Generation Interconnection

Feasibility Study Report

for

Queue Project AF2-140

SAEGERS 230 KV

30 MW Capacity / 0 MW Energy

July 2020

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1 Introduction

This Feasibility Study has been prepared in accordance with the PJM Open Access Transmission Tariff, 36.2, as well as the Feasibility Study Agreement between the Interconnection Customer (IC), and PJM Interconnection, LLC (PJM), the Transmission Provider (TP). The Interconnected Transmission Owner (ITO) is PPL.

2 Preface

The intent of the feasibility study is to determine a plan, with ballpark cost and construction time estimates, to connect the subject generation to the PJM network at a location specified by the Interconnection Customer. The Interconnection Customer may request the interconnection of generation as a capacity resource or as an energy-only resource. As a requirement for interconnection, the Interconnection Customer may be responsible for the cost of constructing: (1) Direct Connections, which are new facilities and/or facilities upgrades needed to connect the generator to the PJM network, and (2) Network Upgrades, which are facility additions, or upgrades to existing facilities, that are needed to maintain the reliability of the PJM system.

In some instances a generator interconnection may not be responsible for 100% of the identified network upgrade cost because other transmission network uses, e.g. another generation interconnection, may also contribute to the need for the same network reinforcement. Cost allocation rules for network upgrades can be found in PJM Manual 14A, Attachment B. The possibility of sharing the reinforcement costs with other projects may be identified in the feasibility study, but the actual allocation will be deferred until the impact study is performed.

The Feasibility Study estimates do not include the feasibility, cost, or time required to obtain property rights and permits for construction of the required facilities. The project developer is responsible for the right of way, real estate, and construction permit issues. For properties currently owned by Transmission Owners, the costs may be included in the study.

3 General

The Interconnection Customer (IC) has proposed an uprate to an existing Natural Gas generating facility located in Lycoming, Pennsylvania. This project is a Capacity only increase to the Interconnection Customer's AA2-008 project and will share the same point of interconnection. The AF2-140 queue position is a 0 MW (30 MW Capacity) uprate to the previous project. The total installed facilities will have a capability of 907 MW with 795 MW of this output being recognized by PJM as Capacity.

The project capability is summarized in the table below:

Description	Maximum Facility Output (MW)	Capacity Interconnection Rights (MW)
Existing (X2-012/ AA2-008)	907	765
Requested (AF2-140) Increase	0	30

Description	Maximum Facility Output (MW)	Capacity Interconnection Rights (MW)
Total	907	795

The proposed in-service date for this uprate project is May 01, 2021. This study does not imply a TO commitment to this in-service date.

Queue Number	AF2-140
Project Name	SAEGERS 230 KV
State	Pennsylvania
County	Lycoming
Transmission Owner	PPL
MFO	907
MWE	0
MWC	30
Fuel	Natural Gas
Basecase Study Year	2023

New Service Customers proposing queue projects that can feasibly be commercially operable prior to June 1st of the basecase study year are required to request interim deliverability analysis.

4 Point of Interconnection

AF2-140 will interconnect with the PPL transmission system as an uprate to X2-012 and AA2-008 at the Segers 230 kV substation.

5 Cost Summary

The AF2-140 project will be responsible for the following costs:

Description	Total Cost
Total Physical Interconnection Costs	$ 0
Total System Network Upgrade Costs	$ 49,000,000
Total Costs	$ 49,000,000

This cost excludes CIAC Tax Gross Up charges. Cost allocations for any System Upgrades will be provided in the System Impact Study Report.

6 Transmission Owner Scope of Work

There are no additional interconnection facilities required to accommodate this uprate request.

7 Revenue Metering and SCADA Requirements

7.1 PJM Requirements

The Interconnection Customer will be required to install equipment necessary to provide Revenue Metering (KWH, KVARH) and real time data (KW, KVAR) for IC's generating Resource. See PJM Manuals M-01 and M-14D, and PJM Tariff Section 8 of Attachment O.

7.2 Meteorological Data Reporting Requirements

The solar generation facility shall provide the Transmission Provider with site-specific meteorological data including:

- Temperature (degrees Fahrenheit)
- Atmospheric pressure (hectopascals)
- Irradiance
- Forced outage data

7.3 Interconnected Transmission Owner Requirements

The IC will be required to comply with all Interconnected Transmission Owner's revenue metering requirements for generation interconnection customers located at the following link:

http://www.pjm.com/planning/design-engineering/to-tech-standards/

8 Summer Peak - Load Flow Analysis

The Queue Project AF2-140 was evaluated as a 30.0 MW (Capacity 30.0 MW) injection as an uprate to X2-012 and AA2-080 at the **Patriot Generating Facility 230 kV** substation in the PPL area. Project AF2-140 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AF2-140 was studied with a commercial probability of 53.0 %. Potential network impacts were as follows:

8.1 Generation Deliverability

(Single or N-1 contingencies for the Capacity portion only of the interconnection)

None

8.2 Multiple Facility Contingency

(Double Circuit Tower Line, Fault with a Stuck Breaker, and Bus Fault contingencies for the full energy output)

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
9923560 4	208040	MONT	230.0	PPL	207943	COLU TR2	230.0	PPL	1	PL_P71_101752	tower	1195.0	99.52	100.57	DC	12.61

8.3 Contribution to Previously Identified Overloads

(This project contributes to the following contingency overloads, i.e. "Network Impacts", identified for earlier generation or transmission interconnection projects in the PJM Queue)

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
9923425 7	207968	ELIM	230.0	PPL	208109	SUNB	230.0	PPL	1	PL_P42_001388	breaker	537.0	103.4	105.1	DC	9.1
9923559 2	207968	ELIM	230.0	PPL	208109	SUNB	230.0	PPL	1	PL_P71_100487	tower	537.0	109.67	114.96	DC	28.43
9923551 4	208034	MILT	230.0	PPL	208109	SUNB	230.0	PPL	1	PL_P71_101343	tower	730.0	108.99	110.09	DC	7.94
9923560 3	208040	MONT	230.0	PPL	207943	COLU TR2	230.0	PPL	1	PL_P71_101751	tower	1195.0	102.04	103.1	DC	12.61

8.4 Potential Congestion due to Local Energy Deliverability

PJM also studied the delivery of the energy portion of this interconnection request. Any problems identified below are likely to result in operational restrictions to the project under study. The developer can proceed with network upgrades to eliminate the operational restriction at their discretion by submitting a Merchant Transmission Interconnection request.

Note: Only the most severely overloaded conditions are listed below. There is no guarantee of full delivery of energy for this project by fixing only the conditions listed in this section. With a Transmission Interconnection

Request, a subsequent analysis will be performed which shall study all overload conditions associated with the overloaded element(s) identified.

None

8.5 System Reinforcements - Summer Peak Load Flow - Primary POI

ID	Index	Facility	Upgrade Description	Cost
99235604, 99235603	1	**MONT 230.0 kV - COLU TR2 230.0 kV Ckt 1**	PPL: **PPL_s1106 (1925) : PPL_S_1106_B09121 MONT-MILT-SUNB 230kV: PPL Supplemental project (s1106) to rebuild a the MONT-MILT 230kV to double circuit and change operating voltage 69kV line between MILT and SUNB to 230kV** **Project Type : CON** **Cost : $0** **Time Estimate : 36.0 Months**	$0
99235592, 99234257	2	**ELIM 230.0 kV - SUNB 230.0 kV Ckt 1**	PPL: **R-PL-0005 (1928) : Rebuild SUNB-ELIM 230kV Line** **Project Type : FAC** **Cost : $49,000,000** **Time Estimate : 48.0 Months**	$49,000,000
99235514	3	**MILT 230.0 kV - SUNB 230.0 kV Ckt 1**	PPL: **PPL_s1106 (1925) : PPL_S_1106_B09121 MONT-MILT-SUNB 230kV: PPL Supplemental project (s1106) to rebuild a the MONT-MILT 230kV to double circuit and change operating voltage 69kV line between MILT and SUNB to 230kV** **Project Type : CON** **Cost : $0** **Time Estimate : 36.0 Months**	$0
			TOTAL COST	**$49,000,000**

8.6 Flow Gate Details

The following indices contain additional information about each facility presented in the body of the report. For each index, a description of the flowgate and its contingency was included for convenience. The intent of the indices is to provide more details on which projects/generators have contributions to the flowgate in question. All New Service Queue Requests, through the end of the Queue under study, that are contributors to a flowgate will be listed in the indices. Please note that there may be contributors that are subsequently queued after the queue under study that are not listed in the indices. Although this information is not used "as is" for cost allocation purposes, it can be used to gage the impact of other projects/generators. It should be noted the project/generator MW contributions presented in the body of the report are Full MW Impact contributions which are also noted in the indices column named "Full MW Impact", whereas the loading percentages reported in the body of the report, take into consideration the PJM Generator Deliverability Test rules such as commercial probability of each project as well as the ramping impact of "Adder" contributions. The MW Impact found and used in the analysis is shown in the indices column named "Gendeliv MW Impact".

8.6.1 Index 1

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
99235603	208040	MONT	PPL	207943	COLU TR2	PPL	1	PL_P71_101751	tower	1195.0	102.04	103.1	DC	12.61

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
208911	MONT G1	63.5276	50/50	63.5276
208912	**MONT G2 (Deactivation : 18/02/2019)**	**64.3484**	**50/50**	**64.3484**
208945	LOHA CT	0.7861	50/50	0.7861
208948	WILL CT	1.6974	50/50	1.6974
209018	SUNBIPCT	0.6888	50/50	0.6888
209019	VIKI IPP	1.5086	Adder	1.77
212369	PATRIOT 1	27.7249	50/50	27.7249
212370	PATRIOT 2	27.7249	50/50	27.7249
921653	AA2-008 E	23.9520	50/50	23.9520
939891	AE1-225 C O1	0.8863	Adder	1.04
939892	AE1-225 E O1	0.9806	Adder	1.15
940561	AE2-042 C O1	13.2940	50/50	13.2940
940562	AE2-042 E O1	6.5902	50/50	6.5902
940721	AE2-059 C	2.3861	50/50	2.3861
940722	AE2-059 E	3.2951	50/50	3.2951
940941	AE2-084 C	2.3861	50/50	2.3861
940942	AE2-084 E	3.2951	50/50	3.2951
941171	AE2-111 C	0.7623	Adder	0.9
941172	AE2-111 E	1.0527	Adder	1.24
941371	AE2-133 C	0.7381	Adder	0.87
941372	AE2-133 E	1.0192	Adder	1.2
942561	AE2-271 C O1	29.6185	50/50	29.6185
942562	AE2-271 E O1	19.7133	50/50	19.7133
943721	AF1-040 C	0.0943	Adder	0.11
943722	AF1-040 E	2.1077	50/50	2.1077
945511	AF1-216 C1O1	14.7636	50/50	14.7636
945512	AF1-216 E1O1	9.8310	50/50	9.8310
945521	AF1-216 C2	14.7628	50/50	14.7628
945522	AF1-216 E2	9.8304	50/50	9.8304
946471	AF1-311 C O1	27.6763	50/50	27.6763
946472	AF1-311 E O1	45.1561	50/50	45.1561
946691	AF1-333 C O1	2.2502	50/50	2.2502
946692	AF1-333 E O1	1.5002	50/50	1.5002
946731	AF1-337 C	2.2502	50/50	2.2502
946732	AF1-337 E	1.5002	50/50	1.5002
946741	AF1-338 C	2.2502	50/50	2.2502
946742	AF1-338 E	1.5002	50/50	1.5002
946751	AF1-339 C O1	2.2502	50/50	2.2502
946752	AF1-339 E O1	1.5002	50/50	1.5002
946761	AF1-271A C	0.9618	Adder	1.13
946762	AF1-271A E	0.6412	Adder	0.75

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
957881	AF2-082 C	3.6607	50/50	3.6607
957882	AF2-082 E	2.4405	50/50	2.4405
957991	AF2-093 C	0.5113	50/50	0.5113
957992	AF2-093 E	0.3409	50/50	0.3409
958461	AF2-140	12.6063	50/50	12.6063
958511	AF2-145 C1	5.2592	50/50	5.2592
958512	AF2-145 E1	3.5061	50/50	3.5061
958521	AF2-145 C2	5.2589	50/50	5.2589
958522	AF2-145 E2	3.5059	50/50	3.5059
959421	AF2-233 C O1	0.5486	Adder	1.22
959422	AF2-233 E O1	0.3657	Adder	0.81
959431	AF2-234 C O1	1.1579	Adder	2.57
959432	AF2-234 E O1	0.7719	Adder	1.71
959932	AF2-284 E	0.8169	50/50	0.8169
959982	AF2-289 E	1.2253	50/50	1.2253
959992	AF2-290 E	0.5681	50/50	0.5681
960401	AF2-331 C O1	14.5665	50/50	14.5665
960402	AF2-331 E O1	9.7110	50/50	9.7110
960411	AF2-332 C O1	14.5665	50/50	14.5665
960412	AF2-332 E O1	9.7110	50/50	9.7110
960421	AF2-333 C O1	5.8266	50/50	5.8266
960422	AF2-333 E O1	3.8844	50/50	3.8844
960431	AF2-334 C O1	5.8266	50/50	5.8266
960432	AF2-334 E O1	3.8844	50/50	3.8844
961362	AF2-427 E	1.2253	50/50	1.2253
961413	AF2-432 BAT	0.4517	50/50	0.4517
NEWTON	NEWTON	0.3460	Confirmed LTF	0.3460
FARMERCITY	FARMERCITY	0.0181	Confirmed LTF	0.0181
CALDERWOOD	CALDERWOOD	0.1650	Confirmed LTF	0.1650
NY	NY	0.7443	Confirmed LTF	0.7443
PRAIRIE	PRAIRIE	0.8343	Confirmed LTF	0.8343
O-066	O-066	9.8582	Confirmed LTF	9.8582
CHEOAH	CHEOAH	0.1667	Confirmed LTF	0.1667
EDWARDS	EDWARDS	0.1120	Confirmed LTF	0.1120
TILTON	TILTON	0.2016	Confirmed LTF	0.2016
G-007	G-007	1.3759	Confirmed LTF	1.3759
GIBSON	GIBSON	0.1753	Confirmed LTF	0.1753
BLUEG	BLUEG	0.5573	Confirmed LTF	0.5573
TRIMBLE	TRIMBLE	0.1786	Confirmed LTF	0.1786
CATAWBA	CATAWBA	0.1201	Confirmed LTF	0.1201

8.6.2 Index 2

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
99235592	207968	ELIM	PPL	208109	SUNB	PPL	1	PL_P71_100487	tower	537.0	109.67	114.96	DC	28.43

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
208945	LOHA CT	1.9036	50/50	1.9036
208948	WILL CT	4.2815	50/50	4.2815
212369	PATRIOT 1	62.5268	50/50	62.5268
212370	PATRIOT 2	62.5268	50/50	62.5268
921653	AA2-008 E	54.0178	50/50	54.0178
945511	AF1-216 C1O1	36.5947	50/50	36.5947
945512	AF1-216 E1O1	24.3681	50/50	24.3681
945521	AF1-216 C2	36.5917	50/50	36.5917
945522	AF1-216 E2	24.3661	50/50	24.3661
946691	AF1-333 C O1	3.6655	50/50	3.6655
946692	AF1-333 E O1	2.4437	50/50	2.4437
946731	AF1-337 C	3.6655	50/50	3.6655
946732	AF1-337 E	2.4437	50/50	2.4437
946741	AF1-338 C	3.6655	50/50	3.6655
946742	AF1-338 E	2.4437	50/50	2.4437
946751	AF1-339 C O1	3.6655	50/50	3.6655
946752	AF1-339 E O1	2.4437	50/50	2.4437
958461	AF2-140	28.4304	50/50	28.4304
958511	AF2-145 C1	13.0361	50/50	13.0361
958512	AF2-145 E1	8.6907	50/50	8.6907
958521	AF2-145 C2	13.0350	50/50	13.0350
958522	AF2-145 E2	8.6900	50/50	8.6900
959932	AF2-284 E	1.8954	50/50	1.8954
959982	AF2-289 E	2.8430	50/50	2.8430
961362	AF2-427 E	2.8430	50/50	2.8430
NEWTON	NEWTON	0.4234	Confirmed LTF	0.4234
FARMERCITY	FARMERCITY	0.0221	Confirmed LTF	0.0221
CALDERWOOD	CALDERWOOD	0.1958	Confirmed LTF	0.1958
NY	NY	0.2267	Confirmed LTF	0.2267
PRAIRIE	PRAIRIE	1.0177	Confirmed LTF	1.0177
O-066	O-066	2.7418	Confirmed LTF	2.7418
CHEOAH	CHEOAH	0.1972	Confirmed LTF	0.1972
EDWARDS	EDWARDS	0.1379	Confirmed LTF	0.1379
TILTON	TILTON	0.2482	Confirmed LTF	0.2482
G-007	G-007	0.4233	Confirmed LTF	0.4233
GIBSON	GIBSON	0.2151	Confirmed LTF	0.2151
BLUEG	BLUEG	0.6840	Confirmed LTF	0.6840
TRIMBLE	TRIMBLE	0.2193	Confirmed LTF	0.2193
CATAWBA	CATAWBA	0.1379	Confirmed LTF	0.1379

8.6.3 Index 3

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
99235514	208034	MILT	PPL	208109	SUNB	PPL	1	PL_P71_101343	tower	730.0	108.99	110.09	DC	7.94

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
208911	MONT G1	34.6389	50/50	34.6389
208912	**MONT G2 (Deactivation : 18/02/2019)**	**35.0865**	**50/50**	**35.0865**
209006	**NEPC IPP (Deactivation : 24/10/2018)**	**1.5872**	**Adder**	**1.87**
211369	W1-111 BAT	0.0061	Adder	0.01
211375	BEAC	1.2209	Adder	1.44
211418	BUMO	0.8335	Adder	0.98
212369	PATRIOT 1	17.4672	50/50	17.4672
212370	PATRIOT 2	17.4672	50/50	17.4672
292935	U2-015E OP1	5.5780	Adder	6.56
921653	AA2-008 E	15.0902	50/50	15.0902
923673	AB1-182 E	1.1657	Adder	1.37
939521	AE1-181 C	1.6483	Adder	1.94
939522	AE1-181 E	1.0988	Adder	1.29
940561	AE2-042 C O1	27.1903	50/50	27.1903
940562	AE2-042 E O1	13.4790	50/50	13.4790
940592	AE2-046 E	1.5872	Adder	1.87
940721	AE2-059 C	4.8803	50/50	4.8803
940722	AE2-059 E	6.7395	50/50	6.7395
940941	AE2-084 C	4.8803	50/50	4.8803
940942	AE2-084 E	6.7395	50/50	6.7395
941161	AE2-110 C	1.2477	50/50	1.2477
941162	AE2-110 E	1.7231	50/50	1.7231
942281	AE2-241 C	1.2477	50/50	1.2477
942282	AE2-241 E	1.7231	50/50	1.7231
942561	AE2-271 C O1	16.1498	50/50	16.1498
942562	AE2-271 E O1	10.7488	50/50	10.7488
943723	AF1-040 BAT	2.6232	50/50	2.6232
945611	AF1-226 C	2.1835	50/50	2.1835
945612	AF1-226 E	3.0154	50/50	3.0154
946471	AF1-311 C O1	15.0908	50/50	15.0908
946472	AF1-311 E O1	24.6218	50/50	24.6218
957921	AF2-086 C O1	1.7825	50/50	1.7825
957922	AF2-086 E O1	1.1883	50/50	1.1883
957991	AF2-093 C	1.0458	50/50	1.0458
957992	AF2-093 E	0.6972	50/50	0.6972
958461	AF2-140	7.9422	50/50	7.9422
959121	AF2-203 C	1.7825	50/50	1.7825
959122	AF2-203 E	1.1883	50/50	1.1883
959411	AF2-232 C	3.5650	50/50	3.5650
959412	AF2-232 E	2.3766	50/50	2.3766
959602	AF2-251 E	1.9367	Adder	4.3

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
959701	AF2-261 C O1	1.0596	Adder	2.35
959702	AF2-261 E O1	1.4633	Adder	3.25
959711	AF2-262 C O1	0.6115	Adder	1.36
959712	AF2-262 E O1	0.8445	Adder	1.87
959933	AF2-284 BAT	0.2054	50/50	0.2054
959983	AF2-289 BAT	0.2054	50/50	0.2054
959992	AF2-290 E	1.1620	50/50	1.1620
960401	AF2-331 C O1	7.9425	50/50	7.9425
960402	AF2-331 E O1	5.2950	50/50	5.2950
960411	AF2-332 C O1	7.9425	50/50	7.9425
960412	AF2-332 E O1	5.2950	50/50	5.2950
960421	AF2-333 C O1	3.1770	50/50	3.1770
960422	AF2-333 E O1	2.1180	50/50	2.1180
960431	AF2-334 C O1	3.1770	50/50	3.1770
960432	AF2-334 E O1	2.1180	50/50	2.1180
961271	AF2-418 C	1.7825	50/50	1.7825
961272	AF2-418 E	1.1883	50/50	1.1883
961301	AF2-421 C O1	0.3883	Adder	0.86
961302	AF2-421 E O1	0.2588	Adder	0.57
961311	AF2-422 C O1	0.3883	Adder	0.86
961312	AF2-422 E O1	0.2588	Adder	0.57
961321	AF2-423 C O1	0.3883	Adder	0.86
961322	AF2-423 E O1	0.2588	Adder	0.57
961363	AF2-427 BAT	0.2054	50/50	0.2054
961412	AF2-432 E	0.2971	50/50	0.2971
961421	AF2-433 C O1	1.7825	50/50	1.7825
961422	AF2-433 E O1	1.1883	50/50	1.1883
961431	AF2-434 C O1	1.7825	50/50	1.7825
961432	AF2-434 E O1	1.1883	50/50	1.1883
NEWTON	NEWTON	0.7350	Confirmed LTF	0.7350
FARMERCITY	FARMERCITY	0.0382	Confirmed LTF	0.0382
G-007A	G-007A	1.8149	Confirmed LTF	1.8149
VFT	VFT	5.8308	Confirmed LTF	5.8308
CALDERWOOD	CALDERWOOD	0.3335	Confirmed LTF	0.3335
PRAIRIE	PRAIRIE	1.7616	Confirmed LTF	1.7616
CHEOAH	CHEOAH	0.3358	Confirmed LTF	0.3358
EDWARDS	EDWARDS	0.2401	Confirmed LTF	0.2401
TILTON	TILTON	0.4322	Confirmed LTF	0.4322
MADISON	MADISON	0.0081	Confirmed LTF	0.0081
GIBSON	GIBSON	0.3740	Confirmed LTF	0.3740
BLUEG	BLUEG	1.1892	Confirmed LTF	1.1892
TRIMBLE	TRIMBLE	0.3812	Confirmed LTF	0.3812
CATAWBA	CATAWBA	0.2306	Confirmed LTF	0.2306

8.7 Queue Dependencies

The Queue Projects below are listed in one or more indices for the overloads identified in your report. These projects contribute to the loading of the overloaded facilities identified in your report. The percent overload of a facility and cost allocation you may have towards a particular reinforcement could vary depending on the action of these earlier projects. The status of each project at the time of the analysis is presented in the table. This list may change as earlier projects withdraw or modify their requests.

Queue Number	Project Name	Status
AA2-008	Saegers 230 kV	In Service
AB1-182	Bear Creek	Engineering and Procurement
AE1-181	St. Johns-Freeland 69 kV	Active
AE1-225	Columbia-Sunbury 69 kV	Active
AE2-042	Milton 69 kV	Active
AE2-046	Harwood-East Hazelton 69 kV	Active
AE2-059	Derry Tap-Derry Bus 69 kV	Active
AE2-084	Derry Tap-Derry Bus 69 kV	Active
AE2-110	Columbia-West Bloomsburg 69 kV	Active
AE2-111	Beavertown Tap-Beavertown Weaving Tap 69kV	Active
AE2-133	Penns Tap-Richfield Tie 69 kV	Active
AE2-241	Bloomsburg-Columbia 69 kV	Active
AE2-271	Montour 230 kV	Active
AF1-040	Dauphin-Pine Grove 69 kV	Active
AF1-216	Lycoming-Lock Haven 69 kV	Active
AF1-226	Bowmans Mill-Scott 69 kV	Active
AF1-271A	Gratz 69 kV	Active
AF1-311	Montour 230 kV	Active
AF1-333	Laurelton-Mifflinburg 69 kV	Active
AF1-337	Laurelton-Mifflinburg 69 kV	Active
AF1-338	Laurelton-Mifflinburg 69 kV	Active
AF1-339	Laurelton-Mifflinburg 69 kV	Active
AF2-082	Dauphin PG Tie–Dauphin Juniata Tie 69 k	Active
AF2-086	Scott Tap-Bowmans Mill Tap 69 kV	Active
AF2-093	Derry 12.47 kV	Active
AF2-140	Saegers 230 kV	Active
AF2-145	Lycoming-Lock Haven 69 kV	Active
AF2-203	Rohrsburg 12.5 kV	Active
AF2-232	Bowmanns Mill Tap-Scott 69 kV	Active
AF2-233	Penns-Richfield Tie #1 69 kV	Active
AF2-234	Sunbury Yard #1-Richfield Tie #2 69 kV	Active
AF2-251	Susquehanna unit 1 230 kV	Active
AF2-261	Harwood-Susquehanna #1 230 kV	Active
AF2-262	Freeland #1 Tap-Jeddo-Highland 69 kV	Active
AF2-284	Watson 12.47 kV	Active
AF2-289	Watson 12.47 kV	Active
AF2-290	Derry 12.47 kV	Active
AF2-331	Montour 230 kV	Active

Queue Number	Project Name	Status
AF2-332	Montour 230 kV	Active
AF2-333	Montour 230 kV	Active
AF2-334	Montour 230 kV	Active
AF2-418	Millville Tap 69 kV	Active
AF2-421	East Hazelton-Weatherly Tap 69	Active
AF2-422	East Hazelton 12.47 kV	Active
AF2-423	East Hazelton 12.47 kV	Active
AF2-427	Watson 12.47 kV	Active
AF2-432	University 12.47 kV	Active
AF2-433	Columbia-Geisinger Tap #1 69 kV	Active
AF2-434	Columbis-Geisinger Tap #1 69 kV	Active
U2-015	Harwood-E. Palmerton 230kV	Withdrawn
W1-111	Harwood-Berwick 69kV	In Service

8.8 Contingency Descriptions

Contingency Name	Contingency Definition
PL_P71_101343	CONTINGENCY 'PL_P71_101343' /* SAEGERS-CLINTON & SAEGERS-ELIMSPORT 230 KV TOWER DISCONNECT BRANCH FROM BUS 212397 TO BUS 207968 CKT 1 /* /* SAEG-ELIM DISCONNECT BRANCH FROM BUS 207937 TO BUS 212397 CKT 1 /* /* SAEG-CLIN END
PL_P42_001388	CONTINGENCY 'PL_P42_001388' /* SUNB 230KV YARD 3T BF - MILT-SUNB AND SUNB-CWSA DISCONNECT BRANCH FROM BUS 208109 TO BUS 208034 CKT 1 /* /* SUNB-MILT 230KV LINE DISCONNECT BRANCH FROM BUS 208109 TO BUS 207935 CKT 1 /* /* SUNB-CWSA 230KV LINE END
PL_P71_101751	CONTINGENCY 'PL_P71_101751' /* MONT-BETA 1 & 2 DISCONNECT BRANCH FROM BUS 207915 TO BUS 208040 CKT 1 /* MONT-BETA 1 DISCONNECT BRANCH FROM BUS 207915 TO BUS 208040 CKT 2 /* MONT-BETA 2 END
PL_P71_100487	CONTINGENCY 'PL_P71_100487' /* MONT-SAEG #1 & 2 230KV LINES OUT DISCONNECT BRANCH FROM BUS 212397 TO BUS 208040 CKT 2 /* /* MONT-SAEG 2 DISCONNECT BRANCH FROM BUS 212397 TO BUS 208040 CKT 1 /* /* MONT-SAEG 1 END

Contingency Name	Contingency Definition
PL_P71_101752	CONTINGENCY 'PL_P71_101752' /* D/C BETA-SUSQ & BETA-SU10 230KV LINES DISCONNECT BRANCH FROM BUS 207915 TO BUS 208113 CKT 1 /* BETA-SUSQ 230KV LINE DISCONNECT BRANCH FROM BUS 207915 TO BUS 208120 CKT 1 /* BETA-SU10 230KV LINE END

9 Short Circuit Analysis

To be performed during the System Impact Study.

10 Affected Systems

10.1 NYISO

NYISO Impacts to be determined during later study phases (as applicable).