

September 15, 2021

**Via Electronic Filing**

Public Utility Commission of Oregon  
Attn: Filing Center  
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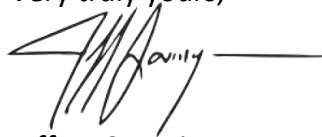
**Re: UM 1971 - Waconda Solar, LLC v. Portland General Electric Company**

Attention Filing Center:

Enclosed for filing today in the above-named docket is Declaration of Jason Zappe in Support of Portland General Electric Company's Modified Second Motion for Summary Judgment.

Thank you for your assistance.

Very truly yours,



Jeffrey S. Lovinger

Attachment  
1189997

**BEFORE THE PUBLIC UTILITY COMMISSION  
OF OREGON  
UM 1971**

WACONDA SOLAR, LLC,

Complainant,

vs.

PORTLAND GENERAL ELECTRIC  
COMPANY,

Defendant.

**DECLARATION OF JASON  
ZAPPE IN SUPPORT OF  
PORTLAND GENERAL  
ELECTRIC COMPANY'S  
MODIFIED SECOND MOTION  
FOR SUMMARY JUDGMENT**

I, Jason Zappe, declare:

1. I am an Interconnection Specialist at Portland General Electric Company ("PGE"), and I make this declaration in support of PGE's Modified Second Motion for Summary Judgment. This declaration modifies and replaces my declaration filed on August 20, 2019, in support of PGE's Second Motion for Summary Judgment. The following statements are true and correct and, if called upon, I could competently testify to the facts averred herein.

2. I am responsible for acting as the primary point of contact between PGE and interconnection applicants under the Public Utility Commission of Oregon's ("Commission") small generator interconnection rules; I have served in that role since January 3, 2017. As a result, I am familiar with the Commission's small generator interconnection rules and with PGE's implementation of those rules.

3. Waconda Solar, LLC ("Waconda") applied to interconnect its proposed project to PGE's distribution system on March 20, 2018. On March 27, 2018, PGE notified Waconda that its application appeared to be complete. A true and accurate copy of PGE's March 27, 2018 email providing this notice to Waconda is attached to this declaration as **Exhibit 1**. Following this notice, PGE assigned Waconda's interconnection application to queue position SPQ0172.

4. On April 5, 2018, PGE sent Waconda an email proposing a scoping meeting on April 9, 2018, or April 11, 2018. The same day, Waconda responded by email that it preferred to

hold the scoping meeting on April 11, 2018. A true and accurate copy of this April 5, 2018 email exchange is attached to this declaration as **Exhibit 2**. The parties held a scoping meeting on April 11, 2018.

5. Waconda executed a feasibility study agreement on April 17, 2018, and PGE received the study deposit on April 19, 2018.

6. On July 10, 2018, PGE completed the feasibility study and sent a copy of the study to Waconda.

7. On October 25, 2018, PGE completed the system impact study and provided a copy of that study to Waconda.

8. On July 9, 2019, PGE sent an email to Waconda indicating that a recently higher queued project (SPQ0048) on PGE's Waconda-13 feeder withdrew from the interconnection process. At the time the project withdrew it had a signed interconnection agreement. PGE notified Waconda that the engineering team determined the withdrawal causes the need for Waconda Solar to be restudied, and a new system impact study will be required. A true and accurate copy of this July 9, 2019 email is attached to this declaration as **Exhibit 3**.

9. On October 25, 2019, PGE emailed its revised System Impact Study to Waconda Solar. That same day, PGE sent Waconda Solar an executable facilities study agreement. A true and accurate copy of the October 25, 2019 email is attached to this declaration as **Exhibit 4**.

10. A true and accurate copy of the copy of the October 25, 2019, revised system impact study that PGE provided to Waconda Solar on October 25, 2019, is attached to this declaration as **Exhibit 5**.

11. A true and accurate copy of the copy of the executable facilities study agreement that PGE provided to Waconda Solar on October 25, 2019, is attached to this declaration as **Exhibit 6**.

12. As of the date of this declaration, Waconda has not executed the facilities study agreement.

13. Attached as **Exhibit 7** is a true and accurate copy of PGE's February 9, 2021, notice of default sent to Waconda pursuant to the power purchase agreement between PGE and Waconda.

14. On July 21, 2021, PGE posted on OASIS a standardized process for interconnection applicants that intend to perform an independent system impact study of the type referenced in OAR 860-082-0060(7)(h). A true and accurate copy of PGE's Independent System Impact Study Process under OAR-860-082-0060(7)(h) in effect on the date of this declaration is attached to this declaration as **Exhibit 8**.

I hereby declare that the above statement is true to the best of my knowledge and belief, and that I understand it is made for use as evidence and is subject to penalty for perjury.

DATED this 15th day of September 2021.

  
\_\_\_\_\_  
Jason Zappe

1188305

# EXHIBIT 1

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**From:** Small Power Production  
**Sent:** Tuesday, March 27, 2018 7:47 AM  
**To:** Troy@tlscapital.com  
**Cc:** Small Power Production  
**Subject:** Application Received: Waconda

Dear Troy,

We are sending this notification to inform you that the Tier 4 Small Generator Facility Interconnection Application for the following projects has been received.

Waconda Solar, LLC

From our initial review, the application appears complete.

Thanks,



**Nikee Weber**

Interconnection Coordinator • 503-464-2264 •

**PortlandGeneral.com** • Follow us on social @PortlandGeneral

# EXHIBIT 2

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**From:** Troy Snyder <troy@tlscapital.com>  
**Sent:** Thursday, April 5, 2018 8:57 AM  
**To:** Small Power Production  
**Subject:** Re: Application Received: Waconda

\*\*\*Please take care when opening links, attachments or responding to this email as it originated outside of PGE.\*\*\*

That should be fine. Please send a calendar invite.

On Thu, Apr 5, 2018 at 8:54 AM, Small Power Production <[Small.PowerProduction@pgn.com](mailto:Small.PowerProduction@pgn.com)> wrote:

How about 9:30 then?

---

**From:** Troy Snyder [mailto:[troy@tlscapital.com](mailto:troy@tlscapital.com)]  
**Sent:** Thursday, April 5, 2018 8:47 AM

**To:** Small Power Production  
**Subject:** Re: Application Received: Waconda

\*\*\*Please take care when opening links, attachments or responding to this email as it originated outside of PGE.\*\*\*

Nikki,

Let's do next Wednesday the 11th. I am available anytime that morning with the exception of 10:30 to 11:00.

Troy

On Thu, Apr 5, 2018 at 7:39 AM, Small Power Production <[Small.PowerProduction@pgn.com](mailto:Small.PowerProduction@pgn.com)> wrote:

So sorry Troy, I was out of the office most of last week and then things got busy. We are available in the morning on Monday the 9<sup>th</sup> and on Wednesday the 11<sup>th</sup>. Are you available either of those days?





**Nikee Weber**

Interconnection Coordinator • 503-464-2264•

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---

**From:** Troy Snyder [mailto:[troy@tlscapital.com](mailto:troy@tlscapital.com)]  
**Sent:** Wednesday, March 28, 2018 11:23 AM  
**To:** Small Power Production  
**Subject:** Re: Application Received: Waconda

\*\*\*Please take care when opening links, attachments or responding to this email as it originated outside of PGE.\*\*\*

Nikee,

I am generally available on Monday or Tuesday of next week.

Thanks,

Troy

On Tue, Mar 27, 2018 at 1:51 PM, Small Power Production <[Small.PowerProduction@pgn.com](mailto:Small.PowerProduction@pgn.com)> wrote:

Sorry Troy, I forgot to ask you when a good time for a scoping call would be?

**Nikee Weber** • Interconnection Coordinator • [503-464-2264](tel:503-464-2264)

---

**From:** Small Power Production  
**Sent:** Tuesday, March 27, 2018 7:47 AM  
**To:** [Troy@tlscapital.com](mailto:Troy@tlscapital.com)  
**Cc:** Small Power Production  
**Subject:** Application Received: Waconda

Dear Troy,

We are sending this notification to inform you that the Tier 4 Small Generator Facility Interconnection Application for the following projects has been received.

Waconda Solar, LLC

From our initial review, the application appears complete.

Thanks,



**Nikee Weber**

Interconnection Coordinator • [503-464-2264](tel:503-464-2264) •

**PortlandGeneral.com** • Follow us on social @PortlandGeneral

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Troy Snyder

TLS Capital, Inc.

Phone: 503-816-6608

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Troy Snyder

TLS Capital, Inc.

Phone: 503-816-6608

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Troy Snyder

TLS Capital, Inc.

Phone: 503-816-6608

# EXHIBIT 3

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**From:** Small Power Production <Small.PowerProduction@pgn.com>  
**Sent:** Tuesday, July 9, 2019 1:51 PM  
**To:** Troy Snyder  
**Cc:** Small Power Production  
**Subject:** Waconda Solar SPQ0172 - Restudy Required

Troy,

Recently a higher queued project (SPQ0048) on PGE's Waconda-13 feeder withdrew from the interconnection process. At the time the project withdrew it had a signed interconnection agreement.

Our engineering team has determined the withdrawal will cause the need for Waconda Solar to be restudied. The location of SPQ0048 in relation to the remaining projects make a restudy necessary to ensure the interconnection requirements are properly allocated.

Once Waconda Solar is ready to proceed a System Impact Study will be required.

Please let us know if you have any questions.



**Jason Zappe**

Customer Generation Specialist • 503-464-7264 • 503-464-8300  
**PortlandGeneral.com** • Follow us on social @PortlandGeneral

# EXHIBIT 4

Edit Communication

X + X

https://pgcft.powerclerk.com/MvcPrograms/EditCommunication?ProgramId=QW3W4YUHMU43&ProjectId=QFSBHFQC6AF...

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🏠 ⚙️ 👤 🔒

⌵

HOME PROGRAM DESIGN ADMIN SETTINGS SUPPORT CENTER

View Communication

Sent by Jason Zappe on 10/25/2019 at 4:13 PM

From:

DoNotReply@PowerClerk.com

To: \*

troy@tiscapital.com

Cc:

Bcc:

Subject: \*

Your System Impact Study Report for SPQ0172 is complete

Attachments:

System Impact Study Report: SPQ0172 Waconda Solar - System Impact Study Report.pdf

Dear Troy,

The completed System Impact Study Report for the above referenced project is attached to this email.

The Facility Study Agreement for the above referenced project will be emailed via DocuSign.

The agreement provides information on what will be included in the study, a study timeline and the estimated costs.

You must sign and return the Study Agreement and pay the deposit within **15** business days. If the Facility Study Agreement and deposit are not received within this timeframe, the application will automatically be withdrawn.

If you have any questions about the System Impact Study Agreement, you can reply directly to Small PowerProduction@pgn.com or call 503-464-8300.

Thank you,

PGE's Transmission and Distribution Interconnection Services Team

Print

# EXHIBIT 5



# Portland General Electric



## System Impact Study

Interconnection Request:

Waconda Solar, LLC – 2.25 MWAC

SPQ0172

10/25/2019



## Table of Contents

1. Introduction .....	3
2. System Impact Study Scope .....	3
3. System Impact Study Assumptions .....	4
4. System Impact Study Interconnection Requirements.....	5
5. Cost Estimate.....	7
6. Schedule .....	8
7. Higher Queued Projects.....	8
8. Attachment A- Detailed System Impact Study.....	8



## 1. Introduction

On March 23, 2018, Portland General Electric (PGE) received a completed Small Generator Interconnection Request for SPQ0172. The Interconnection Request seeks to interconnect a 2.25 MWAC solar facility located in Marion county, Oregon at GPS coordinates 45.072629, - 122.913603. The interconnection point will be on PGE's Waconda-13 distribution feeder connected to the Waconda substation.

As set forth in the Oregon Administrative Rules 860-082-015(29), PGE has assigned queue number SPQ0172 to the Interconnection Request.

On July 31, 2018, PGE received an executed System Impact Study Agreement with the appropriate deposit from the Interconnection Customer.

The System Impact Study provides the study results based on the information provided in the Interconnection Request.

The Interconnection Customer will operate this generator as a Qualifying Facility as defined by the Public Utility Regulatory Policies Act of 1978 (PURPA).

## 2. System Impact Study Scope

The primary purpose of the System Impact Study is to identify and detail the impacts of the Interconnection Request at the designated Point of Interconnection. This includes identifying and detailing any impacts of the Interconnection Request on PGE's transmission or distribution systems and on any affected systems. This also includes evaluation of any adverse system impacts identified in the feasibility study or the scoping meeting. PGE will identify any required system additions necessary to accommodate the request. The study consists of the following:

- Documentation of any impacts observed in meeting the NERC/WECC System Performance Criteria that are adverse to the reliability of the electric system as a result of the interconnection.
- Documentation of other providers' to the transmission or distribution systems that are impacted, and identification of these providers as Affected Systems. Note, no Affected Systems were identified for this study.
- Documentation of fault interrupting equipment with short circuit capability limits that are exceeded as a result of the interconnection. Note: The result of this analysis is reported in Attachment A.
- A short circuit analysis and power flow analysis. Note: The result of this analysis is reported in Attachment A.



- Protection and set point coordination studies. Note: The result of this analysis is reported in Attachment A.
- Voltage drop, flicker and grounding reviews. Note: The result of this analysis is reported in Attachment A.
- A list of facility additions and upgrades which the applicable power flow, and short circuit analyses determine to be required to accommodate the interconnection. Note: The required list of facility additions and upgrades are provided in Section 4 of this report. The short circuit analyses determined to be required to accommodate the interconnection is provided in Attachment A to this report.
- A non-binding, good faith estimate of cost responsibilities for making the required additions and system upgrades necessary to accommodate the interconnection. Note: The total non-binding, good faith estimate is provided in Section 5.
- A non-binding, good faith estimate of the time to construct the required additions and system upgrades necessary to accommodate the request. Note: The total non-binding, good faith estimate of time to construct is provided in Section 6.

The System Impact Study considers all generating facilities that, on the date the study was commenced: September 16, 2019 (i) were directly interconnected to PGE's Distribution System; (ii) were interconnect to Affected Systems and may have an impact on the Interconnection Request; (iii) generating facilities having a pending higher queued Interconnection Request to interconnect to the Distribution System.

### **3. System Impact Study Assumptions**

The System Impact Study considerations include the following assumptions for system conditions for all stages and seasons:

- Generating Facilities and identified PGE electrical system upgrades associated with higher queued Interconnection Requests.
- SPQ0172 was modeled at its maximum capability of 2.25 MWAC.
- The Point of Interconnection will be on PGE's Waconda-13 distribution feeder at GPS coordinates 45.072629, -122.913603.
- The nominal voltage level at the Point of Interconnection will be 13 kV.
- The Interconnection Customer will design, permit, build and maintain all facilities on the customer's side of the revenue meter.
- Line reconductor or fiber underbuild required on existing poles will be assumed to follow the most direct path on the Distribution System. If during detailed engineering design (conducted after an Interconnection Agreement is executed and



- funded) the path must be modified, then it may result in additional cost and timing delays for the Interconnection Customer.
- Generator tripping may be required under outages, emergency or abnormal system conditions.
  - The Generating Facility is expected to operate during daylight hours every day 7 days a week 12 months per year. The Point of Interconnection power factor range studied was unity power factor or 1.0 as stated in the Interconnection Customer's Small Generator Interconnection Request.
  - The interconnection was studied with eighteen (18) CPS, SCH125TL-DO/US-600 inverters with reactive power capabilities as shown in the provided Small Generator Interconnection Request.
  - This report is based on information available at the time of the study September 16, 2019.

## **4. System Impact Study Interconnection Requirements**

The Interconnection Request was studied such that 100% of the output of the Generation Facility can be delivered to PGE's Distribution System with consideration to existing or higher queued Interconnection Requests.

### **Distribution System Modifications**

A System Impact Study was performed for SPQ0172. During the study equipment was monitored for voltage, loading, and short circuit violations. Based on the study results, the following are the distribution related impacts pertaining to this interconnection request.

With the addition of SPQ0172 a reconductor of 336AAC to 795AAC mainline primary is required along Waconda Rd. The overall starting point is Pole C6205D-678 near the intersection of 50<sup>th</sup> Ave NE and Waconda Rd and the overall ending point is Pole C6204D-1361 near the intersection of Highway 99E and Waconda Rd. The total length of Reconductor is approximately 1.14 miles.

Existing wire is 3-phase 336kcmil AAC overhead which has a summer load carrying capacity of 10 MW. The upgraded wire is 3-phase 795kcmil AAC overhead which has a summer load carrying capacity of 17.8 MW. The mainline should only be loaded to 80% of the summer rating in the normal feeder configuration to allow for switching operations.

The study identified one protective device which will become overloaded with the interconnection of SPQ0172. A 140A hydraulic recloser (#8425) will need to be replaced with an electronic recloser bank.



To properly service the generation facility, the installation of a new primary service and metering package will also be needed.

The Generation Facility will be required to use dynamic VAR support as the maximum primary voltage fluctuation was measured to be 2.6% during light loading conditions and 5.2% during heavy loading conditions. Dynamic VAR Support has been recommended to mitigate voltage flicker issues.

The cost associated with dynamic VAR support will be borne by the Interconnection Customer and is not included in PGE's cost estimate.

### Protection Requirements

The daytime minimum load on the Waconda 13 feeder is 0.4 which occurred on 5/26/2019. Additionally, the daytime minimum load on the Waconda substation transformer is 1.34 which occurred on 4/28/2019. The Waconda substation transformer is rated at 25 MVA.

With the installation of SPQ0172, the total aggregate generation of 9.39 MW will exceed the daytime minimum load on both the feeder and the Waconda BR1 substation transformer.

Under the conditions outlined above the generation can carry the entire BR1 transformer load and will backflow into the transmission system. This has the potential for the following scenario to occur.

When there is ground fault on the high side of the substation transformer, the line relays will trip the line breakers leaving the substation primary without a ground reference. The DER back-feeding to the primary will create an overvoltage condition on the unfaulted phases of up to 173% of normal phase-ground voltage. Until the fault is cleared and the back feed interrupted, the arresters on the un-faulted phases will be exposed to this overvoltage, and will continuously conduct, leading to thermal runaway and arrester failure. The overvoltage condition can also damage the transformer and the line insulators. At low DER penetration the relatively large stranded load facilitates rapid cessation of the DER; at higher penetration levels the DER removes itself increasingly slowly.

There are two approaches to address this fault induced overvoltage condition:

1. Prevent it by making the substation transformer appear to the transmission system as an effectively grounded source; this would require replacement of the substation transformer with a different configuration or in the installation of a grounding bank.
2. Rapidly detect the overvoltage condition and remove the transformer as a source; this is referred to as 3V0 sensing or as 59N protection.



The first approach is preferable, but considerable more expensive than the second approach. The first approach may be implemented during substation rebuilds; the second approach is how existing substations are being adapted for high penetrations of DER.

Once the DER is separated from the transmission system, it is essential that the DER be tripped to allow the transmission system to reenergize the distribution system without risk of closing in out-of-phase to still energized portions.

To trip the DER the follow is required:

- Transfer trip to the DER via Mirror Bits

Transfer trip requires running a fiber optic line from the Waconda Substation to the point of interconnection which is approximately 3.6 miles. Proposed preceding interconnections take a similar path from the substation and will cover approximately 2.3 miles of this distance should the projects be constructed. If the higher-queued projects are built and provide for 2.3 miles of fiber optic line, then SPQ0172 would be responsible for the remaining fiber optic line extension of approximately 1.3 miles. The cost estimate is based on the remaining fiber optic line extension of approximately 1.3 miles. If the higher queued projects are not built, SPQ0172 would be responsible for the entire approximately 3.6 miles of fiber optic line.

## 5. Cost Estimate

The following estimate represents only the scopes of work that will be performed by the Distribution Provider. Costs for any work being performed by the Interconnection Customer are not included.

<b>Distribution Modifications (Equipment outside the substation)</b>	\$761,156.00
<b>Protection Requirements (Equipment Inside the Substation)</b>	\$66,300.00
<b>Communications Requirements (Fiber)</b>	\$150,000.00
<b>New Service Metering</b>	\$30,000.00
<b>Total</b>	<b>\$1,007,456.00</b>



## 6. Schedule

PGE estimates it will require approximately 24 months to design, procure and construct the facilities described in this report following the execution of an Interconnection Agreement. The schedule will be further developed and optimized during the Facility Study.

The Interconnection of SPQ0172 is dependent on one higher queued project completing their interconnection requirements. Those prerequisite requirements are listed below:

Queue Position	Prerequisite Interconnection Requirements
SPQ0158	Replace Substation Transformer Relays with SEL-487E Relay Panels
	Install 3 Phase 57 kV Voltage Transformers
	Fiber Optic Line for Transfer Trip

## 7. Higher Queued Projects

All active higher queued generation Interconnection Requests were considered in this study and are identified below. If any of these requests are withdrawn, PGE reserves the right to restudy the request, as the results and conclusions contained within the study could significantly change.

Currently there is one higher queued Interconnection Requests on Waconda-13 feeder.

Queue Position	AC Nameplate Rating	Status	Estimated In-Service Date
SPQ0003	2.2 MW	In-Service	12/22/2017
SPQ0028	2.2 MW	In-Service	10/4/2019
SPQ0158	2.5 MW	System Impact Study	8/2021

## 8. Attachment A- Detailed System Impact Study Report (attached below)



## SYSTEM IMPACT STUDY FOR SPQ0172

### Waconda Solar Revision 1B

Prepared by

Cameron Van Leuven (POWER Engineers, Inc.)

Reviewed by

Brad Hennessey (POWER Engineers, Inc.)



## Contents

INTERCONNECTION INFORMATION.....	3
Customer Information .....	3
Interconnection Summary .....	3
Distribution Line Related Upgrades (PGE Responsibility) .....	3
BASE CASE INFORMATION FOR LIGHT LOADING CONDITIONS .....	5
Light Loading Information.....	5
Feeder Loading Information .....	5
Feeder Voltage Profile for Light Loading Conditions .....	5
Pertinent Violations .....	6
DG INTERCONNECTION – LIGHT LOADING .....	7
DG Location.....	7
Feeder Voltage Profile for Light Loading Conditions .....	7
System Backfeed .....	7
Transmission Planning Recommendations .....	8
Fault Current Profile.....	8
Pertinent Violations .....	9
BASE CASE INFORMATION FOR HEAVY LOADING CONDITIONS .....	10
Heavy Loading Information.....	10
Feeder Loading Information .....	10
Feeder Voltage Profile for Heavy Loading Conditions .....	10
Pertinent Violations .....	10
DG INTERCONNECTION – HEAVY LOADING .....	11
Feeder Voltage Profile for Heavy Loading Conditions .....	11
System Backfeed .....	11
Pertinent Violations .....	12
SYSTEM IMPROVEMENTS – LIGHT LOADING .....	13
System Improvement Summary .....	13
Feeder Voltage Profile for Light Loading Conditions .....	13
Fault Current Profile.....	14
Pertinent Violations .....	14
DG Interconnection – Light Loading .....	15

## SYSTEM IMPACT STUDY (SIS) FOR DISTRIBUTION LINES AND EQUIPMENT

Feeder Voltage Profile for Light Loading Conditions .....	15
System Backfeed .....	15
Fault Current Profile.....	16
Pertinent Violations .....	16
SYSTEM IMPROVEMENTS – HEAVY LOADING.....	17
Feeder Voltage Profile for Heavy Loading Conditions .....	17
Pertinent Violations .....	17
DG Interconnection – Heavy Loading .....	18
Feeder Voltage Profile for Heavy Loading Conditions .....	18
System Backfeed .....	18
Pertinent Violations .....	18
APPENDIX A: LINKS TO SUPPORTING DOCUMENTATION .....	19
APPENDIX B: EQUIPMENT RATINGS AND STANDARDS.....	20
Cutouts.....	20
Gang Operated Switches.....	20
Reclosers .....	21
IEEE Voltage Range/Clearing Times Table .....	23

# SYSTEM IMPACT STUDY (SIS) FOR DISTRIBUTION LINES AND EQUIPMENT

## INTERCONNECTION INFORMATION

### Customer Information

Queue Position	SPQ0172
Applicant Name	Waconda Solar
System Impact Study Commitment Date	10/04/2019
Size of Proposed Facility (MW)	2.250 MW
Coordinates or Facility Location	45.072629, -122.913603
Inverter Type(s)	CPS SCH 125KTL-DO-US-600
Engineer Performing SIS	Cameron Van Leuven (POWER Engineers, Inc)
Accounting Work Order (AWO)	1000008370

### Interconnection Summary

System Impact Study was performed Waconda Solar on the Waconda Substation, feeder Waconda 13. The system was simulated and analyzed for voltage, loading, and short circuit violations.

Based on the study results, the following are the distribution related impacts pertaining to this interconnection request:

- Reconductor ~1.14mi (6030ft) of 336KCM\_AAC overhead conductor to the next standard conductor size 795 kcmil AAC on Waconda Rd NE between Recloser 3309 and Switch 8422
- Replace 140A hydraulic recloser (RCL\_8425) due to reverse power flow at NE Wapato St at Bypass Switch 8425 with an electronic recloser bank
- Add Dynamic VAR support for flicker
- Install one (1) set of 300-amp Solid-Blade cutouts and service metering at DER lateral

The maximum primary voltage fluctuation was measured to be ~2.6% during light loading conditions with upgrades and ~5.2% during heavy loading conditions with upgrades. Dynamic VAR Support has been recommended to mitigate voltage flicker issues.

This generator interconnection is expected to backfeed 6.5 MW onto the transmission system during periods of light load. This low level of backfeed is not expected to cause or worsen any thermal, voltage, or stability concerns for the transmission system.

### Distribution Line Related Upgrades (PGE Responsibility)

Description	Estimated Cost
1 – Electronic Recloser	\$77,053
Reconductor ~1.14mi (6030ft) of 336 kcmil AAC to 795 kcmil AAC overhead conductor	\$684,103
New Primary Service and Metering Package	\$30,000
<b>Total Estimated Distribution Line Cost</b>	<b>\$791,156</b>

## SYSTEM IMPACT STUDY (SIS) FOR DISTRIBUTION LINES AND EQUIPMENT

### INTERCONNECTION REQUESTS ASSOCIATED WITH THIS SUBSTATION

Queue Pos #	Name	Feeder Name	Xfmr Pos #	GPS Coordinates	DG Size (MW AC)	Status
SPQ0003	-	Waconda-Waconda 13	BR1	45.130436, -122.897501	2.200	Completed
SPQ0028	-	Waconda 13	BR1	45.083472, -122.904527	2.200	Completed
SPQ0048	-	Waconda 13	BR1	45.062974, -122.939467	2.500	Withdrawn
SPQ0142	-	Waconda-River	BR1	45.096001, -122.949462	3.000	Withdrawn
SPQ0158	-	Waconda 13	BR1	45.075646, -122.927126	2.500	System Impact Study
SPQ0172	Waconda Solar, LLC	Waconda 13	BR1	45.072629, -122.913603	2.250	System Impact Study

# SYSTEM IMPACT STUDY (SIS) FOR DISTRIBUTION LINES AND EQUIPMENT

## BASE CASE INFORMATION FOR LIGHT LOADING CONDITIONS

Substation Name	Waconda
Interconnecting Feeder Name	Waconda-Waconda 13
Substation Transformer Position # (e.g. WR1, BR1)	BR1

## Light Loading Information

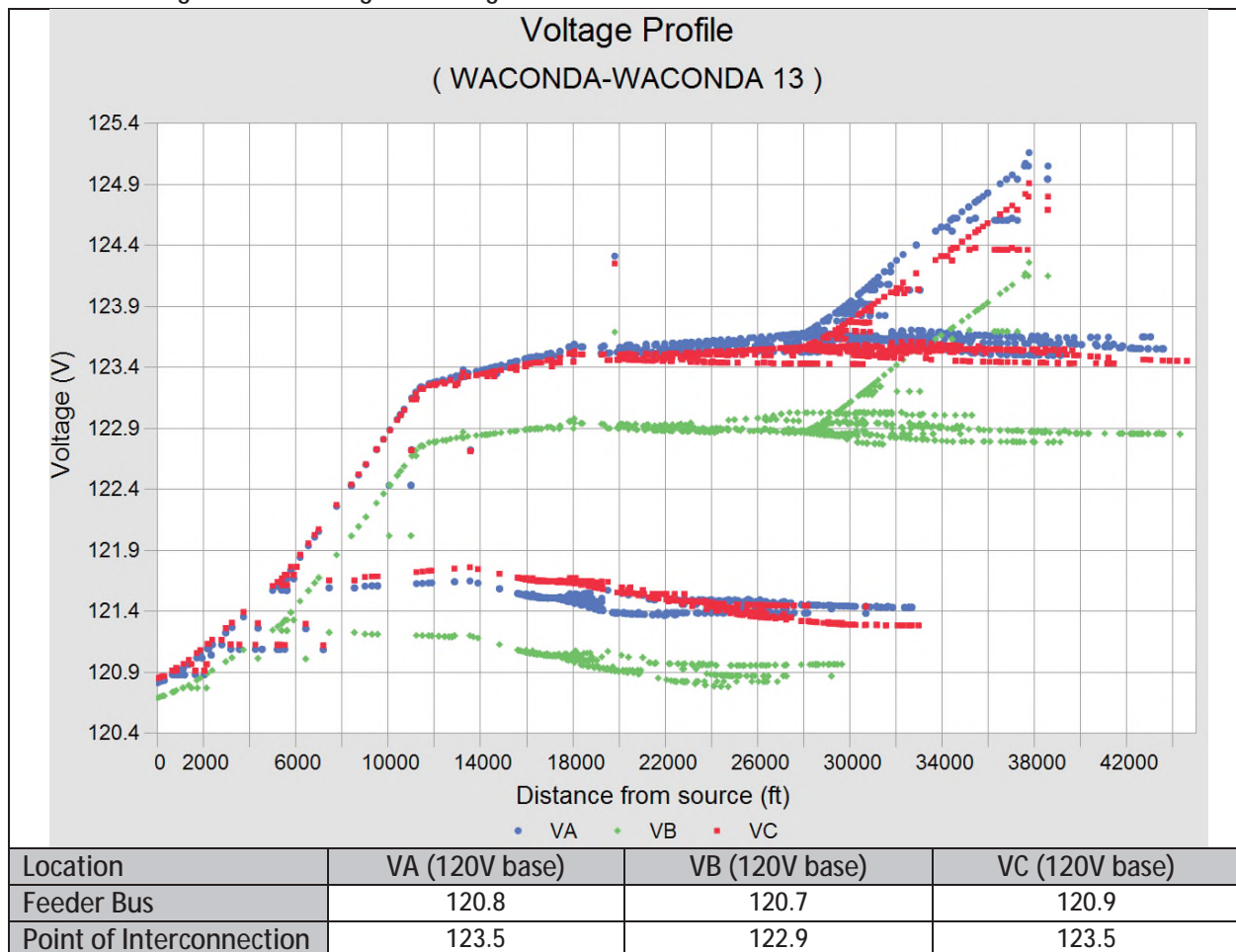
Simulated Date	4/28/2019
Simulated Hour	13:00

## Feeder Loading Information

Feeder Name	Transformer Position	Loading (KW)	Loading (KVAR)
Waconda-Customer Feeder	BR2	Redacted	Redacted
Waconda-River	BR1	880	-900
Waconda-Waconda 13 (50% consumption load)	BR1	-1193.4	-446

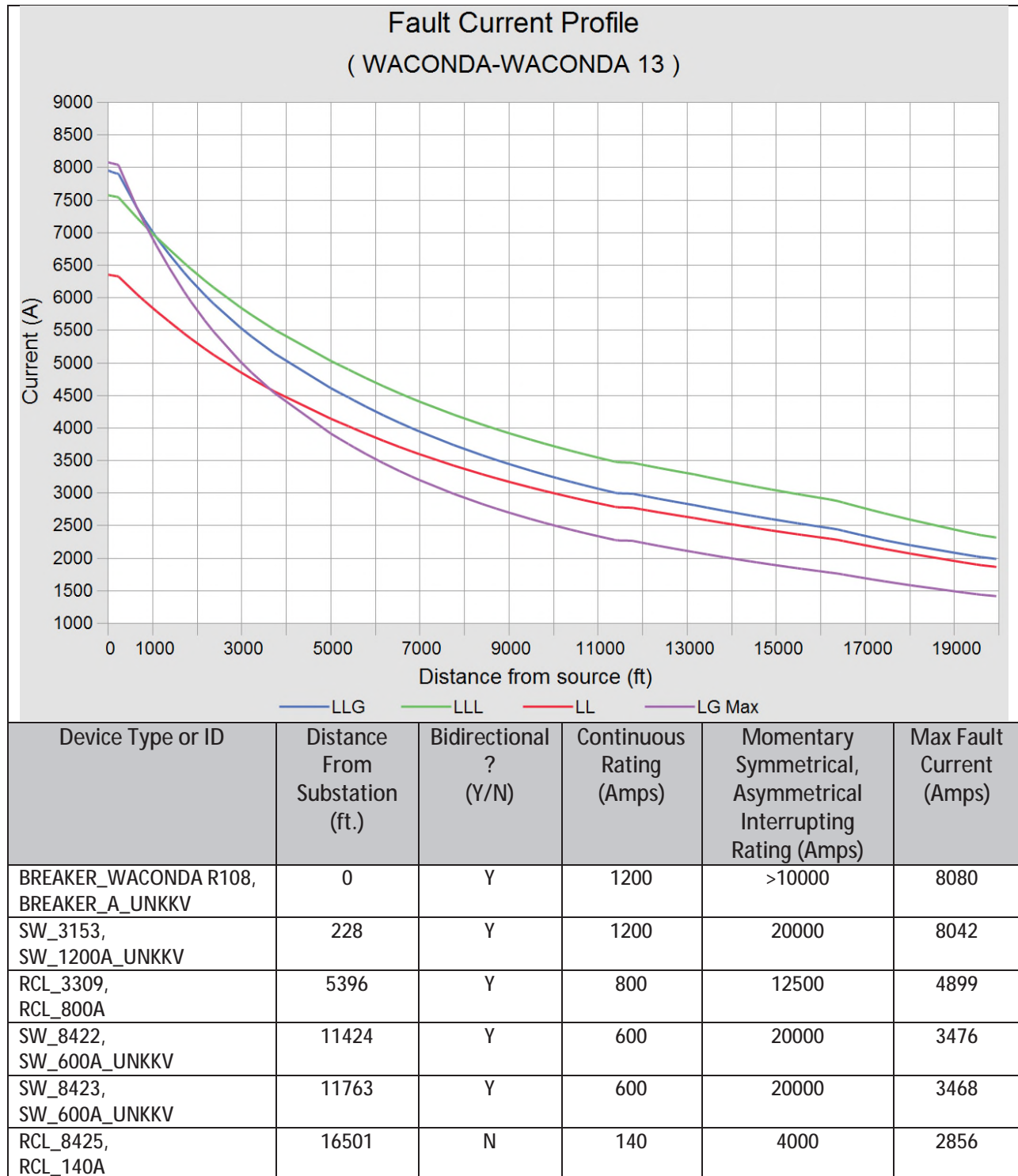
Note: 50% Consumption load is used for the load allocation and analysis below. It is determined from measured minimum load by separating consumption load from solar photovoltaic generation, reducing consumption load by half, and then adding back the solar photovoltaic generation. It is effectively the minimum load scenario where half the consumption occurs with full solar photovoltaic generation.

## Feeder Voltage Profile for Light Loading Conditions



# SYSTEM IMPACT STUDY (SIS) FOR DISTRIBUTION LINES AND EQUIPMENT

## Fault Current Profile



## Pertinent Violations

Device Type	General Location	Violation Type	Comments
No violations.			

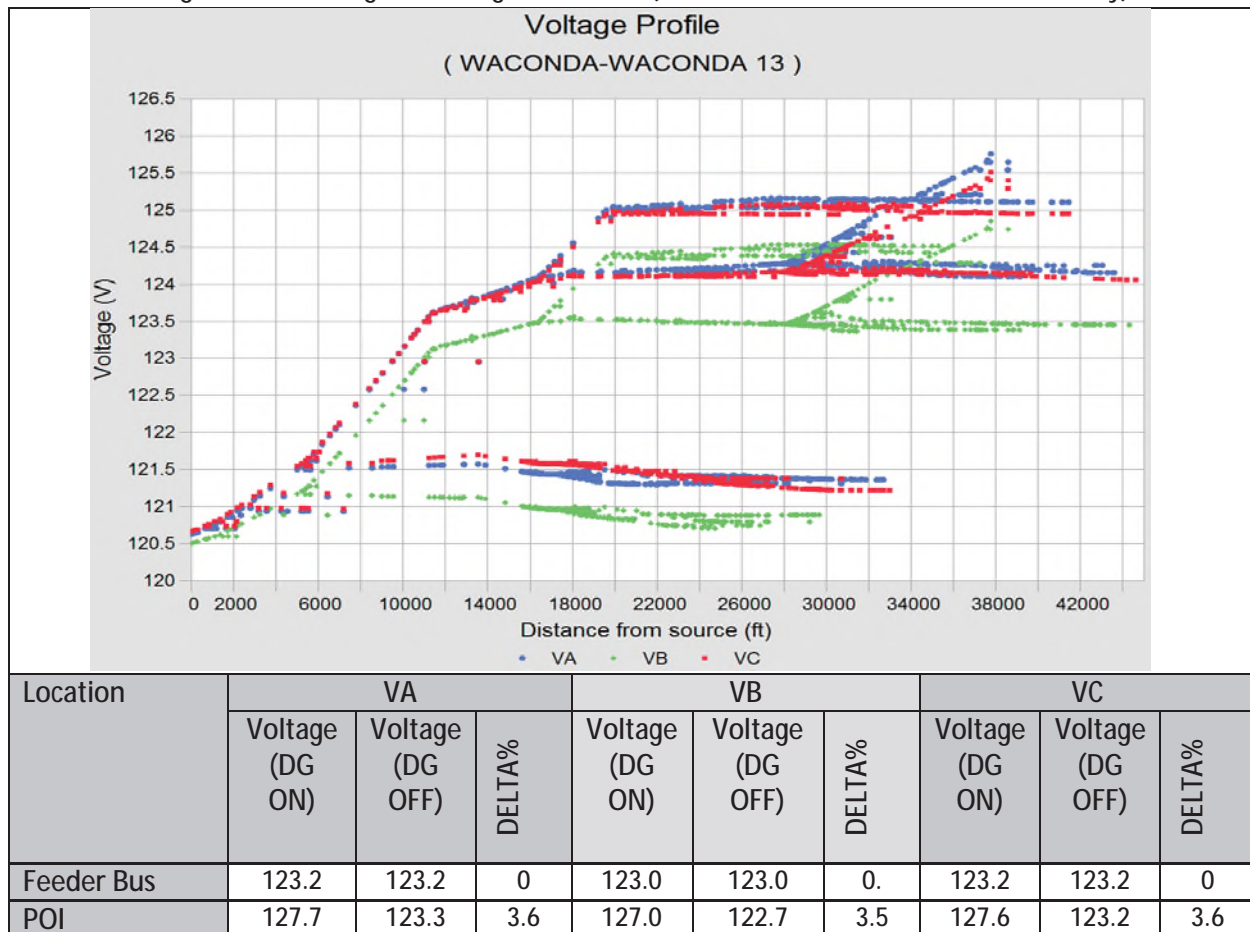
# SYSTEM IMPACT STUDY (SIS) FOR DISTRIBUTION LINES AND EQUIPMENT

DG INTERCONNECTION – LIGHT LOADING (DG is connected and in service @ unity)

DG Location

DG Location	
Latitude (DD)	Longitude (DD)
45.075646	-122.927126

Feeder Voltage Profile for Light Loading Conditions (DG is connected and in service @ unity)



System Backfeed

Location	KW	KVAR
Feeder Breaker	-7872	320
Transformer (57kV terminals)	-6961	-259
Substation Source Location	-6506	-812

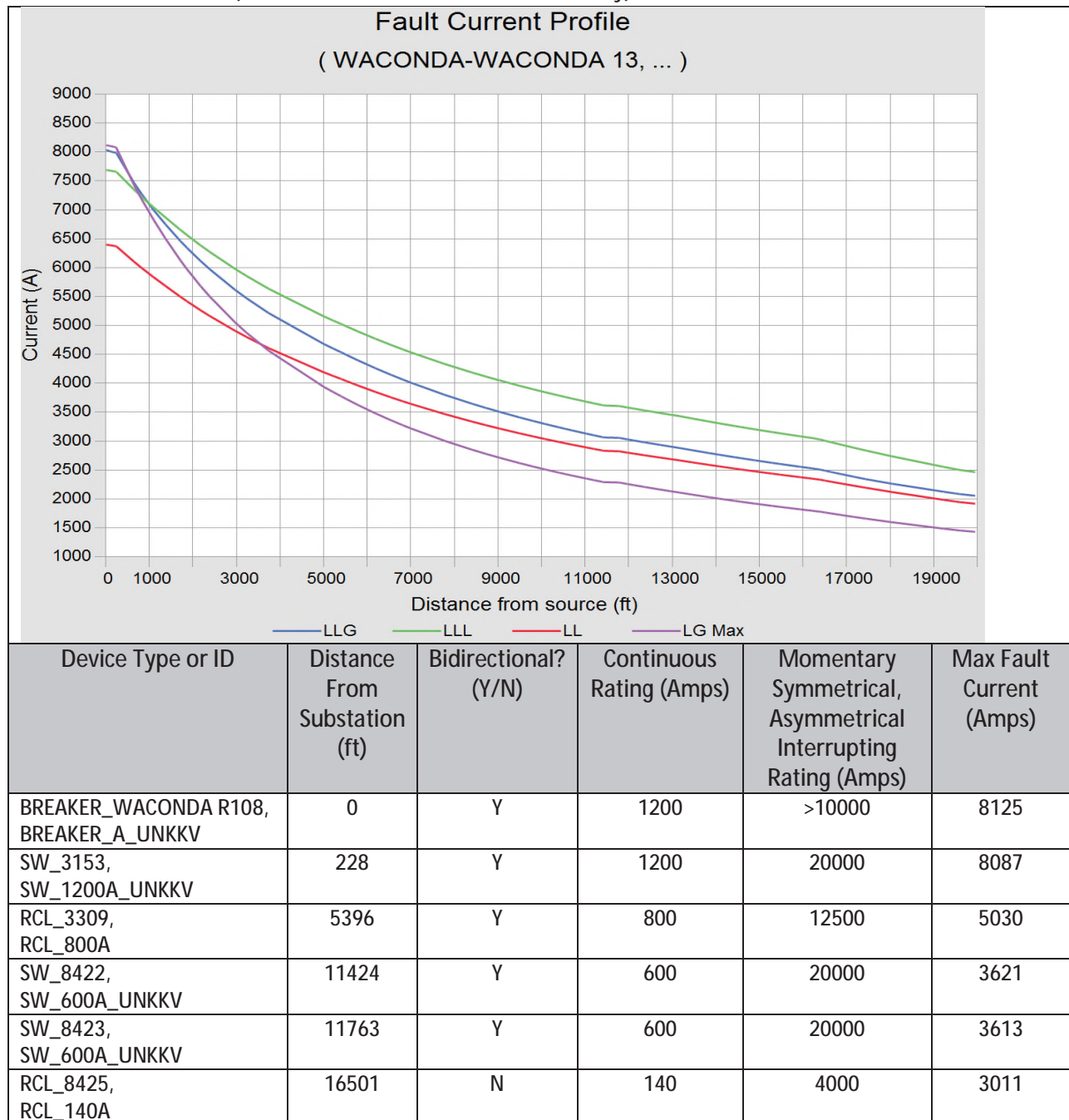


## SYSTEM IMPACT STUDY (SIS) FOR DISTRIBUTION LINES AND EQUIPMENT

### Transmission Planning Recommendations (If there is backfeed onto the transmission system)

This generator interconnection is expected to backfeed 6.5 MW onto the transmission system during periods of light load. This low level of backfeed is not expected to cause or worsen any thermal, voltage, or stability concerns for the transmission system.

### Fault Current Profile (DG is connected and in service @ unity)



## SYSTEM IMPACT STUDY (SIS) FOR DISTRIBUTION LINES AND EQUIPMENT

### Pertinent Violations

Device Type	General Location	Violation Type	Comments
Overhead Conductor	On Waconda Rd NE, between 50 <sup>th</sup> Ave NE and Portland Rd NE	Overload	~1.14mi (6030ft) of 336KCM_AAC overhead conductor on Waconda Rd NE between Recloser 3309 and Switch 8422 exceeds 80% of the conductors rating at 106.3% (394.7A at 464A rated ampacity).
Recloser	NE Wapato St at Bypass Switch 8425	Reverse Power Flow	140A recloser (RCL_8425) on NE Wapato St at Bypass Switch 8425 has reverse power flow.

# SYSTEM IMPACT STUDY (SIS) FOR DISTRIBUTION LINES AND EQUIPMENT

## BASE CASE INFORMATION FOR HEAVY LOADING CONDITIONS

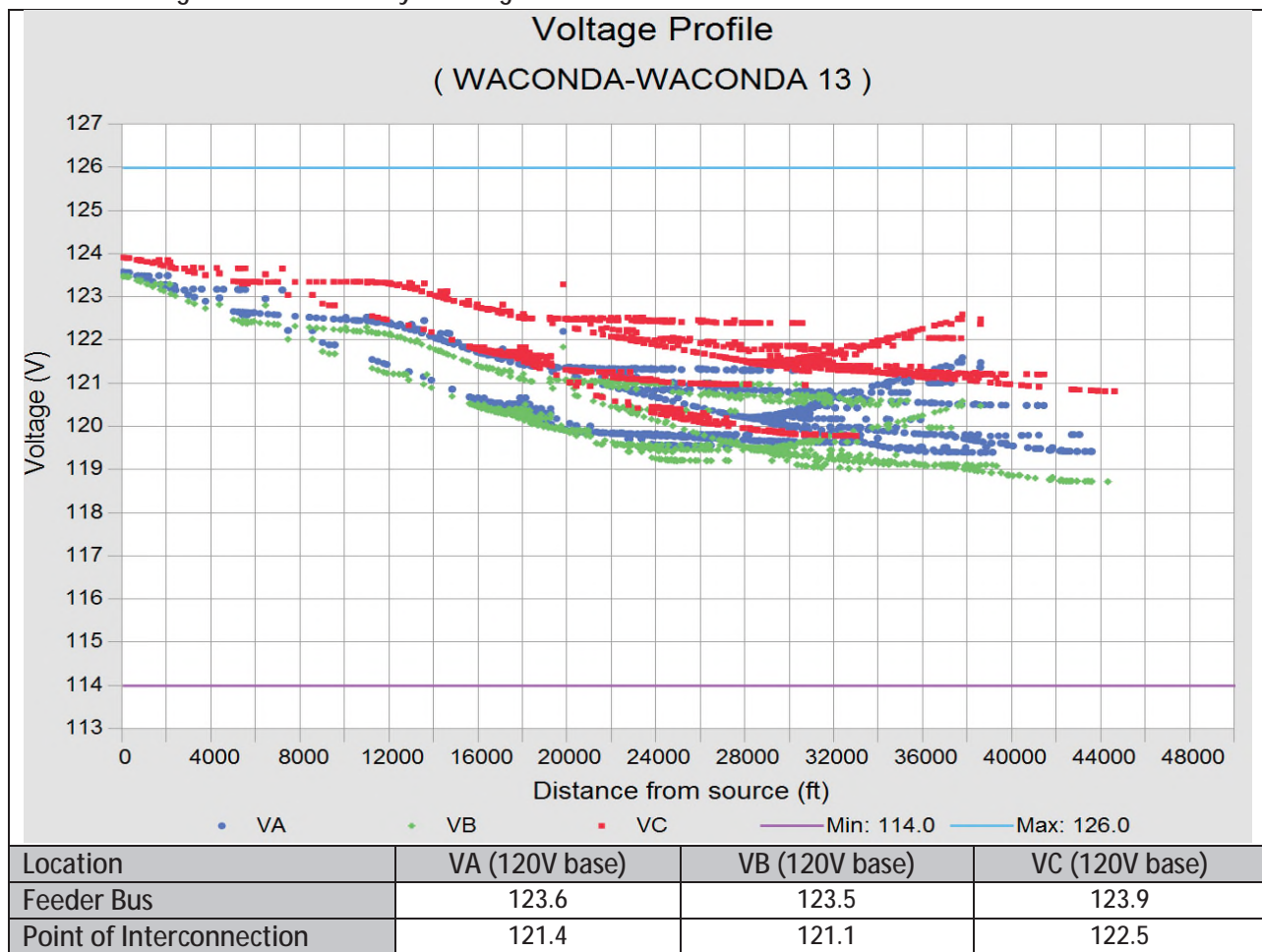
### Heavy Loading Information

Simulated Date	8/14/2018
Simulated Hour	16:00

### Feeder Loading Information (All feeders served from associated substation transformer)

Feeder Name	Transformer Position	Loading (KW)	Loading (KVAR)
Waconda-Customer Feeder	BR2	Redacted	Redacted
Waconda-River	BR1	4301	1538
Waconda-Waconda 13	BR1	6689	1742

### Feeder Voltage Profile for Heavy Loading Conditions



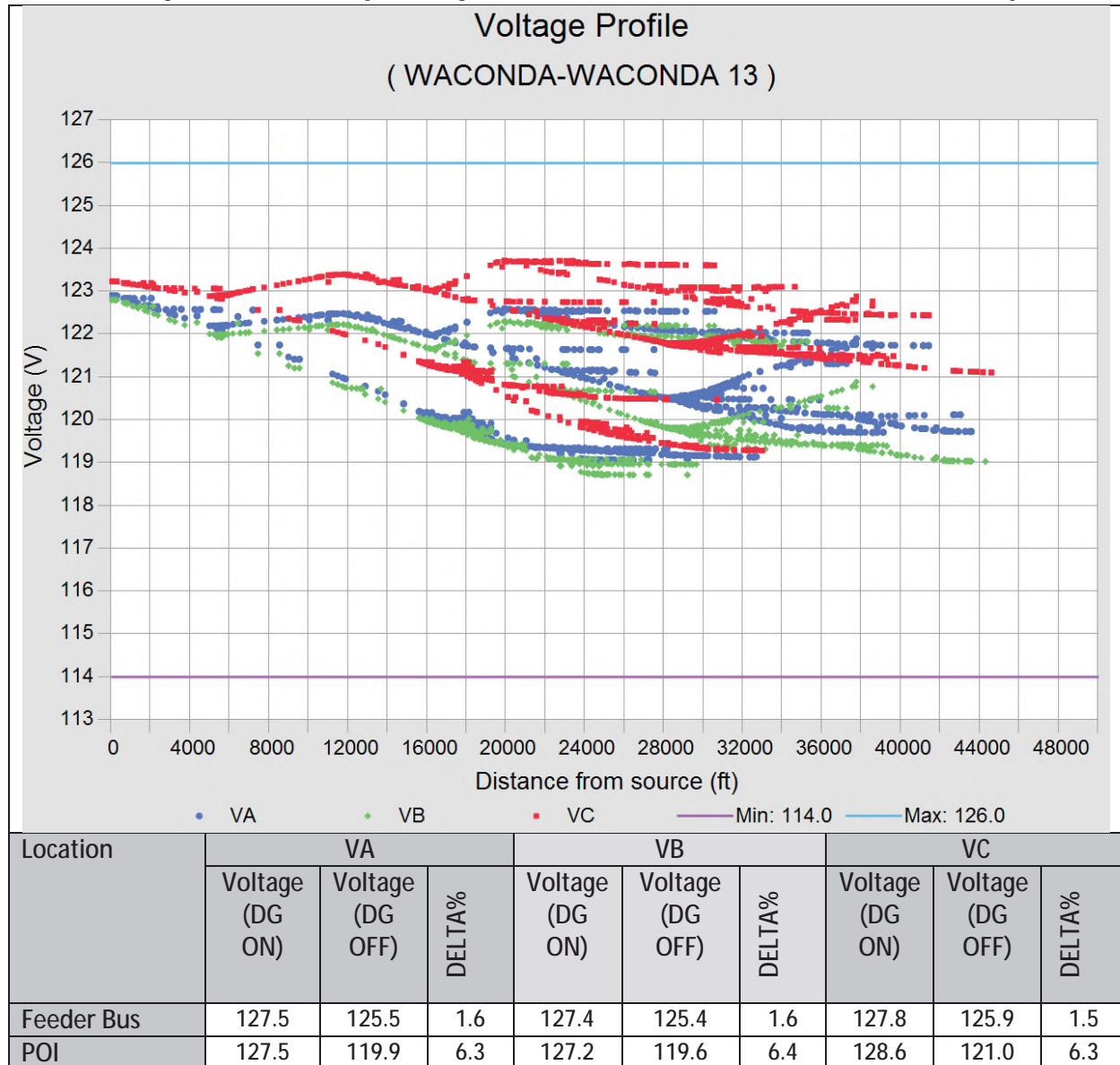
### Pertinent Violations

Device Type	General Location	Violation Type	Comments
No violations.			

# SYSTEM IMPACT STUDY (SIS) FOR DISTRIBUTION LINES AND EQUIPMENT

## DG INTERCONNECTION – HEAVY LOADING

Feeder Voltage Profile for Heavy Loading Conditions (DG is connected and in service @ unity)



### System Backfeed

Location	KW	KVAR
Feeder Breaker	-274	1593
Transformer (57kV terminals)	4051	-2318
Substation Source Location	11909	1041

## SYSTEM IMPACT STUDY (SIS) FOR DISTRIBUTION LINES AND EQUIPMENT

### Pertinent Violations

Device Type	General Location	Violation Type	Comments
Recloser	NE Wapato St at Bypass Switch 8425	Reverse Power Flow	140A recloser (RCL_8425) on NE Wapato St at Bypass Switch 8425 has reverse power flow.

# SYSTEM IMPACT STUDY (SIS) FOR DISTRIBUTION LINES AND EQUIPMENT

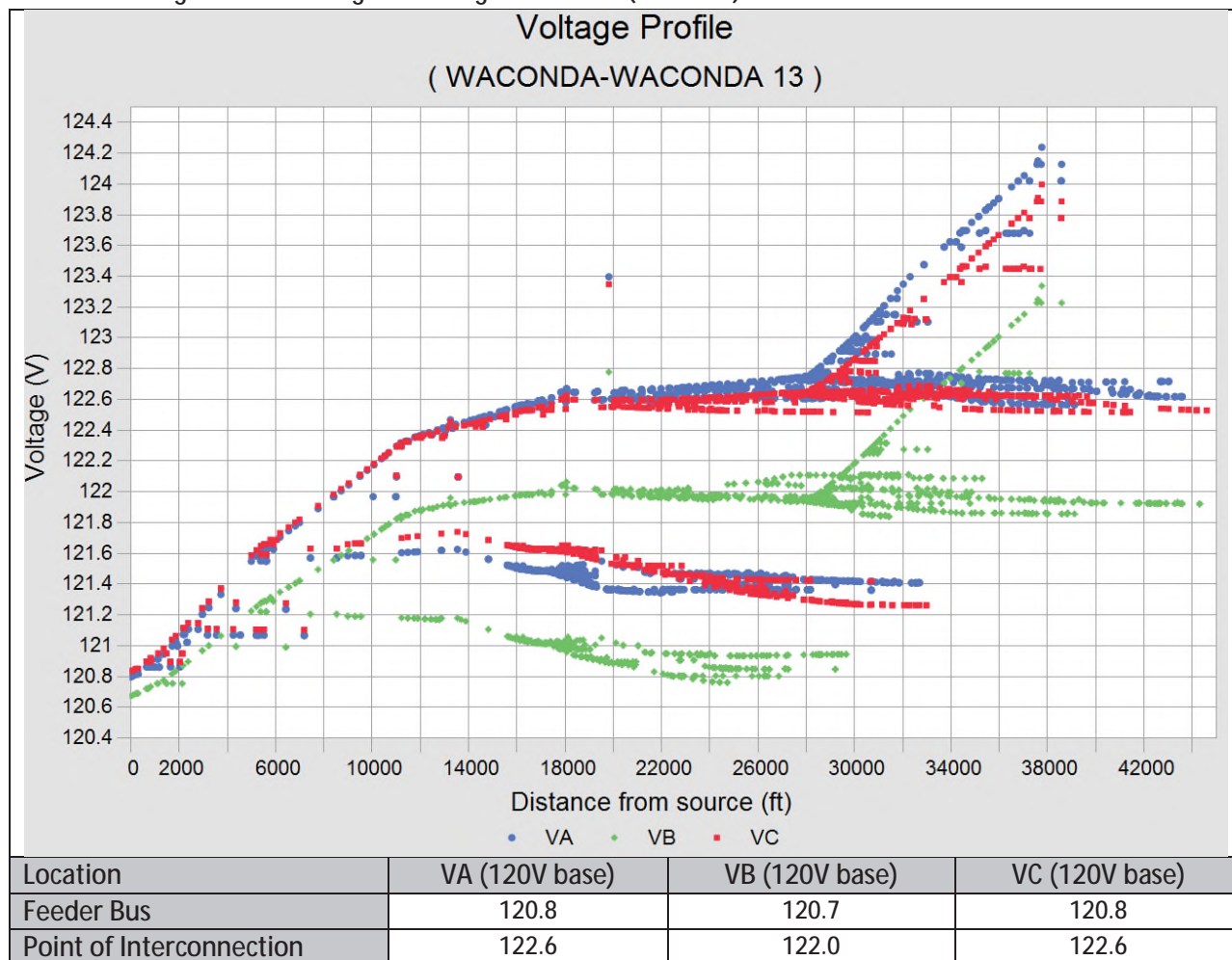
## SYSTEM IMPROVEMENTS – LIGHT LOADING

### System Improvement Summary

The improvements needed pertaining to this interconnection:

- Reconductor ~1.14mi (6030ft) of 336KCM\_AAC overhead conductor to the next standard conductor size 795 kcmil AAC on Waconda Rd NE between Recloser 3309 and Switch 8422
- Replace 140A hydraulic recloser (RCL\_8425) due to reverse power flow at NE Wapato St at Bypass Switch 8425 with an electronic recloser bank
- Add Dynamic VAR support for flicker
- Install one (1) 300-amp Solid-Blade cutouts and service metering at DER lateral

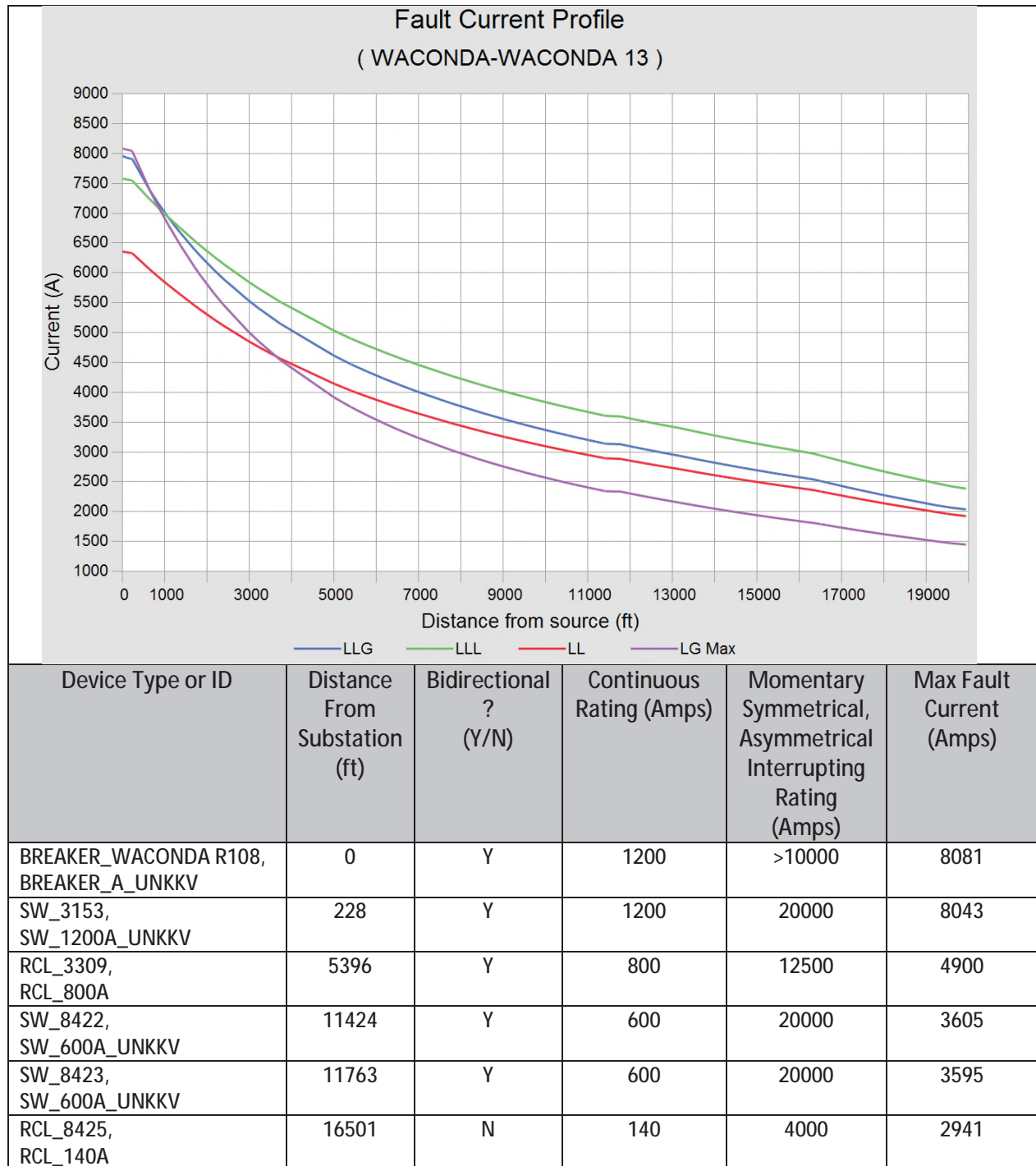
### Feeder Voltage Profile for Light Loading Conditions (DG is off)





# SYSTEM IMPACT STUDY (SIS) FOR DISTRIBUTION LINES AND EQUIPMENT

## Fault Current Profile



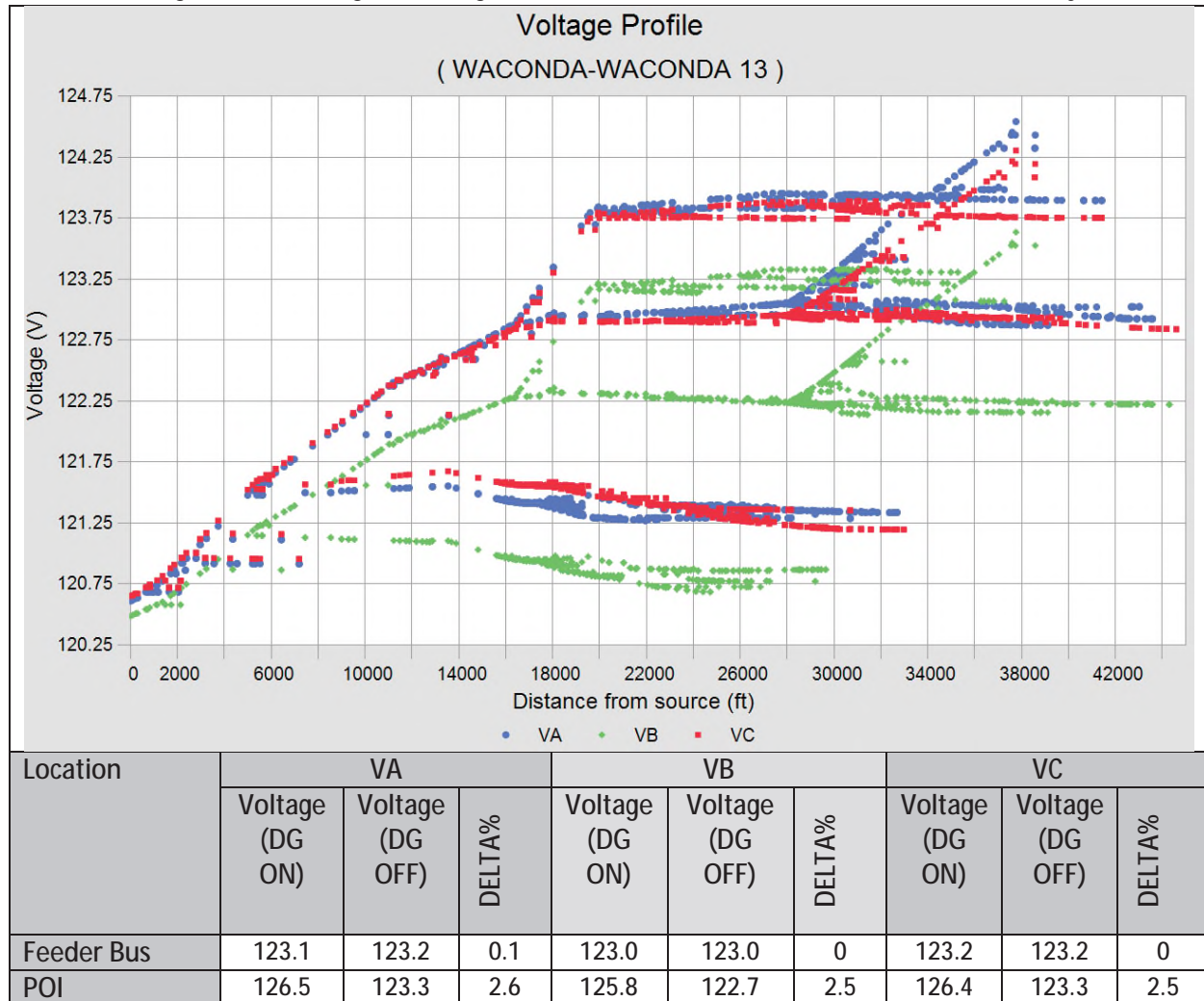
## Pertinent Violations

Device Type	General Location	Violation Type	Comments
No violations.			

# SYSTEM IMPACT STUDY (SIS) FOR DISTRIBUTION LINES AND EQUIPMENT

DG Interconnection – Light Loading (DG is connected and in service @ unity)

Feeder Voltage Profile for Light Loading Conditions (DG is connected and in service @ unity)



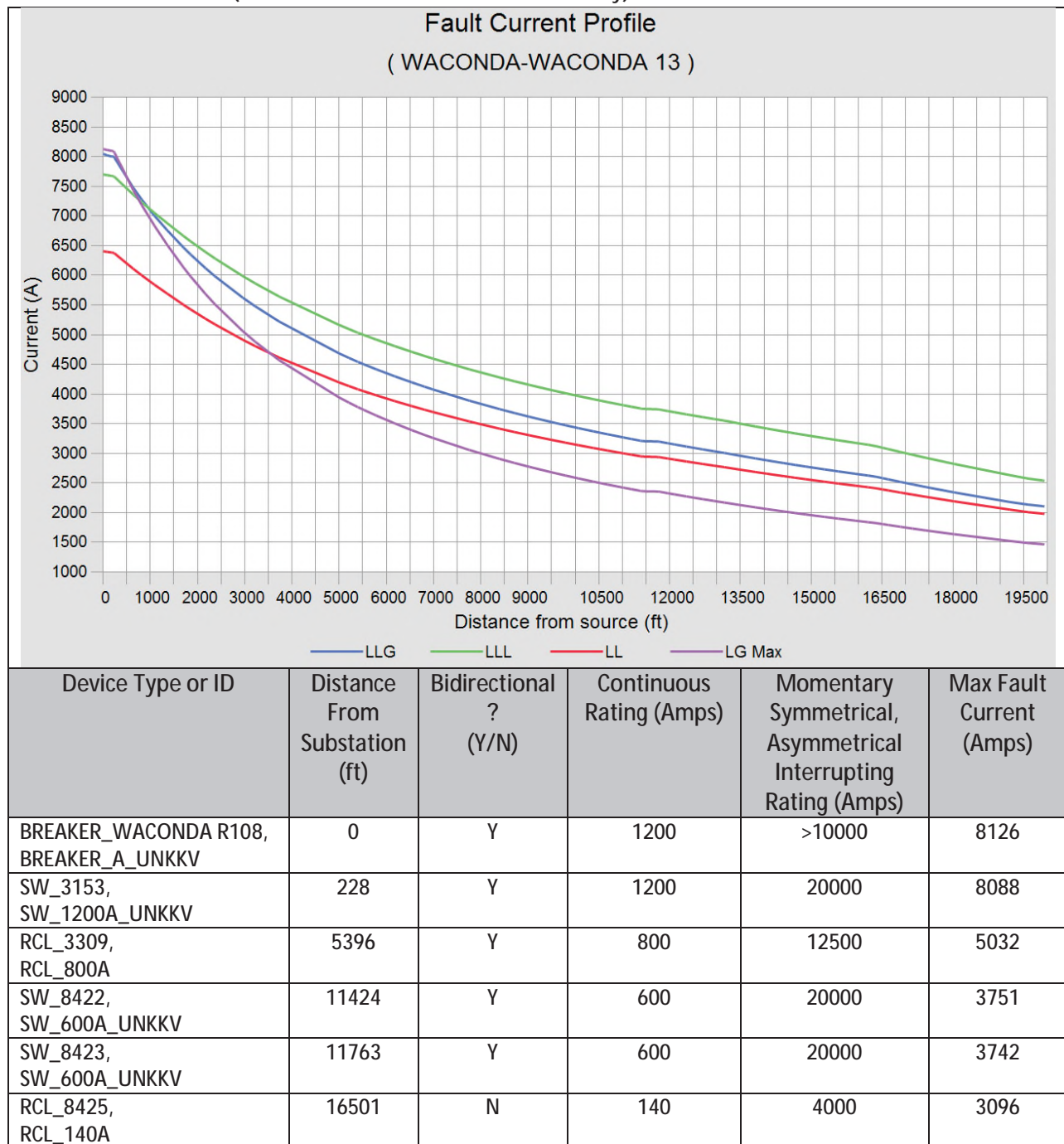
System Backfeed

Location	KW	KVAR
Feeder Breaker	-7949	350
Transformer (115 or 57kV terminals)	-7039	-223
Substation Source Location	-6583	-775



## SYSTEM IMPACT STUDY (SIS) FOR DISTRIBUTION LINES AND EQUIPMENT

Fault Current Profile (DG is connected and in service @ unity)



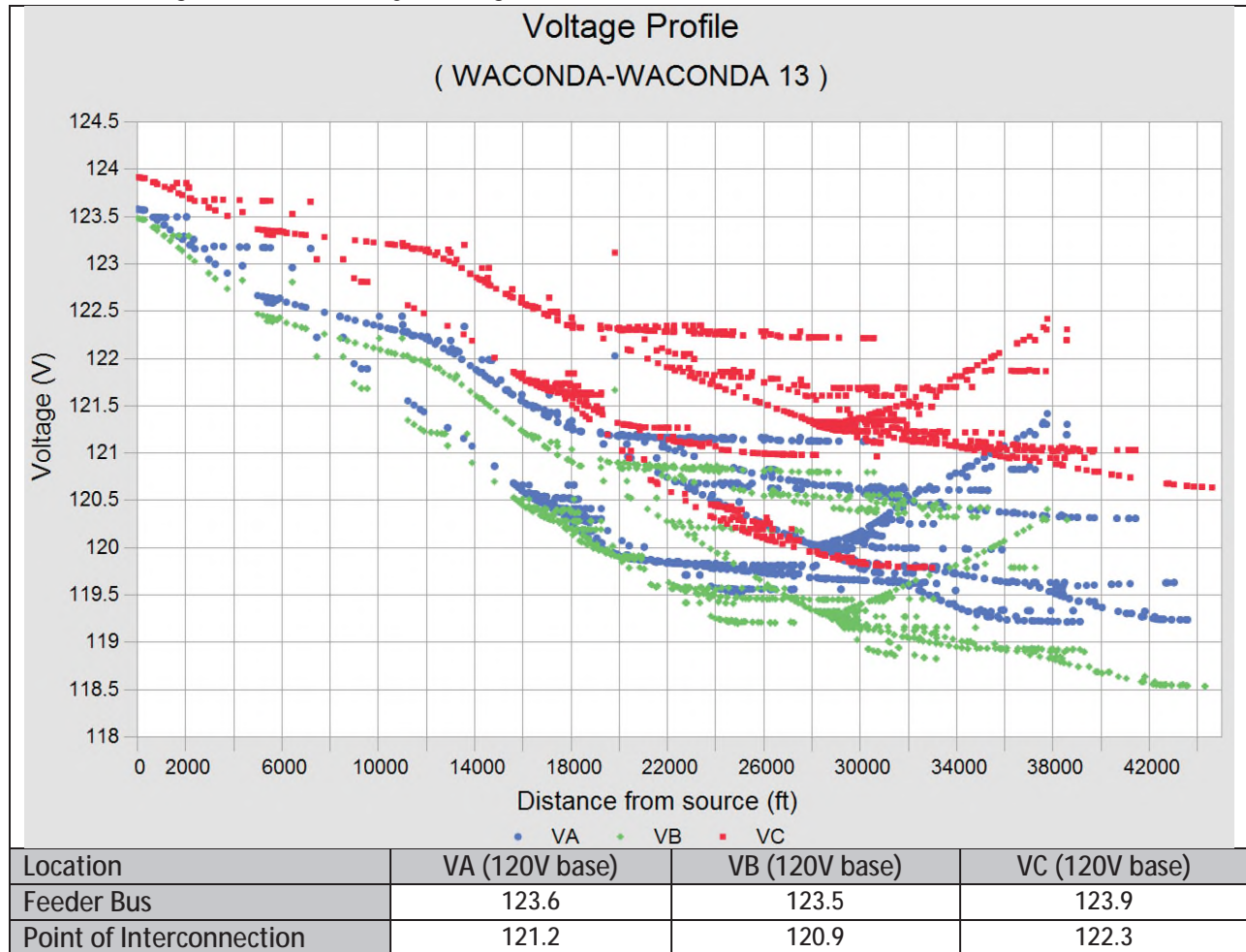
### Pertinent Violations

Device Type	General Location	Violation Type	Comments
No violations.			

# SYSTEM IMPACT STUDY (SIS) FOR DISTRIBUTION LINES AND EQUIPMENT

## SYSTEM IMPROVEMENTS – HEAVY LOADING

Feeder Voltage Profile for Heavy Loading Conditions (DG is off)



### Pertinent Violations

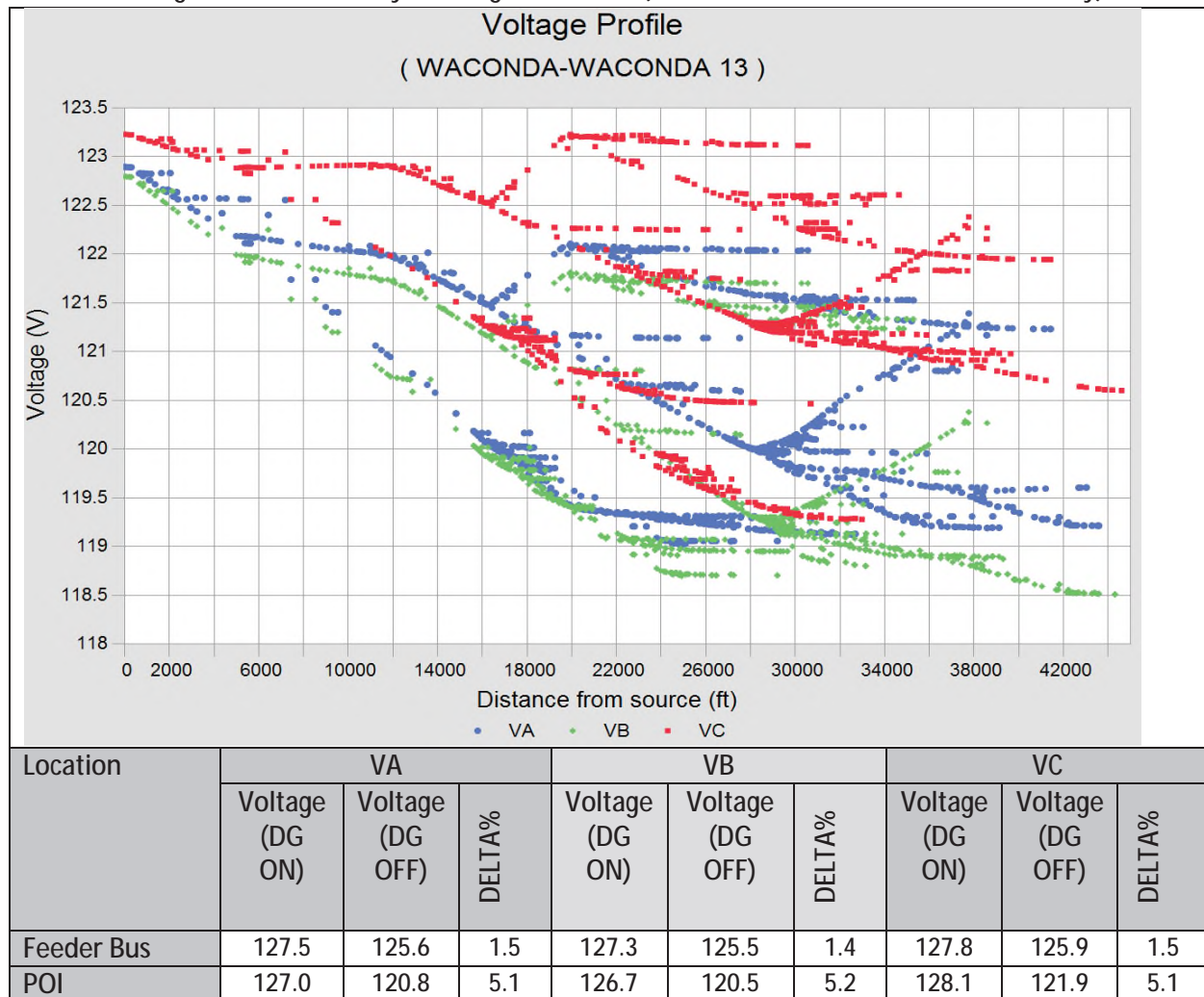
Device Type	General Location	Violation Type	Comments
No violations.			

Note: None of these violations should supersede base case violations.

# SYSTEM IMPACT STUDY (SIS) FOR DISTRIBUTION LINES AND EQUIPMENT

DG Interconnection – Heavy Loading (DG is connected and in service @ unity)

Feeder Voltage Profile for Heavy Loading Conditions (DG is connected and in service @ unity)



System Backfeed

Location	KW	KVAR
Feeder Breaker	-291	1606
Transformer (115 or 57kV terminals)	4043	-2305
Substation Source Location	11893	1056

Pertinent Violations

Device Type	General Location	Violation Type	Comments
No violations.			

## SYSTEM IMPACT STUDY (SIS) FOR DISTRIBUTION LINES AND EQUIPMENT

### APPENDIX A: LINKS TO SUPPORTING DOCUMENTATION

[IEEE](#) – (Reference IEEE 1547-2003)

[Job Aid 1](#) – Minimum Daylight Load

[Job Aid 2](#) – Setting up CYME for an Interconnection Study

[Job Aid 3](#) – Finding Proposed Interconnection Locations

[Job Aid 4](#) – Conducting a CYME Interconnection SI Study

[Power Quality Guidelines](#) – LD19100

[Regulator and LTC Settings](#) – Substation

[Regulator Settings](#) – Feeder

[Small Power \(QF\) Interconnection Queue](#)

[Substation Highside Source Impedances](#)

[System Impact Schedule](#)



# SYSTEM IMPACT STUDY (SIS) FOR DISTRIBUTION LINES AND EQUIPMENT

## APPENDIX B: EQUIPMENT RATINGS AND STANDARDS

### Cutouts

Polymeric Cutout Specifications					
Cutout Usage	PGE Part Number	Cutout Type	kV Rating	Amp Rating	
				Continuous	Asymmetrical Interrupting
General	40102	Open dropout	15	100	16,000
Special application	39478			200	12,000
	90006289	Solid blade		300	—

15-kV Solid Blade Cutout Ratings				
PGE Part Number	Voltage Rating (kV)		Current Rating (amps)	
	Nominal	Maximum	Continuous	Momentary (asymmetrical)
90006289	14.4	15.0	300	12,000

**Table 10: 15-kV Solid Blade Cutout Ratings**

### Gang Operated Switches

15-kV Gang-Operated Switch Fault Ratings				
PGE Part Number	Manufacturer	Peak Withstand (amps, rms, 10 cycles)	Momentary, Symmetrical (amps, rms, three seconds)	Fault Closing (peak amps) <sup>1</sup>
03586	S&C Electric Company Omni-Rupter <sup>2</sup>	65,000	20,000	42,000
	Inertia Engineering LineBOSS	51,000	32,000	30,000
03587	Unassembled S&C Electric Company Alduti-Rupter	40,000	25,000	20,000

### Switches

15-kV Disconnect Switch Ratings				
PGE Part Number	Voltage Rating (kV)		Current Rating (amps)	
	Nominal	Maximum	Continuous	Momentary
03582	15	15.5	1200	61,000

**Table 9: 15-kV Disconnect Switch Ratings**

# SYSTEM IMPACT STUDY (SIS) FOR DISTRIBUTION LINES AND EQUIPMENT

## Reclosers

Types of Reclosers and Corresponding PGE Part Numbers					
PGE Part Number	Phase	Setting	Continuous Rating	Type	Symmetrical Amps
03398	Single	1A3C	50	L <sup>1</sup>	3000
03399		2A2D			
03401			70		
03405			100		
03406			140		
39135			50	V4L	3000
03402		70	4200		
39130		1A3C	100		6000
03403		2A2D			
39131		1A3C	140		
03408		2A2D			
39132		1A3C	200		
03410		2A2D			
39133		1A3C	280		
03411		2A2D			
39134		1A3C			
—	Three	Electronic allows a variety of curves	560 and 800 maximum	WE	10,000
03414			800 maximum	VWE	12,000
39756				NOVA	12,500
40242					

1. The L-type recloser is no longer purchased by PGE; it is here for reference only.

## Switchgear

Switchgear Design Ratings	
Design	Rating
Maximum voltage	15.5 kV
Power frequency	60 Hz
Lightning impulse withstand voltage	95 kV
Power frequency withstand voltage	35 kV
Continuous current	1200 A
Momentary asymmetrical current	40 kA
Fault-closing asymmetrical current	40 kA

**Table 1: Switchgear Design Ratings**

## SYSTEM IMPACT STUDY (SIS) FOR DISTRIBUTION LINES AND EQUIPMENT

600-A, Pad-Mounted Switchgear Configurations				
PGE Part Number	Number of Switch Ways	Number of Fused Ways	Switchgear Momentary Fault Rating (kA, asymmetrical)	Unit Momentary Fault Rating (kA, symmetrical)
39686	3	1	40	14
39687	2	2		

**Table 5: 600-A, Pad-Mounted Switchgear Configurations**

900-A, Pad-Mounted Switchgear Configurations					
PGE Part Number	Number of Switch Ways	Number of Fault Interrupter Ways	Switch Way Continuous Rating (amp)	Fault Interrupter Way Continuous Rating (amp)	Unit Fault Rating (kA, symmetrical)
90008072	2	2	900	600	25
90008073	3	1			
90008074	4	—		—	

**Table 7: 900-A, Pad-Mounted Switchgear Configurations**

1200-A, Pad-Mounted Switchgear Configurations				
PGE Part Number	Number of Switch Ways	Number of Fused Ways	Switchgear Momentary Fault Rating (kA, asymmetrical)	Unit Momentary Fault Rating (kA, symmetrical)
01433	4	—	40	35
01434	2	2		14
01435	3	1		
40050 <sup>1</sup>	4	—	61	35
40051 <sup>1</sup>	3	1		

1. This style is currently only used for Intel sites that require a higher fault rating.

**Table 3: 1200-A, Pad-Mounted Switchgear Configurations**



## SYSTEM IMPACT STUDY (SIS) FOR DISTRIBUTION LINES AND EQUIPMENT

600-A, Submersible Switchgear Ratings						
PGE Part Number	Number of Switch Ways	Number of Fault Interrupter Ways	Unit Continuous Rating (amp)	Switchgear Continuous Rating (amp)	Fault Interrupter Continuous Rating (amp)	Unit Fault Rating (kA, symmetrical)
01425	2	2	600	600	200	12.5
01427	3					
01428		3				

**Table 10: 600-A, Submersible Switchgear Ratings**

900-A, Submersible Switchgear Dimensions					
Unit Fault Rating (kA, symmetrical)	Total Number of Ways	Tank Width <sup>1</sup> (inch)	Tank Depth <sup>2</sup> (inch)	Bushing Height (inch)	Total Height (inch)
12.5	4	65.4375	40.0625	17.5	26.625
25			40.25	28.75	33
12.5	5	80.4375	40.0625	17.5	26.625
25			40.25	28.75	33
12.5	6	95.4375	40.0625	17.5	26.625
25			40.25	28.75	33

1. Termination side of tank.

2. Depth includes controller enclosure but not bushings.

**Table 12: 900-A, Submersible Switchgear Dimensions**

### IEEE Voltage Range/Clearing Times Table

Voltage range (% of base voltage <sup>a</sup> )	Clearing time(s) <sup>b</sup>
$V < 50$	0.16
$50 \leq V < 88$	2.00
$110 < V < 120$	1.00
$V \geq 120$	0.16

<sup>a</sup>Base voltages are the nominal system voltages stated in ANSI C84.1-1995, Table 1.

<sup>b</sup>DR  $\leq$  30 kW, maximum clearing times; DR  $>$  30kW, default clearing times.

The voltage deviation when the DG is off line or in service must be within Voltage Guideline limits from 88% to 110% of the nominal voltage at the point of interconnection and the substation bus. The voltage guideline set by IEEE-1547 requires DG to disconnect from the grid or clear at the set time shown.





# EXHIBIT 6



**Small Generator Facility  
Facilities Study Agreement**

This Agreement is made and entered into this date, 11/18/2019 by and between Waconda Solar, LLC, a company, ("Applicant") and Portland General Electric Company, a corporation existing under the laws of the State of Oregon, ("PGE"). Applicant and PGE each may be referred to as a "Party," or collectively as the "Parties."

**Recitals:**

**Whereas**, Applicant is proposing to develop a Small Generator Facility or adding generating capacity to an existing Small Generator Facility consistent with the Application completed on 3/23/2018; and

**Whereas**, Applicant desires to interconnect the Small Generator Facility with PGE's Transmission & Distribution (T&D) System; and

**Whereas**, PGE has completed a System Impact Study and provided the results of said study to Applicant (This recital to be omitted if the Parties have agreed to forego the System Impact Study.); and

**Whereas**, Applicant has requested PGE to perform a Facilities Study to specify and estimate the cost of the equipment, engineering, procurement and construction work in accordance with Good Utility Practice needed to physically and electrically connect the Small Generator Facility to PGE's T&D System.

**Now, therefore**, in consideration of and subject to the mutual covenants contained herein the Parties agree as follows:

1. When used in this Agreement, with initial capitalization, the terms specified shall have the meanings set forth in this Agreement or as given in OAR 860-082-0005 through 860-082-0085 and to the extent that this Agreement conflicts with the Rules, the Rules shall take precedence.
2. Applicant and PGE shall cause to be performed a Facilities Study consistent with OAR 860-082-0060(8).
3. The scope of the Facilities Study shall be subject to data provided by Applicant in its Application as well as the data provided by the Applicant in Attachment A of this Agreement.
4. A Facilities Study report (1) shall provide a description, estimated cost, and schedule for required Interconnection Facilities and System Upgrade(s) to interconnect the Small

Generator Facility to PGE's T&D System including a description of any facilities or upgrades necessary to address impacts to Affected Systems and (2) shall address the short circuit, instability, and power flow issues identified in any prior System Impact Studies.

5. PGE may require a study deposit as described in OAR 860-082-0035(1).

6. As required by OAR 860-082-0060(8)(a), the public utility will provide scope for the Facilities Study, a reasonable schedule for completion of the study, and a good-faith, non-binding cost estimate to perform the study (Attachment B). In cases where no System Upgrade or Interconnection Facilities is required, the Facilities Study shall be completed and the results will be transmitted to Applicant within (60) business days after this Agreement is signed by the Parties.

7. Study fees will be based on actual costs in accordance with the provisions of 860-082-0035 and as follows:

7.1 The non-binding good faith estimate of the cost to complete the Facilities Study is \$6,000.00. Applicant is required to pay a deposit of fifty (50) percent this estimate or \$1,000, whichever is less, prior to start date of study.

7.2 Any study fees shall be based on PGE's actual costs and will be invoiced to Applicant after the study is completed and delivered and will include a summary of professional time.

7.3 Applicant must pay any study costs that exceed the deposit without interest within thirty (30) calendar days on receipt of the invoice or resolution of any dispute. If the deposit exceeds the invoiced fees, PGE shall refund such excess within thirty (30) calendar days of the invoice without interest.

8. Cost Responsibility is detailed in OAR 860-082-0035 of the Rule.

**Signatures:**

In witness whereof, the Parties have caused this Agreement to be executed by their respective duly authorized representatives.

For APPLICANT:

Signature: \_\_\_\_\_

Printed Name: \_\_\_\_\_ Troy Snyder

Title (if any): \_\_\_\_\_

Date: \_\_\_\_\_

For PORTLAND GENERAL ELECTRIC COMPANY:

Signature: \_\_\_\_\_

Printed Name: \_\_\_\_\_ Richard Goddard \_\_\_\_\_

Title (*if any*): \_\_\_\_\_ T&D Interconnection Services \_\_\_\_\_  
Manager

Date: \_\_\_\_\_

**Attachment A**  
**Facilities Study Agreement**

**Data to be Provided by Applicant with the Facilities Study Agreement**

Provide location plan and simplified one-line diagram of the plant and station facilities. For staged projects, please indicate future generation, distribution circuits, etc.

Please provide a 7.5-minute quadrangle map of the site. Indicate the plant, station, distribution line, and property lines.

Estimated line length from interconnection station to the PGE's T&D System: \_feet.

On the one-line diagram, indicate the generation capacity attached at each utility metering location (maximum load on CT/PT).

One set of metering is required for each generation connection to the new ring bus or existing PGE station. Number of generation connections:

On the one-line diagram, indicate the location of any auxiliary power and minimum load on CT/PT (Amps).

Will an alternate source of auxiliary power be available during CT/PT maintenance?

Will a transfer bus on the generation side of the metering require that each meter set be designed for the total plant generation? (Please indicate on the one-line diagram.)

What type of control system or PLC will be located at the Generating Facility?

What protocol does the control system or PLC use?

**Attachment B**  
**Facilities Study Agreement**  
**PGE Provided Scope, Schedule, and Budget for Facilities Study**

As part of the Interconnection process, the following utility system upgrades have been determined to be necessary to facilitate a safe and reliable interconnection:

New primary service and metering package.  
Reconductor approximately 1.14 miles of mainline primary on Waconda Rd.  
Replace hydraulic recloser #8425 with an electronic recloser bank.  
Transfer trip via Mirror Bits by installing a fiber optic line approximately 1.3 miles.

The Facilities Study report will provide the estimated costs and design, procurement, and construction timelines for the above work.

Budget for the study is estimated at \$6,000.00.

PGE will deliver the study results within 60 business days from the time that PGE has received all of the following:

- Signed copy of the study agreement, and
- \$1000.00 deposit payment, and
- All necessary materials outlined in Attachment A of this Study Agreement.

If PGE determines during the Study process that supplemental or clarifying information is required, then PGE will request the information from the applicant. The time necessary to complete the evaluation of the application will be extended by the time required for the receipt of the additional information.

# EXHIBIT 7





**Portland General Electric**

121 SW Salmon Street • Portland, Ore. 97204  
PortlandGeneral.com

VIA CERTIFIED MAIL

February 9, 2021

Waconda Solar, LLC  
C/O TLS Capital, LLC  
7455 SW Bridgeport Rd STE 220  
Tigard, Oregon 97224

RE: Notice of Default and Potential Billing for Start-up Lost Energy Value

Dear Sir or Madam:

Waconda Solar, LLC ("Seller") and Portland General Electric Company ("PGE") are parties to a Power Purchase Agreement ("PPA") effective as of June 4, 2018. This PPA is for purchase of the Net Output from your generation facility. Under Section 2.2.2, the scheduled Commercial Operations Date ("COD") is February 1, 2020.

Seller has not achieved COD and is in default effective February 1, 2020. Due to this failure to achieve COD by the date Seller committed to in the PPA, PGE is providing this written notice of default. Under the PPA, Seller has one year to cure its default before PGE may exercise its right to terminate the PPA. In light of the unique and extraordinary circumstances related to the currently pending litigation before the Public Utility Commission of Oregon between Seller and PGE, PGE will not exercise its right to terminate the PPA sooner than one year from the date of this notice of default.

Until Seller achieves COD or the PPA is terminated, Seller shall be subject to Sections 1.35 and 9.2 of the PPA, which require under certain circumstances payment to PGE for any damages equal to the Start-up Lost Energy Value during the cure period calculated for each month and due by the later of the 30<sup>th</sup> day following the end of the Billing Period or 10 days following receipt of invoice.

**PGE QF Contract Administration**

Portland General Electric | 121 SW Salmon Street, 3WTC0306, Portland, Oregon 97204

☎: 503-464-7797 | ✉: [PGE.QFAdmin@pgn.com](mailto:PGE.QFAdmin@pgn.com)

Copy to: TLS Capital, Inc.  
3519 NE 15<sup>th</sup>, #325  
Portland, OR 97224

# EXHIBIT 8

**PGE - Independent System Impact Study Process  
under OAR 860-082-0060(7)(h)**

1. Applicability. The process established in this document will apply to any small generator interconnection application that is received by PGE or that is pending for approval by PGE on or after August 1, 2021.
2. OAR 860-082-0060(7)(h). Under Commission small generator interconnection rule OAR 860-082-0060(7)(h), an interconnection applicant (Applicant) may provide PGE with an Applicant-performed independent system impact study (independent SIS). Under OAR 860-082-0060(7)(h), if an Applicant provides PGE with an independent SIS, then PGE must evaluate the independent SIS and must address any alternative findings from the independent SIS.
3. Notice of intent to conduct an Applicant-performed independent SIS. In order to provide PGE with an independent SIS under OAR 860-082-0060(7)(h), an Applicant first must provide PGE with a timely written notice of intent to conduct an independent SIS (Notice of Intent).
  - A. Where to send the Notice of Intent. Notice of Intent must be provided by the Applicant to PGE either by email to Small.PowerProduction@pgn.com or by regular U.S. Mail to Portland General Electric Company, Attn: Interconnection Services, 121 SW Salmon Street, Portland, OR 97204. PGE may from time to time update these addresses by posting a modified version of this document on its website.
  - B. When to send the Notice of Intent. An Applicant must provide PGE with written Notice of Intent on or between: (i) the date PGE provides the Applicant with an executable system impact study agreement as required by OAR 860-082-0060(7); and (ii) the deadline for the Applicant to execute a facilities study agreement as established by OAR 860-082-0060(8)(c). Notice of Intent shall be effective when the email is received by PGE or when postmarked if Notice of Intent is sent by regular U.S. Mail. In the event PGE determines that a re-study of the primary SIS is required, Applicant shall have a new opportunity to provide Notice of Intent, and this Section shall be understood to refer to the new study agreements and not to the original study agreements.
  - C. Waiver of opportunity to conduct an Applicant-performed independent SIS. If an Applicant does not provide written Notice of Intent to PGE within the time period established by Section 3(B) above, then the Applicant will be deemed to have waived the opportunity to conduct an independent SIS of the type provided for in OAR 860-082-0060(7)(h). The only exception to such waiver is detailed in Section 4(H) below.
4. Independent SIS process and timelines. If an Applicant provides PGE with a timely, written Notice of Intent, the following process and timelines will apply:
  - A. Non-disclosure agreement. Within five business days of receipt of an Applicant's Notice of Intent, PGE will provide the Applicant with an executable non-disclosure agreement (NDA) addressing confidential treatment of system information to be provided to the Applicant by PGE to facilitate the Applicant-performed independent SIS. Within five business days of receipt of the NDA from PGE, the Applicant must execute the NDA and return it to PGE.
  - B. System Information. Within 10 business days of PGE receiving the executed NDA from the Applicant, PGE will: counter-sign the NDA, provide the Applicant with a copy of the fully executed NDA and provide the Applicant with the

system information detailed in Section 4(B)(i)-(v) (the Standard System Information).

Standard System Information is:

(i) The information PGE provides or would ordinarily be provided to PGE's own consultants to allow PGE's consultants to conduct PGE's primary system impact study (primary SIS).

(ii) CYME data files containing PGE's light and heavy loading distribution models for: the distribution feeder to which the Applicant proposes to interconnect; the substation serving that feeder; and any other distribution feeders directly interconnected to that substation. PGE uses CYME software to perform the power flow and fault studies required by the Commission's small generator interconnection rules. PGE will not provide the Applicant with a license to use the CYME software or with a copy of the CYME software. The Applicant or the Applicant's Consultants will need to secure a license for, and a copy of, the CYME software (or any other software) needed to use the CYME files provided by PGE.

(iii) A substation operating one-line diagram and the substation relay models.

(iv) If available, the information provided by PGE will be for the 12-month period immediately preceding the date on which PGE received the Notice of Intent from the Applicant. PGE reserves the right to provide system information for a longer period of time if PGE determines that the immediately preceding 12-month period is anomalous or unrepresentative of system conditions.

(v) PGE will not provide the Applicant with a license to use IEEE 1547, any other IEEE product, or any other copyrighted product or material. The Applicant or Applicant's Consultants will need to obtain their own license(s) to use IEEE 1547, any other IEEE product, or any other copyrighted product or material that Applicant intends to use as part of its Applicant-performed independent SIS.

C. Site Access. To facilitate the Applicant-prepared independent SIS, PGE will provide the Applicant and Applicant's Consultants (who are subject to confidentiality obligations) with limited access to PGE's facilities as reasonably necessary to perform the independent SIS. PGE notes that site access is frequently unnecessary to conduct a system impact study. If site access is reasonably necessary to perform an independent SIS, then the Applicant and any Applicant Consultant that will participate in the site visit must sign a PGE site visit release and agree to follow all PGE safety procedures before PGE will grant access to PGE facilities. PGE may require that any access to PGE facilities be conducted with a PGE escort. If site access is reasonably necessary, site access will be limited to a single visit unless additional visits are reasonable and necessary to conduct work or investigation that could not have been performed during the initial site visit.

D. Deadline to provide PGE with an Applicant-performed independent SIS. Applicant must provide PGE with a copy of the Applicant-performed independent SIS by the following deadline. If the Applicant fails to do so, the Applicant will be deemed to have waived its opportunity to conduct an Applicant-performed independent SIS. PGE and the Applicant may agree in writing to modify the deadline but neither PGE nor the Applicant is required to agree to a modified deadline.

(i) If the Applicant provided PGE with Notice of Intent before PGE has provided the Applicant with PGE's primary SIS, then the Applicant must

provide PGE with a copy of the Applicant-performed independent SIS by no later than 15 business days before the due date for PGE to provide the Applicant with PGE's primary SIS (the due date is established in the system impact study agreement between PGE and that Applicant). In the event PGE finds it cannot meet the due date, PGE shall provide Applicant notice and an estimated alternative deadline pursuant to OAR 860-082-0025(7)(g), and Applicant's deadline shall be extended accordingly. \

(ii) If the Applicant provided PGE with Notice of Intent after PGE provided the Applicant with PGE's primary SIS but before PGE has provided Applicant with PGE's facilities study results, then the Applicant must provide PGE with a copy of the Applicant-performed independent SIS by no later than 15 business days before the due date for PGE to provide the Applicant with a facilities study (the due date is established in the facilities study agreement between PGE and that Applicant). In the event PGE finds it cannot meet the due date, PGE shall provide Applicant notice and an estimated alternative deadline pursuant to OAR 860-082-0025(7)(g), and Applicant's deadline shall be extended accordingly.

E. Independent SIS before PGE's primary SIS. If the Applicant provides Notice of Intent before PGE issues its primary SIS, then PGE will continue forward with the primary SIS process and PGE will address the Applicant's independent SIS as part of PGE's primary SIS results. The Applicant must sign a system impact study agreement within the time prescribed by OAR 860-082-0060(7)(c). To the extent possible, the system impact study agreement will include a schedule that provides sufficient time for the Applicant to provide PGE with an independent SIS and provides sufficient time for PGE to evaluate and address any alternative finding from the independent SIS; however, the Applicant must provide the independent SIS results to PGE consistent with the deadline provided in Section 4(D)(i) above.

F. Independent SIS after PGE's primary SIS. If the Applicant provides Notice of Intent after PGE issues its primary SIS but before PGE issues its facilities study, then PGE will continue forward with the facilities study process and PGE will address the Applicant's independent SIS as part of PGE's facilities study results. The Applicant must sign a facilities study agreement within the time prescribed by OAR 860-082-0060(8)(c). To the extent possible, the facilities study agreement will include a schedule that provides sufficient time for the Applicant to provide PGE with an independent SIS and provides sufficient time for PGE to evaluate and address any alternative finding from the independent SIS; however, the Applicant must provide the independent SIS results to PGE consistent with the deadline provided in Section 4(D)(ii) above.

G. Delays. If PGE is delayed in providing system information or site access, then the deadline for the Applicant to provide PGE with the independent SIS results established by Section 4(E) above will be extended on a day-for-day basis to address any delay in PGE providing the required system information. If Applicant's deadline to provide PGE with the results of the Applicant-prepared independent SIS is extended pursuant to this Section 4(G), then PGE's due date to provide the Applicant with PGE's primary SIS or with PGE's facilities study results will also be extended by the same number of days.

H. Limited exception to waiver of independent SIS. An Applicant may request to perform an independent SIS outside of the approved Notice window in Section 3(B) above after PGE completes its facilities study in the following limited circumstances: if (1) PGE is conducting a facilities study on Applicant's interconnection request and a higher queued project (on the same feeder as the Applicant's project) withdraws from the queue, (2) the facilities study results vary substantially and materially

from the most recent system impact study provided to the Applicant. For purposes of this Section 4(H), a facilities study shall not be deemed to vary substantially or materially from the most recent system impact study provided to the Applicant merely because the cost estimates in the facilities study and the most recent system impact study differ. Under the limited circumstances described above, the Applicant may request to perform an independent SIS after the PGE facilities study is completed and PGE will evaluate and address the results of the independent SIS in a revised facilities study to be issued within 15 business days of PGE receiving the independent SIS *provided*: (i) the Applicant makes such request by written notice of intent to perform an independent SIS provided to PGE within 15 business days of the Applicant's receipt of the facilities study and (ii) the Applicant provides the independent SIS to PGE within 45 business days of its notice to intent to perform the independent SIS. This Section 4(H) establishes a limited exception to the waiver rule established by Section 3(C) above.

5. Content of Applicant-performed independent SIS. The Applicant-performed independent SIS must specifically and separately identify each alternative finding the Applicant has made (as compared to PGE's study results) so that it is clear what alternative findings PGE must evaluate and address pursuant to OAR 860-082-0060(7)(h).

6. Cost. The Applicant is responsible for its own cost to conduct an Applicant-performed independent SIS (including without limitation the cost of any third-party Applicant Consultants involved in the effort to produce an independent SIS). The Applicant is also responsible to reimburse PGE's reasonable cost to provide system information to facilitate an Applicant-performed independent SIS and PGE's reasonable cost to evaluate and address any alternative findings from the Applicant-performed independent SIS.