECST 20.000]1]
CHNL# 26: [VARS990005[GT_GEN_A3 0.6000]1]

WED, FEB 22 2023 21:43
MACHINE VAR

TIME (SECONDS)

SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -935L_FAULT_AT_MILO 356S

FILE: 935L_Fault_at_Milo 356S.out

CHNL# 72: [VARS 943 TO 918 CKT '35'] 600.00 -400.0
CHNL# 70: [VARS 943 TO 1012 CKT '23'] 600.00 -400.0
CHNL# 68: [VARS 943 TO 547026 CKT '05'] 600.00 -400.0
CHNL# 66: [VARS 943 TO 737 CKT '36'] 600.00 -400.0
CHNL# 64: [VARS 159 TO 990011 CKT '24'] 600.00 -400.0
CHNL# 62: [VARS 943 TO 990011 CKT '24'] 600.00 -400.0

TIME (SECONDS) 0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

WED, FEB 22 2023 21:43 LINE VAR

SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -935L_FAULT_AT_CASSILS 324S

FILE: 935L_Fault_at_Cassils 324S.out

CHNL# 22: [POWR 80000[MONTANA1 230.00]1] 4.0000 -1.000
CHNL# 14: [POWR 61736[BSR_4 0.6900]1] 4.0000 -1.000
CHNL# 12: [POWR560041[BUFFALO6 0.6900]G1] 4.0000 -1.000
CHNL# 21: [POWR 775[SECCT2 21.000]3] 4.0000 -1.000
CHNL# 19: [POWR 773[SECST 20.000]1] 4.0000 -1.000
CHNL# 15: [POWR990005[GT_GEN_A3 0.6000]1] 5.0000 -1.000

TIME (SECONDS) 0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

WED, FEB 22 2023 21:43 MACHINE POWER

SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -935L_FAULT_AT_MILO 356S

FILE: 935L_Fault_at_Milo 356S.out

CHNL# 71: [POWR 943 TO 918 CKT '35'] 600.00 -600.0
CHNL# 69: [POWR 943 TO 1012 CKT '23'] 600.00 -600.0
CHNL# 67: [POWR 943 TO 547026 CKT '05'] 600.00 -600.0
CHNL# 65: [POWR 943 TO 737 CKT '36'] 600.00 -600.0
CHNL# 63: [POWR 159 TO 990011 CKT '24'] 600.00 -600.0
CHNL# 61: [POWR 943 TO 990011 CKT '24'] 800.00 -400.0

TIME (SECONDS) 0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

WED, FEB 22 2023 21:43 LINE POWER

SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -935L_FAULT_AT_CASSILS 324S

FILE: 935L_Fault_at_Cassils 324S.out

CHNL# 10: [ANGL 775[SECCT2 21.000]3] 200.00 -200.0
CHNL# 9: [ANGL 774[SECCT1 21.000]2] 200.00 -200.0
CHNL# 8: [ANGL 773[SECST 20.000]1] 200.00 -200.0

TIME (SECONDS) 0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

WED, FEB 22 2023 21:43 MACHINE ANGLE

SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -935L_FAULT_AT_CASSILS 324S

FILE: 935L_Fault_at_Cassils 324S.out

CHNL# 47: [VOLT 990005 [GT GEN A3 0.6000]]
CHNL# 39: [VOLT 254 [GLEICHE7 138.00]]
CHNL# 38: [VOLT 253 [BLACKIE7 138.00]]
CHNL# 37: [VOLT 252 [CARSELA7 138.00]]
CHNL# 36: [VOLT 242 [HIGH RI7 138.00]]
CHNL# 34: [VOLT 159 [LANGDON4 240.00]]

2.0000 -0.1000

WED, FEB 22 2023 21:43
BUS VOLTAGE

TIME (SECONDS)
0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -935L_FAULT_AT_CASSILS 324S

FILE: 935L_Fault_at_Cassils 324S.out

CHNL# 72: [VARS 943 TO 918 CKT '35']
CHNL# 70: [VARS 943 TO 1012 CKT '23']
CHNL# 68: [VARS 943 TO 547026 CKT '05']
CHNL# 66: [VARS 943 TO 737 CKT '36']
CHNL# 64: [VARS 159 TO 990011 CKT '24']
CHNL# 62: [VARS 943 TO 990011 CKT '24']

600.00 -400.0

WED, FEB 22 2023 21:43
LINE VAR

TIME (SECONDS)
0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -935L_FAULT_AT_CASSILS 324S

FILE: 935L_Fault_at_Cassils 324S.out

CHNL# 33: [VARS 80000[MONTANA1 230.00]1]
CHNL# 25: [VARS 61736[BSR 4 0.6900]1]
CHNL# 23: [VARS560041[BUFFALO6 0.6900]G1]
CHNL# 32: [VARS 775[SECCT2 21.000]3]
CHNL# 30: [VARS 773[SECST 20.000]1]
CHNL# 26: [VARS990005[GT GEN A3 0.6000]1]

4.0000 -1.500

WED, FEB 22 2023 21:43
MACHINE VAR

TIME (SECONDS)
0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -935L_FAULT_AT_CASSILS 324S

FILE: 935L_Fault_at_Cassils 324S.out

CHNL# 71: [POWR 943 TO 918 CKT '35']
CHNL# 69: [POWR 943 TO 1012 CKT '23']
CHNL# 67: [POWR 943 TO 547026 CKT '05']
CHNL# 65: [POWR 943 TO 737 CKT '36']
CHNL# 63: [POWR 159 TO 990011 CKT '24']
CHNL# 61: [POWR 943 TO 990011 CKT '24']

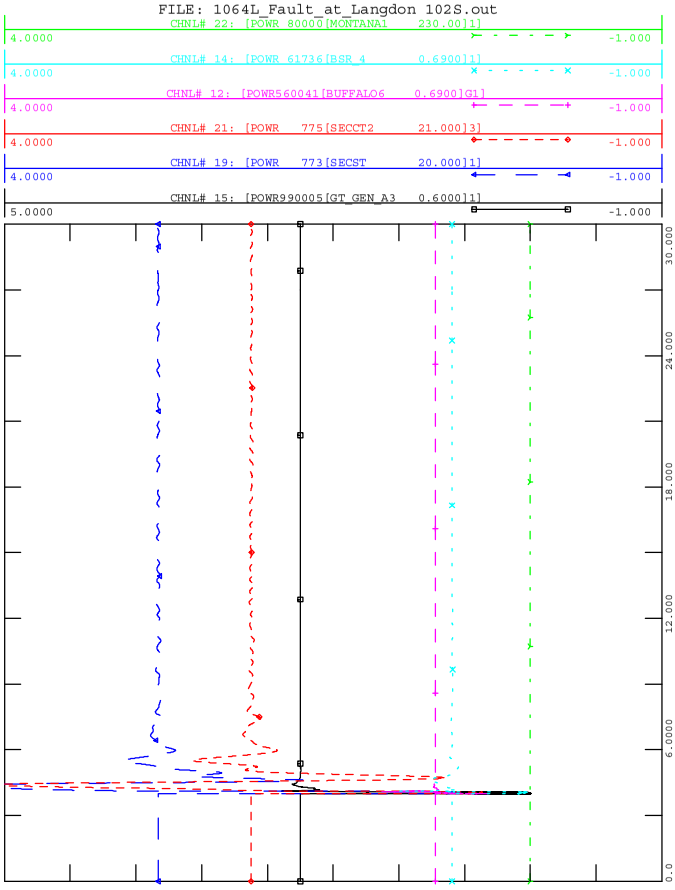
600.00 -600.0

WED, FEB 22 2023 21:43
LINE POWER

TIME (SECONDS)
0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -1064L_FAULT_AT_LANGDON 102S

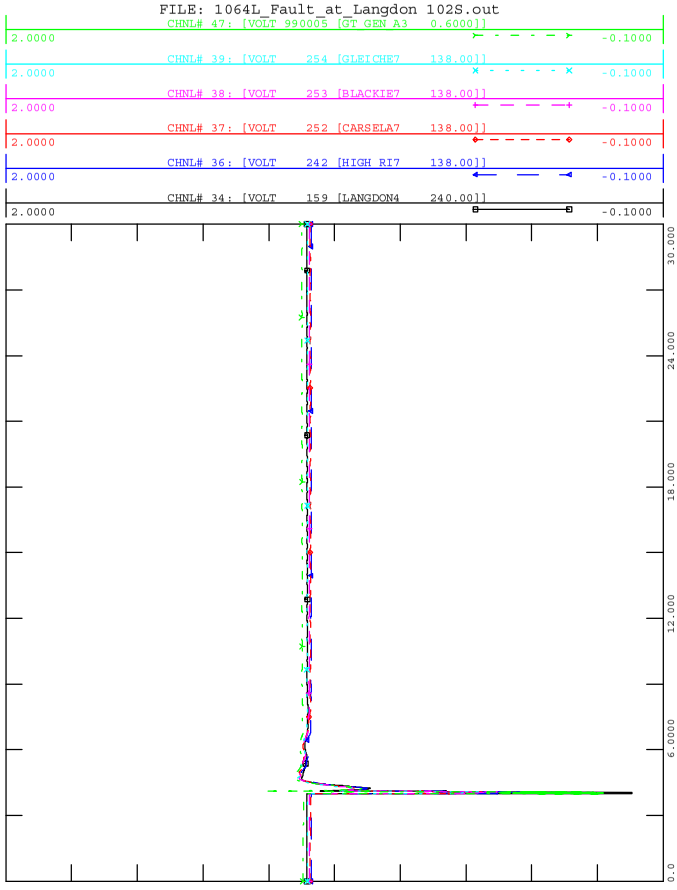
FILE: 1064L_Fault_at_Langdon 102S.out



WED, FEB 22 2023 21:43
MACHINE POWER

SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -1064L_FAULT_AT_LANGDON 102S

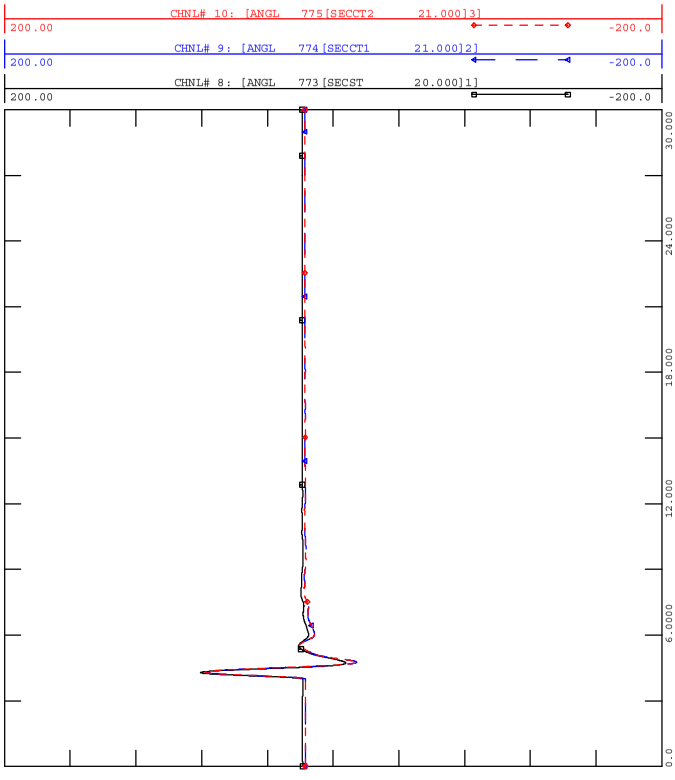
FILE: 1064L_Fault_at_Langdon 102S.out



WED, FEB 22 2023 21:43
BUS VOLTAGE

SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -1064L_FAULT_AT_LANGDON 102S

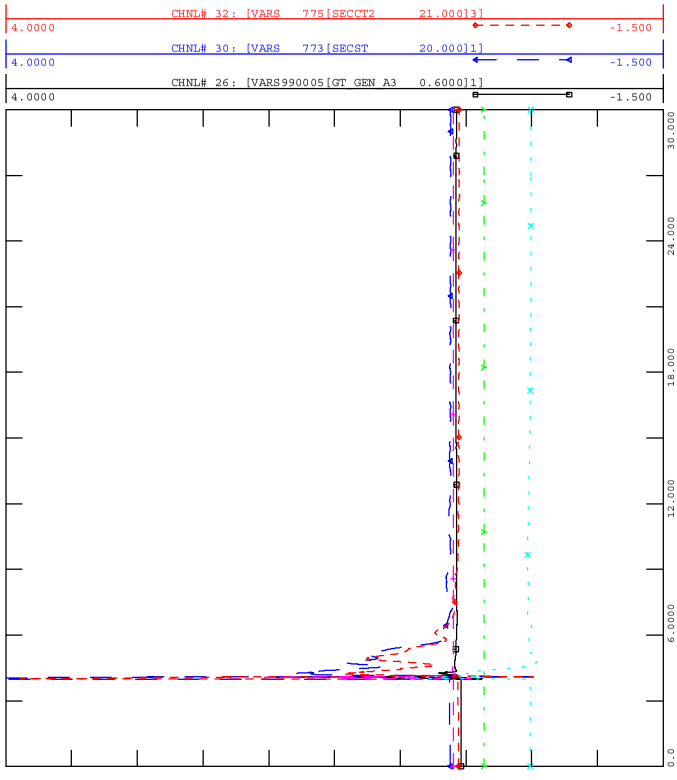
FILE: 1064L_Fault_at_Langdon 102S.out



WED, FEB 22 2023 21:43
MACHINE ANGLE

SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -1064L_FAULT_AT_LANGDON 102S

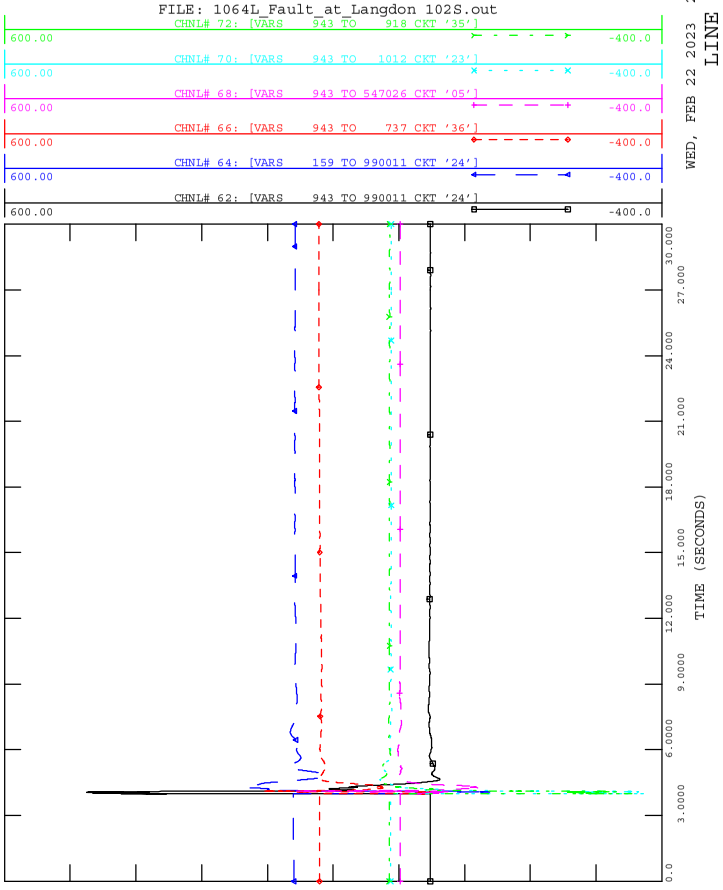
FILE: 1064L_Fault_at_Langdon 102S.out



WED, FEB 22 2023 21:43
MACHINE VAR

SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -1064L_FAULT_AT_LANGDON 102S

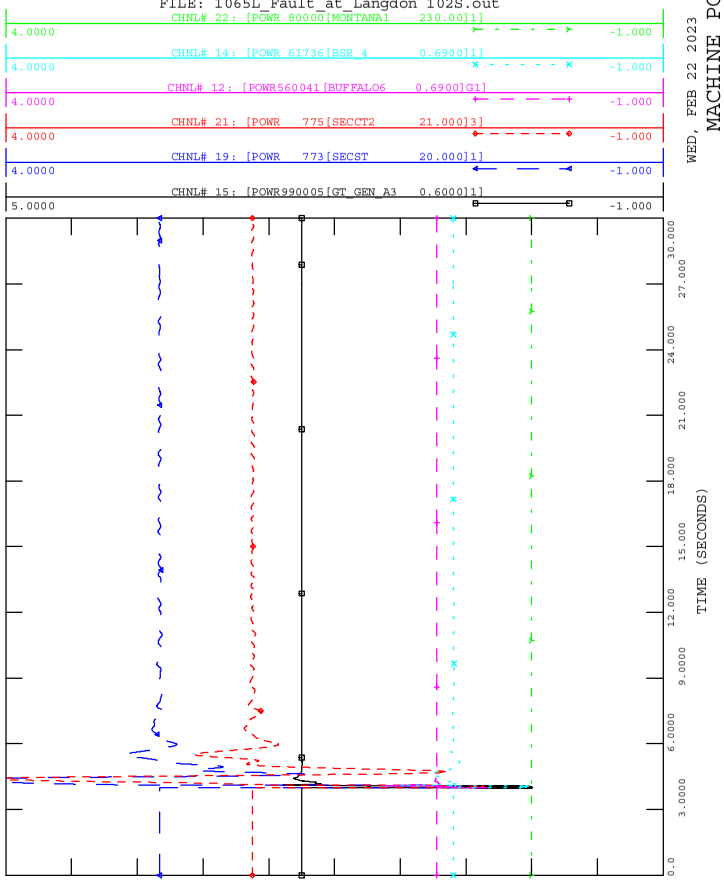
FILE: 1064L_Fault_at_Langdon 102S.out



WED, FEB 22 2023 21:43 LINE VAR

SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -1065L_FAULT_AT_LANGDON 102S

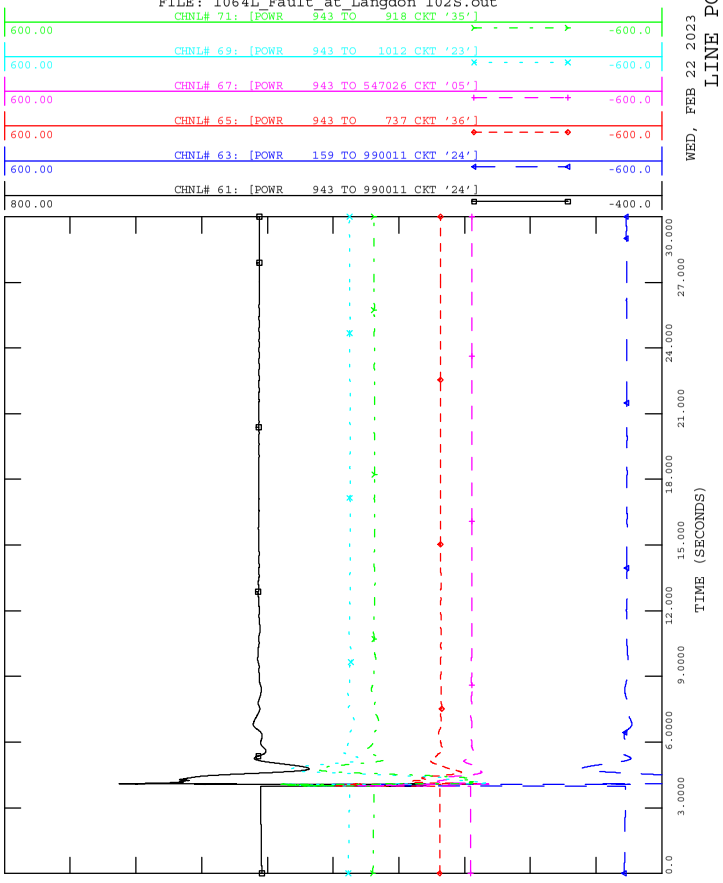
FILE: 1065L_Fault_at_Langdon 102S.out



WED, FEB 22 2023 21:43 MACHINE POWER

SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -1064L_FAULT_AT_LANGDON 102S

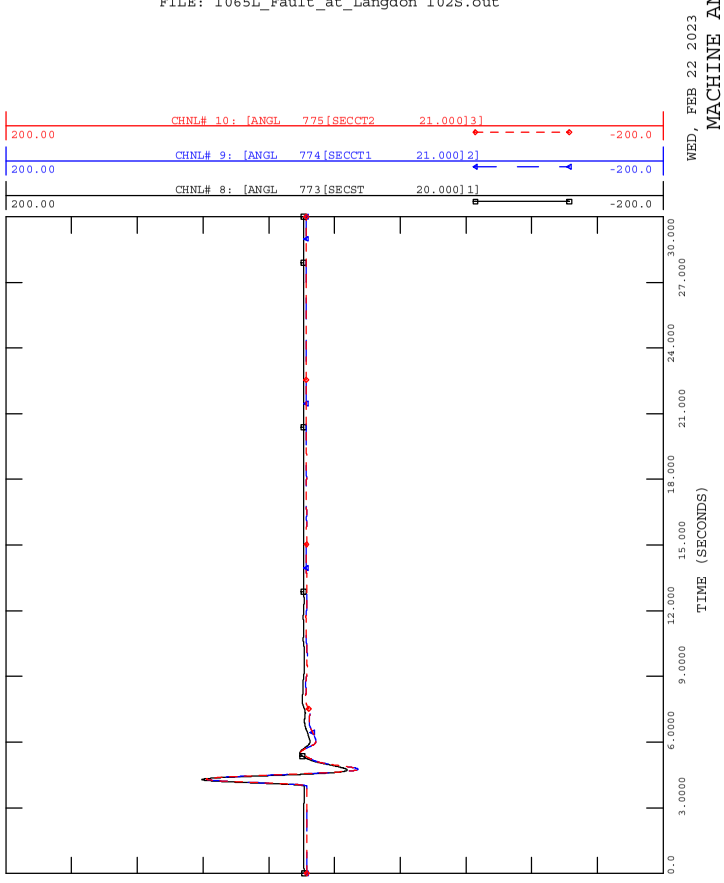
FILE: 1064L_Fault_at_Langdon 102S.out



WED, FEB 22 2023 21:43 LINE POWER

SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -1065L_FAULT_AT_LANGDON 102S

FILE: 1065L_Fault_at_Langdon 102S.out



WED, FEB 22 2023 21:43 MACHINE ANGLE

SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -1065L_FAULT_AT_LANGDON 102S

FILE: 1065L_Fault_at_Langdon 102S.out

CHNL# 47: [VOLT 990005 [GT GEN A3 0.6000]]
CHNL# 39: [VOLT 254 [GLEICHE7 138.00]]
CHNL# 38: [VOLT 253 [BLACKIE7 138.00]]
CHNL# 37: [VOLT 252 [CARSELA7 138.00]]
CHNL# 36: [VOLT 242 [HIGH RI7 138.00]]
CHNL# 34: [VOLT 159 [LANGDON4 240.00]]

2.0000 -0.1000

WED, FEB 22 2023 21:43
BUS VOLTAGE

TIME (SECONDS)
0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -1065L_FAULT_AT_LANGDON 102S

FILE: 1065L_Fault_at_Langdon 102S.out

CHNL# 72: [VARS 943 TO 918 CKT '35']
CHNL# 70: [VARS 943 TO 1012 CKT '23']
CHNL# 68: [VARS 943 TO 547026 CKT '05']
CHNL# 66: [VARS 943 TO 737 CKT '36']
CHNL# 64: [VARS 159 TO 990011 CKT '24']
CHNL# 62: [VARS 943 TO 990011 CKT '24']

600.00 -400.0

WED, FEB 22 2023 21:43
LINE VAR

TIME (SECONDS)
0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -1065L_FAULT_AT_LANGDON 102S

FILE: 1065L_Fault_at_Langdon 102S.out

CHNL# 33: [VARS 80000[MONTANA1 230.00]1]
CHNL# 25: [VARS 61736[BSR 4 0.6900]1]
CHNL# 23: [VARS560041[BUFFALO6 0.6900]G1]
CHNL# 32: [VARS 775[SECCT2 21.000]3]
CHNL# 30: [VARS 773[SECST 20.000]1]
CHNL# 26: [VARS990005[GT GEN A3 0.6000]1]

4.0000 -1.500

WED, FEB 22 2023 21:43
MACHINE VAR

TIME (SECONDS)
0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -1065L_FAULT_AT_LANGDON 102S

FILE: 1065L_Fault_at_Langdon 102S.out

CHNL# 71: [POWR 943 TO 918 CKT '35']
CHNL# 69: [POWR 943 TO 1012 CKT '23']
CHNL# 67: [POWR 943 TO 547026 CKT '05']
CHNL# 65: [POWR 943 TO 737 CKT '36']
CHNL# 63: [POWR 159 TO 990011 CKT '24']
CHNL# 61: [POWR 943 TO 990011 CKT '24']

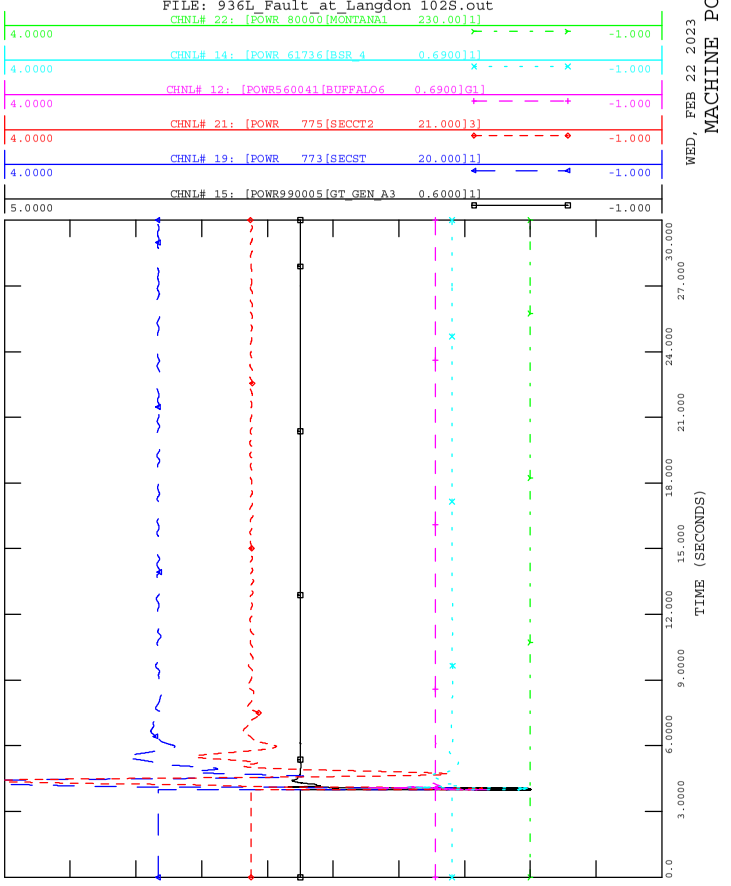
600.00 -600.0
800.00 -400.0

WED, FEB 22 2023 21:43
LINE POWER

TIME (SECONDS)
0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -936L_FAULT_AT_LANGDON 102S

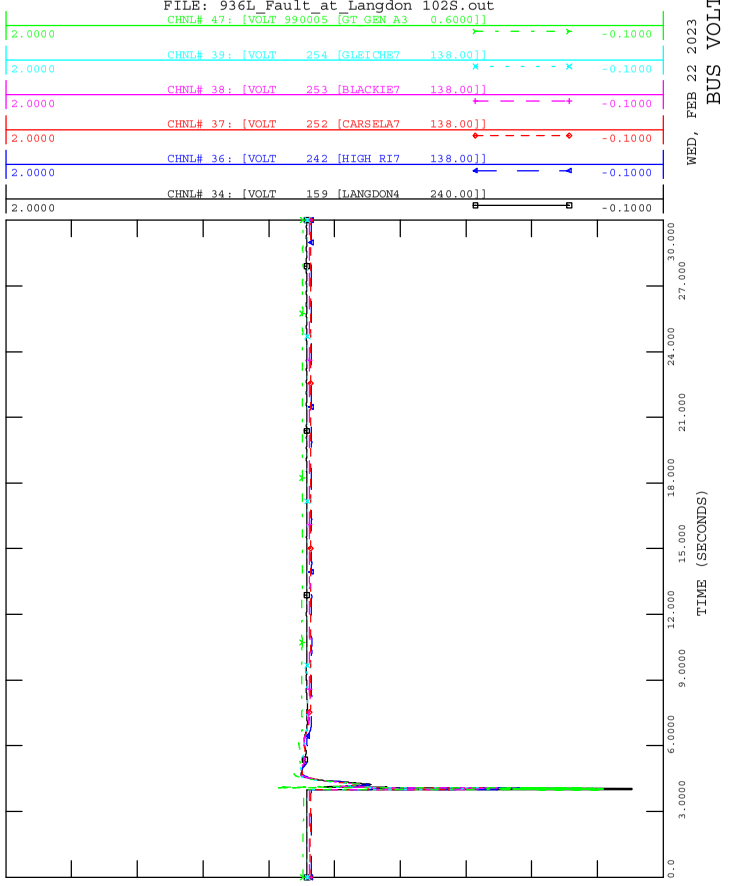
FILE: 936L_Fault_at_Langdon 102S.out



WED, FEB 22 2023 21:43
MACHINE POWER

SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -936L_FAULT_AT_LANGDON 102S

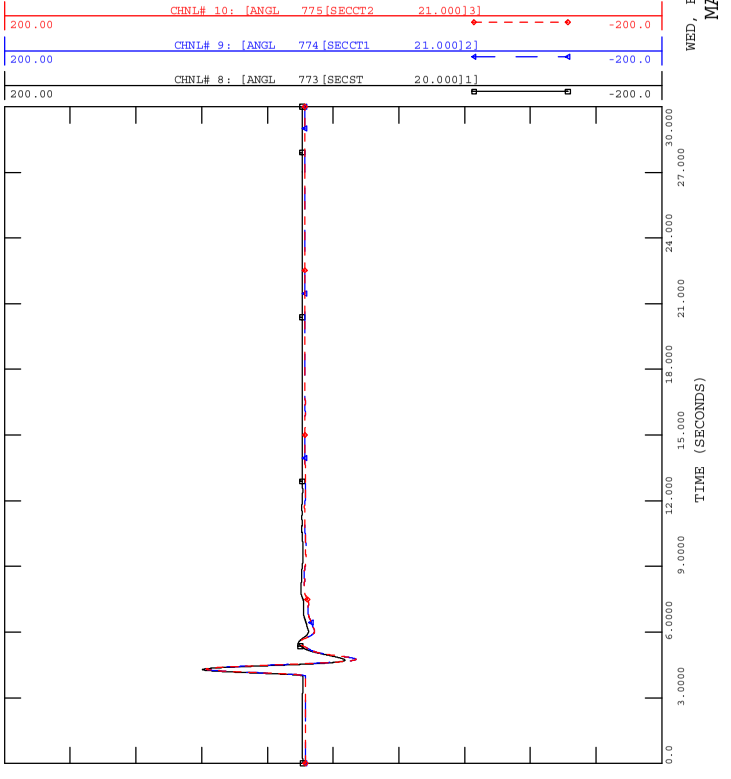
FILE: 936L_Fault_at_Langdon 102S.out



WED, FEB 22 2023 21:43
BUS VOLTAGE

SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -936L_FAULT_AT_LANGDON 102S

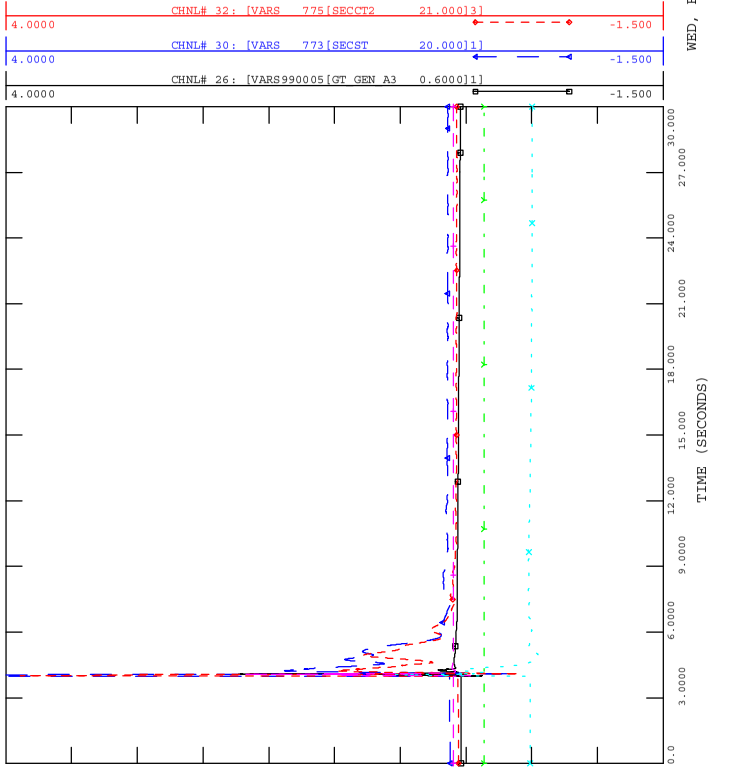
FILE: 936L_Fault_at_Langdon 102S.out



WED, FEB 22 2023 21:43
MACHINE ANGLE

SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -936L_FAULT_AT_LANGDON 102S

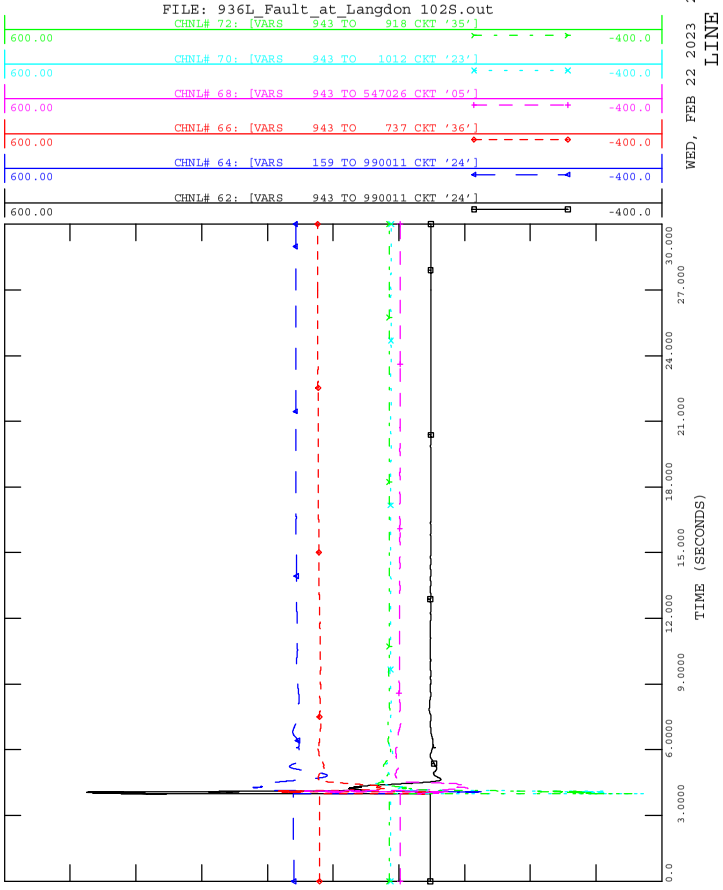
FILE: 936L_Fault_at_Langdon 102S.out



WED, FEB 22 2023 21:43
MACHINE VAR

SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -936L_FAULT_AT_LANGDON 102S

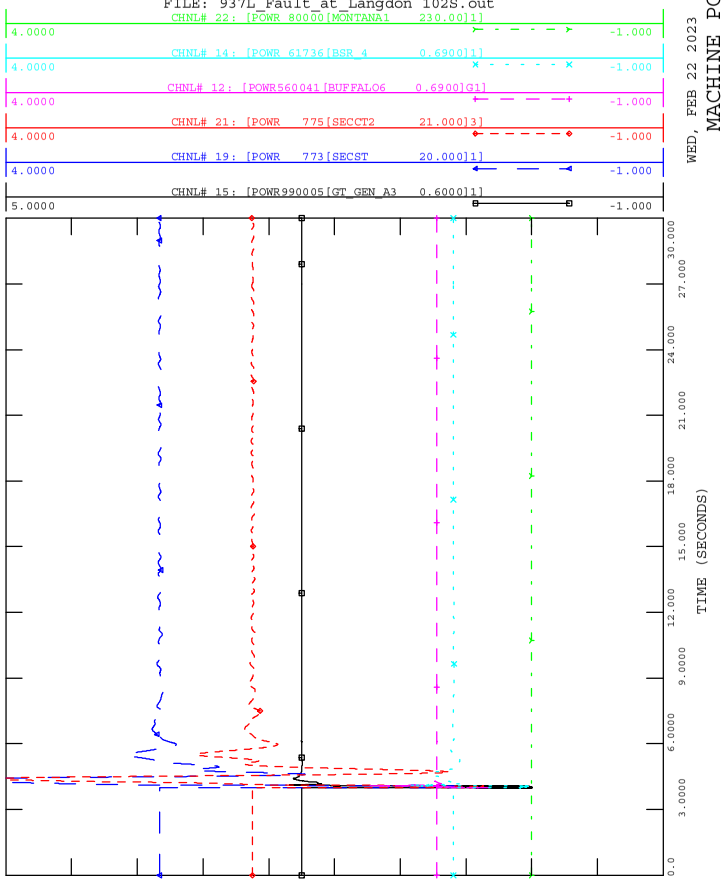
FILE: 936L_Fault_at_Langdon 102S.out



WED, FEB 22 2023 21:43
LINE VAR

SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -937L_FAULT_AT_LANGDON 102S

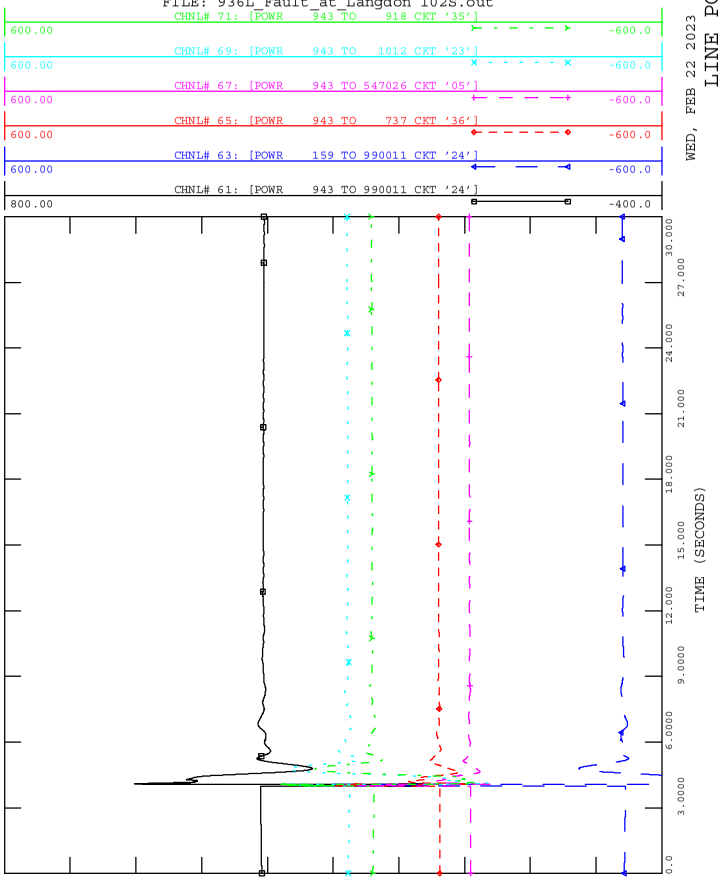
FILE: 937L_Fault_at_Langdon 102S.out



WED, FEB 22 2023 21:43
MACHINE POWER

SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -936L_FAULT_AT_LANGDON 102S

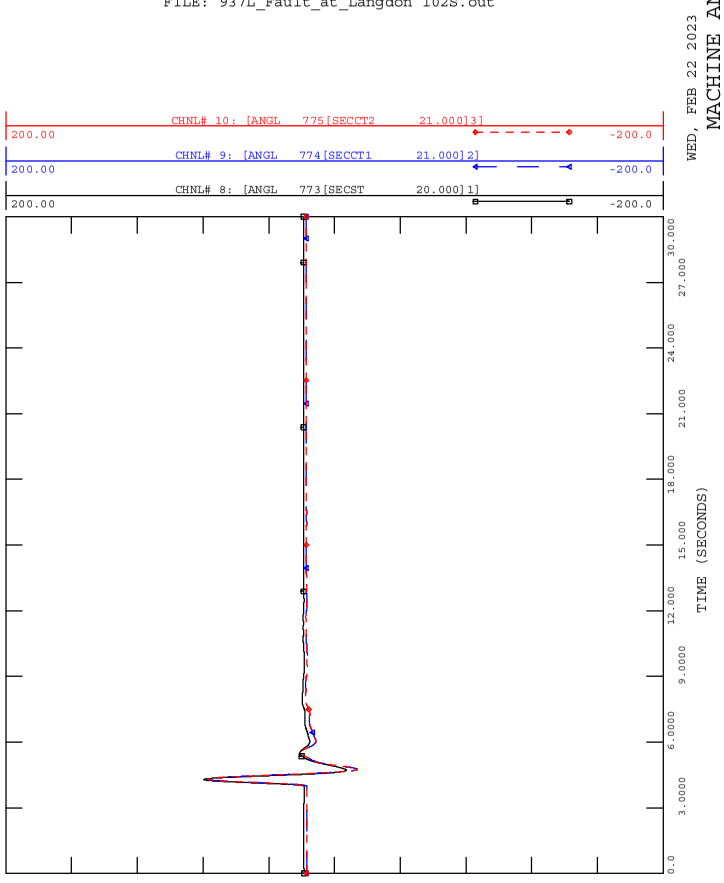
FILE: 936L_Fault_at_Langdon 102S.out



WED, FEB 22 2023 21:43
LINE POWER

SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -937L_FAULT_AT_LANGDON 102S

FILE: 937L_Fault_at_Langdon 102S.out



WED, FEB 22 2023 21:43
MACHINE ANGLE

SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -937L_FAULT_AT_LANGDON 102S

FILE: 937L_Fault_at_Langdon 102S.out

CHNL# 47: [VOLT 990005 [GT GEN A3 0.6000]]
CHNL# 39: [VOLT 254 [GLEICHE7 138.00]]
CHNL# 38: [VOLT 253 [BLACKIE7 138.00]]
CHNL# 37: [VOLT 252 [CARSELA7 138.00]]
CHNL# 36: [VOLT 242 [HIGH RI7 138.00]]
CHNL# 34: [VOLT 159 [LANGDON4 240.00]]

2.0000 / -0.1000

WED, FEB 22 2023 21:43
BUS VOLTAGE

TIME (SECONDS)
0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -937L_FAULT_AT_LANGDON 102S

FILE: 937L_Fault_at_Langdon 102S.out

CHNL# 72: [VARS 943 TO 918 CKT '35']
CHNL# 70: [VARS 943 TO 1012 CKT '23']
CHNL# 68: [VARS 943 TO 547026 CKT '05']
CHNL# 66: [VARS 943 TO 737 CKT '36']
CHNL# 64: [VARS 159 TO 990011 CKT '24']
CHNL# 62: [VARS 943 TO 990011 CKT '24']

600.00 / -400.0

WED, FEB 22 2023 21:43
LINE VAR

TIME (SECONDS)
0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -937L_FAULT_AT_LANGDON 102S

FILE: 937L_Fault_at_Langdon 102S.out

CHNL# 33: [VARS 80000[MONTANA1 230.00]1]
CHNL# 25: [VARS 61736[BSR 4 0.6900]1]
CHNL# 23: [VARS560041[BUFFALO6 0.6900]G1]
CHNL# 32: [VARS 775[SECCT2 21.000]3]
CHNL# 30: [VARS 773[SECST 20.000]1]
CHNL# 26: [VARS990005[GT GEN A3 0.6000]1]

4.0000 / -1.500

WED, FEB 22 2023 21:43
MACHINE VAR

TIME (SECONDS)
0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

SCENARIO #8: 2023 SP/POST SENSITIVITY PROJECT
CATB -937L_FAULT_AT_LANGDON 102S

FILE: 937L_Fault_at_Langdon 102S.out

CHNL# 71: [POWR 943 TO 918 CKT '35']
CHNL# 69: [POWR 943 TO 1012 CKT '23']
CHNL# 67: [POWR 943 TO 547026 CKT '05']
CHNL# 65: [POWR 943 TO 737 CKT '36']
CHNL# 63: [POWR 159 TO 990011 CKT '24']
CHNL# 61: [POWR 943 TO 990011 CKT '24']

600.00 / -600.0
800.00 / -400.0

WED, FEB 22 2023 21:43
LINE POWER

TIME (SECONDS)
0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

Plots for P2396 SL_Sensitivity_Pre-RAS (Scenario 9)

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -924L_FAULT_AT_LANGDON 102S_V0

FILE: 924L_Fault_at_Langdon 102S_V0.out

CHNL# 22: [POWR 80000[MONTANA1 230.00]1]
CHNL# 14: [POWR 61736[BSR 4 0.6900]1]
CHNL# 12: [POWR560041[BUFFALO6 0.6900]G1]
CHNL# 21: [POWR 775[SECCT2 21.000]3]
CHNL# 19: [POWR 773[SECST 20.000]1]
CHNL# 15: [POWR990005[GT_GEN_A3 0.6000]1]

TUE, FEB 21 2023 21:42
MACHINE POWER

TIME (SECONDS)

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -924L_FAULT_AT_LANGDON 102S_V0

FILE: 924L_Fault_at_Langdon 102S_V0.out

CHNL# 47: [VOLT 990005[GT_GEN_A3 0.6000]1]
CHNL# 39: [VOLT 254 [GLEICHE7 138.00]1]
CHNL# 38: [VOLT 253 [BLACKIE7 138.00]1]
CHNL# 37: [VOLT 252 [CARSELA7 138.00]1]
CHNL# 36: [VOLT 242 [HIGH_RI7 138.00]1]
CHNL# 34: [VOLT 159 [LANGDON4 240.00]1]

TUE, FEB 21 2023 21:42
BUS VOLTAGE

TIME (SECONDS)

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -924L_FAULT_AT_LANGDON 102S_V0

FILE: 924L_Fault_at_Langdon 102S_V0.out

CHNL# 10: [ANGL 775[SECCT2 21.000]3]
CHNL# 9: [ANGL 774[SECCT1 21.000]2]
CHNL# 8: [ANGL 773[SECST 20.000]1]

TUE, FEB 21 2023 21:42
MACHINE ANGLE

TIME (SECONDS)

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -924L_FAULT_AT_LANGDON 102S_V0

FILE: 924L_Fault_at_Langdon 102S_V0.out

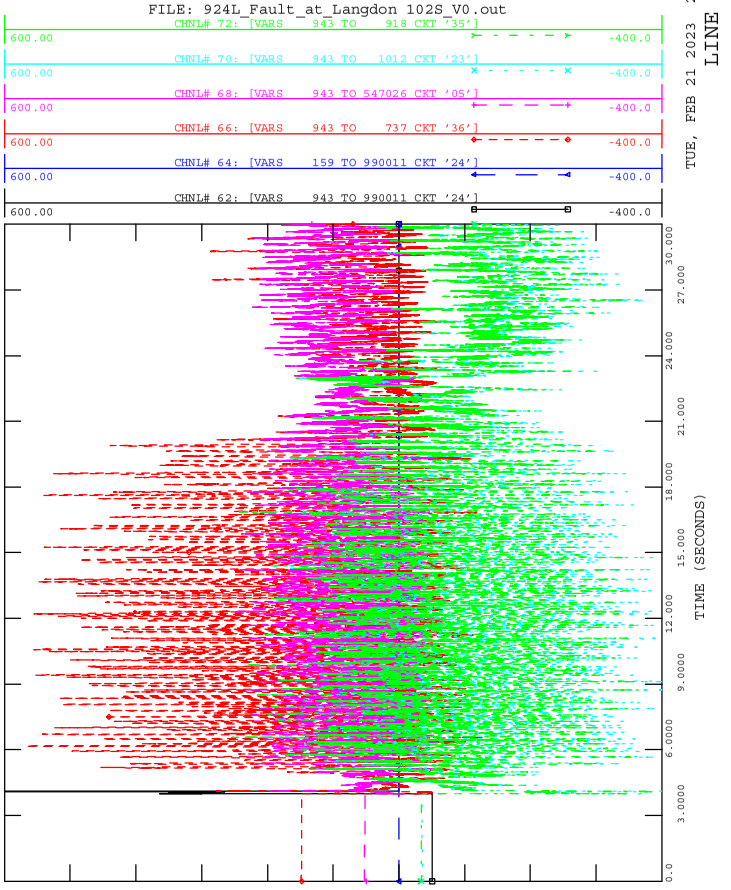
CHNL# 33: [VARS 80000[MONTANA1 230.00]1]
CHNL# 25: [VARS 61736[BSR 4 0.6900]1]
CHNL# 23: [VARS560041[BUFFALO6 0.6900]G1]
CHNL# 32: [VARS 775[SECCT2 21.000]3]
CHNL# 30: [VARS 773[SECST 20.000]1]
CHNL# 26: [VARS990005[GT_GEN_A3 0.6000]1]

TUE, FEB 21 2023 21:42
MACHINE VAR

TIME (SECONDS)

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -924L_FAULT_AT_LANGDON 102S_V0

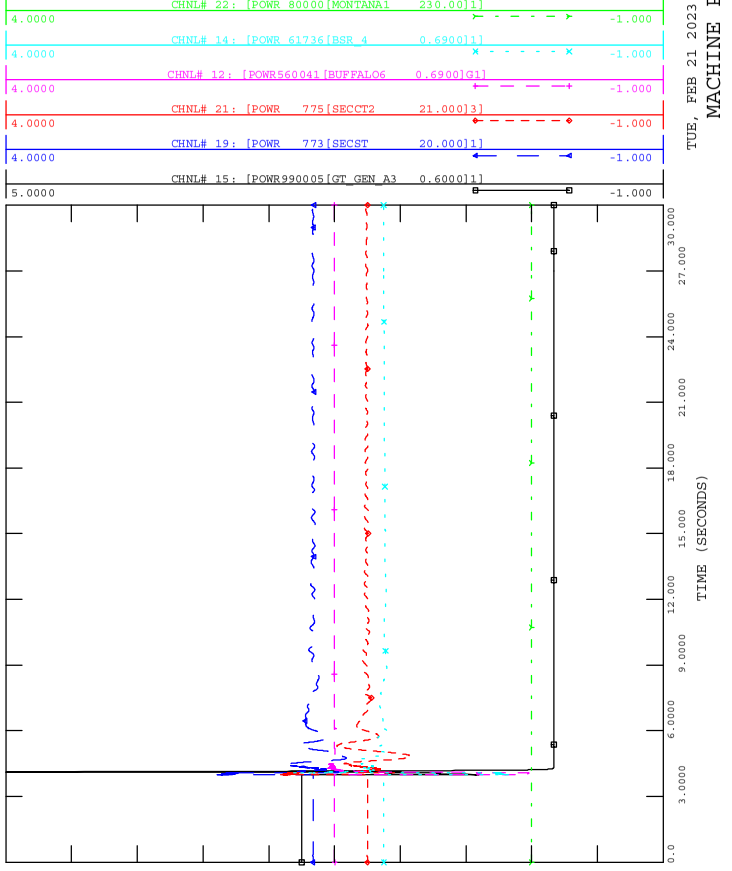
FILE: 924L_Fault_at_Langdon 102S_V0.out



TUE, FEB 21 2023 21:42
LINE VAR

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -924L_FAULT_AT_MILO 356S

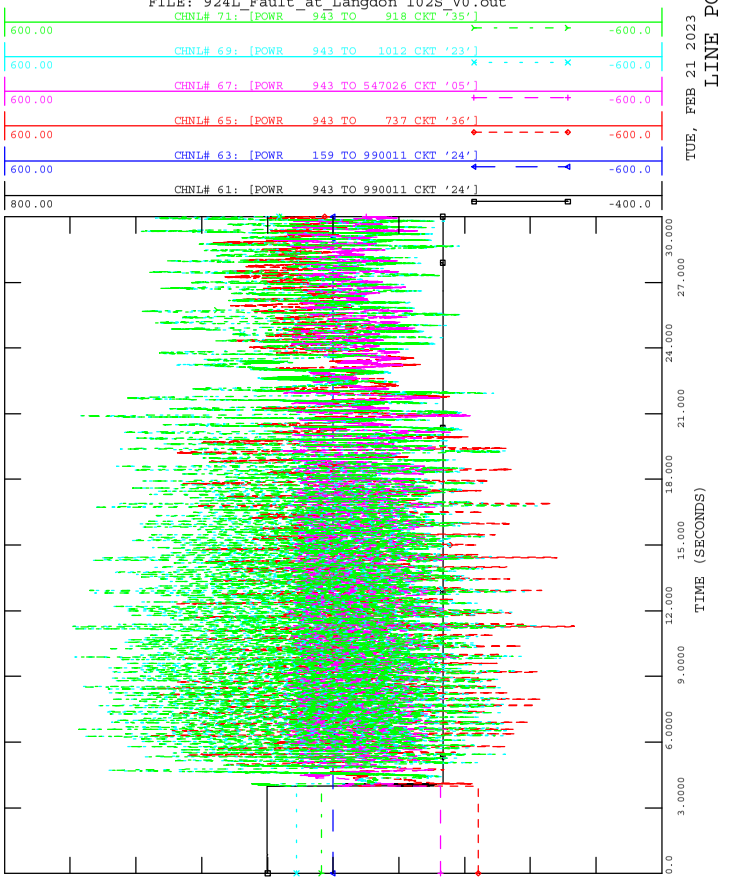
FILE: 924L_Fault_at_Milo 356S.out



TUE, FEB 21 2023 21:42
MACHINE POWER

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -924L_FAULT_AT_LANGDON 102S_V0

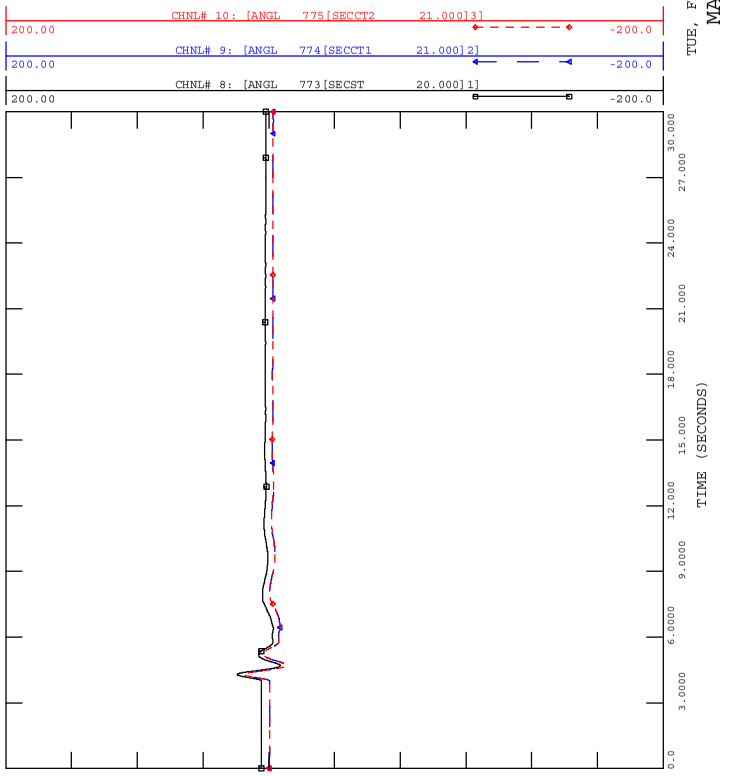
FILE: 924L_Fault_at_Langdon 102S_V0.out



TUE, FEB 21 2023 21:42
LINE POWER

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -924L_FAULT_AT_MILO 356S

FILE: 924L_Fault_at_Milo 356S.out



TUE, FEB 21 2023 21:42
MACHINE ANGLE

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -924L_FAULT_AT_MILO 356S

FILE: 924L_Fault_at_Milo 356S.out

CHNL# 47: [VOLT 990005 [GT GEN A3 0.6000]]
CHNL# 39: [VOLT 254 [GLEICHE7 138.00]]
CHNL# 38: [VOLT 253 [BLACKIE7 138.00]]
CHNL# 37: [VOLT 252 [CARSELA7 138.00]]
CHNL# 36: [VOLT 242 [HIGH RI7 138.00]]
CHNL# 34: [VOLT 159 [LANGDON4 240.00]]

3.0000 -0.1000
2.0000 -0.1000
2.0000 -0.1000
2.0000 -0.1000
2.0000 -0.1000
2.0000 -0.1000

TUE, FEB 21 2023 21:42
BUS VOLTAGE

TIME (SECONDS)
0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -924L_FAULT_AT_MILO 356S

FILE: 924L_Fault_at_Milo 356S.out

CHNL# 72: [VARS 943 TO 918 CKT '35']
CHNL# 70: [VARS 943 TO 1012 CKT '23']
CHNL# 68: [VARS 943 TO 547026 CKT '05']
CHNL# 66: [VARS 943 TO 737 CKT '36']
CHNL# 64: [VARS 159 TO 990011 CKT '24']
CHNL# 62: [VARS 943 TO 990011 CKT '24']

600.00 -400.0
600.00 -400.0
600.00 -400.0
600.00 -400.0
600.00 -400.0
600.00 -400.0

TUE, FEB 21 2023 21:42
LINE VAR

TIME (SECONDS)
0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -924L_FAULT_AT_MILO 356S

FILE: 924L_Fault_at_Milo 356S.out

CHNL# 33: [VARS 80000[MONTANA1 230.00]1]
CHNL# 25: [VARS 61736[BSR 4 0.6900]1]
CHNL# 23: [VARS560041[BUFFALO6 0.6900]G1]
CHNL# 32: [VARS 775[SECCT2 21.000]3]
CHNL# 30: [VARS 773[SECST 20.000]1]
CHNL# 26: [VARS990005[GT GEN A3 0.6000]1]

4.0000 -1.500
4.0000 -1.500
4.0000 -1.500
4.0000 -1.500
4.0000 -1.500
4.0000 -2.500

TUE, FEB 21 2023 21:42
MACHINE VAR

TIME (SECONDS)
0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -924L_FAULT_AT_MILO 356S

FILE: 924L_Fault_at_Milo 356S.out

CHNL# 71: [POWR 943 TO 918 CKT '35']
CHNL# 69: [POWR 943 TO 1012 CKT '23']
CHNL# 67: [POWR 943 TO 547026 CKT '05']
CHNL# 65: [POWR 943 TO 737 CKT '36']
CHNL# 63: [POWR 159 TO 990011 CKT '24']
CHNL# 61: [POWR 943 TO 990011 CKT '24']

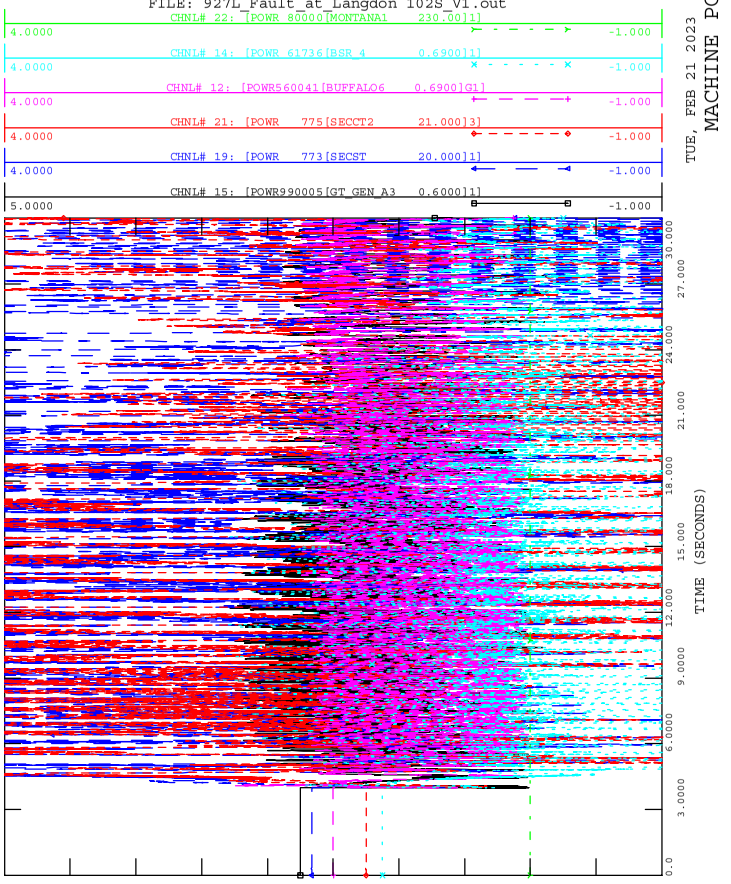
600.00 -600.0
600.00 -600.0
600.00 -600.0
600.00 -600.0
600.00 -600.0
800.00 -400.0

TUE, FEB 21 2023 21:42
LINE POWER

TIME (SECONDS)
0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -927L_FAULT_AT_LANGDON 102S_V1

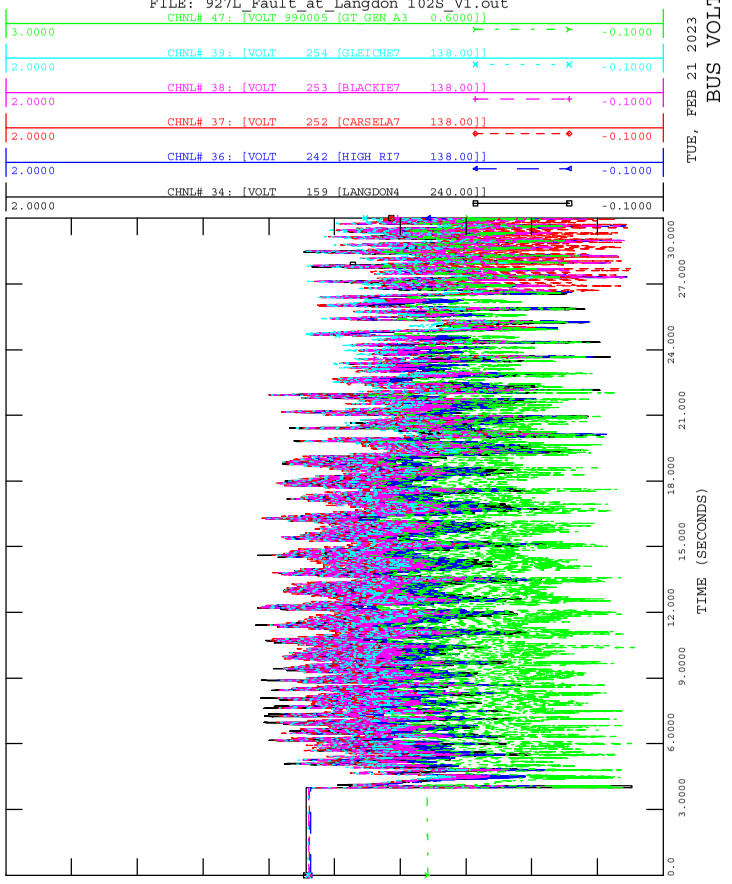
FILE: 927L_Fault_at_Langdon 102S_V1.out



TUE, FEB 21 2023 21:42
MACHINE POWER

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -927L_FAULT_AT_LANGDON 102S_V1

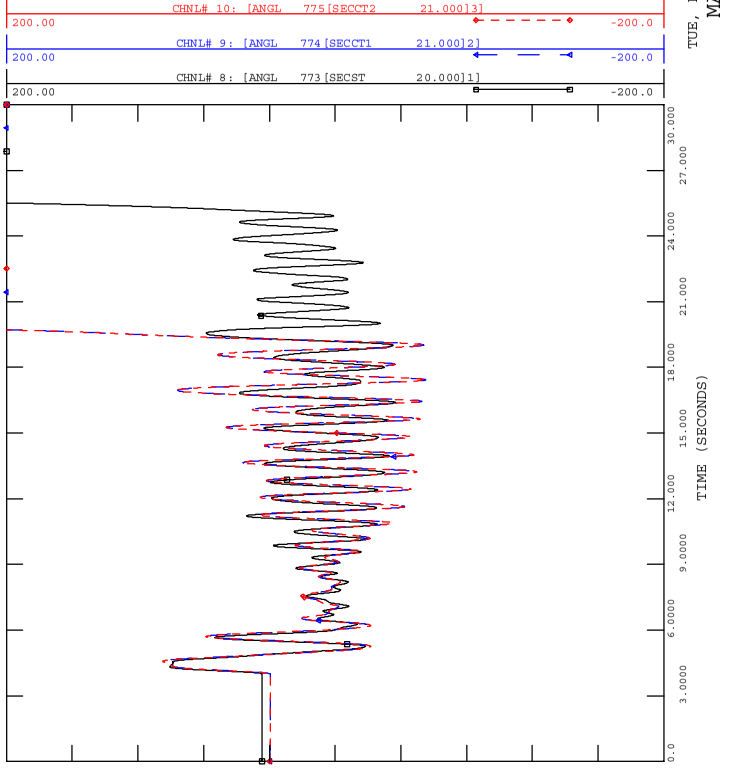
FILE: 927L_Fault_at_Langdon 102S_V1.out



TUE, FEB 21 2023 21:42
BUS VOLTAGE

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -927L_FAULT_AT_LANGDON 102S_V1

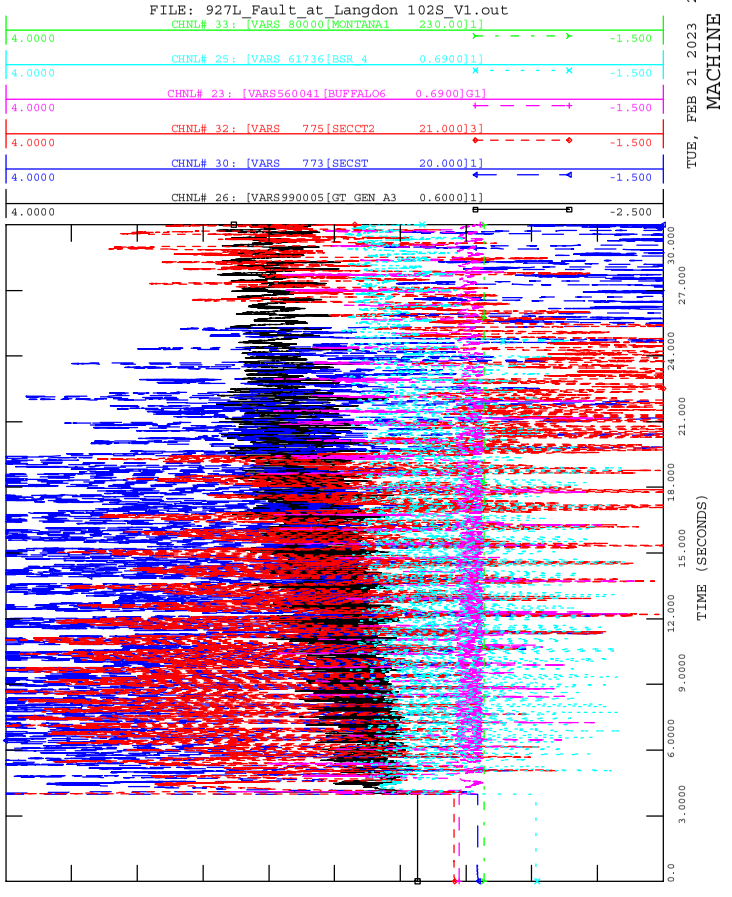
FILE: 927L_Fault_at_Langdon 102S_V1.out



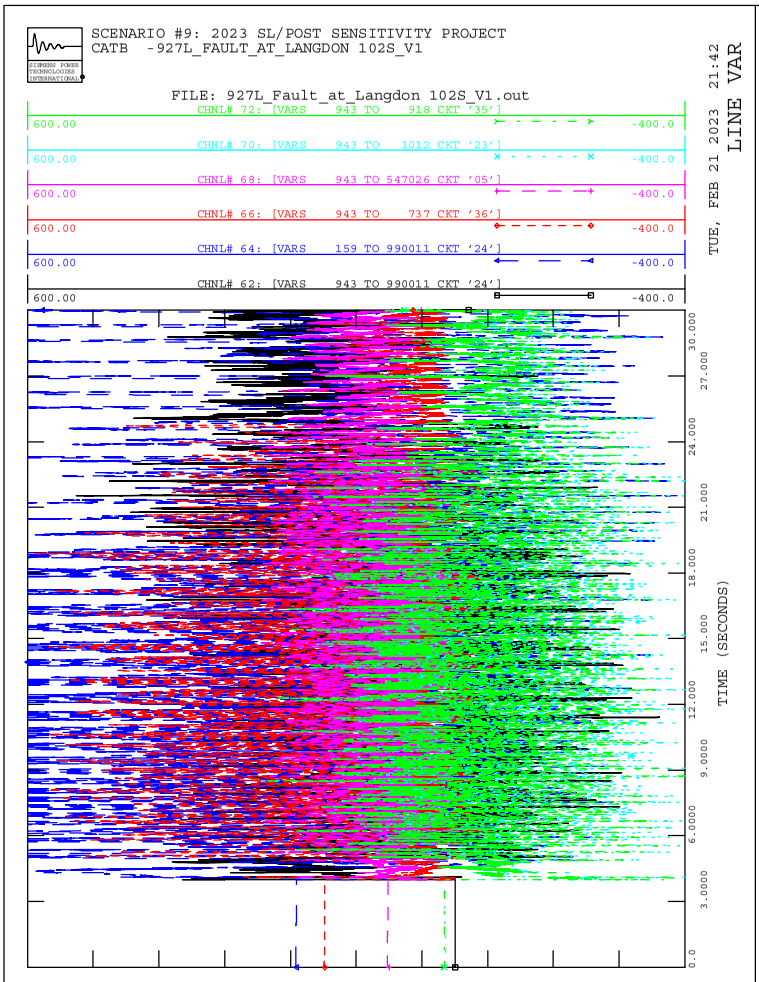
TUE, FEB 21 2023 21:42
MACHINE ANGLE

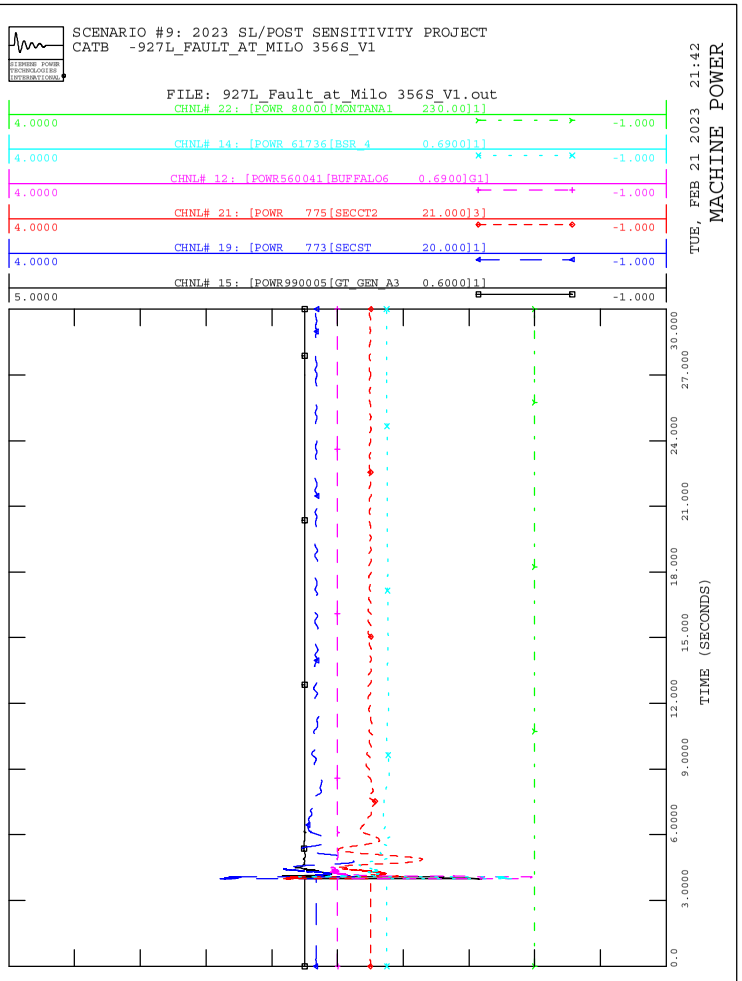
SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -927L_FAULT_AT_LANGDON 102S_V1

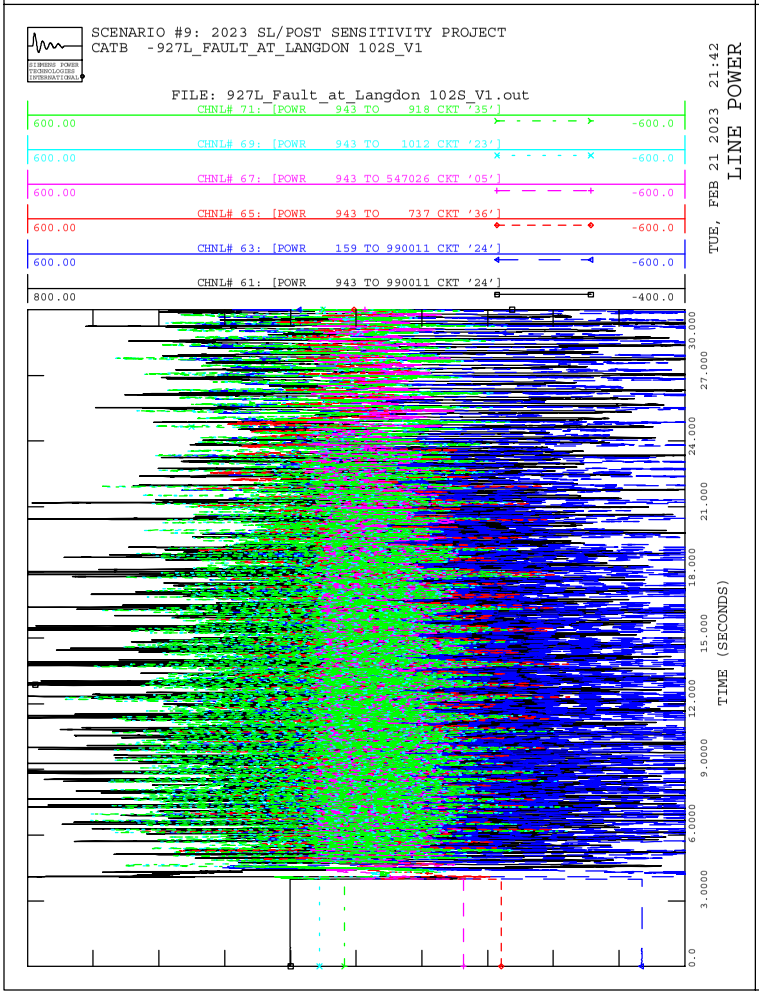
FILE: 927L_Fault_at_Langdon 102S_V1.out

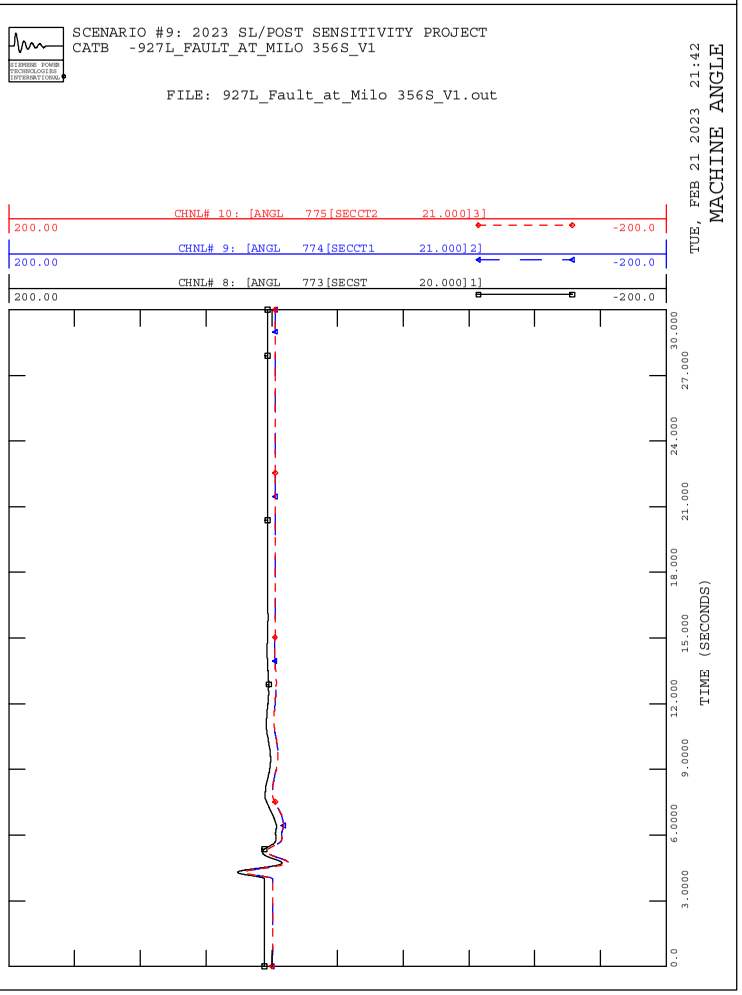


TUE, FEB 21 2023 21:42
MACHINE VAR


SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -927L_FAULT_AT_LANGDON 102S_V1
FILE: 927L_Fault_at_Langdon 102S_V1.out
CHNL# 72: [VARS 943 TO 918 CKT '35']
CHNL# 70: [VARS 943 TO 1012 CKT '23']
CHNL# 68: [VARS 943 TO 547026 CKT '05']
CHNL# 66: [VARS 943 TO 737 CKT '36']
CHNL# 64: [VARS 159 TO 990011 CKT '24']
CHNL# 62: [VARS 943 TO 990011 CKT '24']
600.00
-400.0
TUE, FEB 21 2023 21:42
LINE VAR
TIME (SECONDS)
0.0
3.0000
6.0000
9.0000
12.000
15.000
18.000
21.000
24.000
27.000
30.000


SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -927L_FAULT_AT_MILO 356S_V1
FILE: 927L_Fault_at_Milo 356S_V1.out
CHNL# 22: [POWR 80000[MONTANA1 230.00]1]
CHNL# 14: [POWR 61736[BSR_4 0.6900]1]
CHNL# 12: [POWR560041[BUFFALO6 0.6900]G1]
CHNL# 21: [POWR 775[SECCT2 21.000]3]
CHNL# 19: [POWR 773[SECST 20.000]1]
CHNL# 15: [POWR990005[GT_GEN_A3 0.6000]1]
4.0000
5.0000
-1.000
TUE, FEB 21 2023 21:42
MACHINE POWER
TIME (SECONDS)
0.0
3.0000
6.0000
9.0000
12.000
15.000
18.000
21.000
24.000
27.000
30.000


SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -927L_FAULT_AT_LANGDON 102S_V1
FILE: 927L_Fault_at_Langdon 102S_V1.out
CHNL# 71: [POWR 943 TO 918 CKT '35']
CHNL# 69: [POWR 943 TO 1012 CKT '23']
CHNL# 67: [POWR 943 TO 547026 CKT '05']
CHNL# 65: [POWR 943 TO 737 CKT '36']
CHNL# 63: [POWR 159 TO 990011 CKT '24']
CHNL# 61: [POWR 943 TO 990011 CKT '24']
600.00
800.00
-600.0
-400.0
TUE, FEB 21 2023 21:42
LINE POWER
TIME (SECONDS)
0.0
3.0000
6.0000
9.0000
12.000
15.000
18.000
21.000
24.000
27.000
30.000


SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -927L_FAULT_AT_MILO 356S_V1
FILE: 927L_Fault_at_Milo 356S_V1.out
CHNL# 10: [ANGL 775[SECCT2 21.000]3]
CHNL# 9: [ANGL 774[SECCT1 21.000]2]
CHNL# 8: [ANGL 773[SECST 20.000]1]
200.00
-200.0
TUE, FEB 21 2023 21:42
MACHINE ANGLE
TIME (SECONDS)
0.0
3.0000
6.0000
9.0000
12.000
15.000
18.000
21.000
24.000
27.000
30.000

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -927L_FAULT_AT_MILO 356S_V1

FILE: 927L_Fault_at_Milo 356S_V1.out

CHNL# 47: [VOLT 990005 [GT GEN A3 0.6000]]
CHNL# 39: [VOLT 254 [GLEICHE7 138.00]]
CHNL# 38: [VOLT 253 [BLACKIE7 138.00]]
CHNL# 37: [VOLT 252 [CARSELA7 138.00]]
CHNL# 36: [VOLT 242 [HIGH RI7 138.00]]
CHNL# 34: [VOLT 159 [LANGDON4 240.00]]

3.0000 2.0000 2.0000 2.0000 2.0000 2.0000 -0.1000 -0.1000 -0.1000 -0.1000 -0.1000 -0.1000

0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

TIME (SECONDS)

TUE, FEB 21 2023 21:42

BUS VOLTAGE

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -927L_FAULT_AT_MILO 356S_V1

FILE: 927L_Fault_at_Milo 356S_V1.out

CHNL# 72: [VARS 943 TO 918 CKT '35']
CHNL# 70: [VARS 943 TO 1012 CKT '23']
CHNL# 68: [VARS 943 TO 547026 CKT '05']
CHNL# 66: [VARS 943 TO 737 CKT '36']
CHNL# 64: [VARS 159 TO 990011 CKT '24']
CHNL# 62: [VARS 943 TO 990011 CKT '24']

600.00 600.00 600.00 600.00 600.00 600.00 -400.0 -400.0 -400.0 -400.0 -400.0 -400.0

0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

TIME (SECONDS)

TUE, FEB 21 2023 21:42

LINE VAR

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -927L_FAULT_AT_MILO 356S_V1

FILE: 927L_Fault_at_Milo 356S_V1.out

CHNL# 33: [VARS 80000[MONTANA1 230.00]1]
CHNL# 25: [VARS 61736[BSR 4 0.6900]1]
CHNL# 23: [VARS560041[BUFFALO6 0.6900]G1]
CHNL# 32: [VARS 775[SECCT2 21.000]3]
CHNL# 30: [VARS 773[SECST 20.000]1]
CHNL# 26: [VARS990005[GT GEN A3 0.6000]1]

4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 -1.500 -1.500 -1.500 -1.500 -1.500 -2.500

0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

TIME (SECONDS)

TUE, FEB 21 2023 21:42

MACHINE VAR

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -927L_FAULT_AT_MILO 356S_V1

FILE: 927L_Fault_at_Milo 356S_V1.out

CHNL# 71: [POWR 943 TO 918 CKT '35']
CHNL# 69: [POWR 943 TO 1012 CKT '23']
CHNL# 67: [POWR 943 TO 547026 CKT '05']
CHNL# 65: [POWR 943 TO 737 CKT '36']
CHNL# 63: [POWR 159 TO 990011 CKT '24']
CHNL# 61: [POWR 943 TO 990011 CKT '24']

600.00 600.00 600.00 600.00 600.00 800.00 -600.0 -600.0 -600.0 -600.0 -600.0 -400.0

0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

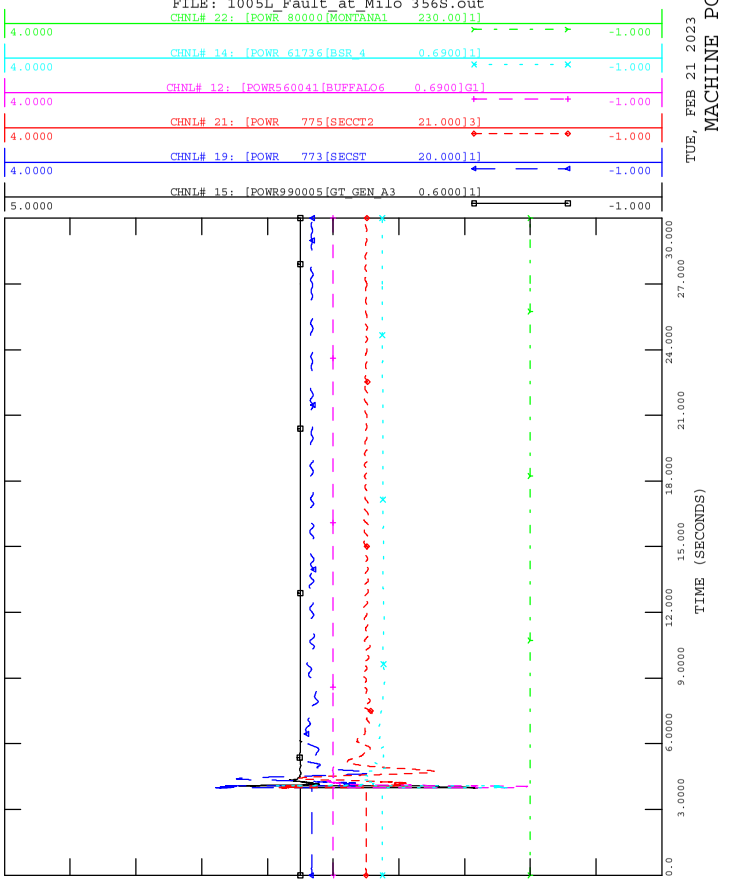
TIME (SECONDS)

TUE, FEB 21 2023 21:42

LINE POWER

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -1005L_FAULT_AT_MILO 356S

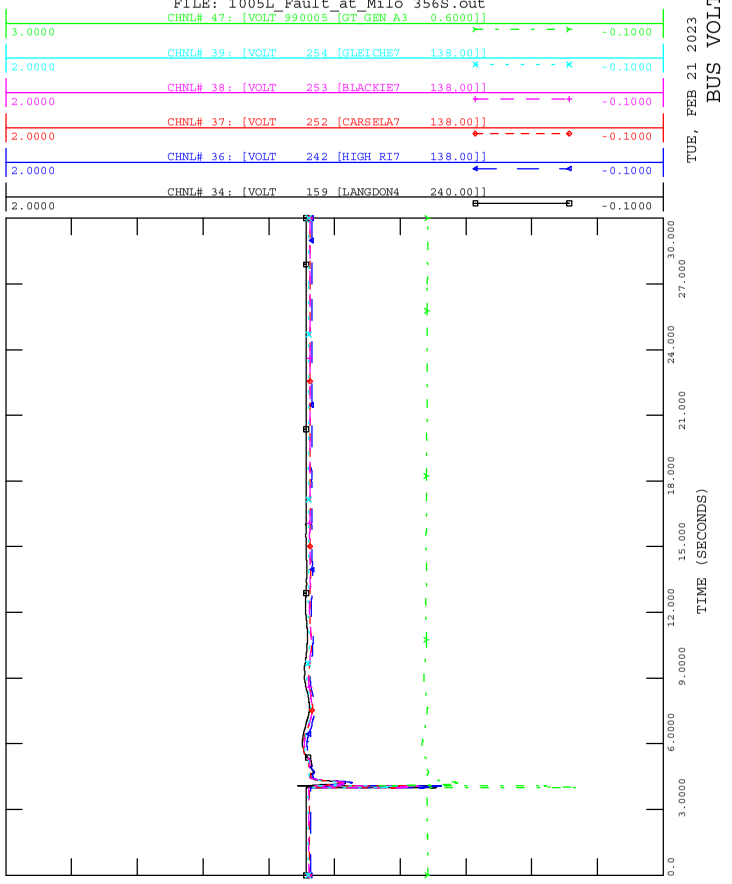
FILE: 1005L_Fault_at_Milo 356S.out



TUE, FEB 21 2023 21:42
MACHINE POWER

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -1005L_FAULT_AT_MILO 356S

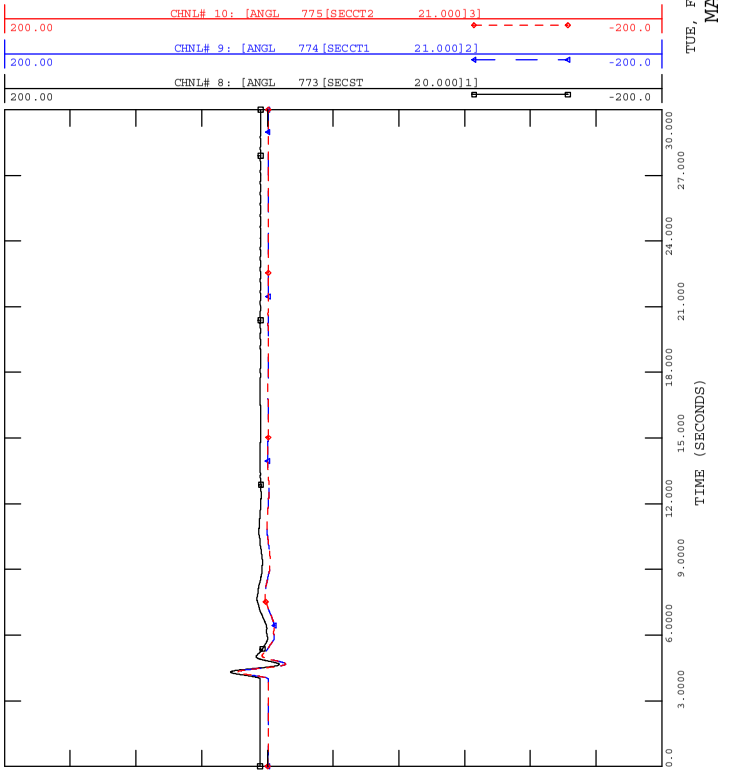
FILE: 1005L_Fault_at_Milo 356S.out



TUE, FEB 21 2023 21:42
BUS VOLTAGE

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -1005L_FAULT_AT_MILO 356S

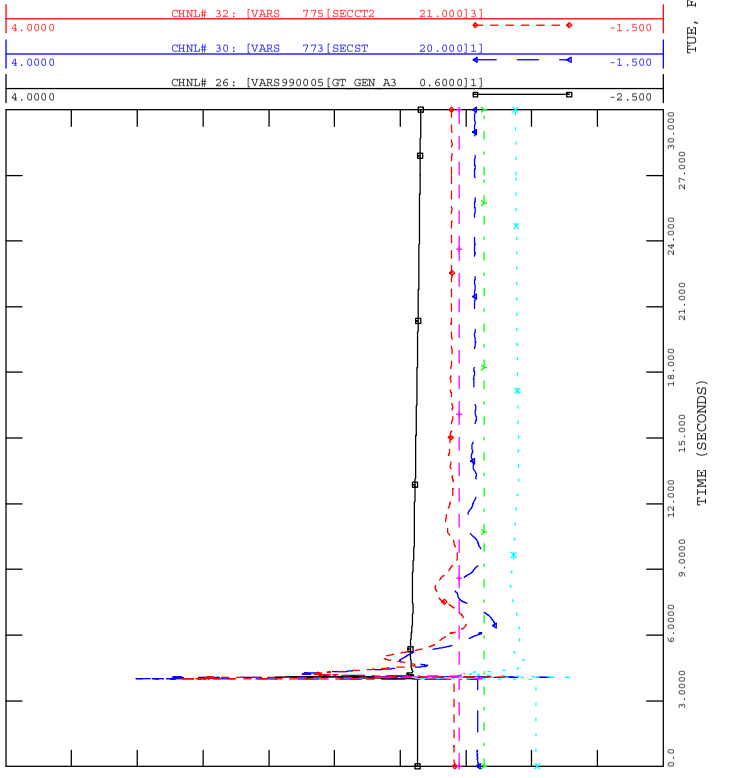
FILE: 1005L_Fault_at_Milo 356S.out



TUE, FEB 21 2023 21:42
MACHINE ANGLE

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -1005L_FAULT_AT_MILO 356S

FILE: 1005L_Fault_at_Milo 356S.out



TUE, FEB 21 2023 21:42
MACHINE VAR

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -1005L_FAULT_AT_MILO 356S

FILE: 1005L_Fault_at_Milo 356S.out

CHNL# 72: [VARS 943 TO 918 CKT '35'] 600.00 -400.0
CHNL# 70: [VARS 943 TO 1012 CKT '23'] 600.00 -400.0
CHNL# 68: [VARS 943 TO 547026 CKT '05'] 600.00 -400.0
CHNL# 66: [VARS 943 TO 737 CKT '36'] 600.00 -400.0
CHNL# 64: [VARS 159 TO 990011 CKT '24'] 600.00 -400.0
CHNL# 62: [VARS 943 TO 990011 CKT '24'] 600.00 -400.0

TIME (SECONDS) 0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

TUE, FEB 21 2023 21:42 LINE VAR

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -1005L_FAULT_AT_PICTURE BUTTE 120S

FILE: 1005L_Fault_at_Picture Butte 120S.out

CHNL# 22: [POWR 80000[MONTANA1 230.00]1] 4.0000 -1.000
CHNL# 14: [POWR 61736[BSR_4 0.6900]1] 4.0000 -1.000
CHNL# 12: [POWR560041[BUFFALO6 0.6900]G1] 4.0000 -1.000
CHNL# 21: [POWR 775[SECCT2 21.000]3] 4.0000 -1.000
CHNL# 19: [POWR 773[SECST 20.000]1] 4.0000 -1.000
CHNL# 15: [POWR990005[GT_GEN_A3 0.6000]1] 5.0000 -1.000

TIME (SECONDS) 0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

TUE, FEB 21 2023 21:42 MACHINE POWER

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -1005L_FAULT_AT_MILO 356S

FILE: 1005L_Fault_at_Milo 356S.out

CHNL# 71: [POWR 943 TO 918 CKT '35'] 600.00 -600.0
CHNL# 69: [POWR 943 TO 1012 CKT '23'] 600.00 -600.0
CHNL# 67: [POWR 943 TO 547026 CKT '05'] 600.00 -600.0
CHNL# 65: [POWR 943 TO 737 CKT '36'] 600.00 -600.0
CHNL# 63: [POWR 159 TO 990011 CKT '24'] 600.00 -600.0
CHNL# 61: [POWR 943 TO 990011 CKT '24'] 800.00 -400.0

TIME (SECONDS) 0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

TUE, FEB 21 2023 21:42 LINE POWER

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -1005L_FAULT_AT_PICTURE BUTTE 120S

FILE: 1005L_Fault_at_Picture Butte 120S.out

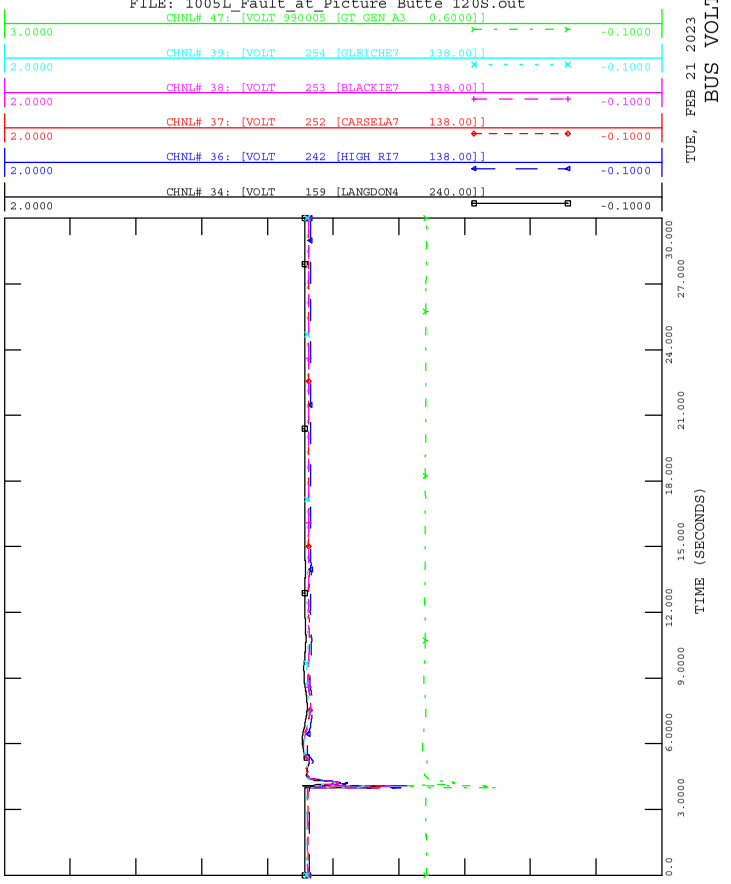
CHNL# 10: [ANGL 775[SECCT2 21.000]3] 200.00 -200.0
CHNL# 9: [ANGL 774[SECCT1 21.000]2] 200.00 -200.0
CHNL# 8: [ANGL 773[SECST 20.000]1] 200.00 -200.0

TIME (SECONDS) 0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

TUE, FEB 21 2023 21:42 MACHINE ANGLE

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -1005L_FAULT_AT_PICTURE BUTTE 120S

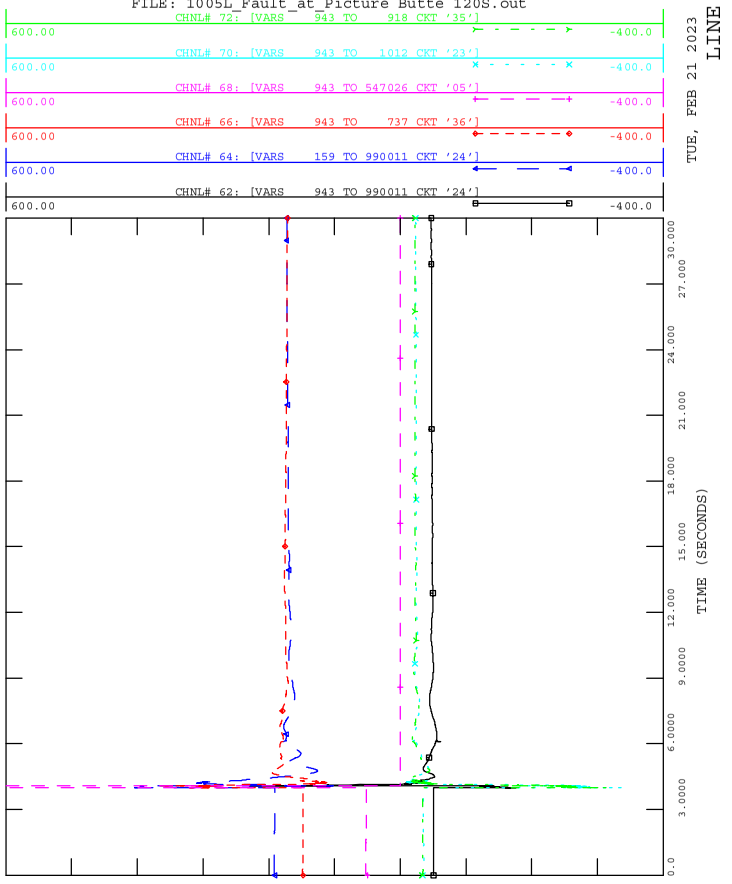
FILE: 1005L_Fault_at_Picture Butte 120S.out



TUE, FEB 21 2023 21:42
BUS VOLTAGE

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -1005L_FAULT_AT_PICTURE BUTTE 120S

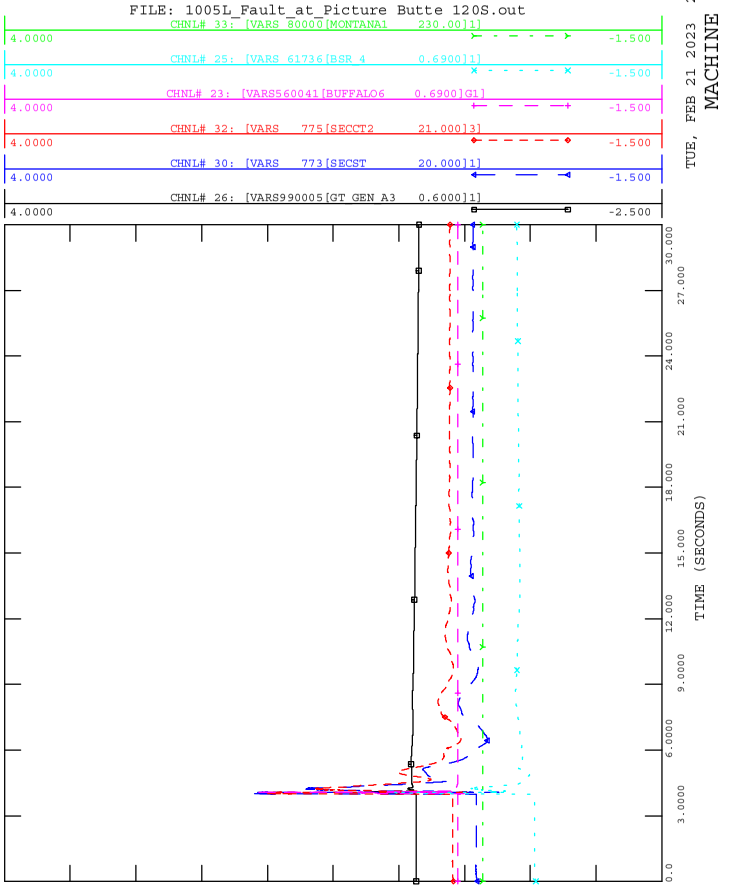
FILE: 1005L_Fault_at_Picture Butte 120S.out



TUE, FEB 21 2023 21:42
LINE VAR

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -1005L_FAULT_AT_PICTURE BUTTE 120S

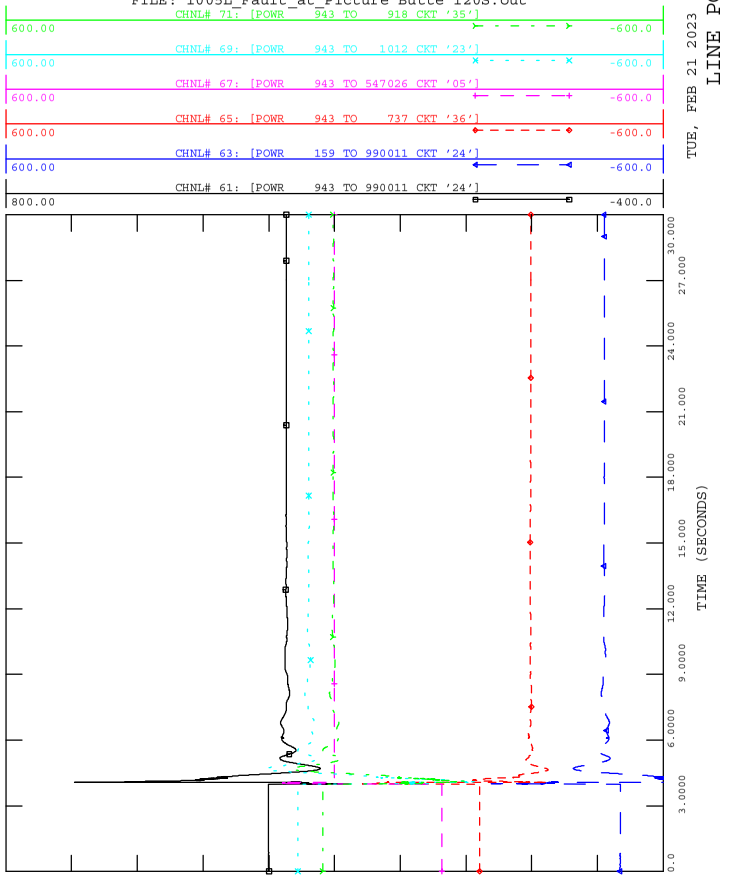
FILE: 1005L_Fault_at_Picture Butte 120S.out



TUE, FEB 21 2023 21:42
MACHINE VAR

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -1005L_FAULT_AT_PICTURE BUTTE 120S

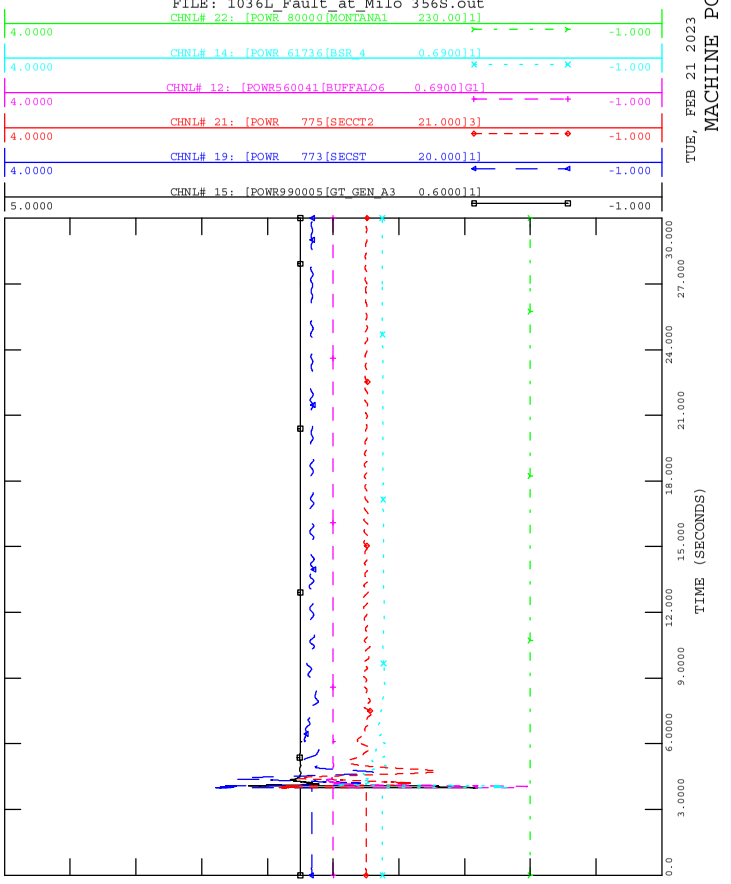
FILE: 1005L_Fault_at_Picture Butte 120S.out



TUE, FEB 21 2023 21:42
LINE POWER

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -1036L_FAULT_AT_MILO 356S

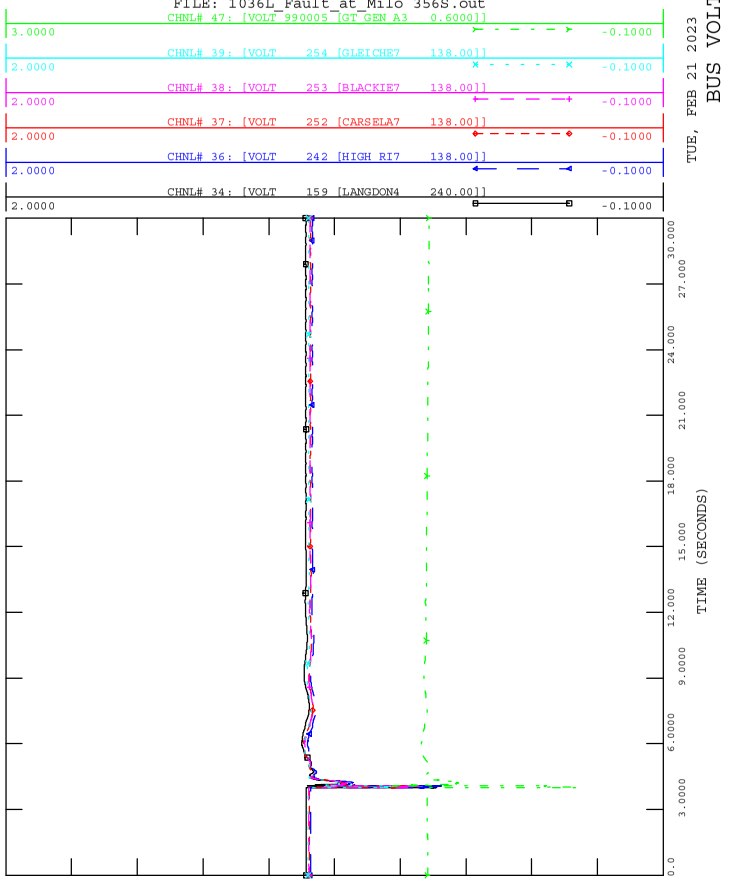
FILE: 1036L_Fault_at_Milo 356S.out



TUE, FEB 21 2023 21:42
MACHINE POWER

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -1036L_FAULT_AT_MILO 356S

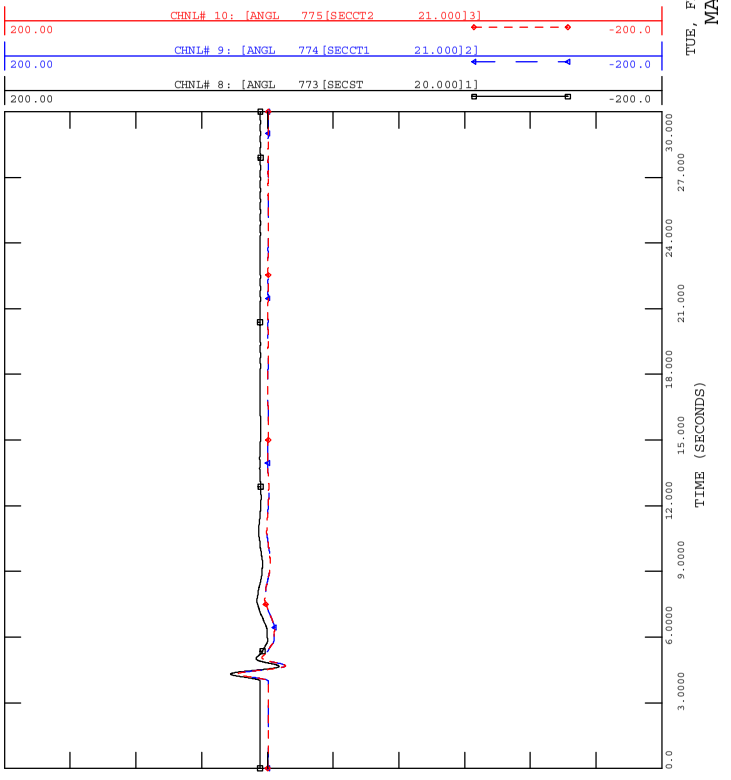
FILE: 1036L_Fault_at_Milo 356S.out



TUE, FEB 21 2023 21:42
BUS VOLTAGE

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -1036L_FAULT_AT_MILO 356S

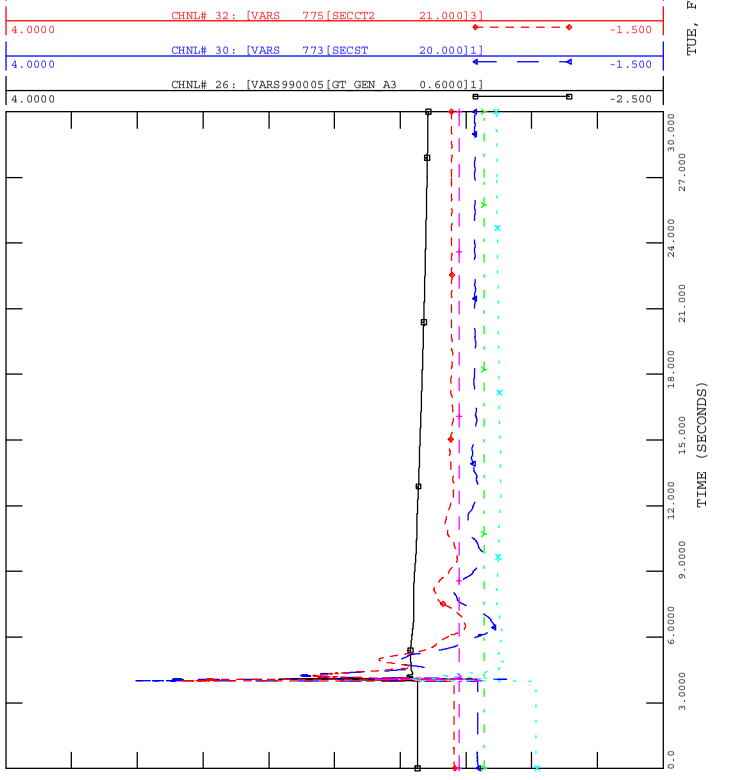
FILE: 1036L_Fault_at_Milo 356S.out



TUE, FEB 21 2023 21:42
MACHINE ANGLE

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -1036L_FAULT_AT_MILO 356S

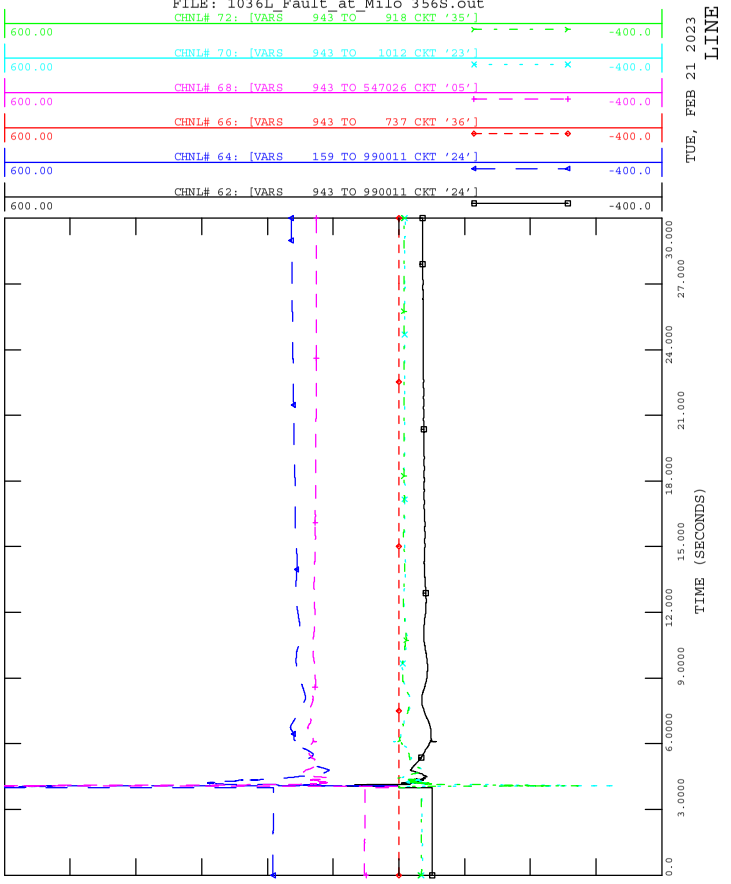
FILE: 1036L_Fault_at_Milo 356S.out



TUE, FEB 21 2023 21:42
MACHINE VAR

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -1036L_FAULT_AT_MILO 356S

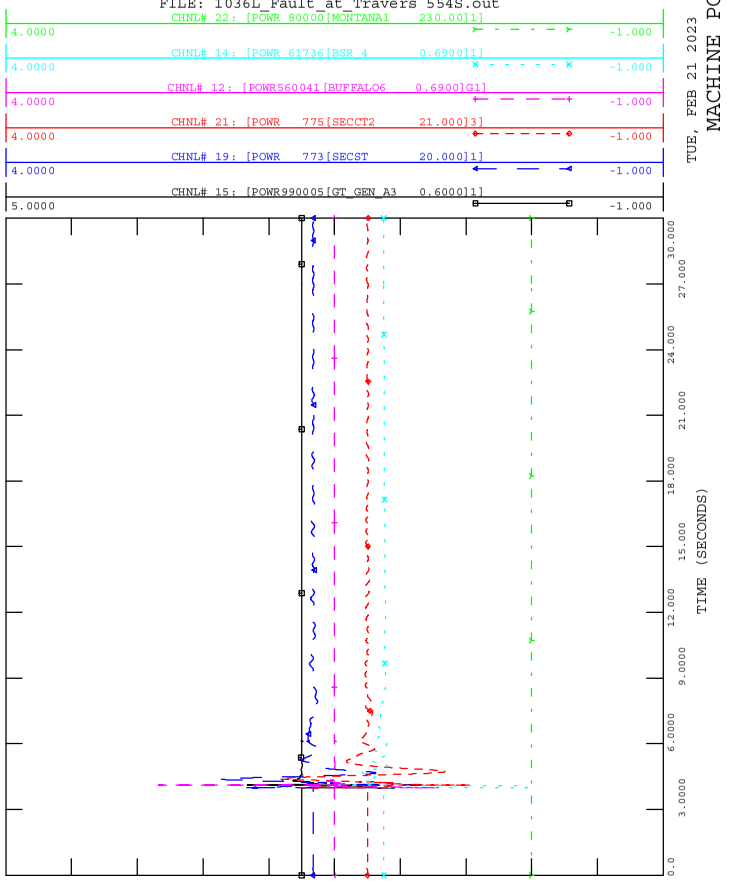
FILE: 1036L_Fault_at_Milo 356S.out



TUE, FEB 21 2023 21:42
LINE VAR

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -1036L_FAULT_AT_TRAVERS 554S

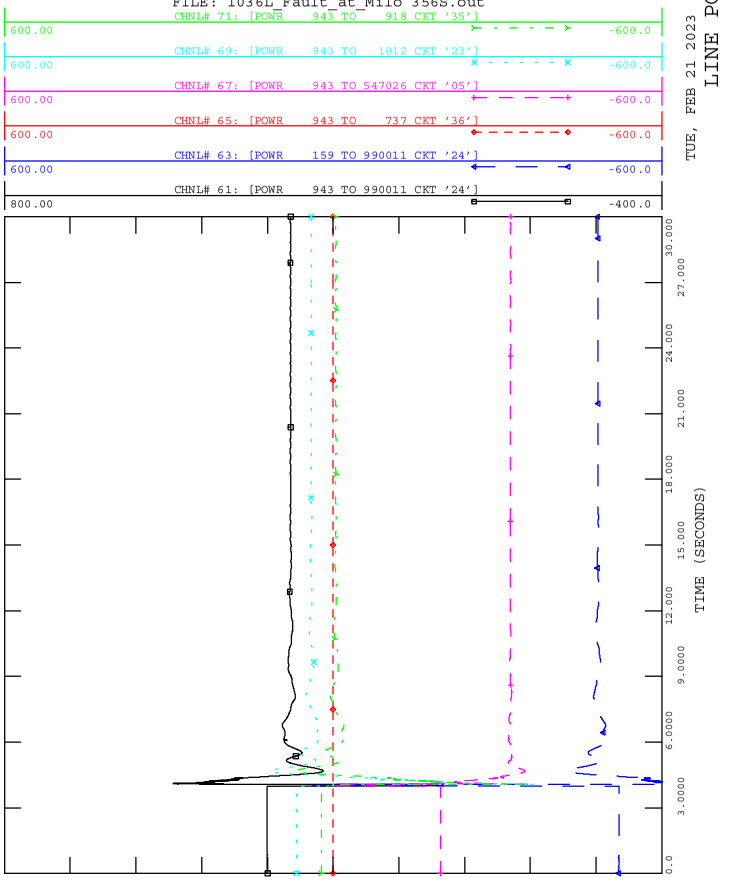
FILE: 1036L_Fault_at_Travers 554S.out



TUE, FEB 21 2023 21:42
MACHINE POWER

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -1036L_FAULT_AT_MILO 356S

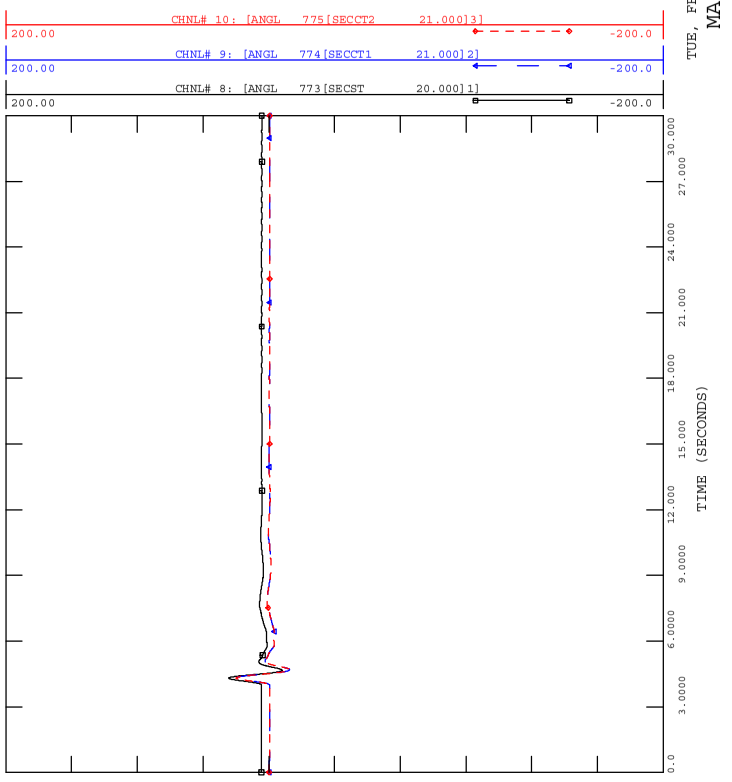
FILE: 1036L_Fault_at_Milo 356S.out



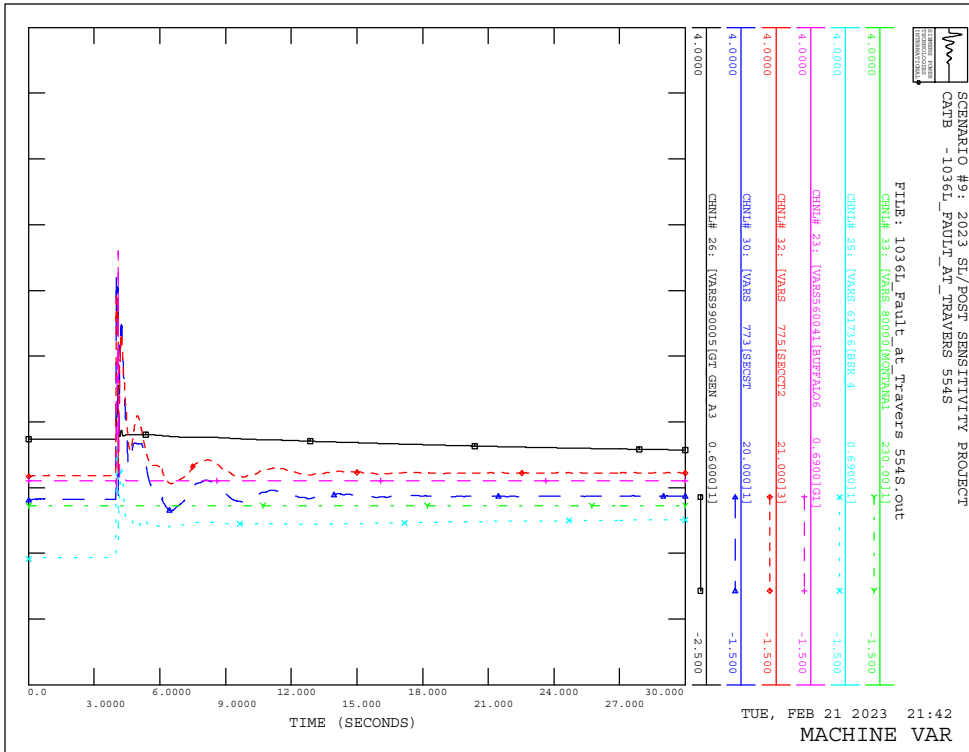
TUE, FEB 21 2023 21:42
LINE POWER

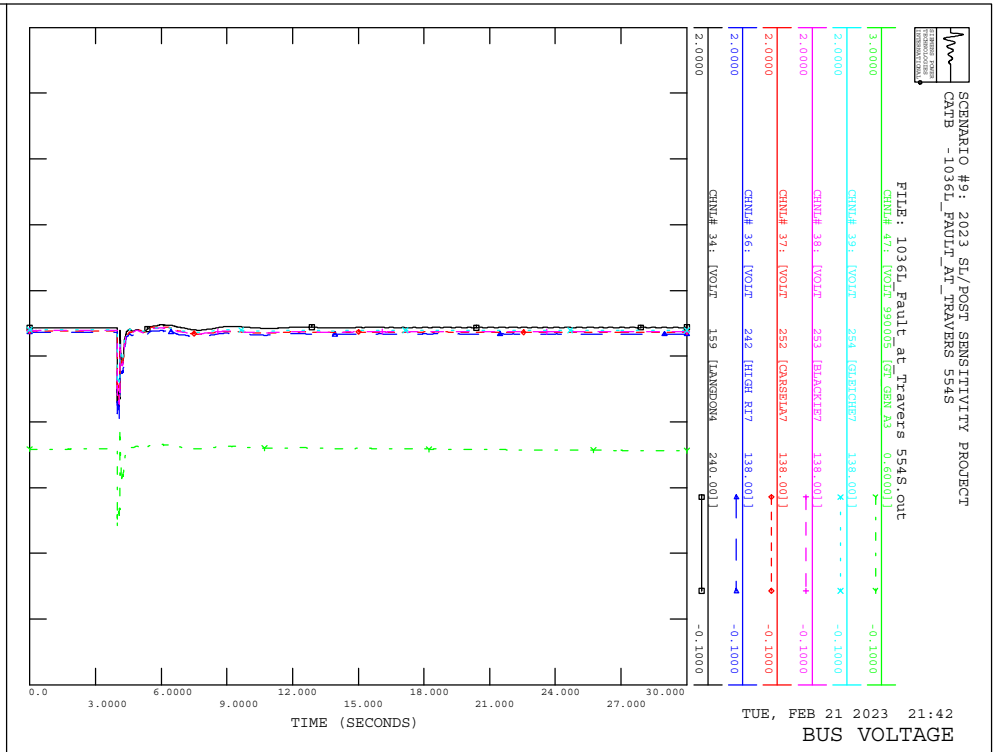
SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -1036L_FAULT_AT_TRAVERS 554S

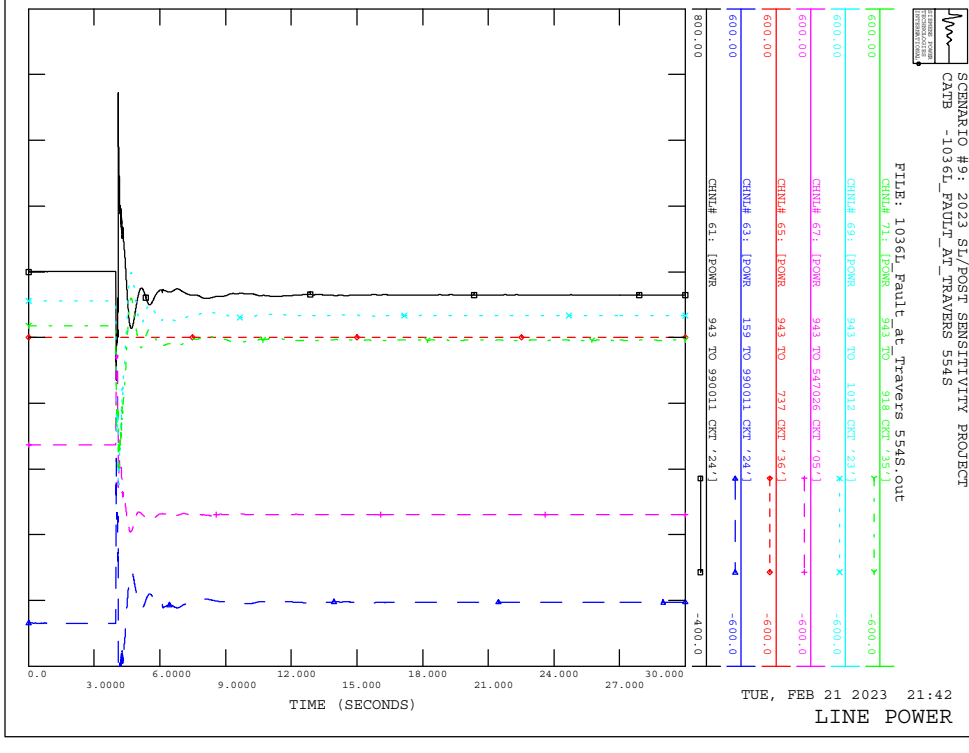
FILE: 1036L_Fault_at_Travers 554S.out

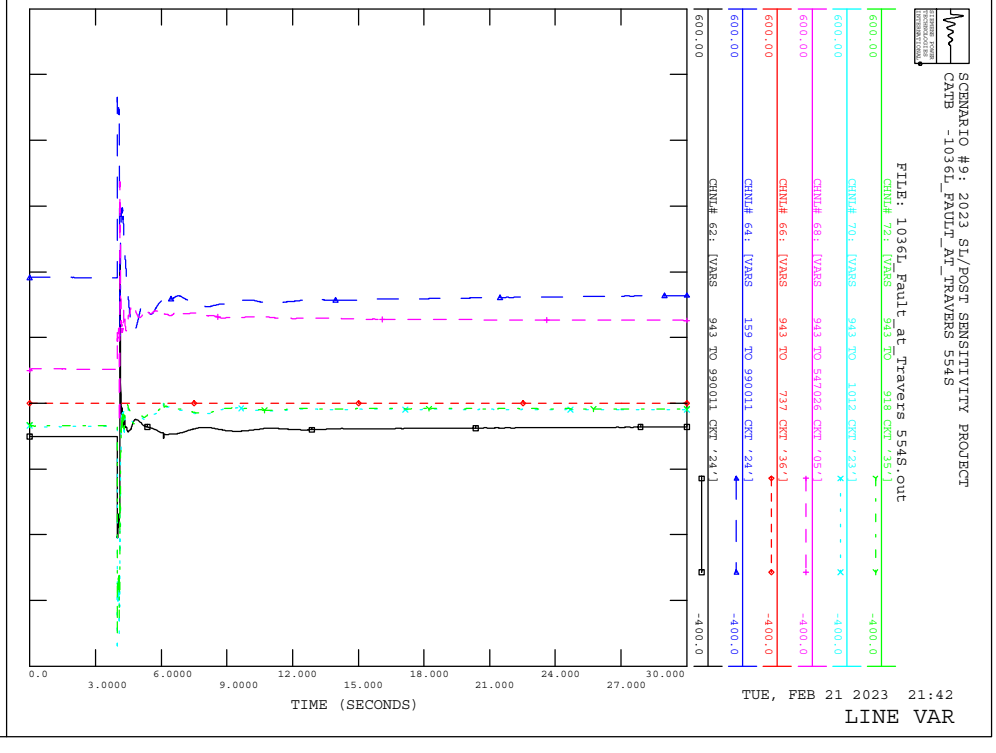


TUE, FEB 21 2023 21:42
MACHINE ANGLE


SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -1036L_FAULT_AT_TRAVERS 554S
FILE: 1036L_Fault_at_Travers 554S.out
TIME (SECONDS)
TUE, FEB 21 2023 21:42
MACHINE VAR

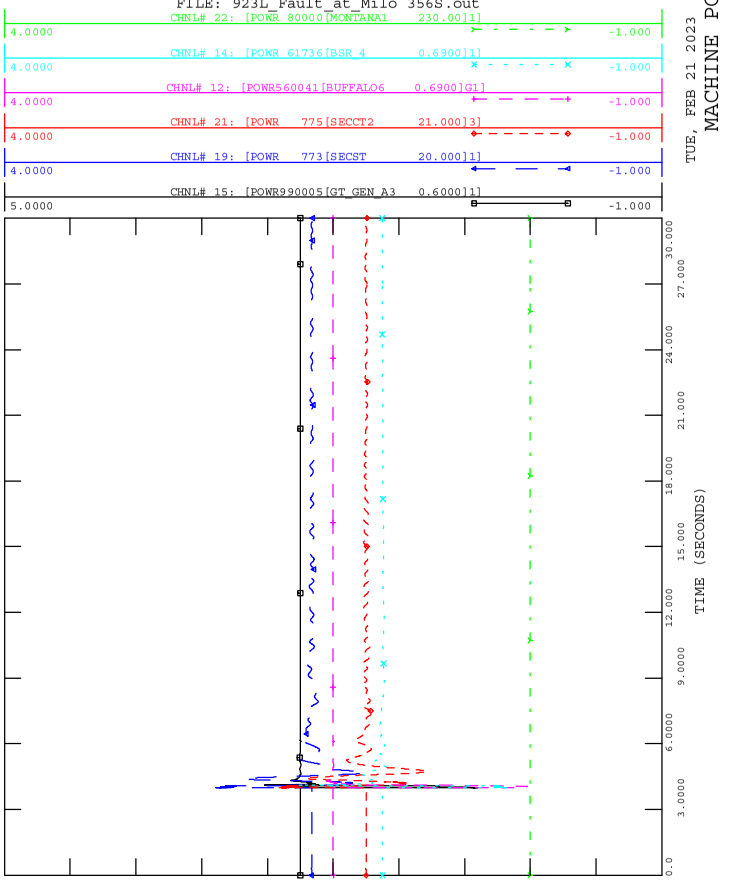

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -1036L_FAULT_AT_TRAVERS 554S
FILE: 1036L_Fault_at_Travers 554S.out
TIME (SECONDS)
TUE, FEB 21 2023 21:42
BUS VOLTAGE


SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -1036L_FAULT_AT_TRAVERS 554S
FILE: 1036L_Fault_at_Travers 554S.out
TIME (SECONDS)
TUE, FEB 21 2023 21:42
LINE POWER


SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -1036L_FAULT_AT_TRAVERS 554S
FILE: 1036L_Fault_at_Travers 554S.out
TIME (SECONDS)
TUE, FEB 21 2023 21:42
LINE VAR

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -923L_FAULT_AT_MILO 356S

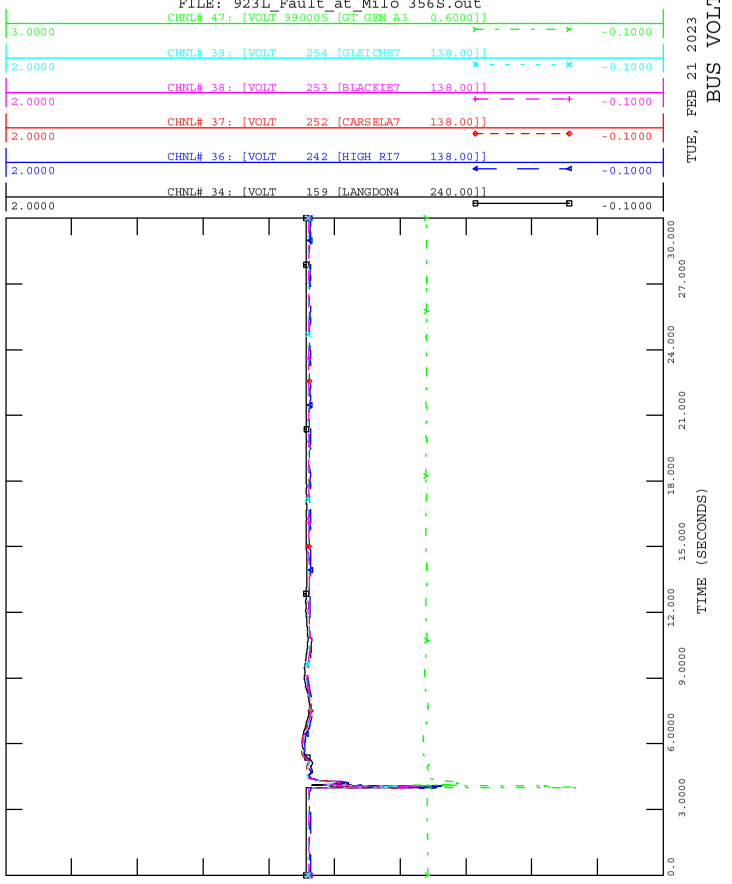
FILE: 923L_Fault_at_Milo 356S.out



TUE, FEB 21 2023 21:42
MACHINE POWER

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -923L_FAULT_AT_MILO 356S

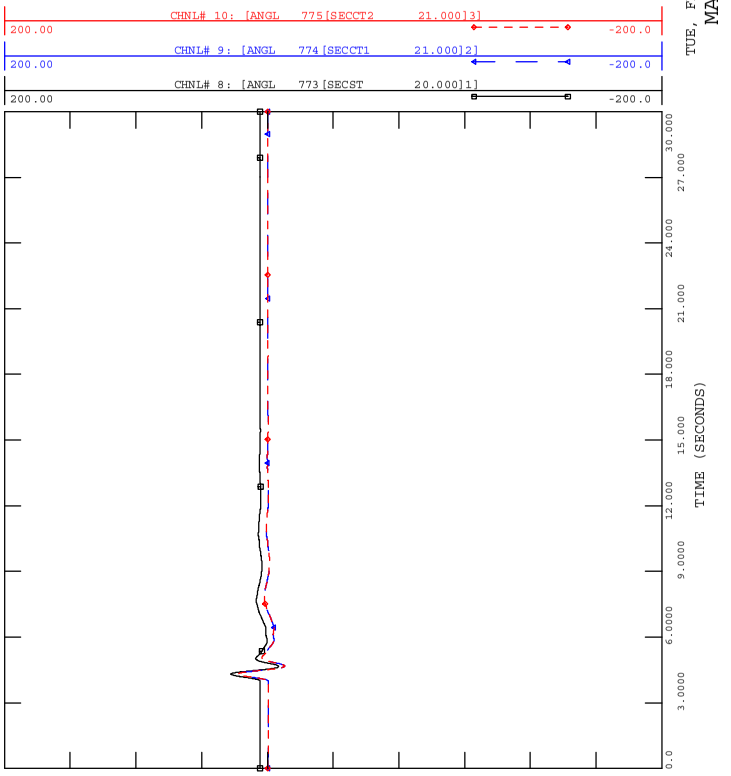
FILE: 923L_Fault_at_Milo 356S.out



TUE, FEB 21 2023 21:42
BUS VOLTAGE

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -923L_FAULT_AT_MILO 356S

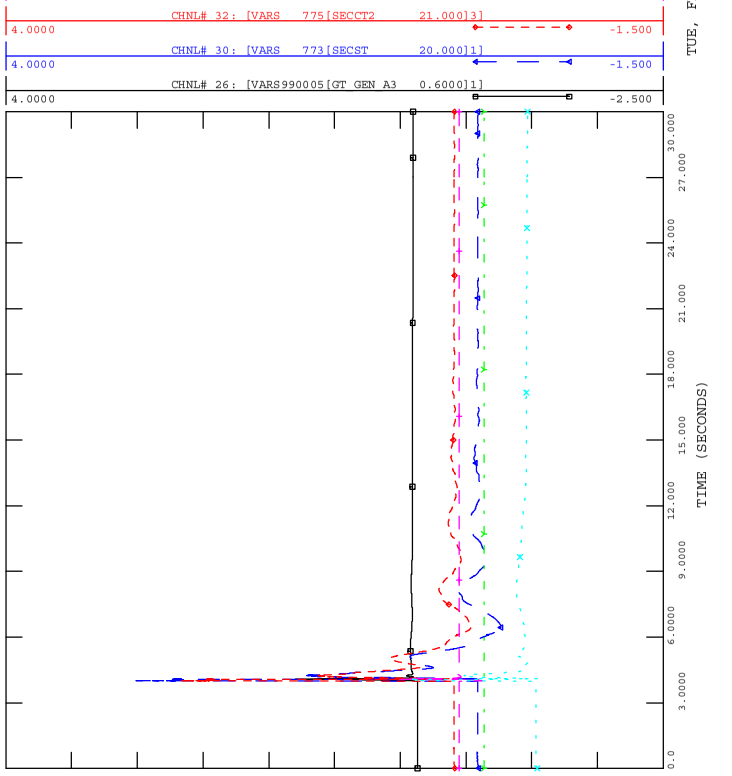
FILE: 923L_Fault_at_Milo 356S.out



TUE, FEB 21 2023 21:42
MACHINE ANGLE

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -923L_FAULT_AT_MILO 356S

FILE: 923L_Fault_at_Milo 356S.out



TUE, FEB 21 2023 21:42
MACHINE VAR

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -923L_FAULT_AT_MILO 356S

FILE: 923L_Fault_at_Milo 356S.out

CHNL# 72: [VARS 943 TO 918 CKT '35'] 600.00 -400.0
CHNL# 70: [VARS 943 TO 1012 CKT '23'] 600.00 -400.0
CHNL# 68: [VARS 943 TO 547026 CKT '05'] 600.00 -400.0
CHNL# 66: [VARS 943 TO 737 CKT '36'] 600.00 -400.0
CHNL# 64: [VARS 159 TO 990011 CKT '24'] 600.00 -400.0
CHNL# 62: [VARS 943 TO 990011 CKT '24'] 600.00 -400.0

TUE, FEB 21 2023 21:42
LINE VAR

TIME (SECONDS)
0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -923L_FAULT_AT_NEWELL 2075S

FILE: 923L_Fault_at_Newell 2075S.out

CHNL# 22: [POWR 80000[MONTANA1 230.00]1] 4.0000 -1.000
CHNL# 14: [POWR 61736[BSR_4 0.6900]1] 4.0000 -1.000
CHNL# 12: [POWR560041[BUFFALO6 0.6900]G1] 4.0000 -1.000
CHNL# 21: [POWR 775[SECCT2 21.000]3] 4.0000 -1.000
CHNL# 19: [POWR 773[SECST 20.000]1] 4.0000 -1.000
CHNL# 15: [POWR990005[GT_GEN_A3 0.6000]1] 5.0000 -1.000

TUE, FEB 21 2023 21:42
MACHINE POWER

TIME (SECONDS)
0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -923L_FAULT_AT_MILO 356S

FILE: 923L_Fault_at_Milo 356S.out

CHNL# 71: [POWR 943 TO 918 CKT '35'] 600.00 -600.0
CHNL# 69: [POWR 943 TO 1012 CKT '23'] 600.00 -600.0
CHNL# 67: [POWR 943 TO 547026 CKT '05'] 600.00 -600.0
CHNL# 65: [POWR 943 TO 737 CKT '36'] 600.00 -600.0
CHNL# 63: [POWR 159 TO 990011 CKT '24'] 600.00 -600.0
CHNL# 61: [POWR 943 TO 990011 CKT '24'] 800.00 -400.0

TUE, FEB 21 2023 21:42
LINE POWER

TIME (SECONDS)
0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

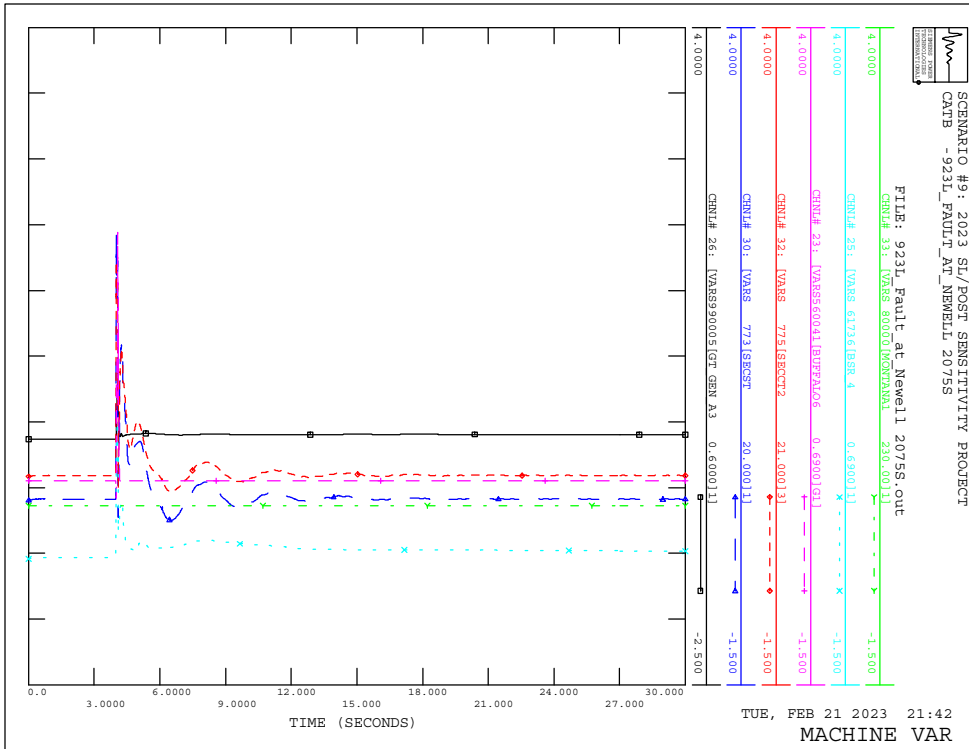
SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -923L_FAULT_AT_NEWELL 2075S

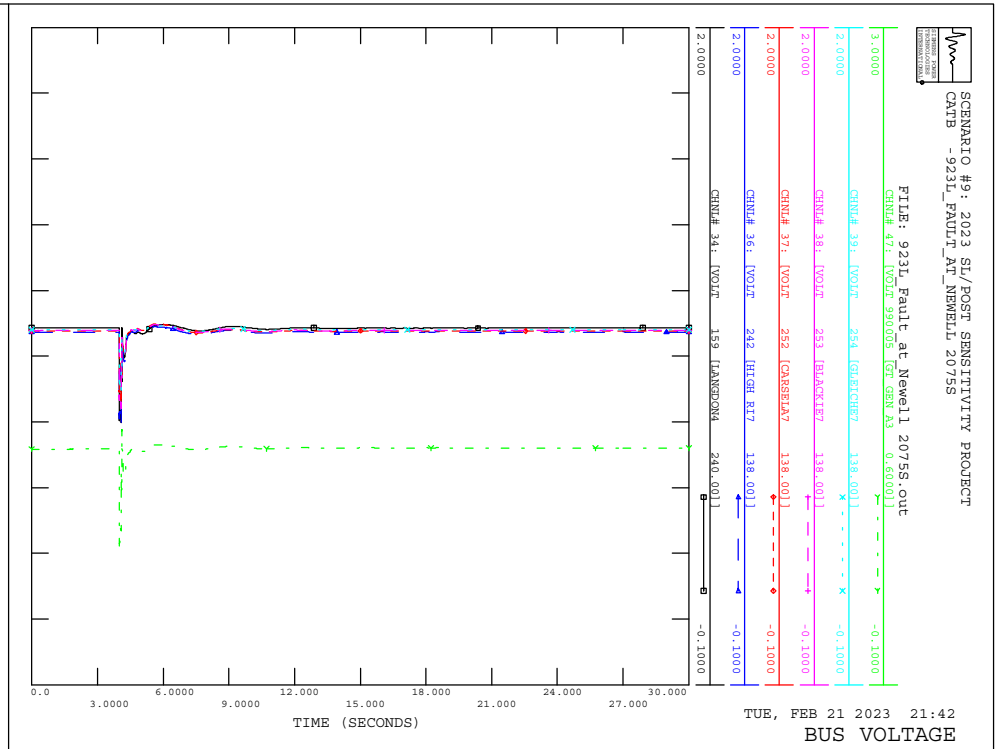
FILE: 923L_Fault_at_Newell 2075S.out

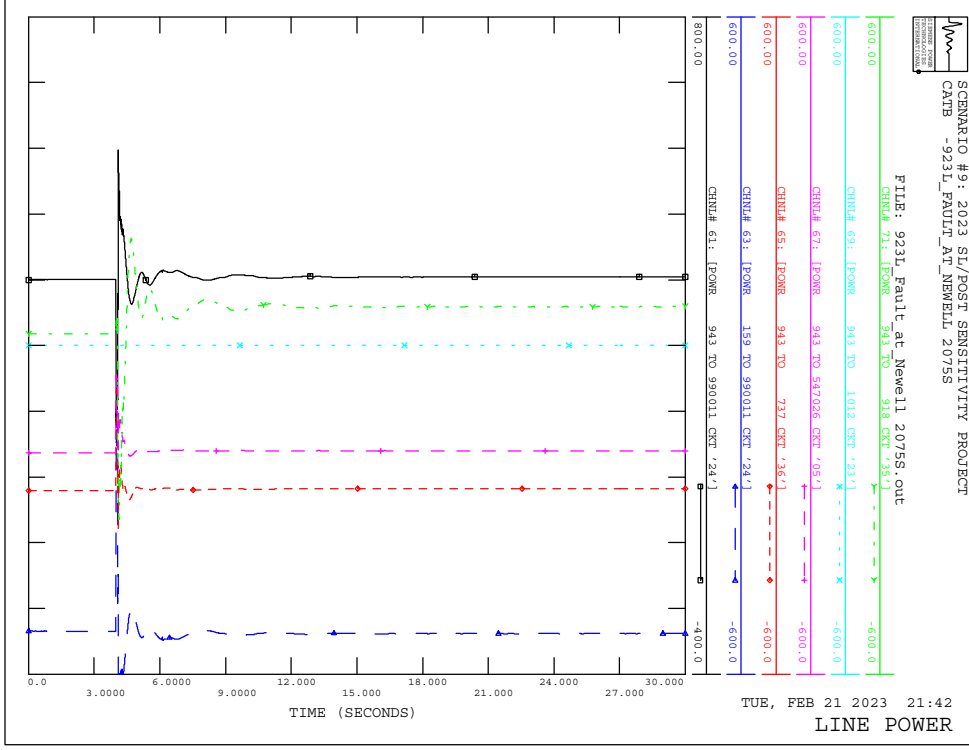
CHNL# 10: [ANGL 775[SECCT2 21.000]3] 200.00 -200.0
CHNL# 9: [ANGL 774[SECCT1 21.000]2] 200.00 -200.0
CHNL# 8: [ANGL 773[SECST 20.000]1] 200.00 -200.0

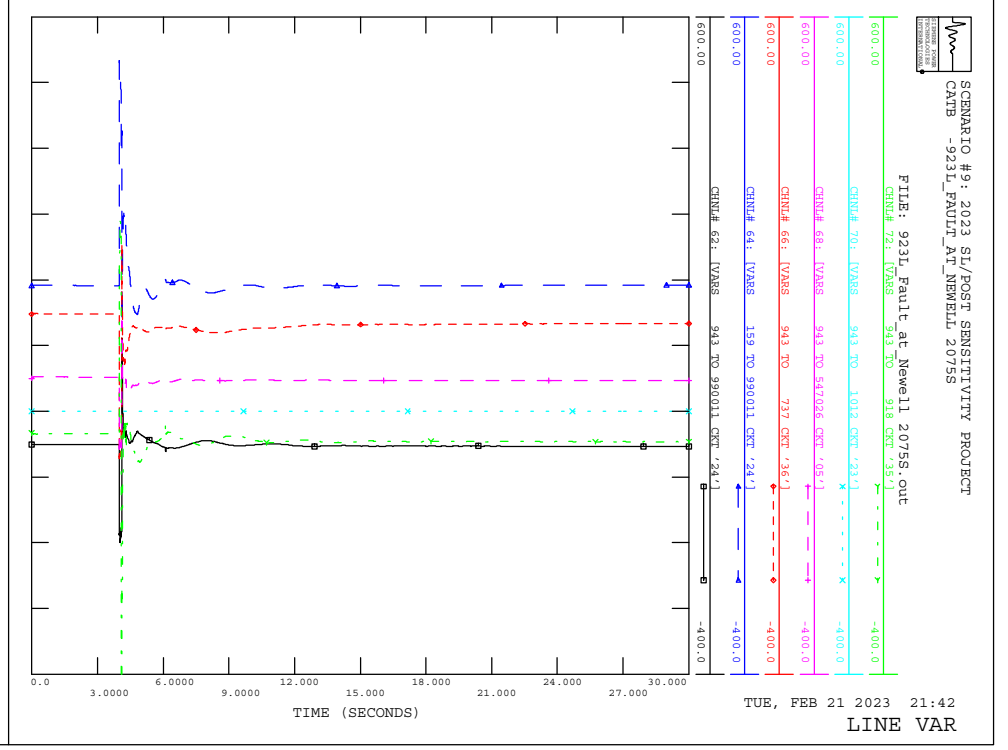
TUE, FEB 21 2023 21:42
MACHINE ANGLE

TIME (SECONDS)
0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000


SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -923L_FAULT_AT_NEWELL 2075S
FILE: 923L_Fault_at_Newell 2075S.out
TIME (SECONDS)
TUE, FEB 21 2023 21:42
MACHINE VAR

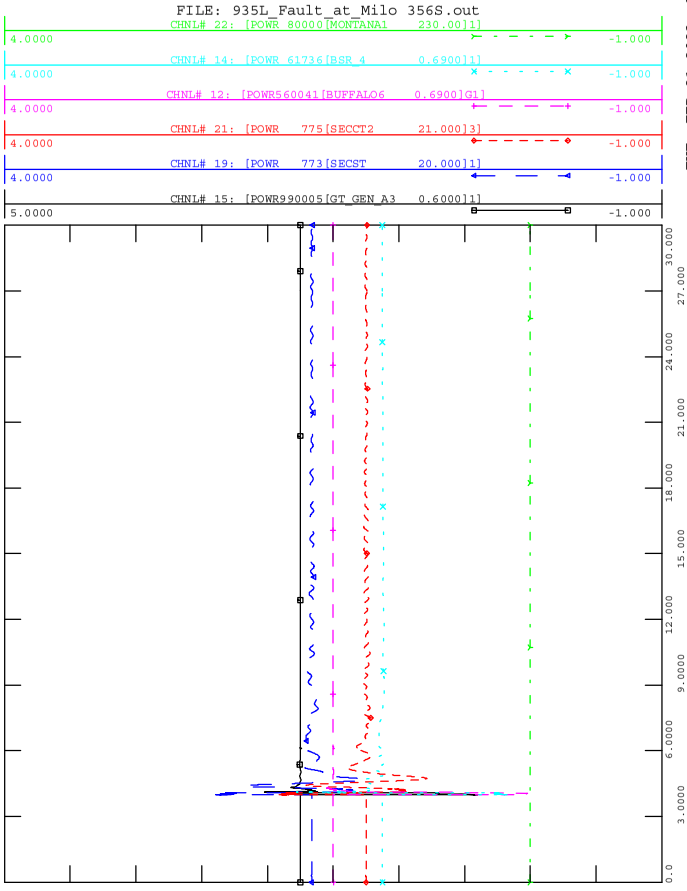

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -923L_FAULT_AT_NEWELL 2075S
FILE: 923L_Fault_at_Newell 2075S.out
TIME (SECONDS)
TUE, FEB 21 2023 21:42
BUS VOLTAGE


SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -923L_FAULT_AT_NEWELL 2075S
FILE: 923L_Fault_at_Newell 2075S.out
TIME (SECONDS)
TUE, FEB 21 2023 21:42
LINE POWER


SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -923L_FAULT_AT_NEWELL 2075S
FILE: 923L_Fault_at_Newell 2075S.out
TIME (SECONDS)
TUE, FEB 21 2023 21:42
LINE VAR

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -935L_FAULT_AT_MILO 356S

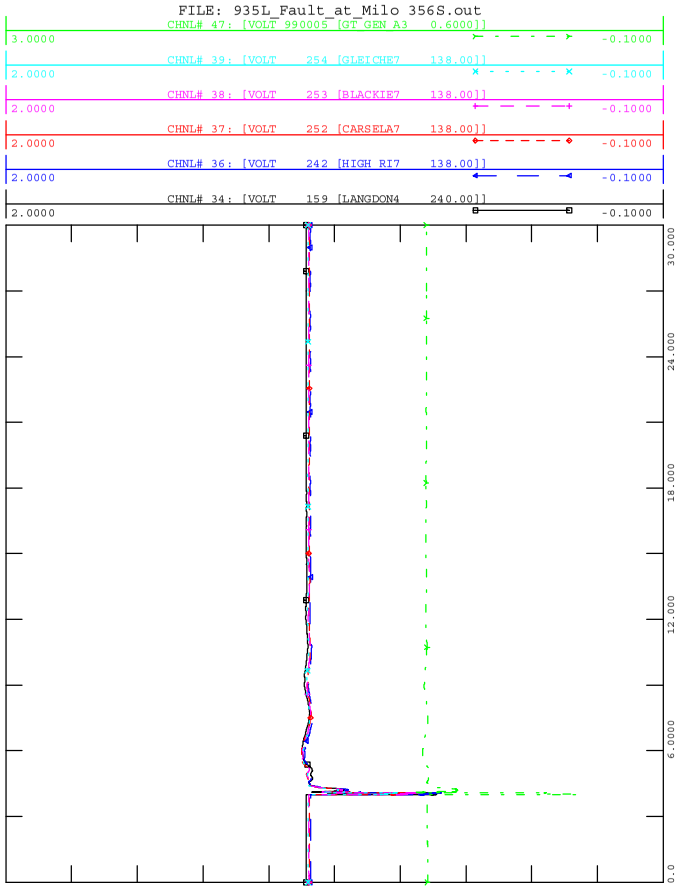
FILE: 935L_Fault_at_Milo 356S.out



TUE, FEB 21 2023 21:42
MACHINE POWER

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -935L_FAULT_AT_MILO 356S

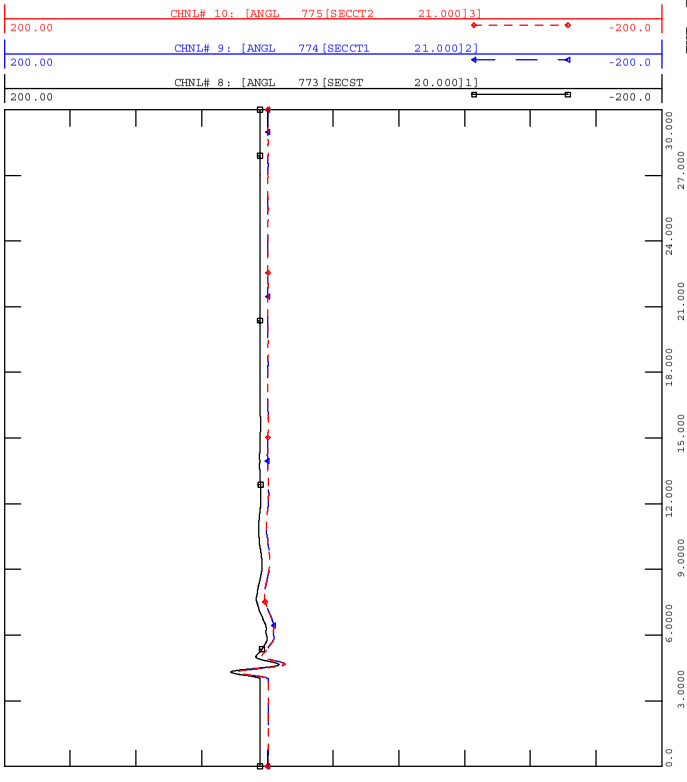
FILE: 935L_Fault_at_Milo 356S.out



TUE, FEB 21 2023 21:42
BUS VOLTAGE

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -935L_FAULT_AT_MILO 356S

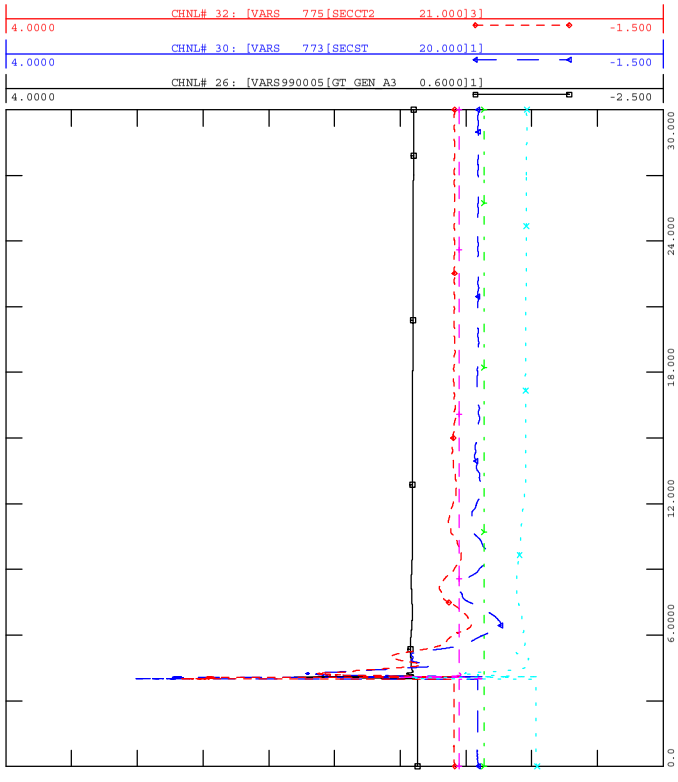
FILE: 935L_Fault_at_Milo 356S.out



TUE, FEB 21 2023 21:42
MACHINE ANGLE

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -935L_FAULT_AT_MILO 356S

FILE: 935L_Fault_at_Milo 356S.out



TUE, FEB 21 2023 21:42
MACHINE VAR

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -935L_FAULT_AT_MILO 356S

FILE: 935L_Fault_at_Milo 356S.out

CHNL# 72: [VARS 943 TO 918 CKT '35'] 600.00 -400.0
CHNL# 70: [VARS 943 TO 1012 CKT '23'] 600.00 -400.0
CHNL# 68: [VARS 943 TO 547026 CKT '05'] 600.00 -400.0
CHNL# 66: [VARS 943 TO 737 CKT '36'] 600.00 -400.0
CHNL# 64: [VARS 159 TO 990011 CKT '24'] 600.00 -400.0
CHNL# 62: [VARS 943 TO 990011 CKT '24'] 600.00 -400.0

TUE, FEB 21 2023 21:42
LINE VAR

TIME (SECONDS)
0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -935L_FAULT_AT_CASSILS 324S

FILE: 935L_Fault_at_Cassils 324S.out

CHNL# 22: [POWR 80000[MONTANA1 230.00]1] 4.0000 -1.000
CHNL# 14: [POWR 61736[BSR_4 0.6900]1] 4.0000 -1.000
CHNL# 12: [POWR560041[BUFFALO6 0.6900]G1] 4.0000 -1.000
CHNL# 21: [POWR 775[SECCT2 21.000]3] 4.0000 -1.000
CHNL# 19: [POWR 773[SECST 20.000]1] 4.0000 -1.000
CHNL# 15: [POWR990005[GT_GEN_A3 0.6000]1] 5.0000 -1.000

TUE, FEB 21 2023 21:42
MACHINE POWER

TIME (SECONDS)
0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -935L_FAULT_AT_MILO 356S

FILE: 935L_Fault_at_Milo 356S.out

CHNL# 71: [POWR 943 TO 918 CKT '35'] 600.00 -600.0
CHNL# 69: [POWR 943 TO 1012 CKT '23'] 600.00 -600.0
CHNL# 67: [POWR 943 TO 547026 CKT '05'] 600.00 -600.0
CHNL# 65: [POWR 943 TO 737 CKT '36'] 600.00 -600.0
CHNL# 63: [POWR 159 TO 990011 CKT '24'] 600.00 -600.0
CHNL# 61: [POWR 943 TO 990011 CKT '24'] 800.00 -400.0

TUE, FEB 21 2023 21:42
LINE POWER

TIME (SECONDS)
0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -935L_FAULT_AT_CASSILS 324S

FILE: 935L_Fault_at_Cassils 324S.out

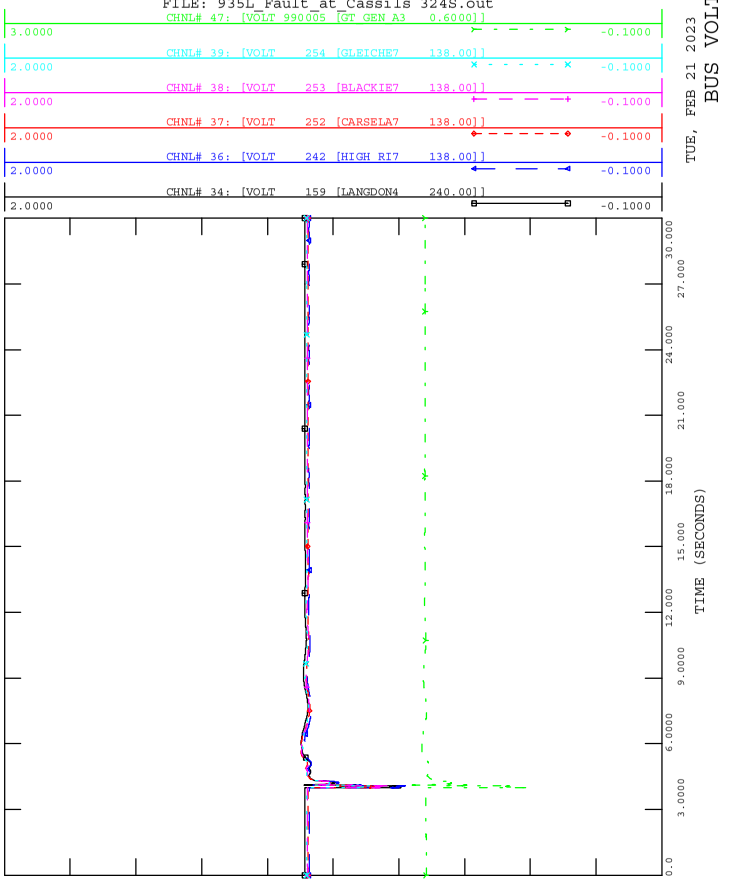
CHNL# 10: [ANGL 775[SECCT2 21.000]3] 200.00 -200.0
CHNL# 9: [ANGL 774[SECCT1 21.000]2] 200.00 -200.0
CHNL# 8: [ANGL 773[SECST 20.000]1] 200.00 -200.0

TUE, FEB 21 2023 21:42
MACHINE ANGLE

TIME (SECONDS)
0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -935L_FAULT_AT_CASSILS 324S

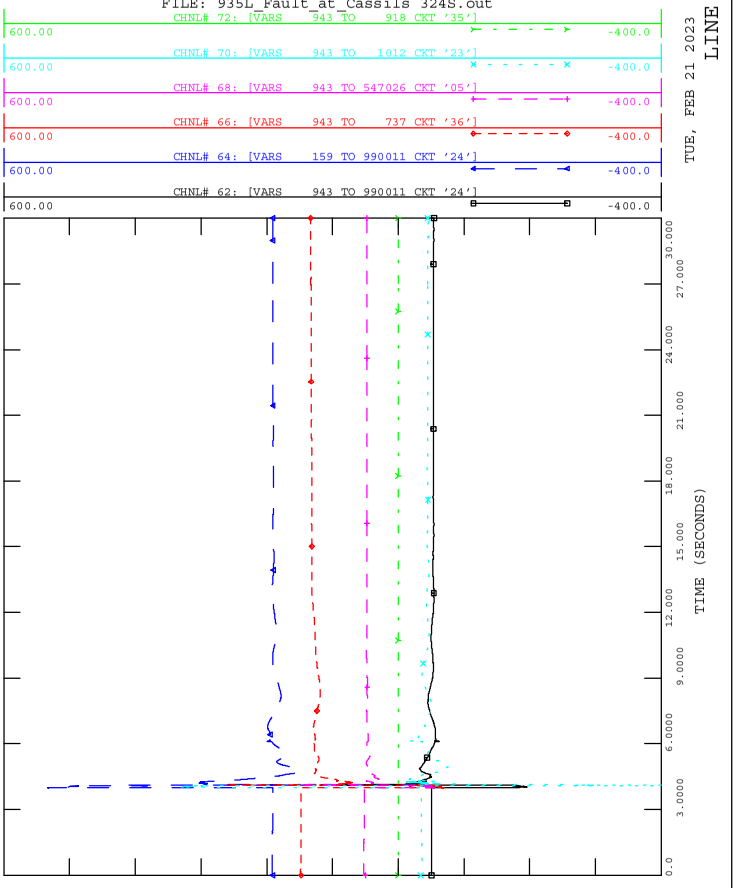
FILE: 935L_Fault_at_Cassils 324S.out



TUE, FEB 21 2023 21:42 BUS VOLTAGE

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -935L_FAULT_AT_CASSILS 324S

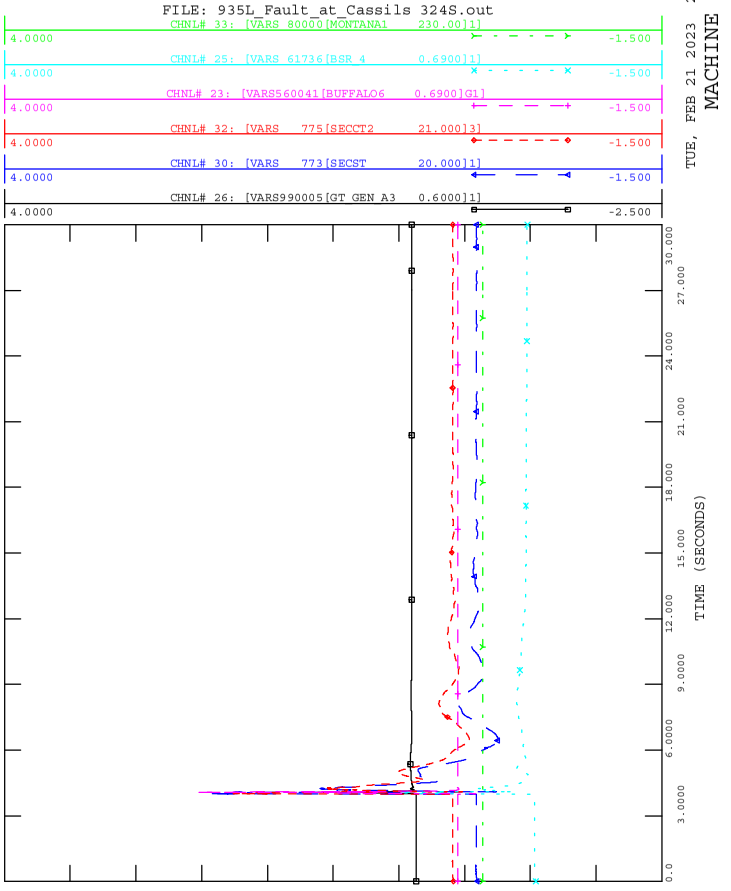
FILE: 935L_Fault_at_Cassils 324S.out



TUE, FEB 21 2023 21:42 LINE VAR

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -935L_FAULT_AT_CASSILS 324S

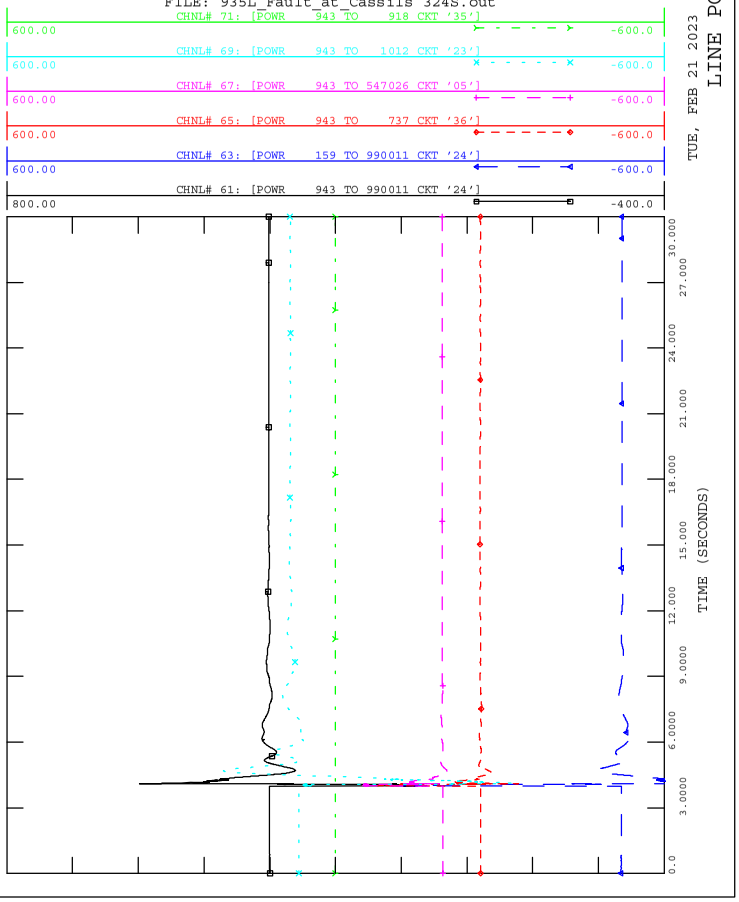
FILE: 935L_Fault_at_Cassils 324S.out



TUE, FEB 21 2023 21:42 MACHINE VAR

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -935L_FAULT_AT_CASSILS 324S

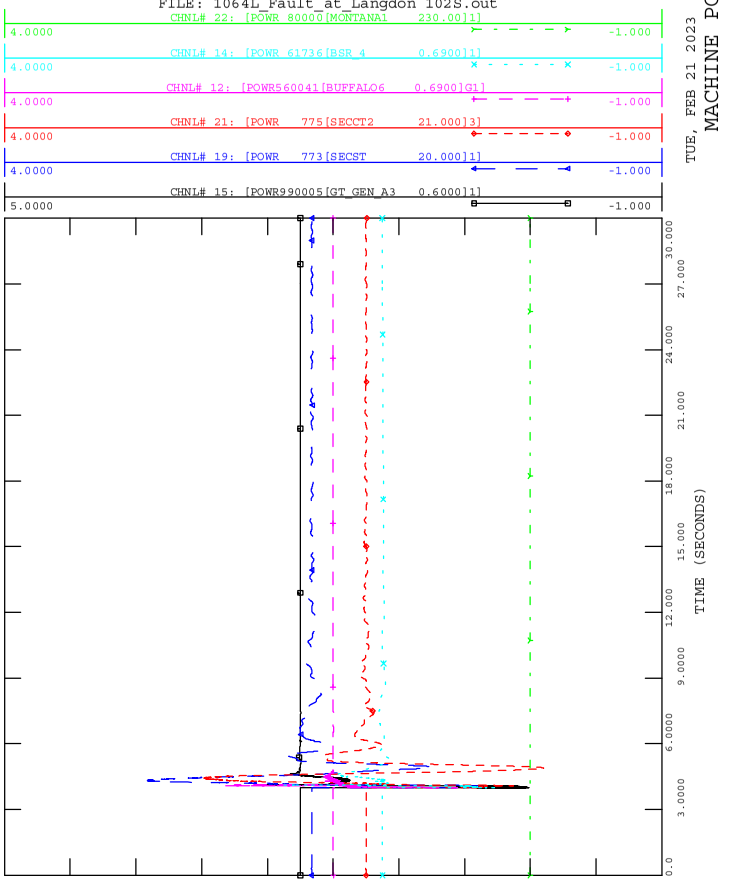
FILE: 935L_Fault_at_Cassils 324S.out



TUE, FEB 21 2023 21:42 LINE POWER

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -1064L_FAULT_AT_LANGDON 102S

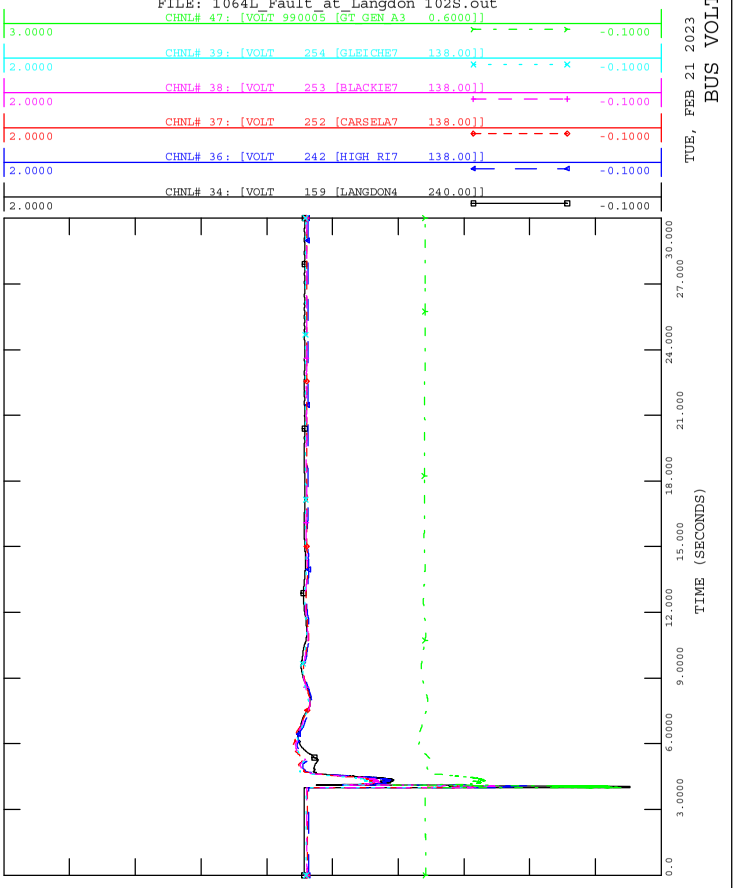
FILE: 1064L_Fault_at_Langdon 102S.out



TUE, FEB 21 2023 21:42
MACHINE POWER

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -1064L_FAULT_AT_LANGDON 102S

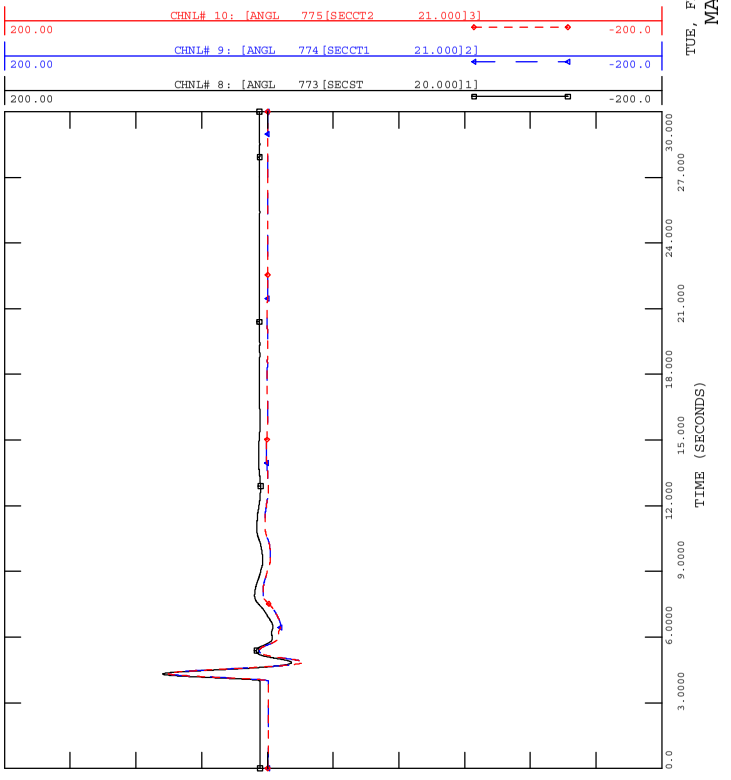
FILE: 1064L_Fault_at_Langdon 102S.out



TUE, FEB 21 2023 21:42
BUS VOLTAGE

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -1064L_FAULT_AT_LANGDON 102S

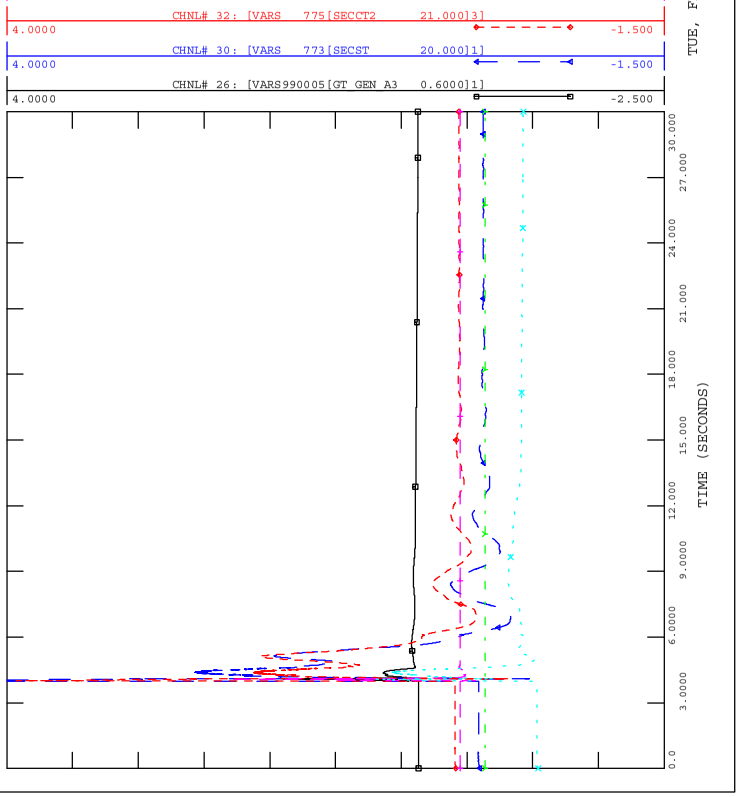
FILE: 1064L_Fault_at_Langdon 102S.out



TUE, FEB 21 2023 21:42
MACHINE ANGLE

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -1064L_FAULT_AT_LANGDON 102S

FILE: 1064L_Fault_at_Langdon 102S.out



TUE, FEB 21 2023 21:42
MACHINE VAR

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -1064L_FAULT_AT_LANGDON 102S

FILE: 1064L_Fault_at_Langdon 102S.out

TUE, FEB 21 2023 21:42 LINE VAR

CHNL# 72: [VARS 943 TO 918 CKT '35'] 600.00 -400.0
CHNL# 70: [VARS 943 TO 1012 CKT '23'] 600.00 -400.0
CHNL# 68: [VARS 943 TO 547026 CKT '05'] 600.00 -400.0
CHNL# 66: [VARS 943 TO 737 CKT '36'] 600.00 -400.0
CHNL# 64: [VARS 159 TO 990011 CKT '24'] 600.00 -400.0
CHNL# 62: [VARS 943 TO 990011 CKT '24'] 600.00 -400.0

TIME (SECONDS) 0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -1065L_FAULT_AT_LANGDON 102S

FILE: 1065L_Fault_at_Langdon 102S.out

TUE, FEB 21 2023 21:42 MACHINE POWER

CHNL# 22: [POWR 80000[MONTANA1 230.00]1] 4.0000 -1.000
CHNL# 14: [POWR 61736[BSR_4 0.6900]1] 4.0000 -1.000
CHNL# 12: [POWR560041[BUFFALO6 0.6900]G1] 4.0000 -1.000
CHNL# 21: [POWR 775[SECCT2 21.000]3] 4.0000 -1.000
CHNL# 19: [POWR 773[SECST 20.000]1] 4.0000 -1.000
CHNL# 15: [POWR990005[GT_GEN_A3 0.6000]1] 5.0000 -1.000

TIME (SECONDS) 0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -1064L_FAULT_AT_LANGDON 102S

FILE: 1064L_Fault_at_Langdon 102S.out

TUE, FEB 21 2023 21:42 LINE POWER

CHNL# 71: [POWR 943 TO 918 CKT '35'] 600.00 -600.0
CHNL# 69: [POWR 943 TO 1012 CKT '23'] 600.00 -600.0
CHNL# 67: [POWR 943 TO 547026 CKT '05'] 600.00 -600.0
CHNL# 65: [POWR 943 TO 737 CKT '36'] 600.00 -600.0
CHNL# 63: [POWR 159 TO 990011 CKT '24'] 600.00 -600.0
CHNL# 61: [POWR 943 TO 990011 CKT '24'] 800.00 -400.0

TIME (SECONDS) 0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -1065L_FAULT_AT_LANGDON 102S

FILE: 1065L_Fault_at_Langdon 102S.out

TUE, FEB 21 2023 21:42 MACHINE ANGLE

CHNL# 10: [ANGL 775[SECCT2 21.000]3] 200.00 -200.0
CHNL# 9: [ANGL 774[SECCT1 21.000]2] 200.00 -200.0
CHNL# 8: [ANGL 773[SECST 20.000]1] 200.00 -200.0

TIME (SECONDS) 0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -1065L_FAULT_AT_LANGDON 102S

FILE: 1065L_Fault_at_Langdon 102S.out

CHNL# 47: [VOLT 990005 [GT GEN A3 0.6000]]
CHNL# 39: [VOLT 254 [GLEICHE7 138.00]]
CHNL# 38: [VOLT 253 [BLACKIE7 138.00]]
CHNL# 37: [VOLT 252 [CARSELA7 138.00]]
CHNL# 36: [VOLT 242 [HIGH RI7 138.00]]
CHNL# 34: [VOLT 159 [LANGDON4 240.00]]

3.0000 2.0000 2.0000 2.0000 2.0000 2.0000 -0.1000 -0.1000 -0.1000 -0.1000 -0.1000 -0.1000

TUE, FEB 21 2023 21:42
BUS VOLTAGE

0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000
TIME (SECONDS)

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -1065L_FAULT_AT_LANGDON 102S

FILE: 1065L_Fault_at_Langdon 102S.out

CHNL# 72: [VARS 943 TO 918 CKT '35']
CHNL# 70: [VARS 943 TO 1012 CKT '23']
CHNL# 68: [VARS 943 TO 547026 CKT '05']
CHNL# 66: [VARS 943 TO 737 CKT '36']
CHNL# 64: [VARS 159 TO 990011 CKT '24']
CHNL# 62: [VARS 943 TO 990011 CKT '24']

600.00 600.00 600.00 600.00 600.00 600.00 -400.0 -400.0 -400.0 -400.0 -400.0 -400.0

TUE, FEB 21 2023 21:42
LINE VAR

0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000
TIME (SECONDS)

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -1065L_FAULT_AT_LANGDON 102S

FILE: 1065L_Fault_at_Langdon 102S.out

CHNL# 33: [VARS 80000[MONTANA1 230.00]1]
CHNL# 25: [VARS 61736[BSR 4 0.6900]1]
CHNL# 23: [VARS560041[BUFFALO6 0.6900]G1]
CHNL# 32: [VARS 775[SECCT2 21.000]3]
CHNL# 30: [VARS 773[SECST 20.000]1]
CHNL# 26: [VARS990005[GT GEN A3 0.6000]1]

4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 -1.500 -1.500 -1.500 -1.500 -1.500 -2.500

TUE, FEB 21 2023 21:42
MACHINE VAR

0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000
TIME (SECONDS)

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -1065L_FAULT_AT_LANGDON 102S

FILE: 1065L_Fault_at_Langdon 102S.out

CHNL# 71: [POWR 943 TO 918 CKT '35']
CHNL# 69: [POWR 943 TO 1012 CKT '23']
CHNL# 67: [POWR 943 TO 547026 CKT '05']
CHNL# 65: [POWR 943 TO 737 CKT '36']
CHNL# 63: [POWR 159 TO 990011 CKT '24']
CHNL# 61: [POWR 943 TO 990011 CKT '24']

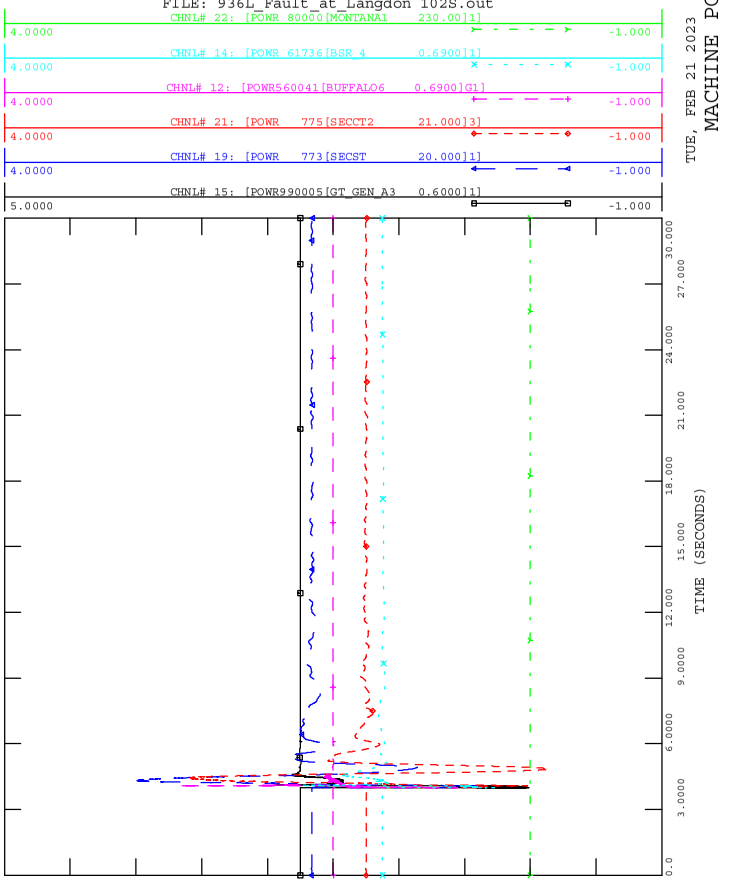
600.00 600.00 600.00 600.00 600.00 800.00 -600.0 -600.0 -600.0 -600.0 -600.0 -400.0

TUE, FEB 21 2023 21:42
LINE POWER

0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000
TIME (SECONDS)

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -936L_FAULT_AT_LANGDON 102S

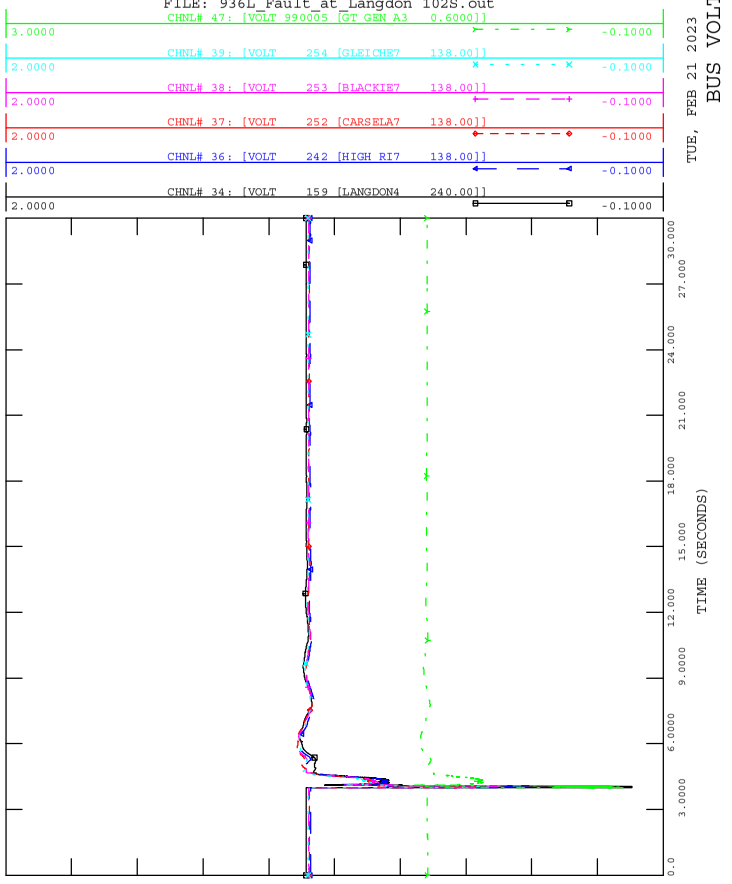
FILE: 936L_Fault_at_Langdon 102S.out



TUE, FEB 21 2023 21:42
MACHINE POWER

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -936L_FAULT_AT_LANGDON 102S

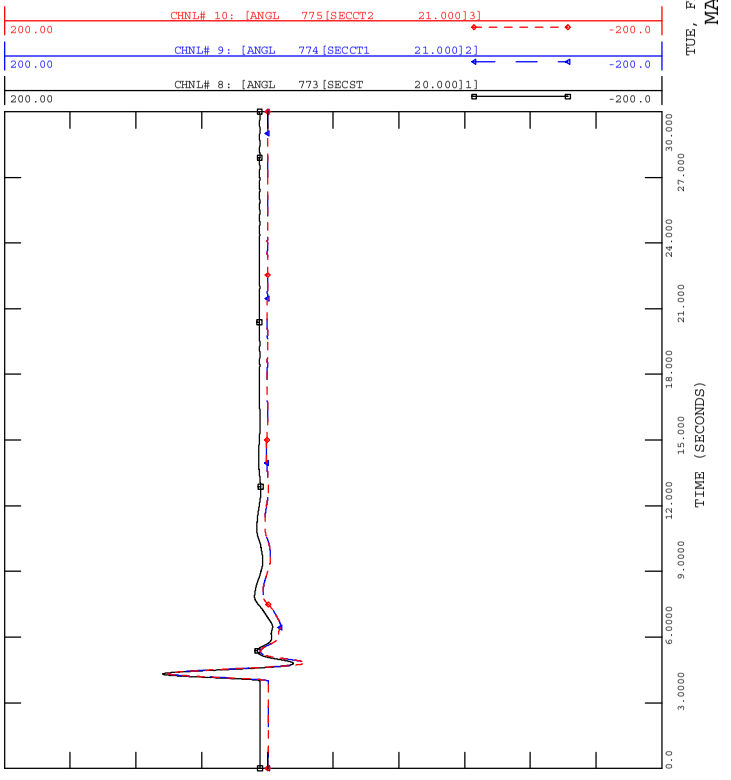
FILE: 936L_Fault_at_Langdon 102S.out



TUE, FEB 21 2023 21:42
BUS VOLTAGE

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -936L_FAULT_AT_LANGDON 102S

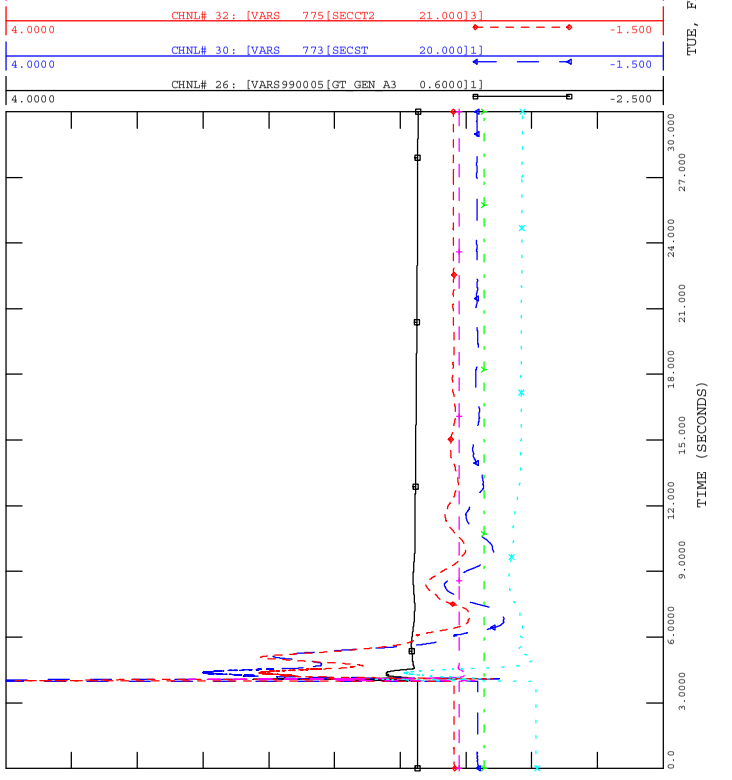
FILE: 936L_Fault_at_Langdon 102S.out



TUE, FEB 21 2023 21:42
MACHINE ANGLE

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -936L_FAULT_AT_LANGDON 102S

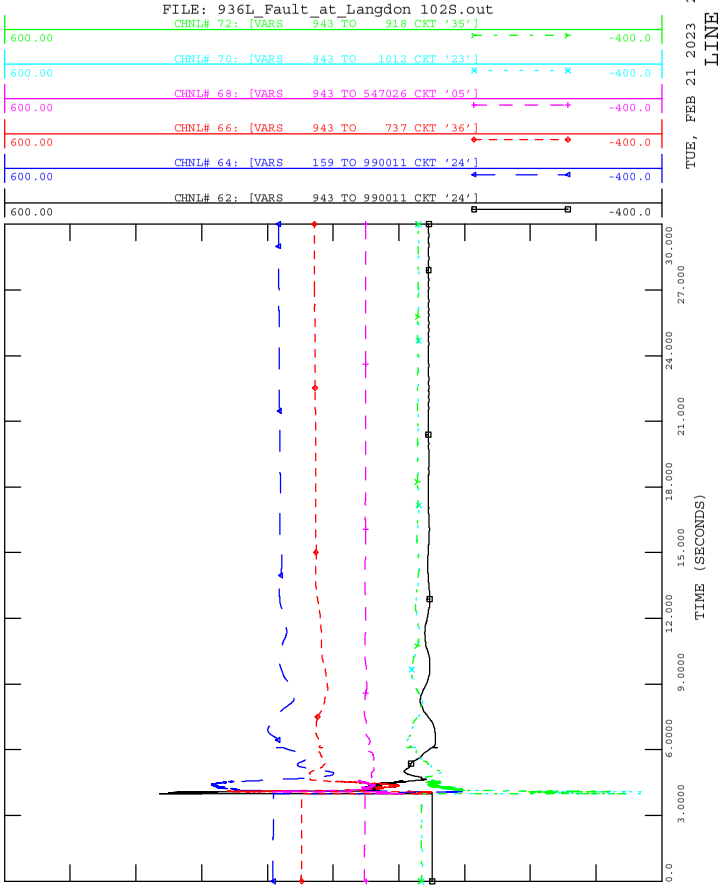
FILE: 936L_Fault_at_Langdon 102S.out



TUE, FEB 21 2023 21:42
MACHINE VAR

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -936L_FAULT_AT_LANGDON 102S

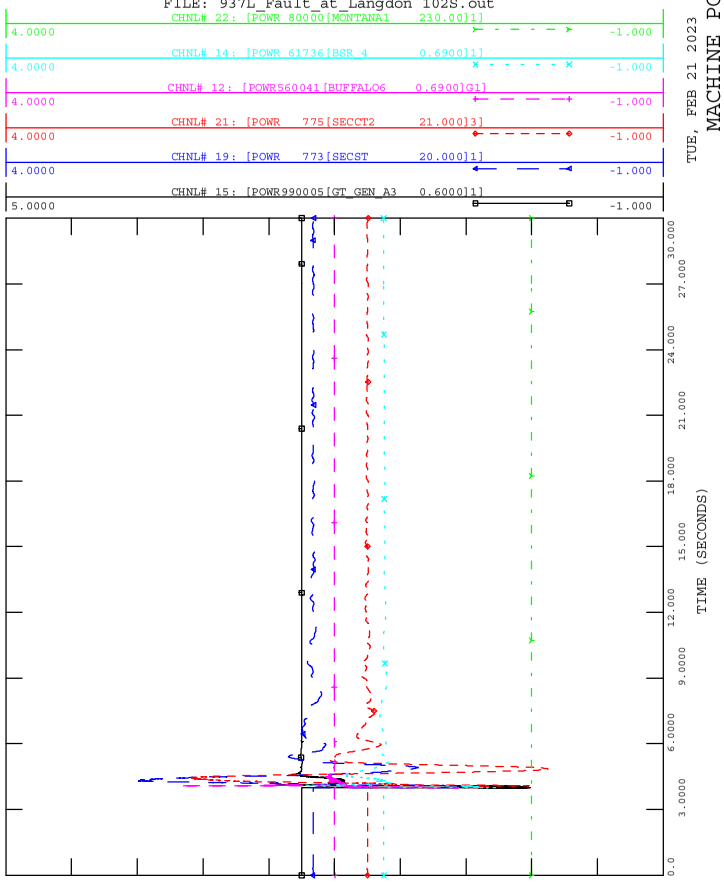
FILE: 936L_Fault_at_Langdon 102S.out



TUE, FEB 21 2023 21:42
LINE VAR

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -937L_FAULT_AT_LANGDON 102S

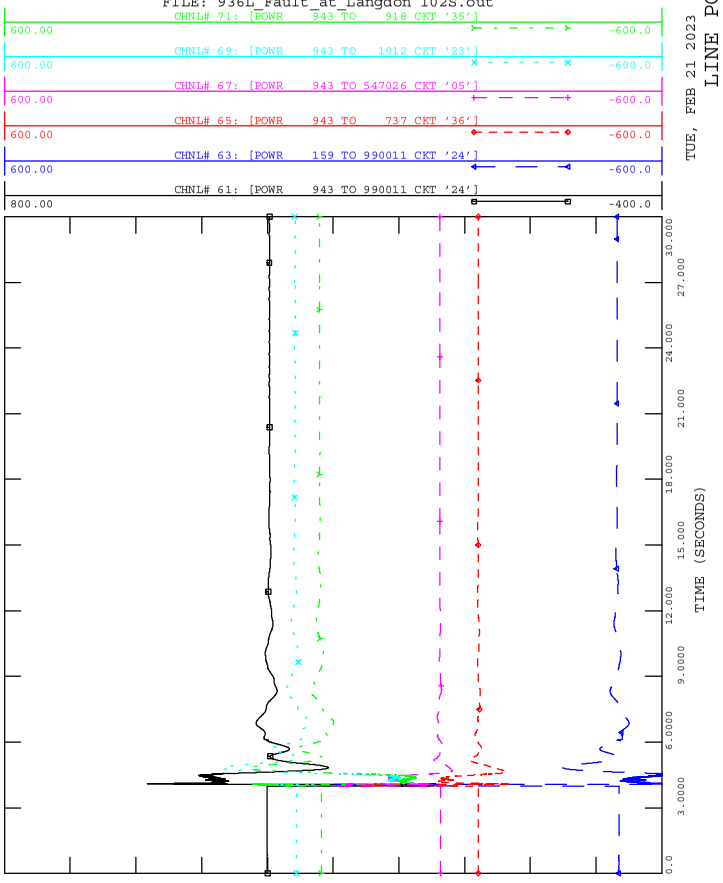
FILE: 937L_Fault_at_Langdon 102S.out



TUE, FEB 21 2023 21:42
MACHINE POWER

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -936L_FAULT_AT_LANGDON 102S

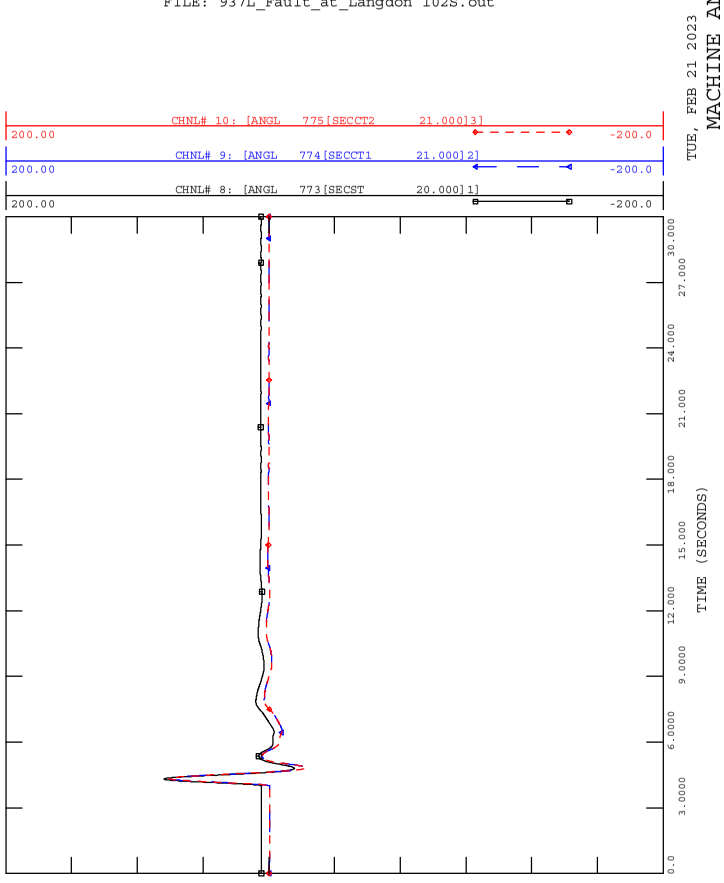
FILE: 936L_Fault_at_Langdon 102S.out



TUE, FEB 21 2023 21:42
LINE POWER

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -937L_FAULT_AT_LANGDON 102S

FILE: 937L_Fault_at_Langdon 102S.out



TUE, FEB 21 2023 21:42
MACHINE ANGLE

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -937L_FAULT_AT_LANGDON 102S

FILE: 937L_Fault_at_Langdon 102S.out

CHNL# 47: [VOLT 990005 [GT GEN A3 0.6000]]
CHNL# 39: [VOLT 254 [GLEICHE7 138.00]]
CHNL# 38: [VOLT 253 [BLACKIE7 138.00]]
CHNL# 37: [VOLT 252 [CARSELA7 138.00]]
CHNL# 36: [VOLT 242 [HIGH RI7 138.00]]
CHNL# 34: [VOLT 159 [LANGDON4 240.00]]

3.0000 2.0000 2.0000 2.0000 2.0000 2.0000
-0.1000 -0.1000 -0.1000 -0.1000 -0.1000 -0.1000

TUE, FEB 21 2023 21:42
BUS VOLTAGE

TIME (SECONDS)
0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -937L_FAULT_AT_LANGDON 102S

FILE: 937L_Fault_at_Langdon 102S.out

CHNL# 72: [VARS 943 TO 918 CKT '35']
CHNL# 70: [VARS 943 TO 1012 CKT '23']
CHNL# 68: [VARS 943 TO 547026 CKT '05']
CHNL# 66: [VARS 943 TO 737 CKT '36']
CHNL# 64: [VARS 159 TO 990011 CKT '24']
CHNL# 62: [VARS 943 TO 990011 CKT '24']

600.00 600.00 600.00 600.00 600.00 600.00
-400.0 -400.0 -400.0 -400.0 -400.0 -400.0

TUE, FEB 21 2023 21:42
LINE VAR

TIME (SECONDS)
0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -937L_FAULT_AT_LANGDON 102S

FILE: 937L_Fault_at_Langdon 102S.out

CHNL# 33: [VARS 80000[MONTANA1 230.00]1]
CHNL# 25: [VARS 61736[BSR 4 0.6900]1]
CHNL# 23: [VARS560041[BUFFALO6 0.6900]G1]
CHNL# 32: [VARS 775[SECCT2 21.000]3]
CHNL# 30: [VARS 773[SECST 20.000]1]
CHNL# 26: [VARS990005[GT GEN A3 0.6000]1]

4.0000 4.0000 4.0000 4.0000 4.0000 4.0000
-1.500 -1.500 -1.500 -1.500 -1.500 -2.500

TUE, FEB 21 2023 21:42
MACHINE VAR

TIME (SECONDS)
0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -937L_FAULT_AT_LANGDON 102S

FILE: 937L_Fault_at_Langdon 102S.out

CHNL# 71: [POWR 943 TO 918 CKT '35']
CHNL# 69: [POWR 943 TO 1012 CKT '23']
CHNL# 67: [POWR 943 TO 547026 CKT '05']
CHNL# 65: [POWR 943 TO 737 CKT '36']
CHNL# 63: [POWR 159 TO 990011 CKT '24']
CHNL# 61: [POWR 943 TO 990011 CKT '24']

600.00 600.00 600.00 600.00 600.00 800.00
-600.0 -600.0 -600.0 -600.0 -600.0 -400.0

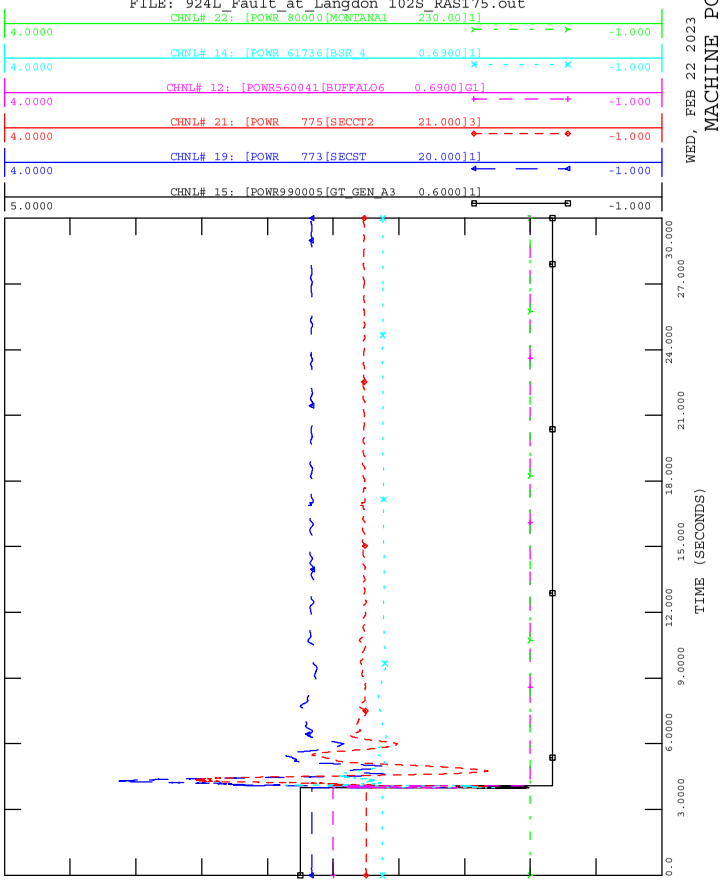
TUE, FEB 21 2023 21:42
LINE POWER

TIME (SECONDS)
0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

Plots for P2396 SL_Sensitivity_Post-RAS (Scenario 9)

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -924L_FAULT_AT_LANGDON 102S_RAS175

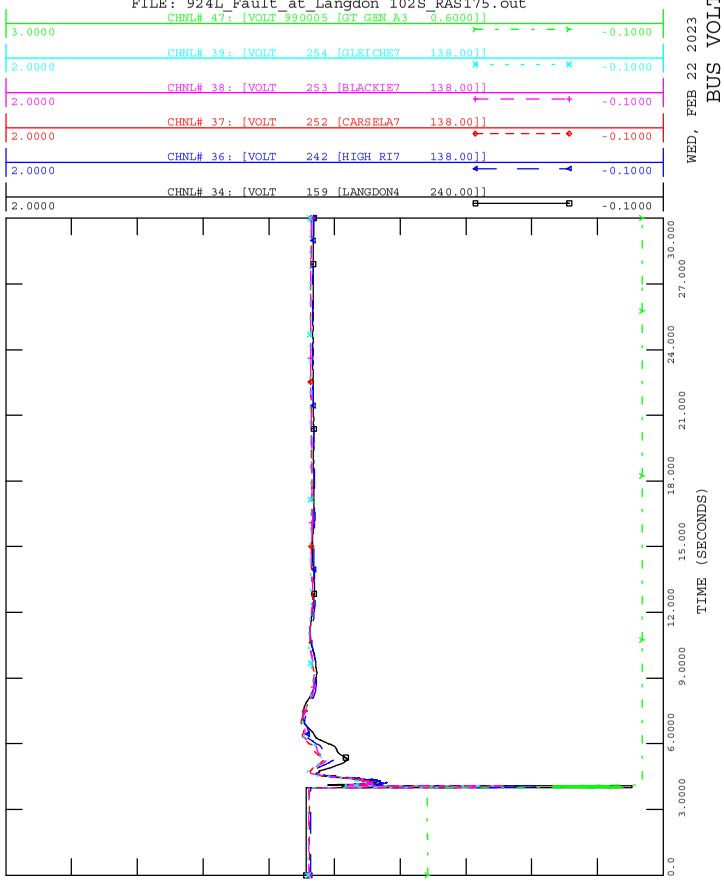
FILE: 924L_Fault_at_Langdon 102S_RAS175.out



WED, FEB 22 2023 21:08
MACHINE POWER

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -924L_FAULT_AT_LANGDON 102S_RAS175

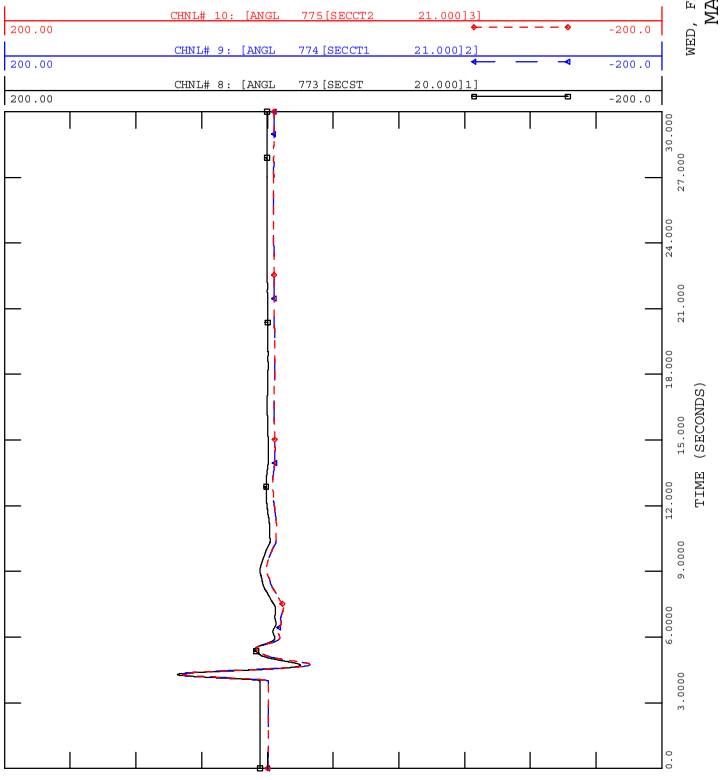
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WED, FEB 22 2023 21:08
BUS VOLTAGE

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -924L_FAULT_AT_LANGDON 102S_RAS175

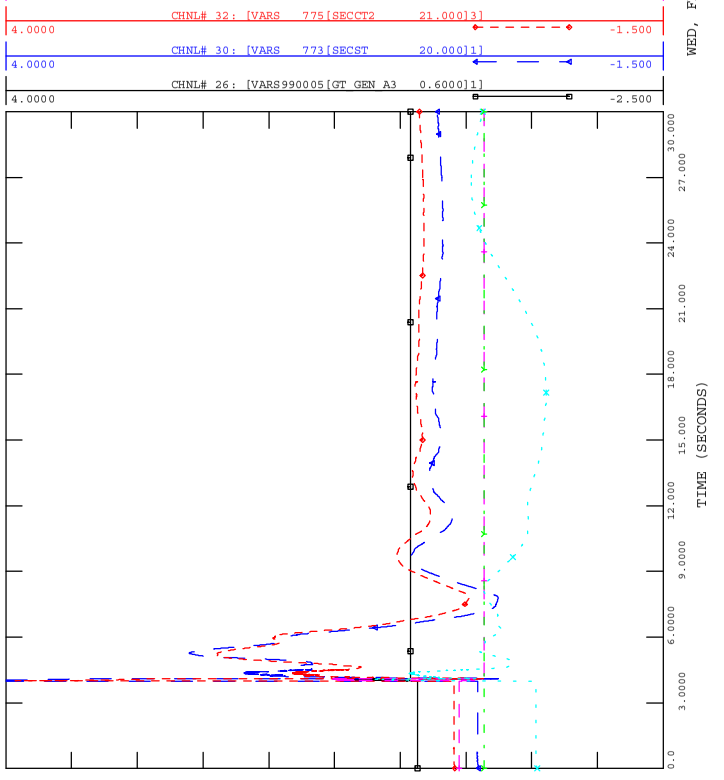
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WED, FEB 22 2023 21:08
MACHINE ANGLE

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
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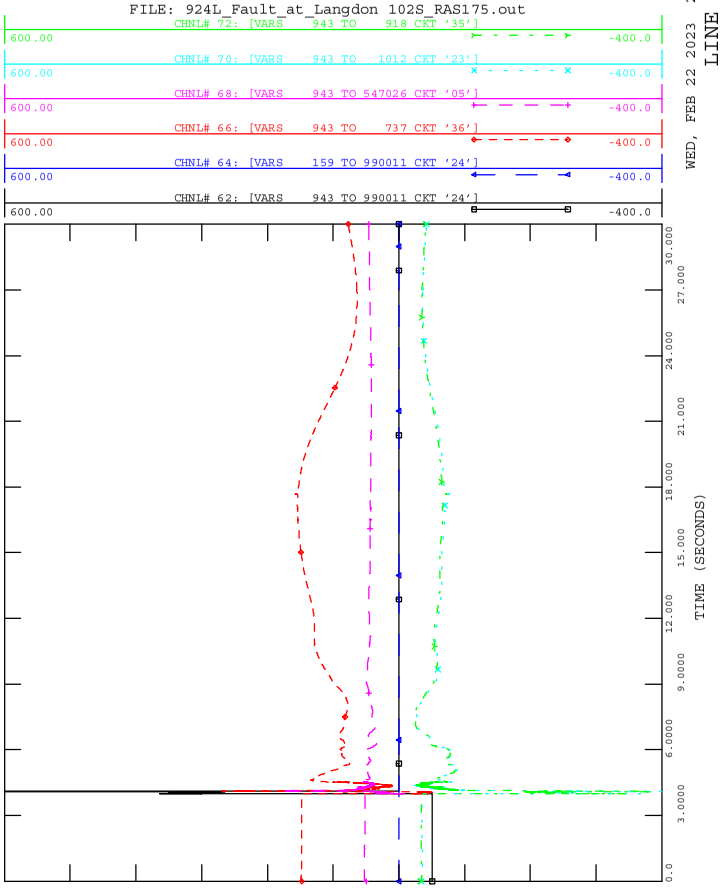
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WED, FEB 22 2023 21:08
MACHINE VAR

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
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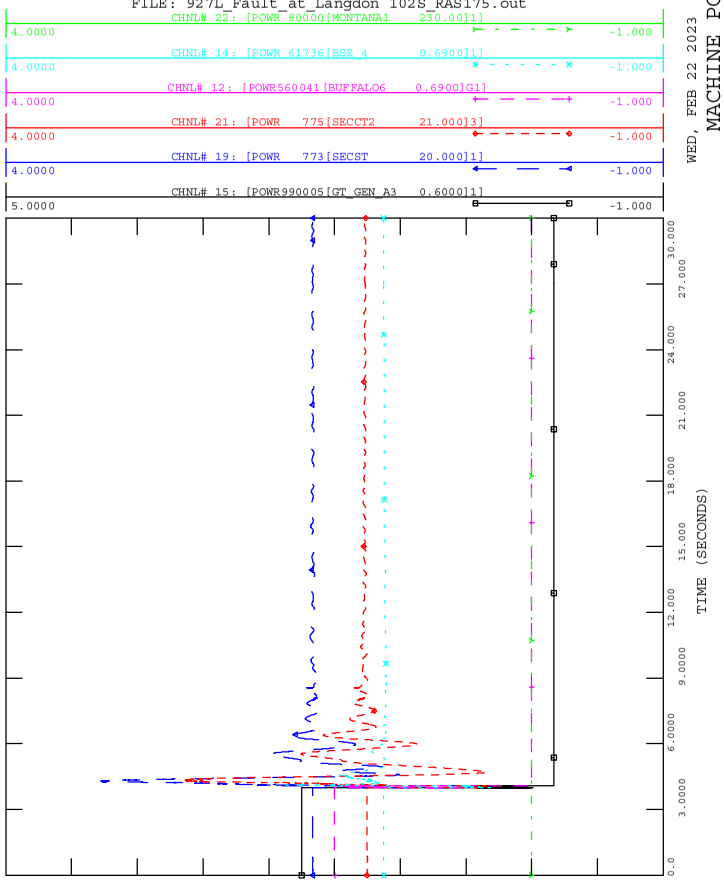
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WED, FEB 22 2023 21:08
LINE VAR

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
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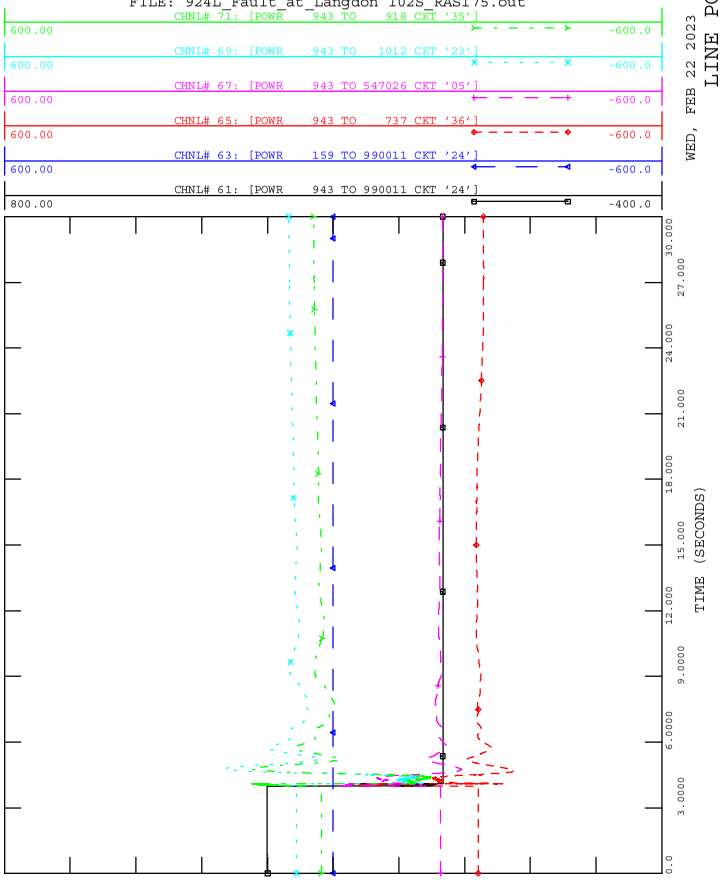
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WED, FEB 22 2023 21:08
MACHINE POWER

SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
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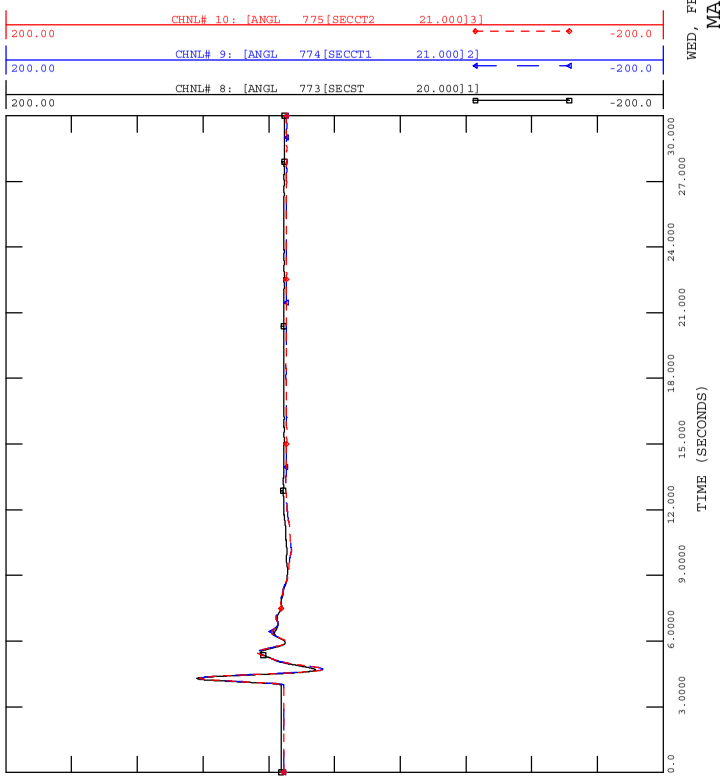
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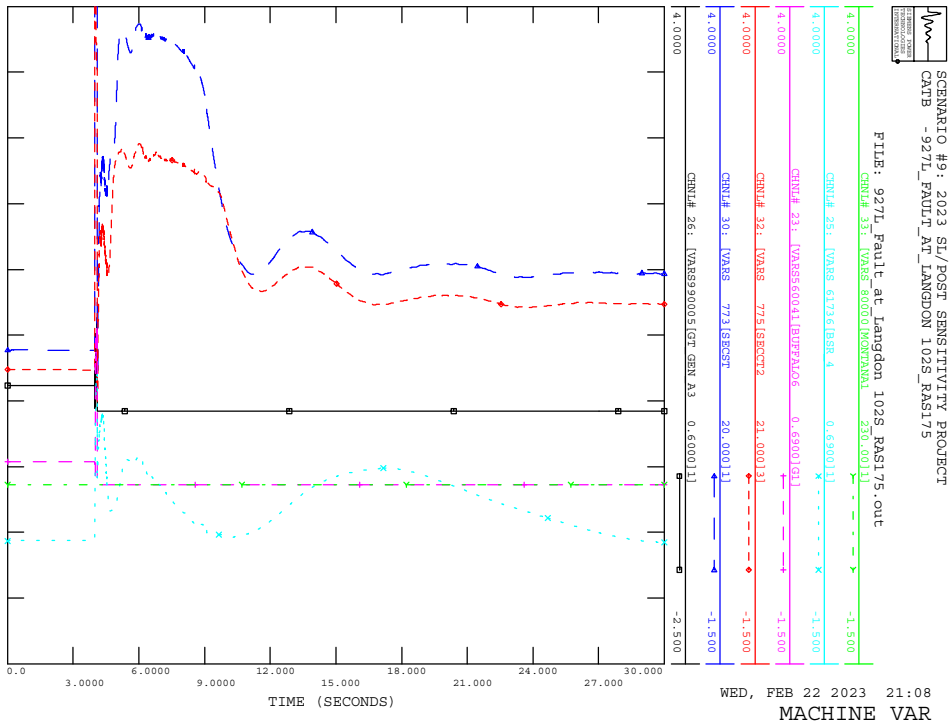
WED, FEB 22 2023 21:08
LINE POWER

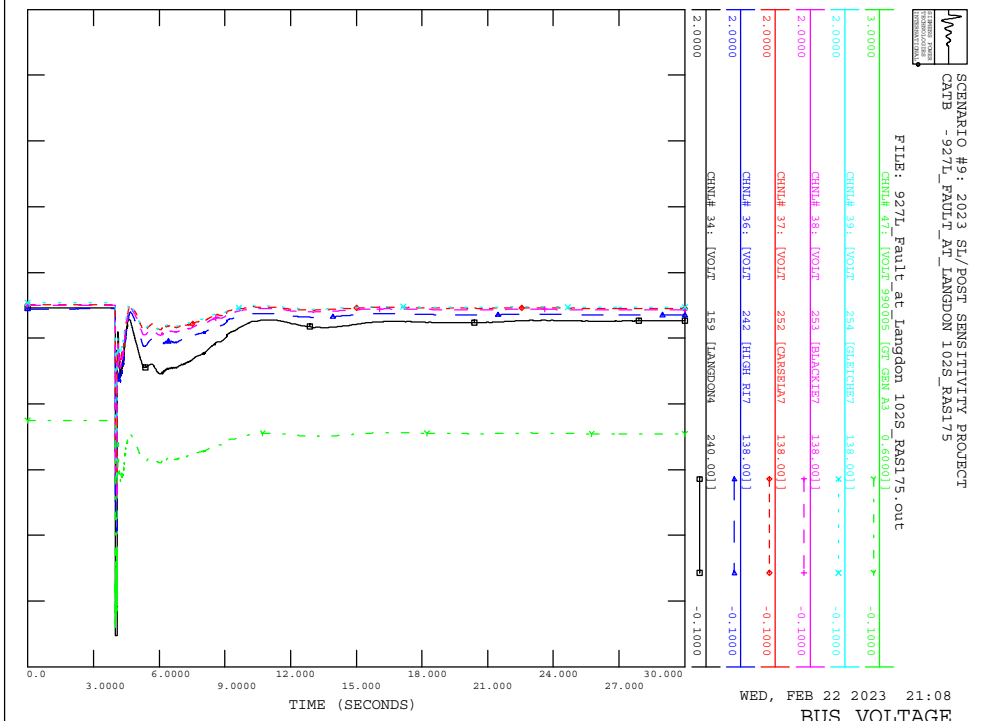
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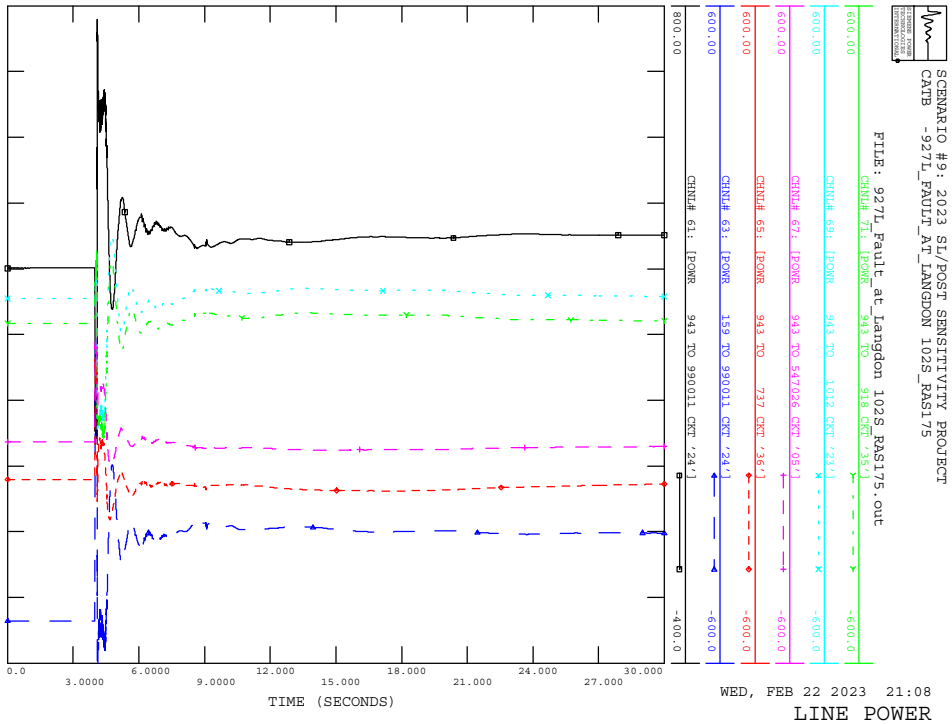
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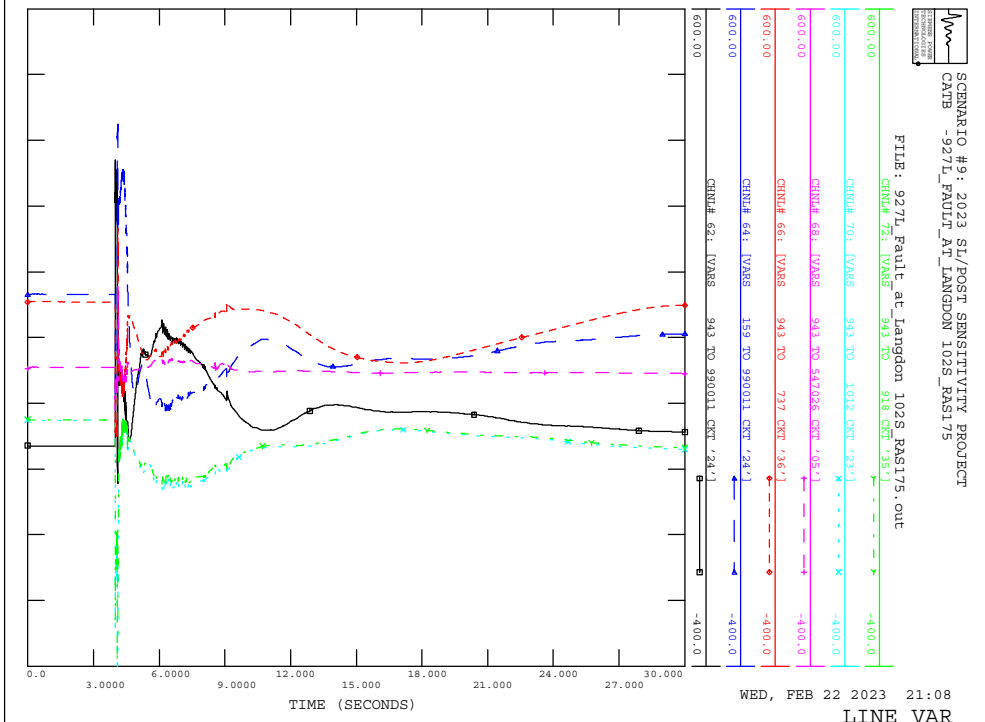


WED, FEB 22 2023 21:08
MACHINE ANGLE


SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -927L_FAULT_AT_LANGDON 102S_RAS175
FILE: 927L_Fault_at_Langdon 102S_RAS175.out
TIME (SECONDS)
WED, FEB 22 2023 21:08
MACHINE VAR


SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -927L_FAULT_AT_LANGDON 102S_RAS175
FILE: 927L_Fault_at_Langdon 102S_RAS175.out
TIME (SECONDS)
WED, FEB 22 2023 21:08
BUS VOLTAGE


SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -927L_FAULT_AT_LANGDON 102S_RAS175
FILE: 927L_Fault_at_Langdon 102S_RAS175.out
TIME (SECONDS)
WED, FEB 22 2023 21:08
LINE POWER


SCENARIO #9: 2023 SL/POST SENSITIVITY PROJECT
CATB -927L_FAULT_AT_LANGDON 102S_RAS175
FILE: 927L_Fault_at_Langdon 102S_RAS175.out
TIME (SECONDS)
WED, FEB 22 2023 21:08
LINE VAR

Attachment A5
Dynamic Data and Assumptions

Table A5-1: Solar PV Generic Renewable Energy Generator/Converter Model (REGCAU1)

CONs	Value	Description
J+0	0.02	Tg, Converter time constant (s)
J+1	10	Rrpwr, Low Voltage Power Logic (LVPL) ramp rate limit (pu/s)
J+2	0.9	Brkpt, LVPL characteristic voltage 2 (pu)
J+3	0.5	Zerox, LVPL characteristic voltage 1 (pu)
J+4	1.0	Lvpl1, LVPL gain (pu)
J+5	1.2	Volim, Voltage limit (pu) for high voltage reactive current management
J+6	0.01	Lvpnt1, High voltage point for low voltage active current management (pu)
J+7	0.0	Lvpnt0, Low voltage point for low voltage active current management (pu)
J+8	-1.0	Iolim, Current limit (pu) for high voltage reactive current management (specified as a negative value)
J+9	0.0	Tfltr, Voltage filter time constant for low voltage active current management (s)
J+10	0.0	Khv, Overvoltage compensation gain used in the high voltage reactive current management
J+11	20	Iqrmax, Upper limit on rate of change for reactive current (pu)
J+12	-20	Iqrmin, Lower limit on rate of change for reactive current (pu)
J+13	0.7	Accel, acceleration factor (0 < Accel < 1)
ICON	**Value**	**Description**
M+0	0	Lvplsw (Low Voltage Power Logic) switch (0: LVPL not present, 1: LVPL present)

Table A5-2: Solar PV Generic Renewable Electrical Control Model (REECAU1)

CONs	Value	Description
J+0	0.9	Vdip (pu), low voltage threshold to activate reactive current injection logic
J+1	1.1	Vup (pu), Voltage above which reactive current injection logic is activated
J+2	0.01	Trv (s), Voltage filter time constant
J+3	-0.1	dbd1 (pu), Voltage error dead band lower threshold (<=0)
J+4	0.1	dbd2 (pu), Voltage error dead band upper threshold (>=0)
J+5	1.0	Kqv (pu), Reactive current injection gain during over and undervoltage conditions
J+6	2.0	Iqhl (pu), Upper limit on reactive current injection Iqinj
J+7	-2.0	Iqll (pu), Lower limit on reactive current injection Iqinj
J+8	0.0	Vref0 (pu), User defined reference (if 0, model initializes it to initial terminal voltage)
J+9	1.0	Iqfrz (pu), Value at which Iqinj is held for Thld seconds following a voltage dip if Thld > 0
J+10	0.0	Thld (s), Time for which Iqinj is held at Iqfrz after voltage dip returns to zero
J+11	0.0	Thld2 (s) (>=0), Time for which the active current limit (IPMAX) is held at the faulted value after voltage dip returns to zero
J+12	0.05	Tp (s), Filter time constant for electrical power
J+13	0.6	QMax (pu), limit for reactive power regulator
J+14	-0.6	QMin (pu) limit for reactive power regulator
J+15	1.2	VMAX (pu), Max. limit for voltage control

J+16	0.8	VMIN (pu), Min. limit for voltage control
J+17	0.0	Kqp (pu), Reactive power regulator proportional gain
J+18	1.0	Kqi (pu), Reactive power regulator integral gain
J+19	0.0	Kvp (pu), Voltage regulator proportional gain
J+20	1.0	Kvi (pu), Voltage regulator integral gain
J+21	0.0	Vbias (pu), User-defined bias (normally 0)
J+22	0.01	Tiq (s), Time constant on delay s4
J+23	1.0	dPmax (pu/s) (>0) Power reference max. ramp rate
J+24	-1.0	dPmin (pu/s) (<0) Power reference min. ramp rate
J+25	1.0	PMAX (pu), Max. power limit
J+26	0.0	PMIN (pu), Min. power limit
J+27	1.0	Imax (pu), Maximum limit on total converter current
J+28	0.01	Tpord (s), Power filter time constant
J+29	0.0	Vq1 (pu), Reactive Power V-I pair, voltage
J+30	1.0	Iq1 (pu), Reactive Power V-I pair, current
J+31	0.33	Vq2 (pu) (Vq2>Vq1), Reactive Power V-I pair, voltage
J+32	1.0	Iq2 (pu) (Iq2>Iq1), Reactive Power V-I pair, current
J+33	0.66	Vq3 (pu) (Vq3>Vq2), Reactive Power V-I pair, voltage
J+34	1.0	Iq3 (pu) (Iq3>Iq2), Reactive Power V-I pair, current
J+35	1.0	Vq4 (pu) (Vq4>Vq3), Reactive Power V-I pair, voltage
J+36	1.0	Iq4 (pu) (Iq4>Iq3), Reactive Power V-I pair, current
J+37	0.0	Vp1 (pu), Real Power V-I pair, voltage
J+38	1.0	Ip1 (pu), Real Power V-I pair, current
J+39	0.33	Vp2 (pu) (Vp2>Vp1), Real Power V-I pair, voltage
J+40	1.0	Ip2 (pu) (Ip2>Ip1), Real Power V-I pair, current
J+41	0.6	Vp3 (pu) (Vp3>Vp2), Real Power V-I pair, voltage
J+42	1.0	Ip3 (pu) (Ip3>Ip2), Real Power V-I pair, current
J+43	1.0	Vp4 (pu) (Vp4>Vp3), Real Power V-I pair, voltage
J+44	1.0	Ip4 (pu) (Ip4>Ip3), Real Power V-I pair, current

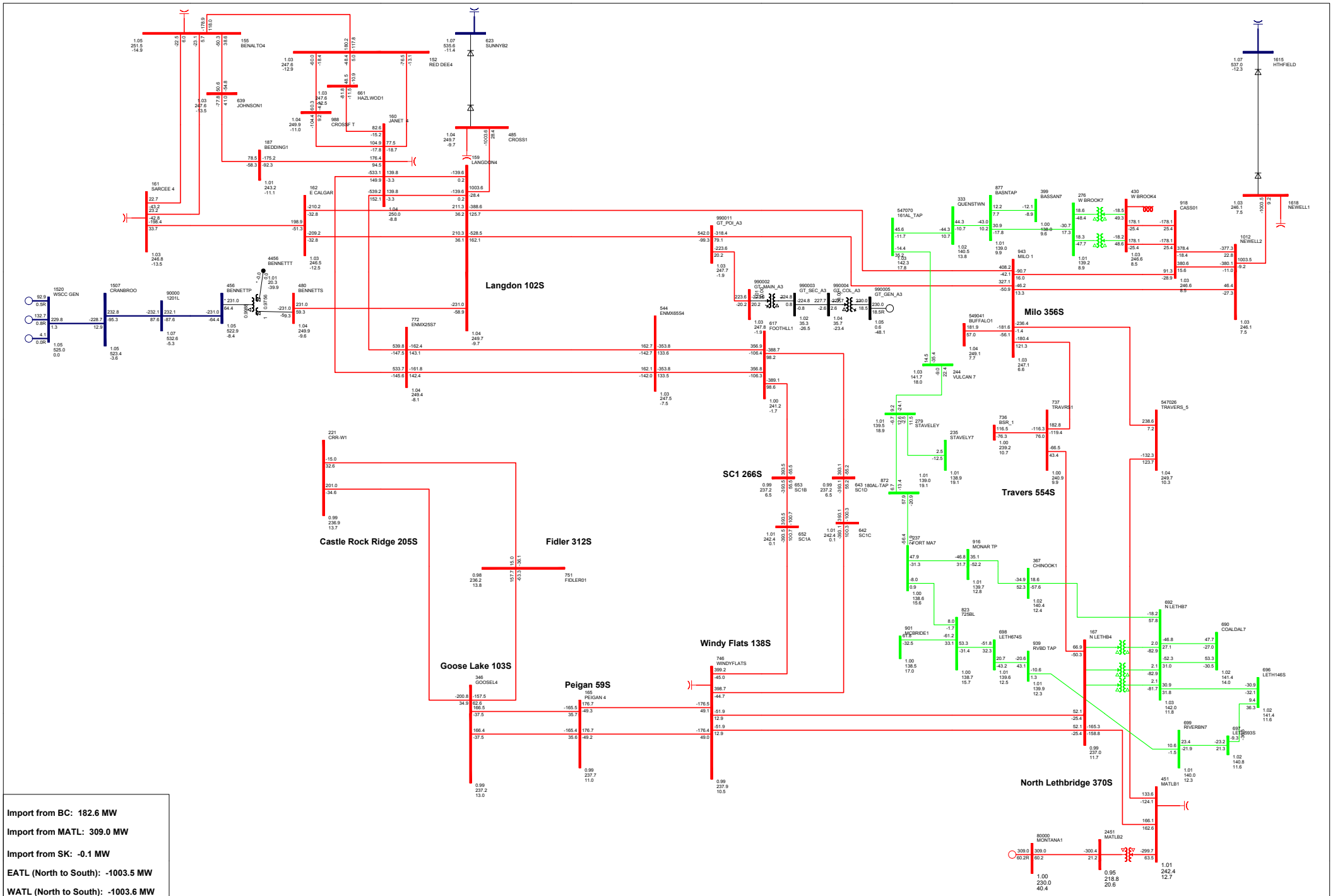
ICONs	Value	Description
M+0	0	Bus number for voltage control; local control if 0
M+1	0	PFFLAG (Power factor control flag): 1 if power factor control 0 if Q control (which can be controlled by an external signal)
M+2	1	VFLAG: 1 if Q control, 0 if voltage control
M+3	0	QFLAG: 1 if voltage or Q control, 0 if constant pf or Q control
M+4	0	PFLAG: 1 if active current command has speed dependency 0 for no dependency
M+5	0	PQFLAG, P/Q priority flag for current limit: 0 for Q priority 1 for P priority

Table A5-3: Solar PV Generic Renewable Plant Control Model (REPCAU1)

CONs	Value	Description
J+0	0.04	Tfltr, Voltage or reactive power measurement filter time constant (s)

J+1	0.0	Kp, Reactive power PI control proportional gain (pu)
J+2	0.5	Ki, Reactive power PI control integral gain (pu)
J+3	0.0	Tft, Lead time constant (s)
J+4	0.04	Tfv, Lag time constant (s)
J+5	0.88	Vfrz, Voltage below which State s2 is frozen (pu)
J+6	0.0019	Rc, Line drop compensation resistance (pu)
J+7	0.007	Xc, Line drop compensation reactance (pu)
J+8	0.04	Kc, Reactive current compensation gain (pu)
J+9	999	emax, upper limit on deadband output (pu)
J+10	-999	emin, lower limit on deadband output (pu)
J+11	0	dbd1, lower threshold for reactive power control deadband (<=0)
J+12	0	dbd2, upper threshold for reactive power control deadband (>=0)
J+13	0.60	Qmax, Upper limit on output of V/Q control (pu)
J+14	-0.60	Qmin, Lower limit on output of V/Q control (pu)
J+15	0.0	Kpg, Proportional gain for power control (pu)
J+16	0.50	Kig, Proportional gain for power control (pu)
J+17	0.04	Tp, Real power measurement filter time constant (s)
J+18	0.0	fdbd1, Deadband for frequency control, lower threshold (<=0)
J+19	0.0	Fdbd2, Deadband for frequency control, upper threshold (>=0)
J+20	999	femax, frequency error upper limit (pu)
J+21	-999	femin, frequency error lower limit (pu)
J+22	1	Pmax, upper limit on power reference (pu)
J+23	0	Pmin, lower limit on power reference (pu)
J+24	0.04	Tg, Power Controller lag time constant (s)
J+25	0.04	Ddn, reciprocal of droop for over-frequency conditions (pu)
J+26	0.04	Dup, reciprocal droop for under-frequency conditions (pu)
ICONs	**Value**	**Description**
M+0	990002	Bus number for voltage control; local control if 0
M+1	990002	Monitored branch FROM bus number for line drop compensation (if 0 generator power will be used)
M+2	990011	Monitored branch TO bus number for line drop compensation (if 0 generator power will be used)
M+3	‘1’	Branch circuit id for line drop compensation (enter in single quotes) (if 0 generator power will be used)
M+4	0	VCFlag (droop flag): 0: with droop if power factor control 1: with line drop compensation 0 for no dependency
M+5	1	RefFlag (flag for V or Q control): 0: Q control 1: voltage control
M+6	0	Fflag (flag to disable frequency control): 1: Enable control 0: disable

Attachment A6
Post-Mitigation Power Flow Diagrams



Import from BC: 182.6 MW

Import from MATL: 309.0 MW

Import from SK: -0.1 MW

EATL (North to South): -1003.5 MW

WATL (North to South): -1003.6 MW

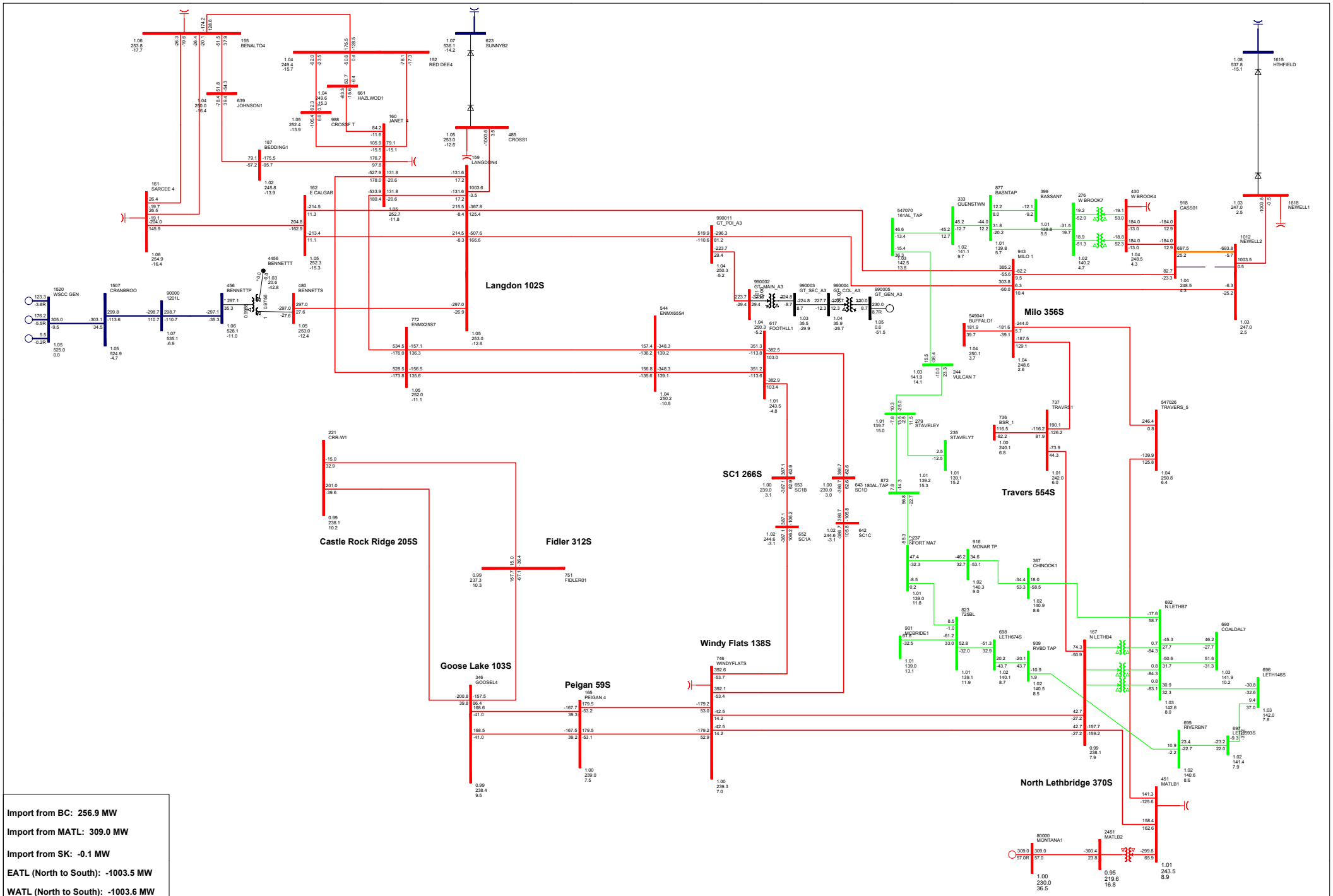
P2396 Georgetown Solar: 230.0 MW

Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SP_POST_ALT3_STAGE3_V6
CAT A-NO CONTINGENCY
SAT, JAN 14 2023 21:06

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.0000V 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000

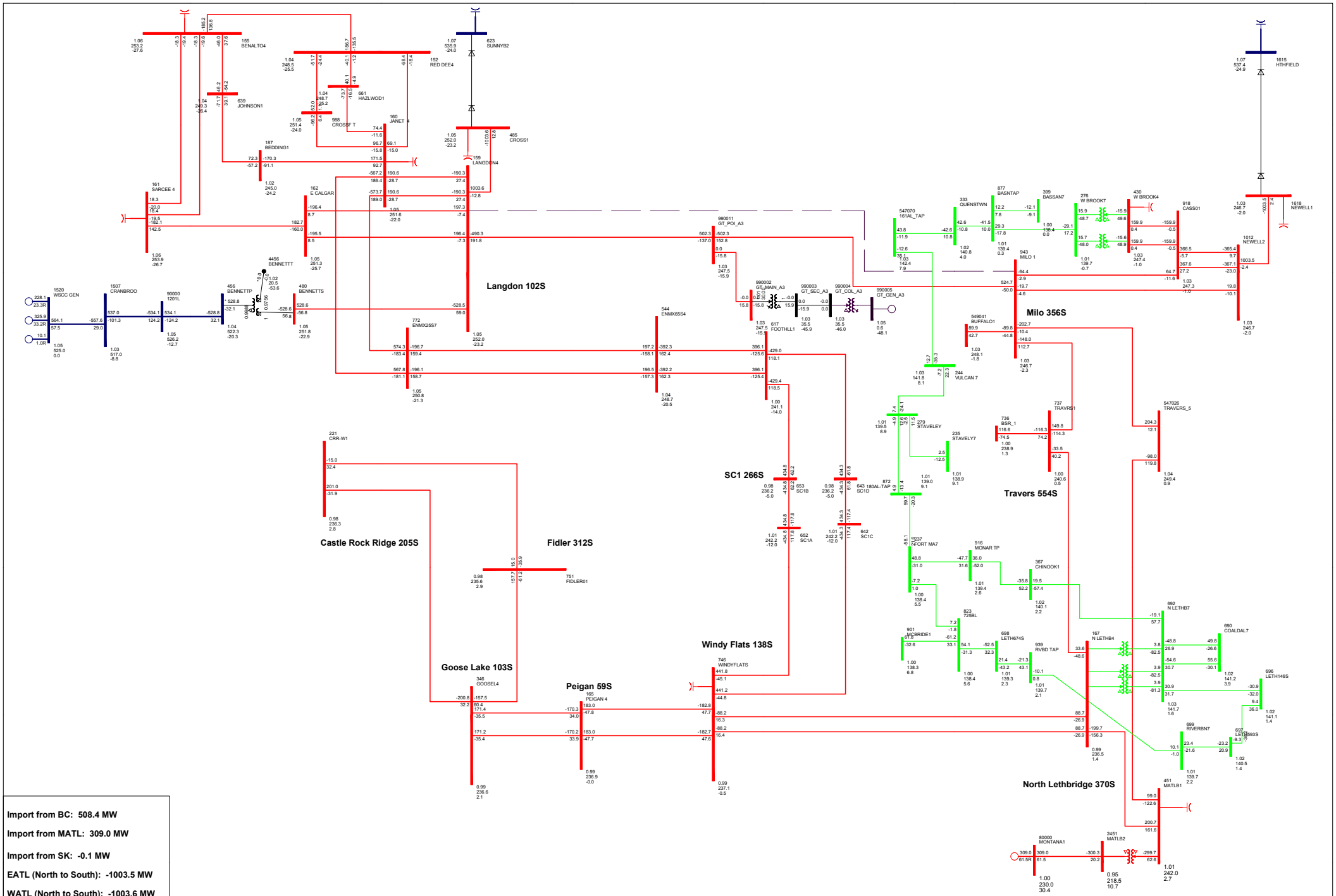


Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SP_POST_ALT3_STAGE3_V6_RAS
CAT B-1088L (NEWELL 2075S - CASSILS 324S)
SUN, JAN 15 2023 11:52

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.000UV 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000



Import from BC: 508.4 MW

Import from MATL: 309.0 MW

Import from SK: -0.1 MW

EATL (North to South): -1003.5 MW

WATL (North to South): -1003.6 MW

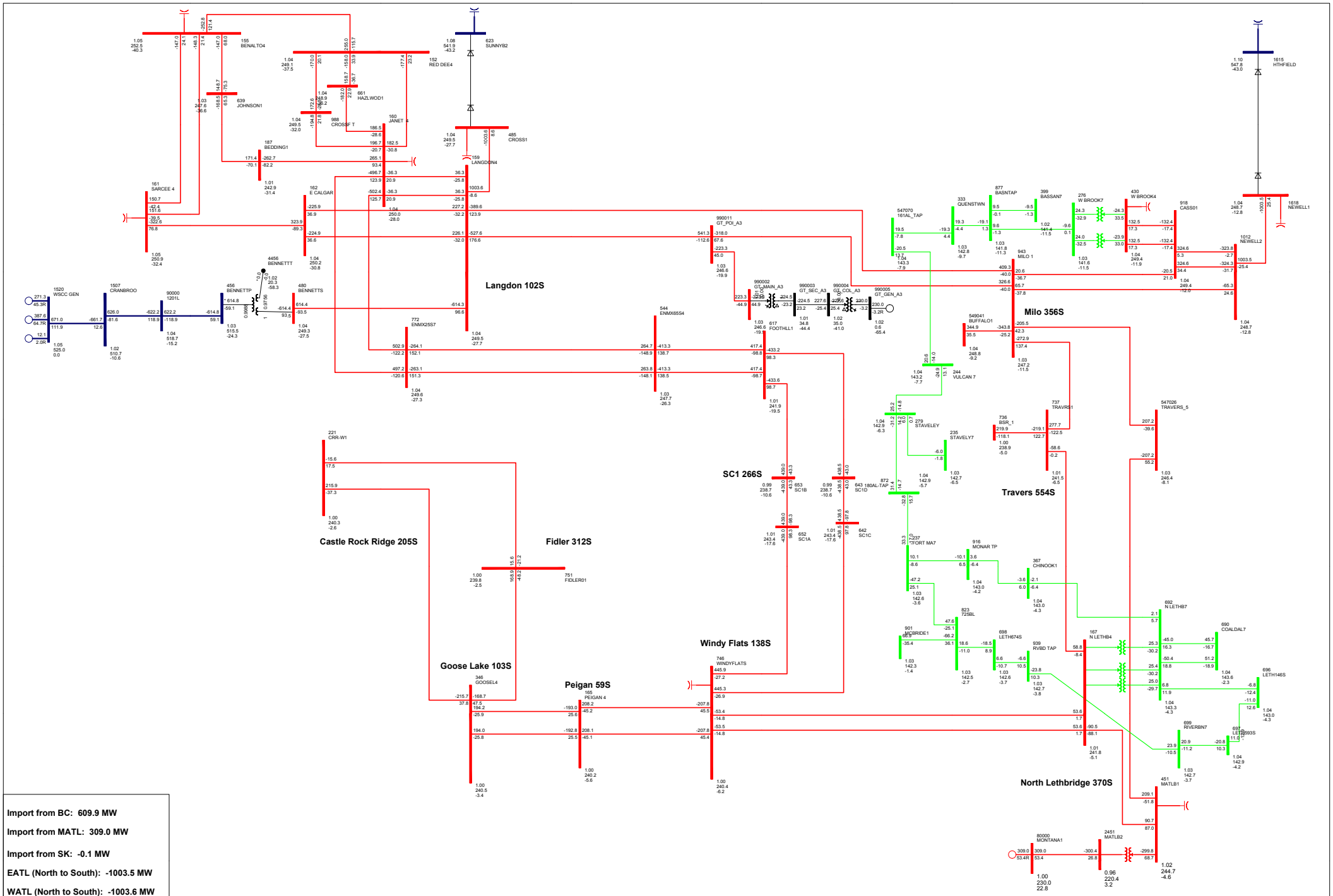
P2396 Georgetown Solar: 0.0 MW

Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SP_POST_ALT3_STAGE3_V6_RAS
CAT B-927L (LANGDON 102S - MILO 356S)
SUN, JAN 15 2023 11:52

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.000OV 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000



Import from BC: 609.9 MW

Import from MATL: 309.0 MW

Import from SK: -0.1 MW

EATL (North to South): -1003.5 MW

WATL (North to South): -1003.6 MW

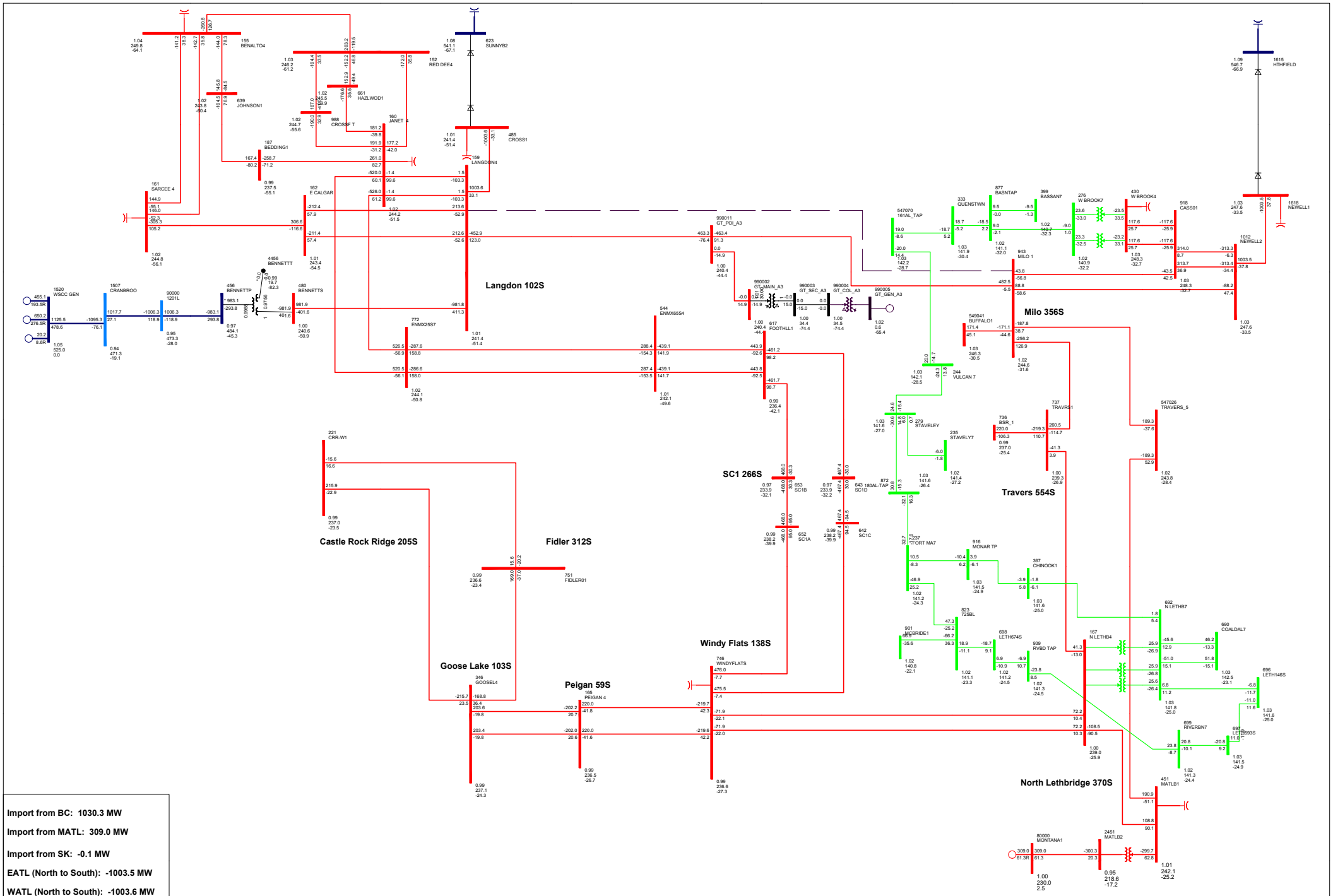
P2396 Georgetown Solar: 230.0 MW

Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SL_POST_ALT3_STAGE3_V3
CAT A-NO CONTINGENCY
SAT, JAN 14 2023 21:03

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.000OV 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000

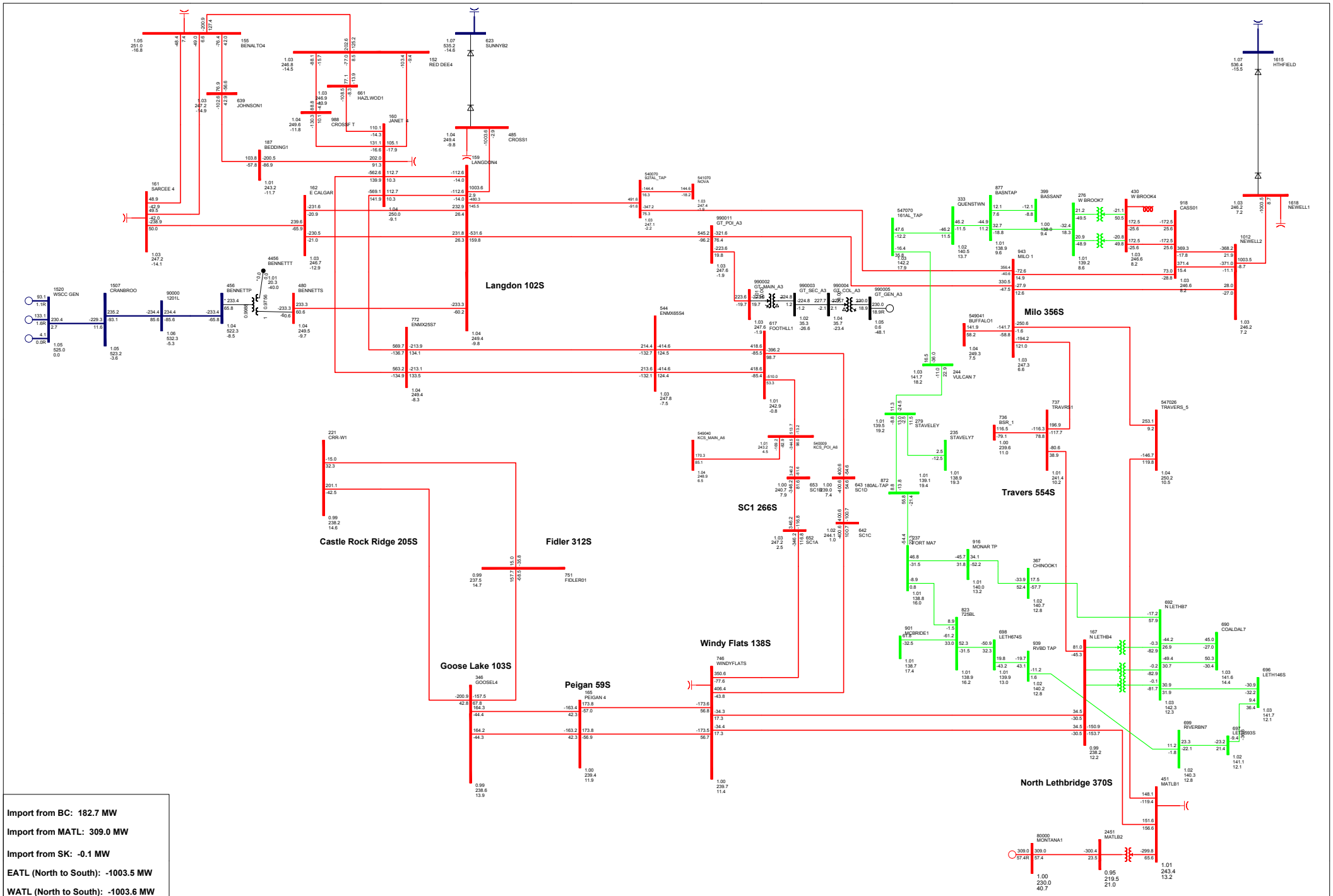


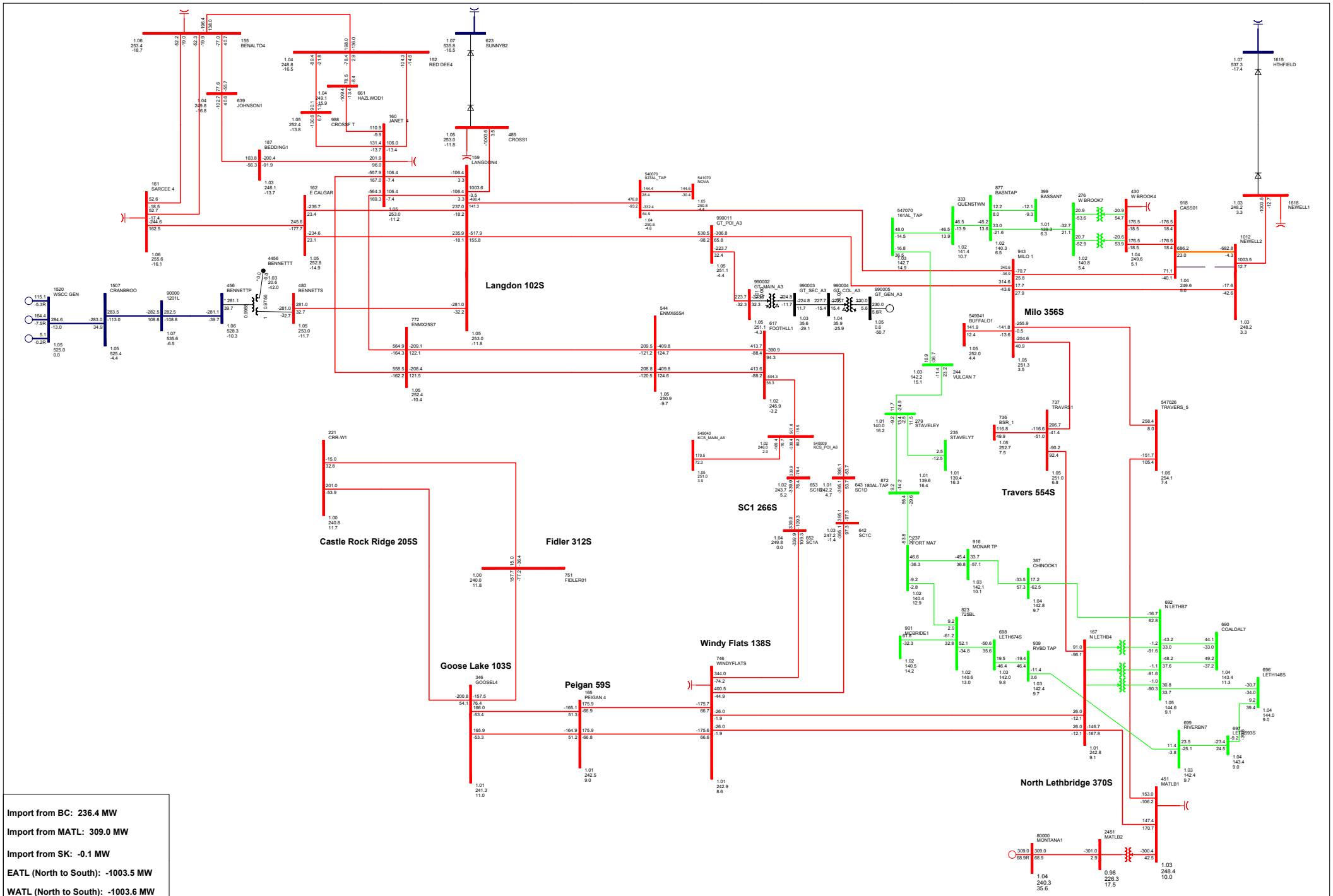
Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SL_POST_ALT3_STAGE3_V3_RAS
CAT B-927L (LANGDON 102S - MILO 356S)
SUN, JAN 15 2023 11:51

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.000OV 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000


Langdon 102S
Milo 356S
Travers 554S
SC1 266S
Castle Rock Ridge 205S
Fidler 312S
Windy Flats 138S
Goose Lake 103S
Peigan 59S
North Lethbridge 370S
155 BENALTO4
639 JOHNSON1
187 BEDDING1
988 CROSSF T
661 HAZLWOD1
160 JANET 4
152 RED DEE4
623 SUNNYB2
485 CROSS1
159 LANGDON4
161 SARCEE 4
162 E CALGAR
4456 BENNETT
456 BENNETTP
480 BENNETTS
1520 WSCC GEN
1507 CRANBROO
90000 1201L
772 ENMX25S7
544 ENMX65S4
990011 GT_POI_A3
990002 GT_MAIN_A3
990003 GT_SEC_A3
990004 GT_COL_A3
990005 GT_GEN_A3
617 FOOTHLL1
540070 927AL_TAP
541070 NOVA
547070 161AL_TAP
333 QUENSTWN
877 BASNTAP
399 BASSAN7
276 W BROOK7
430 W BROOK4
918 CASS01
1012 NEWELL2
1618 NEWELL1
1615 HTHFIELD
549041 BUFFALO1
244 VULCAN 7
279 STAVELEY
235 STAVELY7
736 BSR_1
737 TRAVRS1
547026 TRAVERS_5
549040 KCS_MAIN_A6
540009 KCS_POI_A6
643 180AL-TAP
872 SC1D
653 SC1B
652 SC1A
642 SC1C
221 CRR-W1
751 FIDLER01
746 WINDYFLATS
346 GOOSEL4
165 PEIGAN 4
237 NFORT MA7
916 MONAR TP
367 CHINOOK1
901 MCBRIDE1
823 725BL
698 LETH674S
939 RVBD TAP
167 N LETHB4
692 N LETHB7
690 COALDAL7
696 LETH146S
697 LETH693S
699 RIVERBN7
451 MATLB1
2451 MATLB2
80000 MONTANA1
Import from BC: 182.7 MW
Import from MATL: 309.0 MW
Import from SK: -0.1 MW
EATL (North to South): -1003.5 MW
WATL (North to South): -1003.6 MW
P2396 Georgetown Solar: 230.0 MW
Georgetown Solar Project
AESO Project Number: P2396
SCENARIO: P2396_SP_POST_ALT3_SEN_P2373-P2378
CAT A-NO CONTINGENCY
SAT, JAN 14 2023 20:55
Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.000PU 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000



Import from BC: 236.4 MW

Import from MATL: 309.0 MW

Import from SK: -0.1 MW

EATL (North to South): -1003.5 MW

WATL (North to South): -1003.6 MW

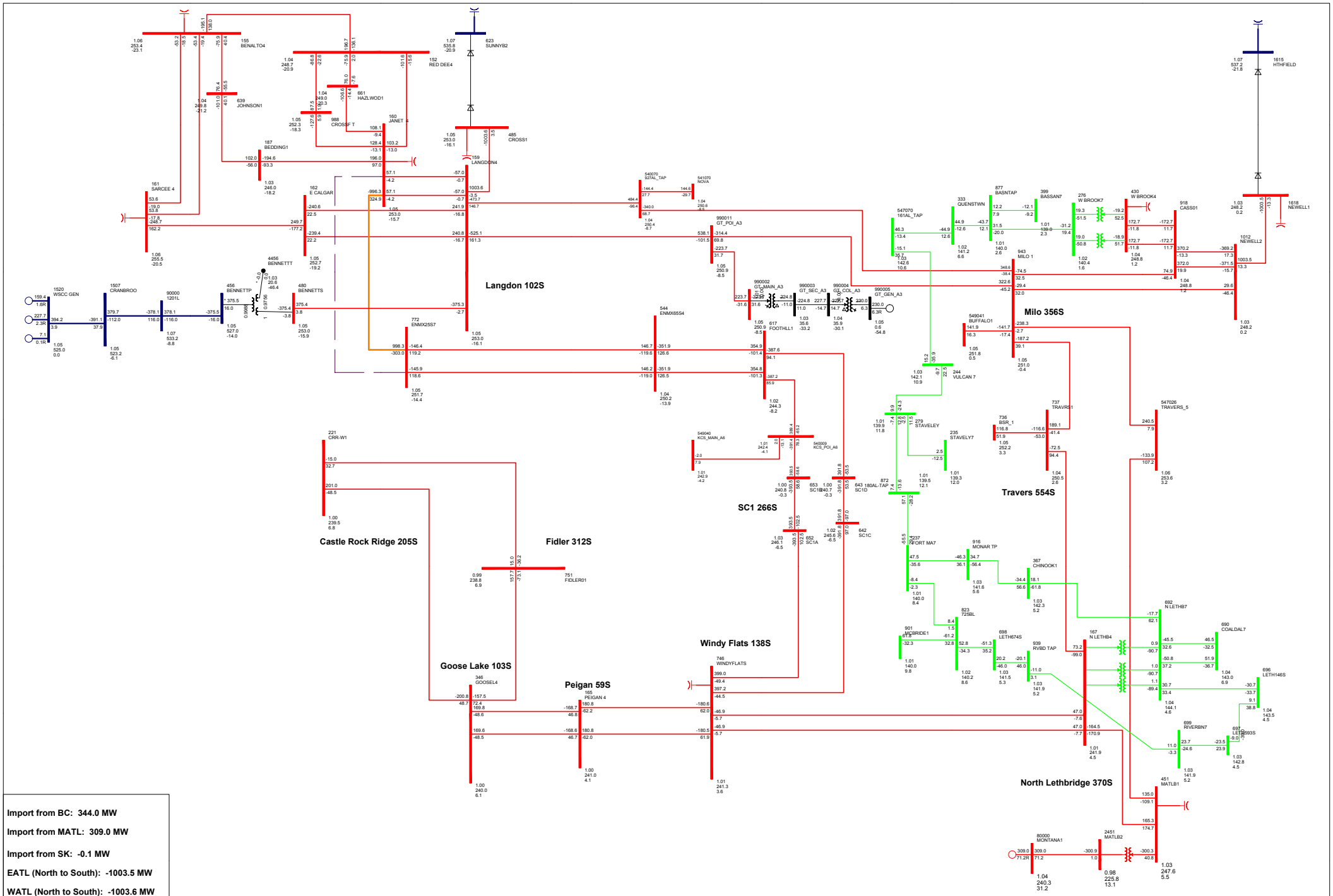
P2396 Georgetown Solar: 230.0 MW

Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SP_POST_ALT3_SEN_P2373-P2378_RAS
CAT B-1088L (NEWELL 2075S - CASSILS 324S)
SUN, JAN 15 2023 12:04

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.000OV 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000

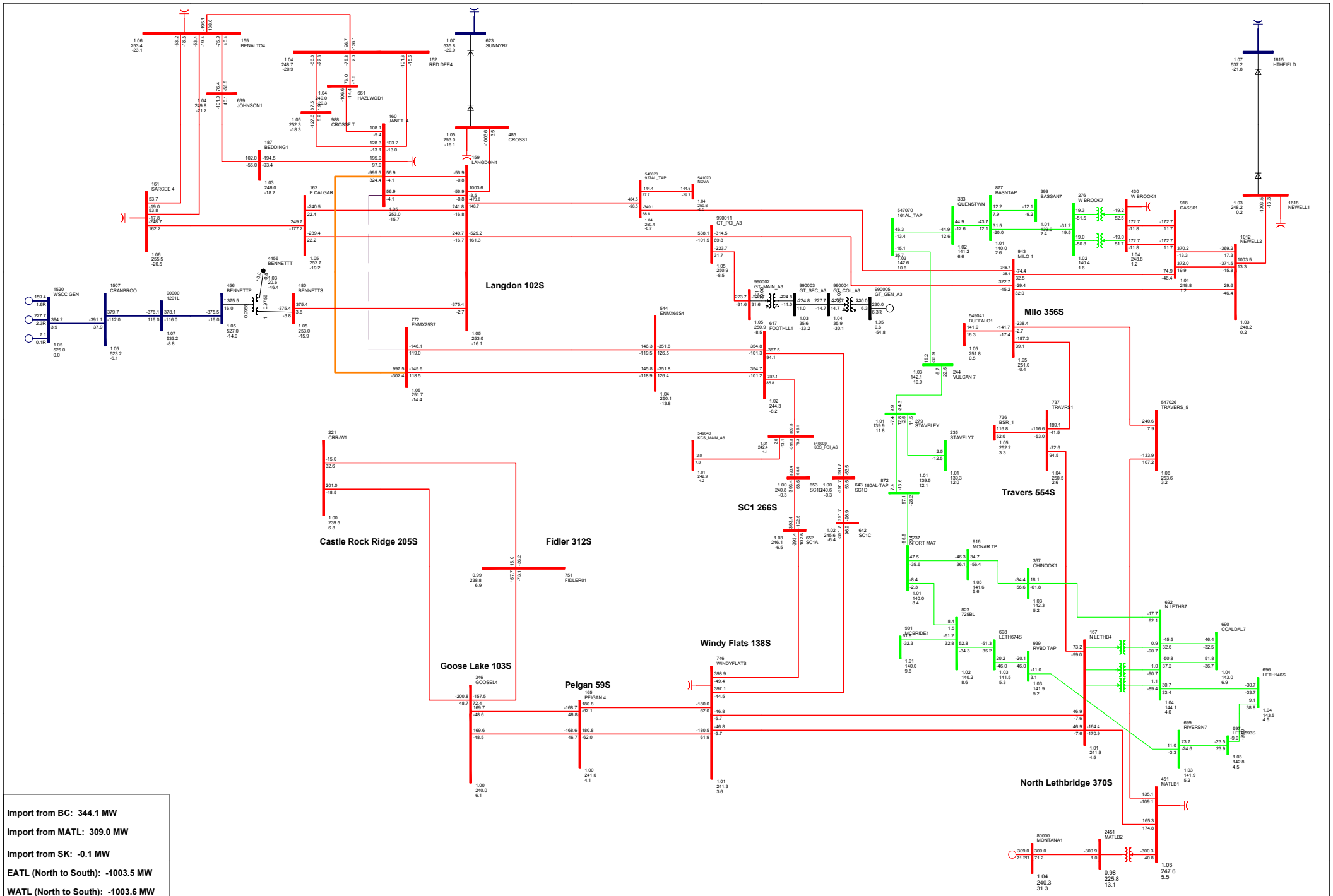


Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SP_POST_ALT3_SEN_P2373-P2378_RAS
CAT B-1003L (JANET 74S - SS-25)
SUN, JAN 15 2023 12:04

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.0000V 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000



Import from BC: 344.1 MW

Import from MATL: 309.0 MW

Import from SK: -0.1 MW

EATL (North to South): -1003.5 MW

WATL (North to South): -1003.6 MW

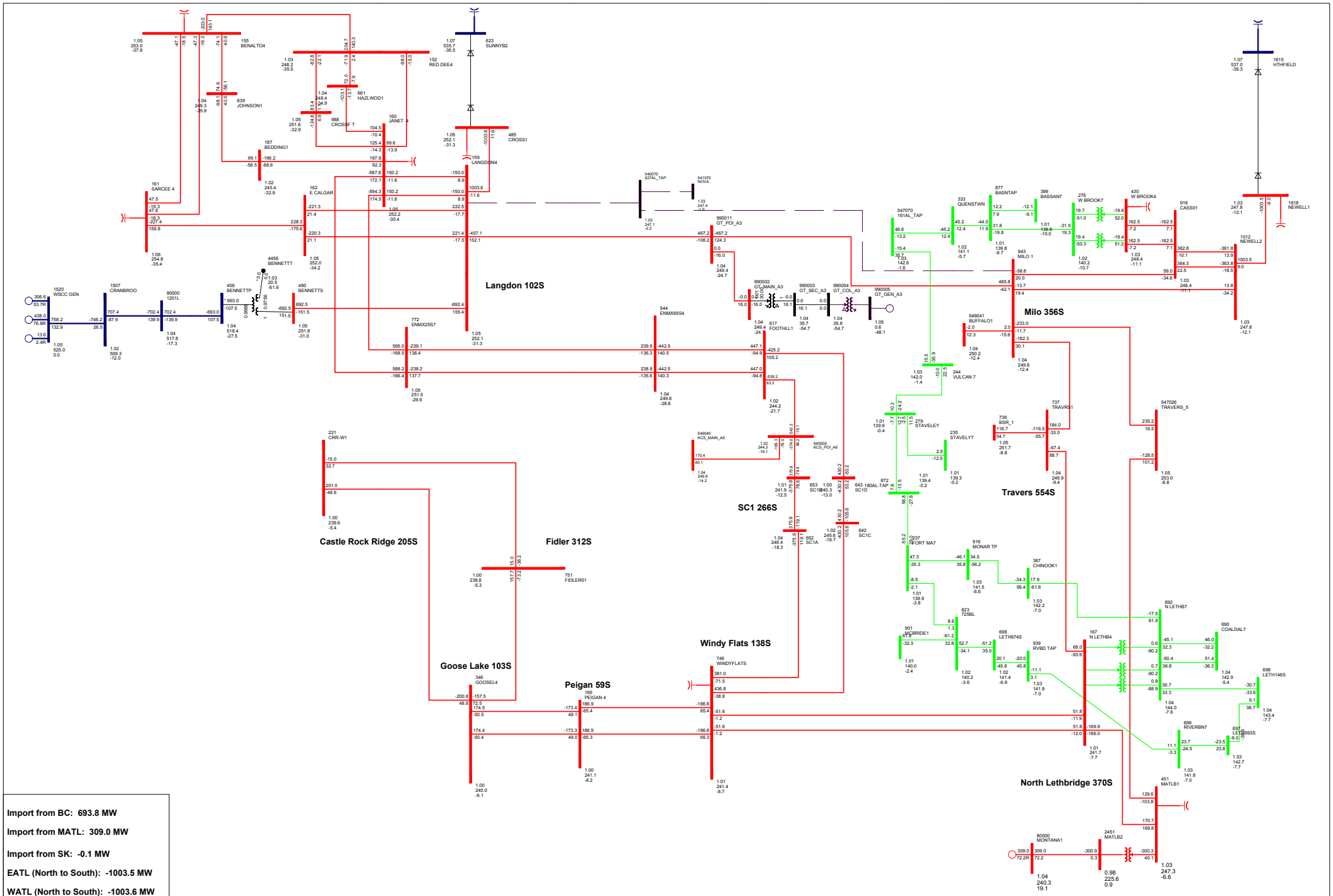
P2396 Georgetown Solar: 230.0 MW

Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SP_POST_ALT3_SEN_P2373-P2378_RAS
CAT B-985L (JANET 74S - SS-25)
SUN, JAN 15 2023 12:05

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.000OV 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000

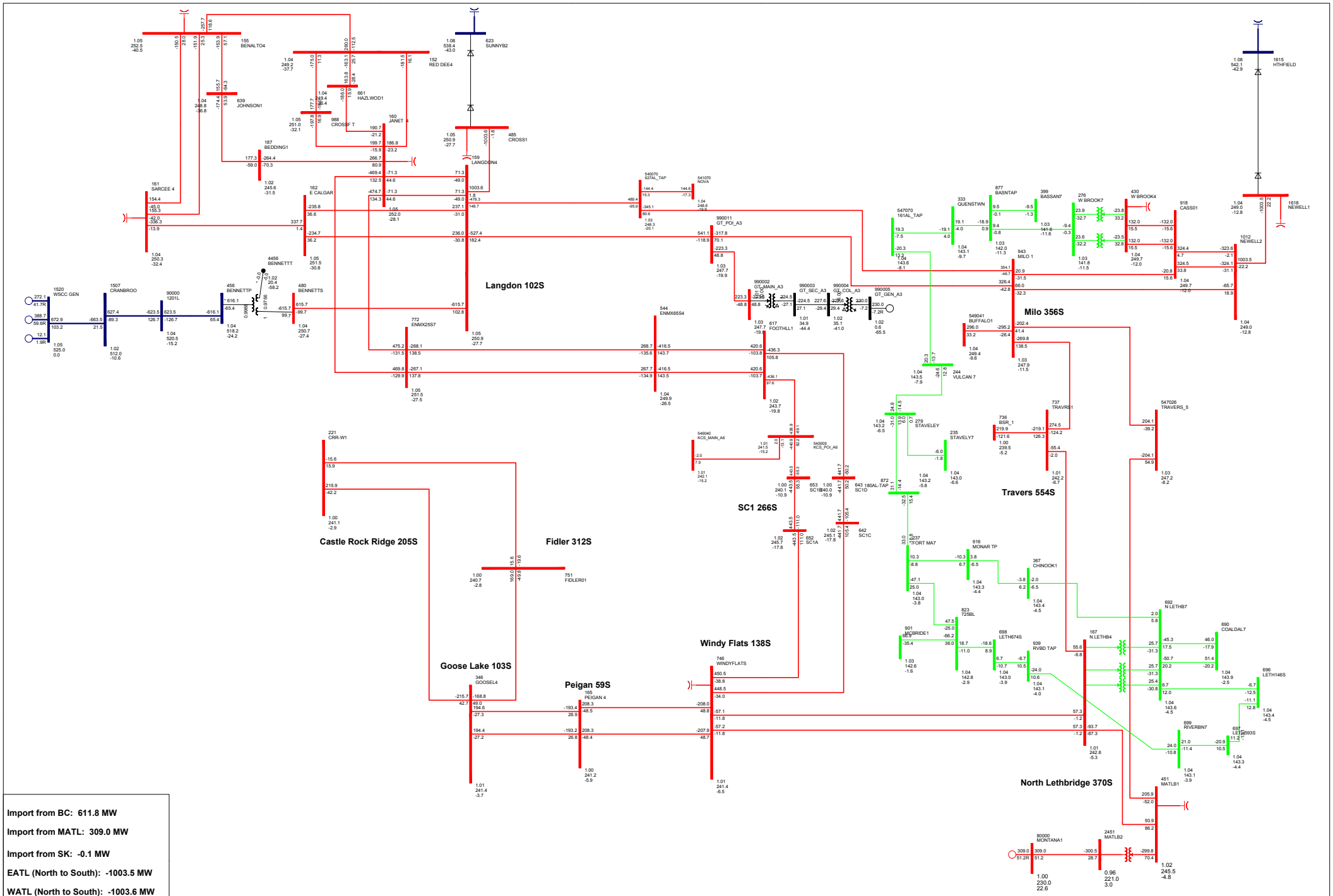


Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SP_POST_ALT3_SEN_P2373-P2378_RAS
CAT B-927L (LANGDON 102S - MILO 356S)
SUN, JAN 15 2023 12:05

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.000OV 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000



Import from BC: 611.8 MW

Import from MATL: 309.0 MW

Import from SK: -0.1 MW

EATL (North to South): -1003.5 MW

WATL (North to South): -1003.6 MW

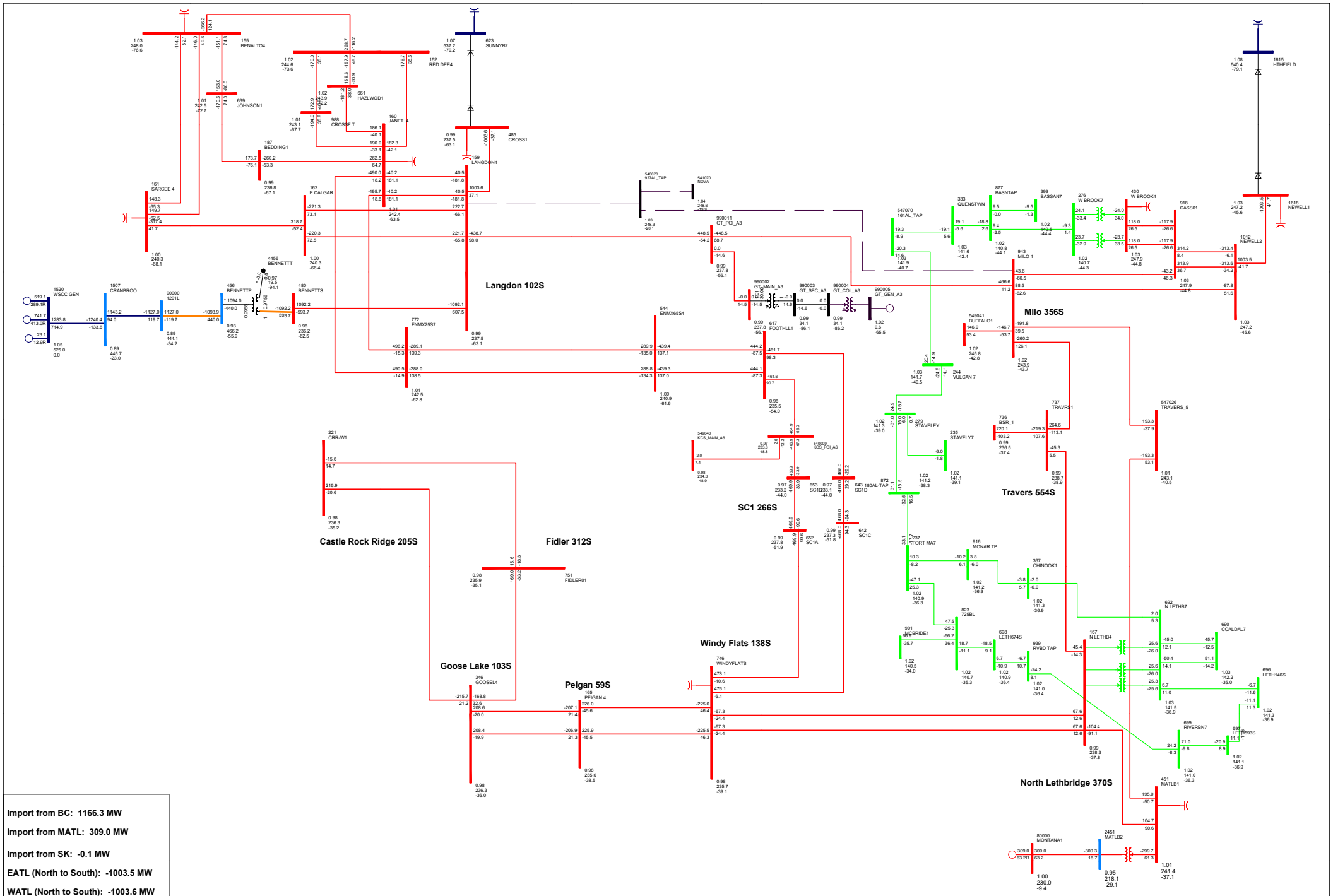
P2396 Georgetown Solar: 230.0 MW

Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SL_POST_ALT3_SEN_P2373-P2378
CAT A-NO CONTINGENCY
SAT, JAN 14 2023 20:52

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.000PU 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000



Georgetown Solar Project

AESO Project Number: P2396

SCENARIO: P2396_SL_POST_ALT3_SEN_P2373-P2378_RAS
CAT B-927L (LANGDON 102S - MILO 356S)
SUN, JAN 15 2023 11:51

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.000OV 0.950UV
kV: <=69.000 <=138.000 <=240.000 <=500.000 >500.000

Attachment A7
Constraint Effective Factors Table

Table A7-1: Constraint Effective Factors Table (Scenario 3 and 4)

Scenario	Contingency	Overload Line	P2396	P2247	P1927	Travers Solar	Blackspring Ridge	P2300	Claresholm Wind
	N-0	924L (Langdon 102S - P2396 Tap)	0.71	0.29	0.25	0.25	0.24	0.19	0.18
	1088L (Newell 2075S - Cassils 324S)	1087L (Newell 2075S - Cassils 324S)	-0.03	-0.07	0.33	-0.05	-0.05	0.13	0.07
	EATL HVDC	916L (Sarcee 42S - East Calgary 5S)	0	-0.03	-0.04	-0.03	-0.03	-0.03	-0.03
	WATL HVDC	916L (Sarcee 42S - East Calgary 5S)	-0.01	-0.03	-0.04	-0.03	-0.03	-0.04	-0.03
	1037L (FOOTHILLS 237S - WINDY FLATS 138S)	924L (Langdon 102S - P2396 Tap)	0.71	0.3	0.26	0.26	0.25	0.21	0.19
	1038L (FOOTHILLS 237S - WINDY FLATS 138S)	924L (Langdon 102S - P2396 Tap)	0.71	0.3	0.26	0.26	0.25	0.21	0.19
	1106L (SS-65 - Foothills 237S)	924L (Langdon 102S - P2396 Tap)	0.71	0.3	0.26	0.25	0.25	0.2	0.19
	1107L (SS-65 - Foothills 237S)	924L (Langdon 102S - P2396 Tap)	0.71	0.3	0.26	0.25	0.25	0.2	0.19
	940L (North Lethbridge 370S – Picture Butte 120S)	924L (Langdon 102S - P2396 Tap)	0.71	0.31	0.26	0.29	0.24	0.19	0.17
	927L (Langdon 102S - Milo 356S)	924L (Langdon 102S - P2396 Tap)	0.75	0.41	0.35	0.34	0.34	0.27	0.25
	EATL HVDC	924L (Langdon 102S - P2396 Tap)	0.7	0.27	0.22	0.23	0.23	0.18	0.17
Scenario 3	EATL HVDC	927L (Langdon 102S - Milo 356S)	-0.09	-0.24	-0.2	-0.21	-0.2	-0.16	-0.15
	N-0	924L (Langdon 102S - P2396 Tap)	0.71	0.29	0.26	0.25	0.23	0.22	0.21
	1109L (SS-65 - Shepard SS-25)	1080L (SS-65 - Shepard SS-25)	0.03	0.12	0.12	0.19	0.19	0.21	0.24
	1088L (Newell 2075S - Cassils 324S)	1087L (Newell 2075S - Cassils 324S)	-0.02	-0.07	0.34	-0.05	-0.05	0.15	0.08
	1080L (SS-65 - Shepard SS-25)	1109L (SS-65 - Shepard SS-25)	0.03	0.13	0.12	0.19	0.19	0.21	0.24
	WATL HVDC	901L (Janet 74S - Crossings 511S)	-0.01	-0.02	-0.04	-0.02	-0.02	-0.03	-0.02
	WATL HVDC	916L (Sarcee 42S - East Calgary 5S)	0	-0.03	-0.04	-0.03	-0.03	-0.04	-0.04
	WATL HVDC	918L (Beddington 281S - Johnson SS 162)	-0.01	-0.02	-0.03	-0.01	-0.01	-0.02	-0.01
	1037L (FOOTHILLS 237S - WINDY FLATS 138S)	924L (Langdon 102S - P2396 Tap)	0.71	0.29	0.27	0.26	0.24	0.24	0.22
	1038L (FOOTHILLS 237S - WINDY FLATS 138S)	924L (Langdon 102S - P2396 Tap)	0.71	0.29	0.27	0.26	0.24	0.24	0.22
	1106L (SS-65 - Foothills 237S)	924L (Langdon 102S - P2396 Tap)	0.71	0.29	0.26	0.26	0.24	0.23	0.21
	1107L (SS-65 - Foothills 237S)	924L (Langdon 102S - P2396 Tap)	0.71	0.29	0.26	0.26	0.24	0.23	0.21
	940L (North Lethbridge 370S – Picture Butte 120S)	924L (Langdon 102S - P2396 Tap)	0.71	0.3	0.27	0.3	0.23	0.21	0.19
Scenario 4	927L (Langdon 102S - Milo 356S)	924L (Langdon 102S - P2396 Tap)	0.75	0.4	0.36	0.35	0.33	0.31	0.29

Table A7-2: Constraint Effective Factors Table (Scenario 8 and 9)

Scenario	Contingency	Overload Line	P2396	P2247	P1927	Travers Solar	Blackspring Ridge	P2300	Claresholm Wind	P2378	P2373
	N-0	924L (Langdon 102S - P2396 Tap)	0.71	0.29	0.25	0.24	0.24	0.19	0.18	0.1	0.08
	N-0	927L (Langdon 102S - 927AL T-Tap)	0.1	0.29	0.25	0.24	0.24	0.19	0.18	0.68	0.08
	985L (Janet 74S - SS-25)	1003L (Janet 74S - SS-25)	0.1	0.29	0.25	0.24	0.24	0.19	0.18	0.68	0.08
	1003L (Janet 74S - SS-25)	985L (Janet 74S - SS-25)	0.1	0.29	0.25	0.24	0.24	0.19	0.18	0.68	0.08
	924L (Langdon 102S - Milo 356S)	927L (Langdon 102S - 927AL T-Tap)	0	0.41	0.36	0.35	0.34	0.28	0.25	0.73	0.12
	EATL HVDC	927L (Langdon 102S - 927AL T-Tap)	0.1	0.27	0.22	0.23	0.22	0.18	0.17	0.67	0.09
	EATL HVDC	916L (Sarcee 42S - East Calgary 5S)	0	-0.02	-0.04	-0.03	-0.03	-0.03	-0.03	0	-0.04
	WATL HVDC	916L (Sarcee 42S - East Calgary 5S)	0	-0.03	-0.04	-0.03	-0.03	-0.04	-0.03	-0.01	-0.04
	1038L (FOOTHILLS 237S - WINDY FLATS 138S)	924L (Langdon 102S - P2396 Tap)	0.71	0.3	0.26	0.26	0.25	0.21	0.19	0.11	0
	927L (Langdon 102S - Milo 356S)	924L (Langdon 102S - P2396 Tap)	0.75	0.41	0.36	0.34	0.34	0.27	0.25	0	0.12
	1037L (FOOTHILLS 237S - WINDY FLATS 138S)	924L (Langdon 102S - P2396 Tap)	0.71	0.3	0.26	0.26	0.25	0.2	0.19	0.11	0.09
	1107L (SS-65 - Foothills 237S)	924L (Langdon 102S - P2396 Tap)	0.71	0.29	0.26	0.25	0.25	0.2	0.18	0.11	0.11
	940L (North Lethbridge 370S – Picture Butte 120S)	924L (Langdon 102S - P2396 Tap)	0.71	0.31	0.26	0.29	0.24	0.18	0.16	0.11	0.07
	1106L (SS-65 - Foothills 237S)	924L (Langdon 102S - P2396 Tap)	0.71	0.29	0.26	0.25	0.25	0.2	0.18	0.11	0.11
	EATL HVDC	924L (Langdon 102S - P2396 Tap)	0.69	0.27	0.22	0.23	0.22	0.18	0.17	0.1	0.09
Scenario 8	1088L (Newell 2075S - Cassils 324S)	1087L (Newell 2075S - Cassils 324S)	-0.03	-0.07	0.34	-0.05	-0.05	0.13	0.07	-0.03	0
	N-0	924L (Langdon 102S - P2396 Tap)	0.71	0.29	0.26	0.25	0.23	0.22	0.2	0.11	0.08
	N-0	927L (Langdon 102S - 927AL T-Tap)	0.1	0.29	0.26	0.25	0.23	0.22	0.21	0.69	0.09
	1109L (SS-65 - Shepard SS-25)	1080L (SS-65 - Shepard SS-25)	0.03	0.12	0.12	0.19	0.19	0.21	0.24	0.03	0.53
	1088L (Newell 2075S - Cassils 324S)	1087L (Newell 2075S - Cassils 324S)	-0.02	-0.07	0.34	-0.05	-0.04	0.15	0.09	-0.03	0
	1080L (SS-65 - Shepard SS-25)	1109L (SS-65 - Shepard SS-25)	0.03	0.12	0.12	0.19	0.19	0.21	0.24	0.03	0.53
Scenario 9	WATL HVDC	901L (Janet 74S - 901AL Tap)	-0.01	-0.02	-0.04	-0.02	-0.02	-0.03	-0.02	-0.01	-0.01

Scenario	Contingency	Overload Line	P2396	P2247	P1927	Travers Solar	Blackspring Ridge	P2300	Claresholm Wind	P2378	P2373
	WATL HVDC	916L (Sarcee 42S - East Calgary 5S)	0	-0.03	-0.04	-0.03	-0.03	-0.04	-0.04	0	-0.04
	WATL HVDC	918L (Beddington 281S - Johnson SS 162)	-0.01	-0.02	-0.03	-0.01	-0.01	-0.02	-0.02	-0.01	0
	1037L (FOOTHILLS 237S - WINDY FLATS 138S)	924L (Langdon 102S - P2396 Tap)	0.71	0.3	0.27	0.26	0.24	0.24	0.22	0.11	0.09
	1107L (SS-65 - Foothills 237S)	924L (Langdon 102S - P2396 Tap)	0.71	0.29	0.26	0.26	0.24	0.23	0.21	0.11	0.11
	927L (Langdon 102S - Milo 356S)	924L (Langdon 102S - P2396 Tap)	0.75	0.41	0.37	0.36	0.33	0.32	0.3	0	0.13
	940L (North Lethbridge 370S – Picture Butte 120S)	924L (Langdon 102S - P2396 Tap)	0.71	0.3	0.27	0.3	0.23	0.21	0.19	0.11	0.07
	1038L (FOOTHILLS 237S - WINDY FLATS 138S)	924L (Langdon 102S - P2396 Tap)	0.71	0.29	0.27	0.26	0.24	0.24	0.22	0.11	0
	1106L (SS-65 - Foothills 237S)	924L (Langdon 102S - P2396 Tap)	0.71	0.29	0.26	0.26	0.24	0.23	0.21	0.11	0.11
	924L (Langdon 102S - Milo 356S)	927L (Langdon 102S - 927AL T-Tap)	0	0.41	0.37	0.36	0.33	0.32	0.3	0.74	0.13