

Individual or group. (30 Responses)
Name (18 Responses)
Organization (18 Responses)
Group Name (12 Responses)
Lead Contact (12 Responses)
Question 1 (30 Responses)
Question 1 Comments (30 Responses)

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| Individual |
| Kasia Mihalchuk |
| Manitoba Hydro |
| Yes |
| Individual |
| Alan Rivaldo |
| Public Utility Commission of Texas |
| No |
| I essentially agree with the interpretation but checked "No" because I think the last sentence needs more clarity. The last part of the last sentence reads "...so long as the AMI is not designed to or cannot, without human operator intervention, shed a load of 300MW or more." I propose that the sentence in the interpretation be reworded to read: "as long as the AMI is not designed to shed a load of 300MW or more, or at least cannot do so without human operator intervention." |
| Individual |
| Chris Mattson |
| Tacoma Power |
| Yes |
| Group |
| Northeast Power Coordinating Council |
| Guy Zito |
| Yes |
| Individual |
| Jay Campbell |
| NV Energy |
| Yes |
| Group |
| Western Small Entity Comment Group |
| Steve Alexanderson P.E. |
| No |
| The AMI remote connect/disconnect feature described by OGE works at the service voltage level. The meters in question are manufactured with relays inside, so that direct metered services may individually be remotely connected or disconnected. The voltages involved are typically 120V to 480V. While it is true that such a system could be configured to disconnect enough services simultaneously to reach an aggregate exceeding 300MW, the limitations of section 215 of the FPA preclude any consideration of these systems for the purposes of mandatory standards. While there may be some confusion regarding where the line between the Bulk Power System and local distribution lies exactly, the comment group believes these service voltage facilities are unquestionably on the local distribution side and cannot be subject to standards regardless of how they are configured. There can be no requirement to annually reconsider these systems as Critical Assets under the limitations |

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| provided by Congress. |
| Group |
| PacifiCorp |
| Sandra Shaffer |
| Yes |
| Individual |
| Oliver Burke |
| Entergy Services, Inc. |
| Yes |
| Individual |
| Thad Ness |
| American Electric Power |
| Yes |
| Individual |
| David Thorne |
| Pepco Holdings Inc. |
| Yes |
| PHI supports the interpretation |
| Group |
| Bonneville Power Administration |
| Christopher Higgins |
| Yes |
| BPA agrees with this interpretation with the understanding that a System Operator does not have access to the AMI and a one push button cannot achieve 300MW or more. |
| Group |
| Salt River Project |
| Bob Steiger |
| Yes |
| Individual |
| Michelle R DAntuono |
| Ingleside Cogeneration LP |
| No |
| Ingleside Cogeneration LP believes that the interpretation developed by the drafting team comes to the correct conclusion – that OGE’s Smart Grid AMI function is not likely going to be identified as a BES Critical Asset. However, it puts the onus on the Responsible Entity to assess the service loss caused by an asset which clearly does not serve a BES function. This effectively expands the scope of the RBAM to apply to equipment that has nothing to do with critical BES functions as they are presently understood. Perhaps of more concern, the drafting team has ignored the results of extensive investigation into this issue which took place during the development of CIP Version 4. In CIP-002-4, the corresponding bright-line criterion states the following: “1.13. Each system or Facility that performs automatic load shedding, without human operator initiation, of 300 MW or more implementing Under Voltage Load Shedding (UVLS) or Under Frequency Load Shedding (UFLS) as required by the regional load shedding program.” This language is unambiguous and fully addresses the concern by OGE that their Smart Grid Advanced Meter Infrastructure (AMI) could be considered a Smart Grid remote meter disconnect function to be a Critical Asset because it can be configured to shed an aggregate load greater than 300 MW. The intent is to identify UVLS and UFLS systems that are a part of a regional reliability program – not delve into remote meter connections. We are aware |

that NERC Compliance has taken a position that the bright-line criteria cannot replace the RBAM until CIP Version 4 takes effect in 2014. We are puzzled why an superior system which has been vetted by industry and approved by FERC should be out-of-bounds – especially since the stance does not appear to be related to reliability. Furthermore, there are costs to ambiguity – every dollar spent evaluating the AMI system takes away from other reliability needs. In addition, there is a hidden cost that a conservative reading of the interpretation will lead Responsible Entities to conclude that cyber-hardening is necessary for Smart Grid technologies. If this becomes a wide-spread belief, then many will choose to delay or not deploy the capability. There are enormous societal benefits to Smart Grid (e.g.; intelligent energy conservation) that are at stake – so we urge the project team to take a more definitive stance that AMI systems are not part of the BES and do not need to be considered as Critical Assets.

Individual

Michael Falvo

Independent Electricity System Operator

Yes

Individual

Grant Wilkerson

Westar Energy

Yes

Group

Salt River Project

Bob Steiger

Yes

SRP supports OGE's interpretation that SmartGrid AMI systems are not designed to allow for automatic load shedding.

Individual

Patrick Brown

Essential Power, LLC

Yes

Group

MRO NSRF

Will Smith

No

The NSRF does not agree that the IDT can clearly state that the AMI is not critical under R1.2.5. The IDT should not make the following statement of: "Applying these requirements to the remote connect or disconnect functionality associated with advanced metering infrastructure (AMI), the drafting team concludes in its interpretation that AMI is not a Critical Asset under R1.2.5 so long as the AMI is not designed to or cannot, without human operator intervention, shed a load of 300MW or more". The NSRF disagrees with this interpretation for the following reasons; 1. R1.2.5 is written to specifically address "systems and facilities" that are "critical to automatic load shedding under a common control system capable of shedding 300 MW or more". Not that you have a threshold of "automatic load shedding under a common control system capable of shedding 300 MW or more". The use of 300 MW or more is a pseudo threshold. Consideration of "system and facilities" is the intent of the requirement. 2. Each applicable entity's RBAM should consider (R1.2) their "systems and facilities" that are critical to automatic load shedding...300 MW or more. Upon consideration, the entity may or may not elect to identify the "system or facility" as a Critical Asset, based on their RBAM. 3. The NSRF believes CIP-002-3 is clearly written and that the IDT cannot determine if an Entity's AMI is a Critical Asset or not.

Individual

Greg Rowland

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| Duke Energy |
| No |
| While the interpretation arrives at the correct conclusion, the logic in the third paragraph of the response is needlessly complicated and not supported by a reading of the plain language of R4. Suggested rewording of the third paragraph: "During the identification and documentation of the risk-based assessment methodology used to identify Critical Assets required by R1, a Responsible Entity shall consider "Systems and facilities critical to automatic load shedding under a common control system capable of shedding 300 MW or more" as specified in R1.2.5. R2 then requires the entity to apply this risk-based assessment methodology annually to identify Critical Assets. If a system or facility is not "critical to" automatically shedding load, or the common control system is not "capable of" automatically shedding 300 MW or more, the asset is not required to be considered in the methodology per R1.2.5, and the asset may not be a Critical Asset." Also, in the fifth paragraph of the response, insert the word "automatically" before the word "shedding". |
| Individual |
| Andrew Gallo |
| City of Austin dba Austin Energy |
| Yes |
| Individual |
| RoLynda Shumpert |
| South Carolina Electric and Gas |
| Yes |
| Individual |
| Anthony Jablonski |
| ReliabilityFirst |
| Yes |
| ReliabilityFirst generally agrees with the drafted interpretation but offers one minor comment for consideration. ReliabilityFirst believes there is an incorrect reference to "an annual approval" per CIP-002-3 R4 in the draft Interpretation. ReliabilityFirst believes the correct reference should be to the "annual application of the RBAM" located in CIP-002-3 R2. |
| Group |
| Southern Company |
| Shammara Hasty |
| Yes |
| Southern Company appreciates the opportunity to provide the following comments regarding the interpretation of CIP-002-3, Requirement 1. As part of the annual approval, the methodology and logic as required by NERC CIP - 002 is used to determined the list of assets critical to the reliability of the Bulk Electric System. Southern Company agrees that each entity should determine its Critical Assets, if any. |
| Individual |
| Scott Bos |
| Muscatine Power and Water |
| No |
| MPW does not agree that the IDT can clearly state that the AMI is not critical under R1.2.5. The IDT should not make the following statement of: "Applying these requirements to the remote connect or disconnect functionality associated with advanced metering infrastructure (AMI), the drafting team concludes in its interpretation that AMI is not a Critical Asset under R1.2.5 so long as the AMI is not designed to or cannot, without human operator intervention, shed a load of 300MW or more". MPW disagrees with this interpretation for the following reasons; 1. R1.2.5 is written to specifically address "systems and facilities" that are "critical to automatic load shedding under a common control system capable of shedding 300 MW or more". Not that you have a threshold of "automatic load shedding under a common control system capable of shedding 300 MW or more". The use of 300 MW or more |

is a pseudo threshold. Consideration of "system and facilities" is the intent of the requirement. 2. Each applicable entity's RBAM should consider (R1.2) their "systems and facilities" that are critical to automatic load shedding...300 MW or more. Upon consideration, the entity may or may not elect to identify the "system or facility" as a Critical Asset, based on their RBAM. 3. MPW believes CIP-002-3 is clearly written and that the IDT cannot determine if an Entity's AMI is a Critical Asset or not.

Individual

Terry Harbour

MidAmerican Energy Company

Yes

MidAmerican Energy Company believes CIP-002-3, R1.2.5 is clear as written, but does not disagree with the proposed interpretation response.

Group

FirstEnergy

Sam Ciccone

Yes

We fundamentally agree with the interpretation but offer the following comments and suggested wording: Although the interpretation request is specific to CIP-002-3, the team should consider whether or not their response is within the spirit of CIP-002-4 bright line Attachment 1 criterion 1.13 which reads: "Each system or Facility that performs automatic load shedding, without human operator initiation, of 300 MW or more implementing Under Voltage Load Shedding (UVLS) or Under Frequency Load Shedding (UFLS) as required by the regional load shedding program." The subtle difference between version 3 and version 4 is that version 4 seems to include only those systems associated with UVLS and UFLS and not more generically as in the wording of version 3 and is the reason the requestor indicates that the AMI system is not relied upon for its UVLS and UFLS functionality. Another key clarification the bright line made was in the phrase "without human operator initiation". It sounds like AMIs are intended as a convenience or efficiency gain of dropping load from a central location and would be operator initiated. The risk of a hacker just breaking into some system and dropping load is likely not a BES reliability risk. Additionally, if the hacker would compromise the AMI such that the load can not be shed from a centralized location (assuming operator initiated) still does not impact BES reliability since the transmission operator would have EMS controls as a back-up for shedding load, even if the load shed is for a reliability purpose and not an economic need. The reason the bright line criterion 1.13 landed where it did is that the real risk is that a load shedding scheme performing automatic load shed during a critical frequency or voltage collapse cannot be compromised and must be available to act when automatic controls triggering those systems are met. In light of our comments, we suggest a slight modification to the last paragraph of the interpretation to include the phrase "without human operator initiation shed load for a critical BES reliability purpose" and suggest the following wording for the last paragraph: "Therefore, if a system or facility such as AMI meets the specifications of Requirement 1.2.5 (i.e., is both capable of shedding 300 MW or more and is set up and purposed to automatically, without human operator initiation, shed load for a critical BES reliability purpose), the Responsible Entity should consider the system or facility for identification as a Critical Asset under its RBAM. Otherwise, the Responsible Entity is not required to consider the system or facility for identification as a Critical Asset."

Group

Southwest Power Pool Regional Entity

Emily Pennel

No

The explanatory language of the interpretation is confusing and provides little clarification to the requesting entity. It provides misleading guidance regarding the distinction of "critical" to automatic load shed. It also could be misconstrued by a Responsible Entity in its present form to more broadly apply to all Smart Grid systems functionality in general, leading the entity to conclude that Smart Grid is excluded from the CIP standards. A system or facility is "critical" to load shedding when it is the system or facility that actually disconnects the load upon command of a system intended to perform load reduction as one of its functions, whether manual or automated. Automatic load shedding is that action that occurs without operator intervention, although it may be initiated by an operator under certain circumstances as further explained below. The "common control system" is that programmatic

application communicating with and directing the actions of the systems or facilities disconnecting the load. The common control system may be "capable" of shedding more than 300 MW of load while in normal practice less than 300 MW is shed at one time. It is the capability and not the normal practice that must be evaluated. The Responsible Entity must take all of these factors into consideration when determining whether a Cyber Asset meets the R1.2.5 criterion. The Responsible Entities generally recognize that protective relays configured to perform automatic under-frequency or under-voltage load shed meet the criterion of "critical to automatic load shedding" and the entities can readily determine if these devices are capable of shedding 300 MW or more either individually or under a common control system. Responsible Entities generally overlook upstream systems and their potential impact if their capabilities are misused. Responsible Entities often view their SCADA/EMS load shed programs as "manual," not "automatic," without evaluating the actual functionality. While an operator may initiate the load shed by entering a target MW, some load shed programs then automatically perform all of the analysis required to shed sufficient load blocks to attain the target reduction. It is automatic in the sense that the operator could manually open up all of the breakers in the load block scheme, one at a time, to achieve the same result. Similarly, while an operator may initiate rotating load shed by entering a target reduction value, some load shed programs perform all of the necessary steps to automatically cycle through the load blocks until instructed to stop. In a similar manner, Smart Grid systems are often capable of multiple functions including demand response (essentially automatic load shed made possible by curtailing selected appliance load) as well as remote customer meter connect/disconnect (clearly a manual operation and the specific issue at hand). If the demand response functionality of the Smart Grid system is capable of reducing load by 300 MW or more, then it must be considered a Critical Cyber Asset even if load shed is not its "primary" function. The AMI Remote Disconnect function is theoretically capable of being misused to shed 300 MW or more, however that would be done one meter at a time given the programmatic capability of the system. AMI Remote Disconnect is considered to be a manual function - one operator action against one meter. AMI Remote Disconnect is not and cannot be construed to be load shed functionality. The interpretation can be improved, clarified, and simplified by eliminating the explanatory discussion and simply responding to the narrowly focused question asked by OG&E. OG&E specifically asks if the AMI Remote Disconnect function is a system or facility critical to automatic load shedding under a common control system capable of shedding 300 MW or more. The similarly focused response should simply state that while other functions of a Smart Grid AMI system may be capable of automatically shedding 300 MW or more of load, the specific AMI Remote Disconnect function is not a system or facility critical to load shed. An AMI system specifically built and configured to only perform the Remote Disconnect function does not meet the criterion found in CIP-002-3, Requirement R1.2.5.

Group

ISO/RTO Council Standards Review Committee

Christine Hasha

Yes

In regards to the Response section of the Interpretation, the SRC requests the correction(s) shown below. Response Section, page 2 "Each year, during the annual approval required under CIP-002-3, Requirement R2, a Responsible Entity must reevaluate whether it has systems or facilities, as specified in Requirement R1.2.5, that are "critical to automatic load shedding under a common control system capable of shedding 300 MW or more." If it does, pursuant to Requirement R1.2, the Responsible Entity must consider that asset for identification as a Critical Asset under its RBAM required by CIP-002-3, Requirement R1. If a system or facility is not "critical to" automatic shedding load, or the common control system is not "capable of" shedding 300 MW or more, the asset may not be a Critical Asset." Explanation: Requirement R2 is the requirement for the annual application of the risk-based assessment methodology required in R1. Requirement 4 is only for approval and not for update or reevaluation. The change to "automatic" is a grammatical fix. Response Section, page 3 "Therefore, if a system or facility such as AMI meets the specifications of Requirement 1.2.5 (i.e., is critical to automatic load shedding under a common control system and is capable of shedding 300 MW or more), the Responsible Entity should consider the system or facility for identification as a Critical Asset under its RBAM." An entity should consider AMI under its RBAM if the equipment/facility has the requisite capability – i.e. capable of shedding 300 MW or more – despite whether the equipment/facilities are in fact purposed to perform that function in practice. The reason that capability, and not actual function, should be the determining factor is because if the equipment can be manipulated to manipulate load, despite its actual practical function, it should be assessed for

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| criticality because it can affect system reliability. Explanation: The SRC requests the interpretation be modified consistent with the above revisions because if an AMI system is capable of shedding load, despite its actual functionality, it has the potential to negatively impact the BES in the event of misuse or security breach. |
| Individual |
| Mike Stanley |
| MEAG Power |
| Yes |
| Group |
| SPP Standards Review Group |
| Robert Rhodes |
| Yes |

Additional Comments Received:

ACES Power Marketing

Conceptually, we agree with the interpretation. We offer a few refinements to further improve the interpretation.

- 1) The first sentence in the third paragraph should reference CIP-002-3 R2 not CIP-002-3 R4. The annual application of the risk-based assessment (RBAM) is not required in CIP-002-3 R4 as interpretation implies. Rather it is required in CIP-002-3 R2. CIP-002-3 R4 requires the senior manager to approve the RBAM, list of Critical Assts, and list of Critical Cyber Assets. While this approval likely will require some level of review, it will be a management review not the annual RBAM application. Thus, "Each year, during the annual approval required under CIP-002-3, Requirement R4," should become "Each year per CIP-002-3 Requirement R2".
- 2) The interpretation needs to match the order of the application of the requirements more closely. In the first sentence of the third paragraph, we suggest "a Responsible Entity must reevaluate whether it has systems or facilities, as specified in Requirement R1.2.5" should be changed to a "Responsible Entity must annually apply its RBAM to identify if any system or facilities, as specified in Requirement R1.2.5, are Critical Assets".
- 3) In the last sentence of the third paragraph, "the asset may not be a Critical Asset" should be changed to "the asset is not required to be considered a potential Critical Asset in its RBAM through CIP-002-3 R1.2.5." Otherwise, it is not perfectly clear that the responsible entity does not have to consider these "systems and facilities" as potential Critical Assets in its RBAM. Otherwise, the responsible entity may be left confused if they are obligated to consider these "systems and facilities".
- 4) In the third line of the third paragraph, R1.2 should be R1.2.5.

- 5) The fourth paragraph needs some modifications. "Asset" should be "Critical Asset and CIP-002-3, Requirement R1 should refer to Requirement R2. R1 does not compel identification of any assets of any type. Rather it simply requires that the responsible entity to identify and document an RBAM.
- 6) A more direct statement is needed to clarify that if the "systems and facilities" are not automatic and require operator (or user) intervention that they are not subject to R1.2.5. The last statement in the Background Information section of the comment form is much clearer than the interpretation and could be adopted. It reads: "Applying these requirements to the remote connect or disconnect functionality associated with advanced metering infrastructure (AMI), the drafting team concludes in its interpretation that AMI is not a Critical Asset under R1.2.5 so long as the AMI is not designed to or cannot, without human operator intervention, shed a load of 300MW or more." This really clarifies what is meant by automatic. "Systems and facilities" could be substituted for AMI to make the statement technology neutral.