

FAQ Document

Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination

Summary

The Standard Drafting Team (SDT) has performed various outreach efforts during June 2023 and has received feedback on the proposed EOP-012-2. The SDT revised the proposed EOP-012-2 standard based on industry comment, the final FERC, NERC, Regional Entity Staff Report (“Joint Report”), and the FERC order issued on February 16, 2023. This document will provide additional clarity around the SDT’s intent on various requirements contained within the standard based on themes identified in outreach efforts.

Definitions

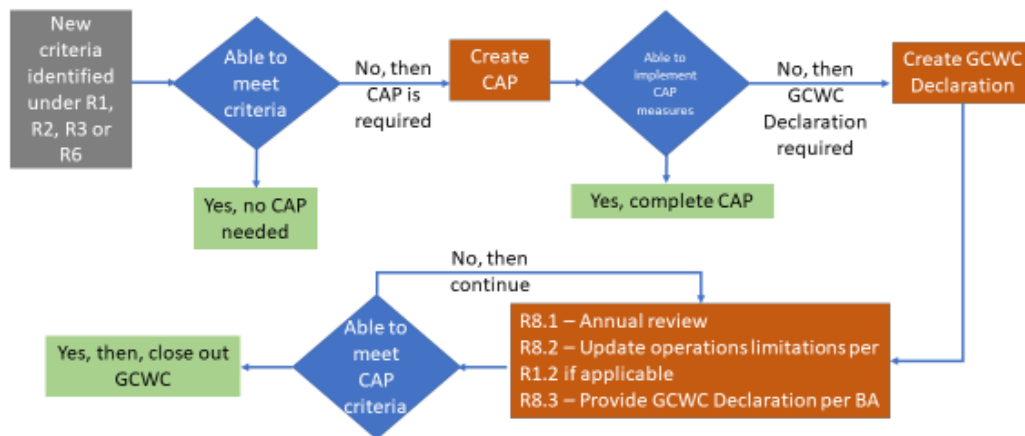
Generator Cold Weather Constraints

Overall concern whether each Generator Cold Weather Constraint should be its own declaration or whether Generator Owner’s (GOs) should include an overall declaration with all of the constraints for a unit.

SDT Response

Each Generator Cold Weather Constraint declaration shall be independent of other declarations for the same unit or type of unit. This means that each freeze protection measure that is not deployed for a unit will have its own unique declaration. This allows for the GO to perform an annual review on each constraint and remove that individual constraint when warranted. The intent of the drafting team is to not require a unique new declaration during the annual review process.

Generator Cold Weather Constraint (GCWC) - Declaration Process (EOP-012-2)



Technical Constraint Concerns

Multiple comments stating that while the revised language provides more clarity, it is still not clear enough. Proposal to only require technical enhancements that are provided by the original equipment Manufacturer (OEM) of the equipment. Also, concerns expressed that allowing technical constraints for new technologies that have not demonstrated successful operation for a period may disincentivize implementation of new technologies. In addition, there were concerns that potential replacement of existing equipment should not be a limiting factor with regards to technical constraints. Additional questions regarding cold weather negative impacts on generating unit equipment and whether this could be considered a technical constraint. Furthermore, there were comments about the design requirements of the core unit (i.e. combustion turbine itself) not meeting the Extreme Cold Weather Temperature (ECWT) and whether the new standard would require the retirement or replacement of the generating unit as a whole.

SDT Response

As shown in the comments above, to the extent that the SDT provides additional clarity on the technical constraints, this clarifying language can lead to additional questions as well. Therefore, the SDT has to weigh the benefits of applying further clarity in the standard with the risks of being overly prescriptive. The intent of the SDT is for GO's to implement proven freeze protection technologies to new and existing units that are reliable and do not negatively impact the generating unit reliability as a whole. This includes ensuring that the freeze protection technologies deployed do not have the potential to damage the generating unit equipment that is in service. To the extent that operating at extreme cold temperatures results in risks to the generating unit itself that can't be mitigated, this in and of itself could be considered a technical constraint. The SDT does not believe that mandatory NERC Reliability Standards are the proper tool to incent adoption of technological breakthroughs for the industry. This technical innovation should be incentivized by other mechanisms and upon achieving successful and repeatable results over time, these technologies should become mainstream in the Bulk Electric System (BES) and at that time, the current standard as written would require their implementation in the BES. The SDT does believe that NERC Reliability Standards are the correct place to ensure that proven industry best practices around freeze protection are employed across the BES.

Commercial Constraint Concerns

The SDT has received multiple comments that the current language in Commercial constraint *'implementation of selected freeze protection measure(s) are uneconomical to the extent that they would result in the generating unit not operating or being put into service at the time of the evaluation'* may represent too high of a bar for declaring a commercial constraint. Industry has proposed that a cost benefit analysis be performed on each selected freeze protection measure and only those that are cost justified would need to be applied.

SDT Response

The SDT has developed the proposed standard to ensure the reliability of the BES as a whole during extreme cold weather events. In doing so, it intentionally set a high bar for what would constitute a commercial exception to ensure that the predisposition of GO's would be to properly install proven freeze protection measures to ensure that their units can reliably operate at their ECWT. In doing this, there is a

full understanding that this will result in some level of investment in additional freeze protection measures. This is not different than what has occurred with previous NERC reliability standards, but the SDT does understand that this particular standard may require investment beyond other standards. Even so, the SDT does not believe a full cost benefit analysis is warranted for each individual freeze protection measure. The concept of the commercial exception is that there will be certain freeze protection measures that are so egregiously expensive (i.e. replacing the combustion turbine itself) that it would not serve the overall reliability of the grid as it would take inordinate amounts of capital that may be better spent expanding the overall quantity of dispatchable generation for instance. Another instance where an exception would be warranted is if the generating unit is slated for retirement in the near future and the additional freeze protection measures would only be in service for a very short time period. This capital may be better served to be spent on units that will be relied upon over many winter periods for extreme cold weather operation. The 48-month timeframe on the corrective action plans for new freeze protection measures may help in these situations as any units slotted for retirement within that 48-month timeframe would not require additional freeze protection installations.

Operational Constraint Concerns

The SDT has received multiple questions regarding the language to *'protect'... 'the surrounding environment, or personnel'* and what was the intent of this language.

SDT Response

The intent of the language with regards to protecting the environment and personnel was to ensure that utilities were not required to install freeze protection measures that may result in additional emissions above and beyond their regulated limits or to require the installation of freeze protection measures that may impair the safety of their personnel. In both of these instances, declarations of operational constraints would be warranted.

Effects of Wind and Precipitation

Question 1

What does the standard mean by the term freezing? It appears that the SDT means to include three separate issues within the undefined term "freezing" including actual freezing (water turning to ice), malfunctions caused by fluids becoming too viscous (technically this is congealing, not freezing, but it's functionally equivalent) and accretion/accumulation of moisture (such as blade icing on a wind turbine, snow accumulation on solar panels or ice accumulating on the air inlets of a gas turbine), which is not a form of freezing. Please clarify.

SDT Response

The SDT intent with the requirement is that freezing includes both freezing water to ice and the other forms mentioned above. The SDT will make clarifying changes to address this issue that will not be a substantive change to the standard based on feedback from the comment and ballot period.

Question 2

There were multiple comments that highlight the extreme variability around each extreme cold weather event and how the conditions at the generating unit sites will not generally match the data provided to

the Balancing Authority around the generating unit(s) minimum temperature contained in Requirement 1.2.2.

SDT Response

The SDT agrees with the concerns expressed that each extreme cold weather event experienced by the generating unit is unique and as such, the expected performance of the generating unit can only be partially informed by the unit's performance during previous extreme cold weather events. To address this concern, the SDT is proposing modifications in TOP-002 to address this uncertainty at the Balancing Authority Area level with the intent to provide improved reliability.

Question 3

Requirement R4, Part 4.4 should be revised to make the implementation of measures to address the effects of precipitation and the cooling effect of the wind mandatory if the data is available, rather than permissive. Additionally, Part 4.4 should be expanded to cover the effects of all precipitation, rather than just freezing precipitation.

SDT Response

The SDT included language in Part 4.4 that GOs should be considering wind and precipitation when implementing freeze protection measures. The SDT does not agree that the standards should be expanded to cover all effects of precipitation as this team is focused on extreme cold weather and cannot address weather events outside of that per the SAR.

Corrective Action Plan Timeline

Question 1

Since the Corrective Action Plan (CAP) may have to address anywhere from 1 to 1000 wind turbines, solar panels, or a large number of individual thermal units, it is impossible to say how long it will take to fund modifications, find resources to perform the work, and schedule outages with the Balancing Authorities (BA) to allow work to be completed, all while attempting to complete ongoing maintenance to allow generators to run. While these time limits have been used by NERC in standards, specifically TPL-007, we note that TPL-007 requires a CAP only for a single unit, not a fleet of units in addition to being very limited in the scope of the issue to be covered rather than open to any possible cause of a trip, derate or failure to start. Therefore, the scope of a CAP under TPL-007 is very limited while the scope of the CAPs envisioned under EOP-012 will vary greatly as the CAP is not limited to a single unit or even a single plant. Due to this significant difference, why is a limited time frame being proposed? Either the scope of the CAP must be limited to a single unit, or at most a single plant, or the time period to complete the CAP needs to be modified to allow an amount of time per unit identified, instead of a time limit for the entire CAP.

SDT Response

SDT believes in the vast majority of circumstances the 2 and 4-year time frames are sufficient timeframes to implement freeze protection measures required by the standards. However there may be circumstances when 2 or 4 years may not be enough time and the current standard has provided the entity with the ability to provide a declaration in those circumstances. The team believes the ability to

provide this declaration gives an appropriate opportunity for entities that cannot complete these actions to provide a declaration to their regional entity to propose alternatives to the stated timeframes.

Question 2

Why is a full year needed to develop a CAP and update the cold weather preparedness plan under R3, especially given that R1.1.1 only allows 6 months for CAP creation or revision if needed due to a drop in the ECWT and given that R6 only allows 150 days or by July 1, whichever is earlier, to develop a CAP after a Generator Cold Weather Reliability Event?

SDT Response

The SDT believes a full year under R3 is appropriate because an entity should be addressing a generating fleet as a whole and not just individual generating units.