Dominion Energy South Carolina, Inc.

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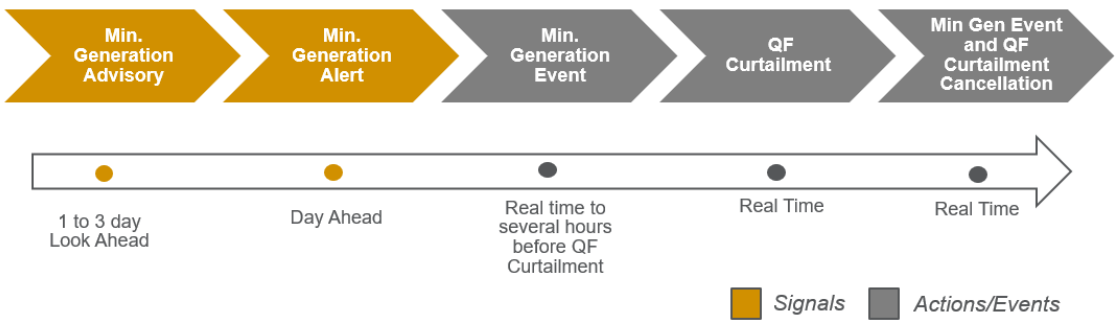
1.0 PURPOSE

Dominion Energy South Carolina (DESC) or its successor must control generation within its Balancing Authority (BA) in a manner that ensures system reliability and does not burden neighboring systems or the Bulk Electric System (BES) itself. Failure to provide adequate BA control can result in deviations to frequency, inadvertent power flow and other issues that impact grid stability. The changing resource mix of the supply portfolio can result in temporary periods of energy oversupply during which generators are providing more energy than system demand or customer usage. Energy balancing is an essential function of all BAs. During oversupply periods, it may become necessary for DESC to activate portions of this Procedure to meet its balancing commitment and maintain system reliability. This Procedure reduces first DESC owned and dispatched generating resources to their Lowest Reliable Operating Limit (LROL) followed by curtailment of Non-DESC Qualified Facility generation (QFs) as a last resort to maintain system reliability. QFs are not owned by DESC, and as such, are not dispatched in the same manner as DESC generating resources.

The DESC's Resource Commitment and Operations Planning groups are responsible for identifying oversupply conditions and projecting the extent to which special operating procedures may be required. DESC has established five levels in its Minimum Generation & Curtailment Procedure through which it will monitor and mitigate as necessary to maintain grid reliability from 3 days ahead when possible up to real time at the time of oversupply. Figure 1.0 below illustrates two notification levels, two action levels, and one cancellation level, all of which are intended for use during periods in which the DESC System Operator forecasts or experiences energy oversupply.

Figure 1.0



Each level in Figure 1.0 is associated with an approximate timeline of DESC operations beginning three days ahead and continuing into real time.

DESC continuously monitors its system and issues advisories, alerts, and mitigation measures that reflect the immediacy and severity of impacts on grid operations while providing as much advance information as possible to impacted DESC generating resources and QFs.

Standard communications between DESC and system QFs is via the Solar Operations Application (SOA). This tool was created by DESC and allows quick communications and responses between DESC System Control and QF operators. It is expected that all standard communications outlined in this procedure will take place over SOA, however DESC System Controllers and QF operators must use their best judgement and use other communication tools such as email or phone when situations dictate.

2.0 REFERENCES

N/A

3.0 APPLICABILITY, OWNERSHIP, AND REVIEW FREQUENCY

This Procedure applies to Dominion Energy South Carolina, Inc. (DESC). The currency of this document is the joint responsibility of the Manager of Operations Planning and Manager of System Control. This document shall be reviewed and revised as necessary. An update and approval of this document shall take place within 90 days of any changes to any part of this document.

4.0 PROCEDURE

4.1 Procedure Specific Definitions

Lowest Reliable Operating Limit (LROL) – Is the aggregate minimum of base-load and must-run DESC generation units that represent the foundational resources necessary to serve BA and load requirements, provide system reliability, and meet mandatory NERC Reliability Standards. The aggregate operationally constrained minimum reliable output of these generators represents the LROL

of the BA's security constrained unit commitment. These essential generating resources cannot be de-committed in real time nor on an intra-day basis, because they must run within specified engineering levels and time frames and must provide essential frequency and regulation support to the BA. These units are needed to meet upcoming peak demands, such as the evening peak demands and next day peak demands. The LROL is needed to ensure current and future Regulating Reserves, Contingency Reserves, and Operating Reserves and to avoid risks created from intra-day cycling of CCs or steam boilers.

4.2 Conditions Applicable for Minimum Generation Event

DESC must maintain adequate regulating capability to avoid significant over or undersupply of energy and potentially incurring non-compliance violations with NERC Reliability Standards. The system conditions under which a Minimum Generation Event can occur include but are not limited to the following:

a.) Operational challenges such as solar forecast deviation due to weather causing excess supply on the DESC system that cannot be reduced under normal operations.

b.) Operational problems that may cause the DESC system to suffer a significant loss of load that cannot be mitigated by supply reductions or load increases.

c.) The expected load is less than the LROL of the DESC generating resources and the excess supply cannot be reduced due to operating capability limits of online generation.

d.) The availability of pumped storage reservoir is restricted due to operational, capacity, or environmental limits.

4.3 Minimum Generation Advisory (1 to 3 Day Look Ahead)

The purpose of the Minimum Generation Advisory is to provide early indication that system conditions may require DESC to declare a Minimum Generation Event and curtail solar generation to address one or more of the conditions defined above. A Minimum Generation Advisory is issued when DESC determines curtailment conditions exist in advance of the expected Minimum Generation Event. During this level, system load is monitored, and activities described below are initiated. Additionally, a

Minimum Generation Advisory is issued to DESC Generating Resources and Utility Scale QFs to raise awareness prior to issuing a Minimum Generation Alert.

a.) Daily DESC System Operator activities

1.) Evaluate system load forecast, PV solar generation forecast and operating reserve requirements.

2.) Perform N-1 contingency analysis.

3.) Review resource availability and operating capabilities, including ramp rates and start-up times, of DESC generators.

4.) Adjust / modify natural gas nominations and emergency maintenance scheduling when possible.

5.) Monitor Available Transfer Capability (ATC).

b.) DESC System Operator Actions during a Minimum Generation Advisory

1.) Confirm that messages and contact information in the Solar Operations Application (SOA) are up-to-date.

2.) Formulate a scheduling plan for the light load period.

3.) Review hydro plant schedules to ensure pumped storage is optimized and generation at run-of-river plants is minimized during the light load period(s).

4.) Issue a Minimum Generation Advisory to DESC generating resources and QFs.

5.) Cancel the Minimum Generation Advisory as appropriate.

c.) DESC Generating Resource Actions during a Minimum Generation Advisory

1.) Begin preparations for possible action to operate at LROL as directed by the DESC System Operator.

2.) Identify opportunities to schedule additional unit maintenance for the expected light load periods and inform DESC operations regarding any opportunities for scheduled maintenance through the period.

d.) QF Actions during a Minimum Generation Advisory

1.) Acknowledge receipt of the Minimum Generation Advisory notice.

2.) Verify the QF generation forecast and inform DESC of anticipated levels of operation during the identified period.

3.) Identify opportunities to schedule additional unit maintenance for the expected light load periods and inform DESC operations through the period.

4.) QF operators should prepare for possible action.

4.4 Minimum Generation Alert (Day Ahead)

A Minimum Generation Alert is initiated when DESC determines that one or more of the conditions identified above exist and may necessitate declaration of a Minimum Generation Event within one day. The following activities will be evaluated and initiated by DESC based on information from generating resources to assess the opportunity to reduce energy output to maintain system reliability.

a.) Daily DESC System Operator activities

1.) Update system load forecast, PV solar generation forecast and operating reserve requirements.

2.) Assess impact of any generation unit forced outages or de-rates.

3.) Perform N-1 contingency analysis.

4.) Consider avoided cost and reliability system purchases or sales.

5.) Economic Resource Commitment to adjust next day and intraday natural gas nominations.

6.) Monitor ATC.

b.) DESC System Operator Actions during a Minimum Generation Alert

1.) Reviews the load forecast, the resource data, fuel adjustments, and sale and purchases for the identified minimum generation hours.

2.) Issues a Minimum Generation Alert to DESC generating resources and QFs if the expected load is close to DESC generating resources' LROL.

3.) Cancel the Minimum Generation Alert as appropriate.

c.) DESC Generating Resource Actions during a Minimum Generation Alert

1.) Plan to dispatch to operationally constrained minimum reliable output as directed by DESC System Operators to ensure resources continue to support reliable operation of the system.

2.) Review and update operating parameters, including unit normal maximum and minimum generating limits.

3.) As necessary, update unit specific operational information and report to DESC System Operators the total minimum generation available if a Minimum Generation Event is declared.

d.) QF Actions during a Minimum Generation Alert

1.) Acknowledge receipt of the Minimum Generation Alert.

2.) Update minimum MW information and report to DESC System Operator the total minimum generation available if a QF curtailment is necessary.

3.) Based on the resource availability, update DESC System Operators with attention given to energy limits (normal maximum, normal minimum, and emergency minimum).

4.5 Minimum Generation Event (Real Time to Several Hours)

In a Minimum Generation Event, DESC System Operators direct DESC generating resources to take actions to mitigate an actual or forecasted oversupply of energy.

a.) Normal DESC System Operator activities during a Minimum Generation Event

1.) Evaluate system conditions.

2.) Evaluate storage / hydro management.

3.) Evaluate required reserves and ancillary services.

4.) Adjust DESC generating resource dispatch.

5.) Adjust system purchases and sales.

b.) DESC System Operator Actions during a Minimum Generation Event

1.) Take quick start units offline.

2.) Direct DESC generating resources to go to their operationally constrained minimum reliable output and adjust units assigned to regulate.

3.) Manage purchases and sales as necessary to reduce the impact of the Minimum Generation Event.

4.) Maximize use of pumped storage reservoir as available.

5.) Notify QFs that DESC is in a Minimum Generation Event and additional relief may be necessary.

6.) Cancel the Minimum Generation Event as appropriate.

c.) DESC Resource Actions during a Minimum Generation Event

1.) Verify preparedness to operate at minimum generating levels.

2.) Follow the DESC System Operator instructions to move generation to operationally constrained minimum reliable output.

3.) Notify DESC System Operators of any conditions or changes that would prevent units from performing as expected.

d.) QF Actions during a Minimum Generation Event

1.) Acknowledge receipt of the Minimum Generation Event notification.

2.) Verify preparedness to operate at minimum levels.

4.6 QF Curtailment (Real Time)

QF Curtailment is implemented when DESC has taken all actions possible to reduce DESC generating resources and reached its LROL but continues to be oversupplied to the extent that normal QF output levels cannot be maintained. To preserve the reliable operations of the DESC system, all QFs are expected to follow DESC System Operator instructions and reduce output as directed. The QF Curtailment Process and Order are described in Attachment 2 and Attachment 3 respectively.

a.) Normal DESC System Operator activities during QF Curtailment

1.) Evaluate system conditions.

2.) Evaluate storage / hydro management.

3.) Evaluate required reserves and ancillary services.

4.) Adjust DESC Generating Resource dispatch.

5.) Adjust system purchases and sales.

6.) Monitor actual load and forecast.

7.) Monitor solar output and forecast.

b.) DESC System Operator actions during QF Curtailment

1.) All purchases curtailed as allowable.

2.) DESC System Operators direct QFs to reduce generation.

3.) DESC System Operator advises return times for QFs and continues to maintain reliability and power balance.

4.) DESC System Operators cancel the QF Curtailment when appropriate.

c.) DESC Generating Resource actions during QF Curtailment

1.) Continue to follow DESC System Operator instructions to maintain system reliability throughout the Minimum Generation Event and QF Curtailment.

d.) QF Actions during QF Curtailment

1.) Acknowledge receipt of QF Curtailment notice

2.) Follow the DESC instructions, including reducing generation to net zero at the point of common coupling, if directed.

3.) Follow DESC System Operator instructions as conditions change

4.) Achieve output level within a timeframe that the unit is capable of meeting. Notify DESC if achieving reduction target is expected to exceed 15 minutes.

Once a curtailment notification has been sent, System Control will allow 15 minutes for the notified QF to curtail output to either zero or as otherwise directed. Failure by a QF to comply with the curtailment notification will result in DESC System Control remotely separating the QF from the DESC System.

4.7 Minimum Generation Event and QF Curtailment Cancellation (Real Time)

Cancellation occurs when DESC load begins to exceed generation and when QF Curtailment actions are no longer deemed necessary.

a.) DESC System Operator Actions during Minimum Generation Event and QF Curtailment Cancellation

1.) Notify DESC generating resources and QFs of cancellation.

2.) Coordinate with QFs to return all to units to unrestricted output levels.

3.) Coordinate with DESC generating resources to return all to units to normal operating range.

4.) Commit additional resources as needed.

5.) Resume purchases and reinstate schedules as appropriate.

b.) DESC Generator Actions Minimum Generation Event and QF Curtailment Cancellation

1.) Follow DESC System Operator instructions to return to unrestricted output levels.

c.) QF Actions Minimum Generation Event and QF Curtailment Cancellation

1.) Follow DESC System Operator instructions to return to normal operating ranges.

5.0 DISTRIBUTION

5.1 Internal

a.) Electric Transmission Managers

b.) Fossil Hydro Directors and Manager

c.) Others as requested

5.2 External

a.) Posted on OASIS

b.) Posted on DESC webpage for PURPA Qualifying Facilities

6.0 REVISION HISTORY

Rev	Date	Revised By	Comments
1	April 2019	James Starling	Original

ATTACHMENT 1 - Acronyms

ATC	Available Transfer Capability
BA	Balancing Authority
BES	Bulk Electric System
CC	Combined Cycle
DESC	Dominion Energy South Carolina Inc.
LROL	Lowest Reliable Operating Limit
MW	Megawatt
OASIS	Open Access Same-time Information System
PV	Photovoltaic
QF, QFs	Qualifying Facility or Facilities
SOA	Solar Operation Application

ATTACHMENT 2 – QF Curtailment Process

This Attachment describes the QF curtailment process used by Dominion Energy South Carolina (DESC) after all DESC generating resources have been reduced to their Lowest Reliable Operating Limit (LROL) and aggregate output from system Qualifying Facilities (QFs) is oversupplying the DESC system. Power flow issues attributable to specific DESC generating resources or QFs either individually or collectively will be resolved through targeted curtailment of contributing units.

QF Curtailment Process

Over the course of 2019, DESC held three stakeholder meetings to gather input from the industry on a curtailment process and order. Stakeholders were the Solar Business Alliance and all interconnection customers with an active project on the DESC system or in the DESC queue. The stakeholders recommended a Last In/First Off (LIFO) curtailment order. The stakeholders also recommended that, under the LIFO process, the last QF to sign an Interconnection Agreement (IA) with DESC will be the first unit curtailed after all reliability constrained needs have been met. For projects with the same IA execution date, the curtailment order shall be established by submission date and time of the interconnection request, with the latest submission being curtailed before an earlier submission. DESC adopted both stakeholder recommendations.

DESC System Control will use a reliability constrained LIFO selection process when initiating QF curtailment for oversupply. DESC will initiate this process after first curtailing its own generating resources to their LROL as necessary to maintain reliability of the DESC System and Bulk Power System. Attachment 3 shows the order in which QF curtailments will take place. DESC System Control will continue the process with the next QF in the curtailment order until the oversupply has been resolved and the DESC system is reliably balanced.

DESC will use its models and evaluation tools to assess the grid benefits provided by the next QF in the curtailment order and determine whether keeping that specific QF online is necessary for grid reliability. Additionally, DESC may choose to keep the next QF in the curtailment order online to prevent a reliability concern from occurring. In these cases, DESC will go to the following QF in the curtailment order and continue to repeat the evaluation process until a QF that can be curtailed without reliability constraints is identified.

Restoration of curtailed QFs will follow any order including reversal of the curtailment order, all simultaneously, or reliably constrained as determined best by DESC System Control.

Dominion Energy South Carolina
Solar Curtailment Order
4/28/2023

Queue Number	IA Execution Date	Capacity (MW)	In-Service?	Planned In-Service	Capacity Summation
331	11/24/2021	60.000	N	2026	60.00
332	9/14/2021	60.000	N	2024	120.00
353	4/6/2021	74.906	N	2025	194.91
349	3/9/2021	74.970	N	2025	269.88
344	3/4/2020	62.000	N	2026	331.88
334	3/27/2019	66.000	N	2024	397.88
330	11/13/2019	73.600	Y		471.48
320	9/24/2018	74.976	Y		546.45
280	3/1/2018	74.970	Y		621.42
301	2/7/2018	72.100	Y		693.52
300	1/25/2018	75.000	Y		768.52
210	12/8/2017	72.500	Y		841.02
256	10/23/2017	7.200	Y		848.22
255	10/23/2017	10.000	Y		858.22
254	10/23/2017	12.000	Y		870.22
253	10/23/2017	6.000	Y		876.22
257	9/20/2017	74.970	Y		951.19
316	7/26/2017	1.620	Y		952.81
225	6/27/2017	3.600	Y		956.41
218	6/6/2017	7.480	Y		963.89
266	5/17/2017	2.000	Y		965.89
60	3/28/2017	70.014	Y		1035.91
171	12/14/2016	75.600	Y		1111.51
84	10/26/2016	39.000	Y		1150.51
151	9/22/2016	8.160	Y		1158.67
152	8/26/2016	4.760	Y		1163.43
122	6/15/2016	8.160	Y		1171.59
77	4/25/2016	20.000	Y		1191.59
166	3/8/2016	10.880	Y		1202.47
165	3/8/2016	10.880	Y		1213.35
101	3/8/2016	8.160	Y		1221.51
97	3/4/2016	8.160	Y		1229.67
98	3/3/2016	3.400	Y		1233.07
85	2/1/2016	10.000	Y		1243.07
83	1/23/2016	4.080	Y		1247.15
86	1/21/2016	5.440	Y		1252.59
73	1/8/2016	6.120	Y		1258.71
72	1/7/2016	6.800	Y		1265.51
64	1/5/2016	71.400	Y		1336.91
65	12/10/2015	20.000	Y		1356.91
104	10/5/2015	0.504	Y		1357.41
67	9/24/2015	10.200	Y		1367.61
54	9/24/2015	10.200	Y		1377.81
61	7/27/2015	6.800	Y		1384.61
51	7/22/2015	10.200	Y		1394.81
62	7/10/2015	20.000	Y		1414.81
50	7/10/2015	20.400	Y		1435.21
45	6/19/2015	10.200	Y		1445.41