



SPP CIP-002-5.1 Planning Coordinator Methodology

Process Owner: Steady State Planning
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Contents

| | |
|---------------------|---|
| Introduction | 3 |
| Criterion 2.3 | 3 |
| Criterion 2.6 | 5 |

Introduction

Pursuant to SPP's function as Planning Coordinator, SPP has developed this methodology to meet the applicable requirements set forth in criteria 2.3 and 2.6 of Attachment 1 in the NERC CIP-002-5.1 standard. A 2nd year planning horizon model will be used to capture a more accurate system topology while providing the Reliability Coordinator with insight to Facilities which should be considered in the Reliability Coordinator's analysis in the subsequent year.

Criterion 2.3

"Each generation Facility that its Planning Coordinator or Transmission Planner designates, and informs the Generator Owner or Generator Operator, as necessary to avoid an Adverse Reliability Impact in the planning horizon of more than one year."

The NERC definition of an Adverse Reliability Impact is an event that results in Bulk Electric System instability or Cascading.

Criterion 2.3 analysis will incorporate a 2 year out¹ planning horizon model based upon the year when the study will be completed and also identify generators that are designated as must run for reliability purposes beyond the local area.² Trial simulations were run to identify a feasible number of BES buses greater than 100 kV that could be used as a threshold to classify generators that are not considered necessary for local voltage support, but as generation Facilities required to avoid an Adverse Reliability Impact. An under-voltage condition of twenty or more BES buses greater than 100 kV was chosen to properly identify generation Facilities beyond the local area that might lead to an Adverse Reliability Impact. This list of must run units is also referred to as the generation Facilities required to avoid an Adverse Reliability Impact.

¹ For example, if the study is performed in 2014 then the model would be a 2016 summer peak MDWG model

² In specifying a planning horizon of one year or more, the intent is to ensure that those are units that are identified as a result of a "long term" reliability planning, i.e. that the plans are spanning an operating period of at least 12 months: it does not mean that the operating day for the unit is necessarily beyond one year, but that the period that is being planned for is more than 1 year: it is specifically intended to avoid designating generation that is required to be run to remediate short term emergency reliability issues. These Facilities may be designated as "Reliability Must Run," and this designation is distinct from those generation Facilities designated as "must run" for market stabilization purposes. Because the use of the term "must run" creates some confusion in many areas, the drafting team chose to avoid using this term and instead drafted the requirement in more generic reliability language. In particular, the focus on preventing an Adverse Reliability Impact dictates that these units are designated as must run for reliability purposes beyond the local area. Those units designated as must run for voltage support in the local area would not generally be given this designation. In cases where there is no designated Planning Coordinator, the Transmission Planner is included as the Registered Entity that performs this designation. If it is determined through System studies that a unit must run in order to preserve the reliability of the BES, such as due to a Category C3 contingency as defined in TPL-003, then BES Cyber Systems for that unit are categorized as medium impact. Please see page 25 of [CIP-002-5.1.pdf](#) dated 11/22/13 on nerc.com.

An annual planning horizon engineering study will be performed to determine a list of Facilities identified by the CIP-002-5.1 Criterion 2.3 designation in the SPP Planning Coordinator footprint. As part of the annual study, a preliminary (N-1) analysis of the study model will be performed to identify contingent BES Facilities that meet the criteria below. A secondary (G-1, N-1) analysis of the study model will be performed to identify generation Facilities required to avoid an Adverse Reliability Impact. If a generator Facility is identified in the secondary (G-1, N-1) analysis, but in the preliminary (N-1) analysis the associated contingent BES Facilities caused the under-voltage condition, the correlating generator will be excluded from the list. Generation Facilities required to avoid an Adverse Reliability Impact beyond the local area will be identified based upon the following criterion:

1. When a contingency analysis (G-1, N-1) identifies an under-voltage condition characterized by bus voltages of less than 90% across 20 or more BES buses greater than 100 kV.

The list for generation Facilities designated by the Planning Coordinator and Reliability Coordinator will be combined in a single document for each Generator Owner or Generator Operator that has been identified as having generation Facilities required to avoid an Adverse Reliability Impact. The planning horizon list for generation Facilities required to avoid an Adverse Reliability Impact will be generated with the finalization of the CIP-002-5.1 study results. The list of generation Facilities identified by the SPP Planning Coordinator may also be identified by another Planning Coordinator. If SPP is the Planning Coordinator for the generation Facility on the list then the SPP CIP-002-5.1 Planning Coordinator Methodology is applicable. The list of generation Facilities will be made accessible from a secure website. SPP Planning Coordinator will notify the applicable Generator Owners or Generator Operators after establishment of the list and will allow a period of review and comments before finalization. SPP Planning Coordinator will provide notification of list updates during the next CIP-002-5.1 assessment cycle.

The identified list of generation Facilities required to avoid an Adverse Reliability Impact will be reviewed and updated annually not to exceed 15 months.

Criterion 2.6

“Generation at a single plant location or Transmission Facilities at a single station or substation location that are identified by its Reliability Coordinator, Planning Coordinator, or Transmission Planner as critical to the derivation of Interconnection Reliability Operating Limits (IROLs) and their associated contingencies.”

The NERC definition of an IROL is a System Operating Limit that, if violated, could lead to instability, uncontrolled separation, or Cascading outages that adversely impact the reliability of the Bulk Electric System.

IROLs that are violated can impact the reliability of the Bulk Electric System and therefore are designated as necessary to avoid Adverse Reliability Impacts.

Criterion 2.6 analysis will incorporate a 2 year out³ planning horizon model based upon the year when the study will be completed and also identify generation or Transmission Facilities that are designated as confirmed IROLs.

An annual planning horizon engineering study will be performed to determine a list of generation or Transmission Facilities related to CIP-002-5.1 Criterion 2.6 designation in the SPP Planning Coordinator footprint. Existing SPP Planning Horizon IROL identification processes allow for system adjustments to be made under single and multiple contingency conditions based upon the language from SPP Criteria 12.3.2⁴.

Generation or Transmission Facilities designated as IROLs will be identified based upon the following SPP criteria unless system adjustments mitigate the post-contingency violation(s):

1. Potential IROLs will be investigated when a contingency analysis highlights a thermal overload in excess of 120% of the SOL of the monitored facility.
2. Potential IROLs will also be investigated when a contingency analysis highlights an under-voltage condition characterized by bus voltages of less than 90% across three or more BES facilities.

³ For example, if the study is performed in 2014 then the model would be a 2016 summer peak MDWG model

⁴ *“To prepare for the next Contingency, system adjustments may be made, including changes to generation, uses of the transmission system, and the transmission system topology.”*

“In determining the system’s response to a single Contingency starting with all facilities operated in their normal operating condition, the following shall be acceptable:

- a. *Planned or controlled interruption of electric supply to radial customers or some local network customers connected to or supplied by the Faulted Facility or by the affected area. System reconfiguration should be implemented to minimize the interruption of electric supply to the extent possible.*
- b. *System reconfiguration through manual or automatic control or protection actions.”*

“In determining the system’s response to any of the multiple contingencies identified in Reliability standard TPL-003, in addition to the actions identified in (a) and (b) above, the following shall be acceptable:

- a. *Planned or controlled interruption of electric supply to customers (load shedding) the planned removal from service of certain generators, and/or curtailment of contracted firm electric power transfers. System reconfiguration should be implemented to minimize the interruption of electric supply to the extent possible.”*

The potential IROL condition will be reviewed further by evaluating the system response to the loss of the SOL violated facility. The original potential IROL contingency will be assumed to be a confirmed IROL condition if the evaluation reveals that the ensuing SOL violated facility contingency results in another BES facility being overloaded to greater than 120% of its SOL or three or more additional BES facilities with bus voltages in the area experiencing projected post contingency voltages less than 90%, unless there are studies or system knowledge that the SOL is not an IROL.

The planning horizon list of generation or Transmission Facilities will be generated with the finalization of the CIP-002-5.1 study results. The list of generation or Transmission Facilities designated by the Planning Coordinator and Reliability Coordinator will be combined in a single document for each Generator Owner, Generator Operator, Transmission Owner, or Transmission Operator that has been identified as having a generation or transmission Facility which meets the 2.6 criteria above. The list of generation or Transmission Facilities will be made accessible from a secure website. SPP Planning Coordinator will notify the applicable Generator Owners, Generator Operators, Transmission Owners, or Transmission Operators after establishment of the list of generation or Transmission Facilities, and will allow a period of review and comments before finalization. For entities that have no identified generation or Transmission Facilities that meet SPP CIP-002-5.1 Planning Coordinator or Reliability Coordinator methodology criteria, an email notification will be sent stating the results of the CIP-002-5.1 study. SPP Planning Coordinator will provide notification of list updates during the next CIP-002-5.1 assessment cycle.

The identified list of generation or Transmission Facilities will be reviewed and updated annually not to exceed 15 months.