Comment Report

Project Name:	2016-02 Modifications to CIP Standards | CIP-012-1
Comment Period Start Date:	10/27/2017
Comment Period End Date:	12/11/2017
Associated Ballots:	2016-02 Modifications to CIP Standards CIP-012-1 AB 2 ST

There were 61 sets of responses, including comments from approximately 168 different people from approximately 117 companies representing 10 of the Industry Segments as shown in the table on the following pages.

Questions

1. Requirement R1: The SDT drafted CIP-012-1 Requirement R1 for the Responsible Entity to develop one or more documented plan(s) to mitigate the risk of the unauthorized disclosure or modification of Real-time Assessment and Real-time monitoring and control data while being transmitted between any Control Centers. Do you agree with this revision? If not, please provide the basis for your disagreement and an alternate proposal.

2. Requirement R1: The SDT seeks comment on scoping sensitive BES data as it applies to Real-time Assessment and Real-time monitoring and control data. Do you agree with scoping CIP-012-1 Requirement R1 in this manner? Please provide comment in support of your response.

3. Requirement R2: The SDT drafted CIP-012-1 Requirement R2 for the Responsible Entity to implement the plan(s) specified in Requirement R1, except under CIP Exceptional Circumstances. Do you agree with this revision? If not, please provide the basis for your disagreement and an alternate proposal.

4. Implementation Plan: The SDT revised the Implementation Plan to make the standard effective the first day of the first calendar quarter that is twenty-four (24) calendar months after the effective date of the applicable governmental authority's order approving the standard, or as otherwise provided for by the applicable governmental authority. Do you agree with this proposal? If you think an alternate implementation time period is needed, please provide a detailed explanation of actions and time needed to meet the implementation deadline.

5. The SDT believes proposed CIP-012-1 provides entities with flexibility to meet the reliability objectives in a cost effective manner. Do you agree? If you do not agree, or if you agree but have suggestions for improvement to enable more cost effective approaches, please provide your recommendation and, if appropriate, technical justification.

6. If you have additional comments on the proposed CIP-012-1 – Cyber Security – Communications between Control Centers drafted in response to the FERC directive that you have not provided in response to the questions above, please provide them here.

Organization Name	Name	Segment(s)	Region	Group Name	Group Member Name	Group Member Organization	Group Member Segment(s)	Group Member Region
FirstEnergy - FirstEnergy Corporation	Aaron Ghodooshim	3	RF	FirstEnergy Corporation	Aaron Ghdooshim	FirstEnergy - FirstEnergy Corporation	4	RF
					Aubrey Short	FirstEnergy - FirstEnergy Corporation	1	RF
					Theresa Ciancio	FirstEnergy - FirstEnergy Corporation	3	RF
					Robert Loy	FirstEnergy - FirstEnergy Solutions	5	RF
					Ann Ivanc	FirstEnergy - FirstEnergy Solutions	6	RF
Southern Company - Southern Company Services, Inc.	Brandon Cain	1,3,5,6	FRCC,MRO,NPCC,SERC,SPP RE,Texas RE,WECC	Southern Company	Katherine Prewitt	Southern Company - Southern Company Services, Inc.	1	SERC
					R. Scott Moore	Southern Company - Alabama Power Company	3	SERC
					William D. Shultz	Southern Company - Southern Company Generation	5	SERC
					Jennifer Sykes	Southern Company - Southern Company Generation and Energy Marketing	6	SERC
Brandon McCormick	Brandon McCormick		FRCC	FMPA	Tim Beyrle	City of New Smyrna Beach Utilities Commission	4	FRCC
					Jim Howard	Lakeland Electric	5	FRCC

					Lynne Mila	City of Clewiston	4	FRCC
					Javier Cisneros	Fort Pierce Utilities Authority	3	FRCC
					Randy Hahn	Ocala Utility Services	3	FRCC
					Don Cuevas	Beaches Energy Services	1	FRCC
					Jeffrey Partington	Keys Energy Services	4	FRCC
					Tom Reedy	Florida Municipal Power Pool	6	FRCC
					Steven Lancaster	Beaches Energy Services	3	FRCC
					Mike Blough	Kissimmee Utility Authority	5	FRCC
					Chris Adkins	City of Leesburg	3	FRCC
					Ginny Beigel	City of Vero Beach	3	FRCC
Tennessee Valley Authority	Brian Millard	1,3,5,6	SERC	Tennessee Valley Authority	Scott, Howell D.	Tennessee Valley Authority	1	SERC
					Grant, Ian S.	Tennessee Valley Authority	3	SERC
					Thomas, M. Lee	Tennessee Valley Authority	5	SERC
					Parsons, Marjorie S.	Tennessee Valley Authority	6	SERC
Duke Energy	Colby Bellville	1,3,5,6	FRCC,RF,SERC	Duke Energy	Doug Hils	Duke Energy	1	RF
					Lee Schuster	Duke Energy	3	FRCC
					Dale Goodwine	Duke Energy	5	SERC
					Greg Cecil	Duke Energy	6	RF
SRC	David Francis	2	FRCC,MRO,NPCC,RF,SERC,SPP RE,Texas RE,WECC	SRC + SWG	Gregory Campoli	New York Independent System Operator	2	NPCC

					Mark Holman	PJM Interconnection, L.L.C.	2	RF
					Charles Yeung	Southwest Power Pool, Inc. (RTO)	2	SPP RE
					Terry BIlke	Midcontinent ISO, Inc.	2	RF
					Elizabeth Axson	Electric Reliability Council of Texas, Inc.	2,3	Texas RE
					Ben Li	IESO	1	MRO
					Drew Bonser	SWG	NA - Not Applicable	NA - Not Applicable
					Darrem Lamb	CAISO	2	WECC
					Matt Goldberg	ISONE	2	NPCC
Seattle City Light	Ginette Lacasse	1,3,4,5,6	WECC	Seattle City Light Ballot Body	Pawel Krupa	Seattle City Light	1	WECC
					Hao Li	Seattle City Light	4	WECC
					Bud (Charles) Freeman	Seattle City Light	6	WECC
					Mike Haynes	Seattle City Light	5	WECC
					Michael Watkins	Seattle City Light	1,4	WECC
					Faz Kasraie	Seattle City Light	5	WECC
					John Clark	Seattle City Light	6	WECC
					Tuan Tran	Seattle City Light	3	WECC
					Laurrie Hammack	Seattle City Light	3	WECC
Public Utility District No. 1 of Chelan County	Janis Weddle	6		Chelan PUD	Haley Sousa	Public Utility District No. 1 of Chelan County	5	WECC
					Joyce Gundry	Public Utility District No. 1 of Chelan County	3	WECC

					Jeff Kimbell	Public Utility District No. 1 of Chelan County	1	WECC
					Janis Weddle	Public Utility District No. 1 of Chelan County	6	WECC
DTE Energy - Detroit Edison Company	Karie Barczak	3,4,5		DTE Energy - DTE Electric	Jeffrey Depriest	DTE Energy - DTE Electric	5	RF
					Daniel Herring	DTE Energy - DTE Electric	4	RF
					Karie Barczak	DTE Energy - DTE Electric	3	RF
Northeast Power Coordinating Council	Ruida Shu	1,2,3,4,5,6,7,8,9,10	NPCC	RSC no Dominion and ISO-NE	Guy V. Zito	Northeast Power Coordinating Council	10	NPCC
					Randy MacDonald	New Brunswick Power	2	NPCC
					Wayne Sipperly	New York Power Authority	4	NPCC
					Glen Smith	Entergy Services	4	NPCC
					Brian Robinson	Utility Services	5	NPCC
					Bruce Metruck	New York Power Authority	6	NPCC
					Alan Adamson	New York State Reliability Council	7	NPCC
					Edward Bedder	Orange & Rockland Utilities	1	NPCC
					David Burke	Orange & Rockland Utilities	3	NPCC
					Michele Tondalo	UI	1	NPCC
					Laura Mcleod	NB Power	1	NPCC
					David Ramkalawan	Ontario Power Generation Inc.	5	NPCC
					Quintin Lee	Eversource Energy	1	NPCC
					Paul Malozewski	Hydro One Networks, Inc.	3	NPCC

					Helen Lainis	IESO	2	NPCC
					Michael Schiavone	National Grid	1	NPCC
					Michael Jones	National Grid	3	NPCC
					Greg Campoli	NYISO	2	NPCC
					Sylvain Clermont	Hydro Quebec	1	NPCC
					Chantal Mazza	Hydro Quebec	2	NPCC
					Silvia Mitchell	NextEra Energy - Florida Power and Light Co.	6	NPCC
					Michael Forte	Con Ed - Consolidated Edison	1	NPCC
					Daniel Grinkevich	Con Ed - Consolidated Edison Co. of New York	1	NPCC
					Peter Yost	Con Ed - Consolidated Edison Co. of New York	3	NPCC
					Brian O'Boyle	Con Ed - Consolidated Edison	5	NPCC
					Sean Cavote	PSEG	4	NPCC
Midwest Reliability Organization	Russel Mountjoy	10		MRO NSRF	Joseph DePoorter	Madison Gas & Electric	3,4,5,6	MRO
					Larry Heckert	Alliant Energy	4	MRO
					Amy Casucelli	Xcel Energy	1,3,5,6	MRO
					Michael Brytowski	Great River Energy	1,3,5,6	MRO
					Jodi Jensen	Western Area Power Administratino	1,6	MRO
					Kayleigh Wilkerson	Lincoln Electric System	1,3,5,6	MRO
					Mahmood Safi	Omaha Public Power District	1,3,5,6	MRO

					Brad Parret	Minnesota Power	1,5	MRO
					Terry Harbour	MidAmerican Energy Company	1,3	MRO
					Tom Breene	Wisconsin Public Service	3,5,6	MRO
					Jeremy Volls	Basin Electric Power Coop	1	MRO
					Kevin Lyons	Central Iowa Power Cooperative	1	MRO
					Mike Morrow	Midcontinent Independent System Operator	2	MRO
Dominion - Dominion Resources, Inc.	Sean Bodkin	6		Dominion	Connie Lowe	Dominion - Dominion Resources, Inc.	3	NA - Not Applicable
					Lou Oberski	Dominion - Dominion Resources, Inc.	5	NA - Not Applicable
					Larry Nash	Dominion - Dominion Virginia Power	1	NA - Not Applicable
PSEG	Sean Cavote	1,3,5,6	NPCC,RF	PSEG REs	Tim Kucey	PSEG - PSEG Fossil LLC	5	NPCC
					Karla Barton	PSEG - PSEG Energy Resources and Trade LLC	6	RF
					Jeffrey Mueller	PSEG - Public Service Electric and Gas Co.	3	RF
					Joseph Smith	PSEG - Public Service Electric and Gas Co.	1	RF
Southwest Power Pool, Inc. (RTO)	Shannon Mickens	2	SPP RE	SPP Standards Review Group	Shannon Mickens	Southwest Power Pool Inc.	2	SPP RE
					Megan Wagner	Westar Energy	6	SPP RE
					Louis Guidry	Cleco Corporation	1,3,5,6	SPP RE
					Robert Gray	Board of Public Utilities (BPU),	NA - Not Applicable	NA - Not Applicable

						Kansas City, KS		
					Ron Spicer	EDF Renewables	5	SPP RE
PPL - Louisville Gas and Electric Co.	Shelby Wade	1,3,5,6	RF,SERC	PPL NERC Registered Affiliates	Charlie Freibert	LG&E and KU Energy, LLC	3	SERC
					Brenda Truhe	PPL Electric Utilities Corporation	1	RF
					Dan Wilson	LG&E and KU Energy, LLC	5	SERC
					Linn Oelker	LG&E and KU Energy, LLC	6	SERC

1. Requirement R1: The SDT drafted CIP-012-1 Requirement R1 for the Responsible Entity to develop one or more documented plan(s) to mitigate the risk of the unauthorized disclosure or modification of Real-time Assessment and Real-time monitoring and control data while being transmitted between any Control Centers. Do you agree with this revision? If not, please provide the basis for your disagreement and an alternate proposal.

Kristine Ward - Seminole Electric Cooperative, Inc. - 1,3,4,5,6 - FRCC	
Answer	No
Document Name	
Comment	

Comments: The standard would be more effective if it more specifically identified the security objective described in FERC Order No. 822 paragraph 54, of “maintaining the integrity and availability of sensitive BES data”.

With regard to R1.3, the standard should better reflect FERC Order No. 822 paragraph 55, specifically to address that protections should not adversely affect BES reliability, should account for the risk of *CYBE*R assets, and that the information being protected should be results –based and not zero-defect.

Likes 0	
Dislikes 0	
Response	

Sean Bodkin - Dominion - Dominion Resources, Inc. - 6, Group Name Dominion	
Answer	No
Document Name	
Comment	

Dominion Energy recommends changing Measure M1 to the following:

“Evidence may include, but is not limited to, documented plan(s) that meet the criteria identified in Requirement R1.”

Likes 0	
Dislikes 0	
Response	

Janis Weddle - Public Utility District No. 1 of Chelan County - 6, Group Name Chelan PUD	
Answer	No
Document Name	

Comment	
CHPD is generally in agreement with the Draft 2 revision. However; we request that the newly-introduced terms “monitoring data” and “control data” either be replaced by “BES Data” (a new NERC-defined Glossary term) or themselves be defined in the NERC Glossary. Additionally, the concept of “demarcation point(s)” should be constrained to the entity’s equipment, for example “1.2 Identification of *the Responsible Entity’s* demarcation point(s)…” The current wording implies that each entity should document their local demarcation point and also any demarcation point(s) that exist at each neighboring system. A change to a demarcation point in one system should not create a paperwork or compliance issue for a neighbor or vice versa. Alternatively, consider defining the term “demarcation point” in the NERC glossary and identify the scope within the definition of the term.	
Likes 5	Public Utility District No. 1 of Snohomish County, 5, Nietfeld Sam; Snohomish County PUD No. 1, 6, Lu Franklin; Public Utility District No. 1 of Snohomish County, 1, Duong Long; Snohomish County PUD No. 1, 3, Oens Mark; Public Utility District No. 1 of Snohomish County, 4, Martinsen John
Dislikes 0	
Response	
Aaron Austin - AEP - 3	
Answer	No
Document Name	
Comment	
AEP agrees with the SDT on removal of Operational and Planning data from the scope of the Standard, but feels the data specification remains loose. AEP operates in three markets with three RTOs. Our Balancing Authority has requested market related data as part of the TOP-003-3 implementation data specifications. We feel that this market data is out of scope for CIP-012 and the Standard could be further improved by specifying that market related data does not meet the intent for Real-time Assessment and Real time monitoring and control data. Appropriate exclusion language in the Implementation Guidance and Technical rationale may be satisfactory.	
Likes 0	
Dislikes 0	
Response	
Aaron Cavanaugh - Bonneville Power Administration - 1,3,5,6 - WECC	
Answer	No
Document Name	
Comment	
BPA appreciates the revisions that the SDT has made based on industry feedback on the initial draft, such as adding demarcation points. BPA reiterates its position as documented in BPA’s SAR and initial draft comments that CIP-012-1 is not necessary. We continue to believe that the objectives can be met by coordinating with existing standards such as CIP-003 and CIP-005. However, if the SDT proceeds with CIP-012-1, BPA remains concerned with the technical feasibility of the standard.	

Points of discussion:

- Encryption may not be feasible due to availability concerns. (e.g., failure of encryption keys or latency problems with encryption for availability requirements.)
- Additionally, entities and common carriers use a variety of media to carry traffic, and will undoubtedly use traffic shaping to maintain service levels: routing becomes unpredictable; each packet could take a different route from point A to B.
- Even if a single entity owns the entire communication network, this is still a problem. Modern routing protocols will try to deliver packets over a system with inoperable equipment, severed links, etc. The only remedy is to physically protect the entire communication system in advance of system faults to satisfy CIP-012. If one packet traverses a link due to a system fault that is not protected – it would be a violation.

Likes 0	
Dislikes 0	
Response	
Russel Mountjoy - Midwest Reliability Organization - 10, Group Name MRO NSRF	
Answer	No
Document Name	
Comment	

The NSRF does not agree with two separate requirements, one for a plan and one to implementation. We recommend following precedent in the other CIP standards, for example, CIP-004-6. The obligation can be accomplished with one requirement, as follows.

R1. “The Responsible Entity shall implement one or more documented process(es) to mitigate the risk of the unauthorized disclosure or modification of Real-time Assessments and Real-time monitoring and control data while being transmitted between any Control Centers, except under CIP Exceptional Circumstances. This excludes oral communications. The process(es) shall identify:

R1.1 security protection used to mitigate risk of unauthorized disclosure or modification of Real-time Assessment and Real-time monitoring and control data while being transmitted between Control Centers,

R1.2 demarcation point(s) where security protection is applied for transmitting Real-time Assessment and Real-time monitoring and control data between Control Centers. Demarcation points identified by the Responsible Entity do not add additional Cyber Assets to the scope of the CIP Reliability Standards; and

For R1.3, please see our rational in question 6. R1.3 Identify each Responsible Entity for applying security protection(s) to the transmission of Real-time Assessment and Real-time monitoring and control data between Control Centers, when the Control Centers are owned or operated by different Responsible Entities.”

This also includes important scoping from the implementation guidance that belongs in the requirement, that demarcation points don’t add additional Cyber Assets to the scope of the CIP standards.

Likes 0	
Dislikes 0	
Response	

Donald Lock - Talen Generation, LLC - 5	
Answer	No
Document Name	
Comment	

We have no technical concerns with the proposed standard, but it is unclear how 3rd party-owned Control Centers that GO/GOPs use through an agency relationship are to be addressed.   CIP-012-1 states in sect. 4.1, “The requirements in this standard apply to the following functional entities, referred to as ‘Responsible Entities,’ that own or operate a Control Center,”… “4.1.2. Generator Operator,”…”4.1.3. Generator Owner.” GO/GOPs do not operate agency-relationship Control Centers any more than they own them, so CIP-012-1 responsibilities apparently rest with the owners of 3rd-party Control Centers and not with the GO/GOPs that hire them. It is unclear how these obligations are communicated and administered, however, since 3rd-party Control Center owners are not (and cannot be) NERC-registered entities.

Likes 0	
Dislikes 0	
Response	

Paul Huettl - Basin Electric Power Cooperative - 6	
Answer	No
Document Name	
Comment	

Please refer to NRECA comments.

Likes 0	
Dislikes 0	
Response	

Richard Jackson - U.S. Bureau of Reclamation - 1	
Answer	No
Document Name	
Comment	

Reclamation disagrees that having a plan adds to the reliability of protecting data used for Operational Planning Analysis, Real-time Assessment, and Real-time monitoring. A plan is an unwarranted layer of compliance that is not needed and the present proposed language is too broad and could be interpreted to apply to data or Control Centers over which an entity has no influence.

Reclamation recommends the SDT implement the following:

- Clearly specify that each Responsible Entity is required to mitigate the risk of unauthorized disclosure or modification of **its own** BES Data between **its own** BES Control Centers.

Replace the term “plan” with “process,” and specify the requirements pertain to BES Data and Control Centers.

- Change Requirement R1:

from: The Responsible Entity shall develop one or more documented plan(s) to mitigate the risk of unauthorized disclosure or modification of Real-time Assessment and Real-time monitoring and control data while being transmitted between any Control Centers. This requirement excludes oral communications.

to: Each Responsible Entity shall have one or more documented processes in place to mitigate the risk of unauthorized disclosure or modification of BES Data being transmitted between its own Control Centers. This requirement excludes oral and non-electronic communications.

- Add the following definitions to the NERC Glossary of Terms:

BES Data: BES reliability operating services information related to the entity’s high and medium impact Control Centers which affects Operational Planning Analysis, Real-time Assessments, and Real-time monitoring and control of the facility, and would affect the operation of the BES if compromised.

Likes 0	
Dislikes 0	

Response

Andrew Gallo - Austin Energy - 6

Answer	No
Document Name	

Comment

Austin Energy (AE) agrees the referenced data deserves protection to ensure it has not been modified and FERC directed NERC to “specify how the confidentiality, integrity, and availability of...data should be protected while...transmitted.” However, AE disagrees with the extent to which the proposed standard requires the data be protected. FERC Order 822 states (on page 36), “…we recognize that not all communication network components and data pose the same risk to bulk electric system reliability and may not require the same level of protection.” The proposed standard applies the same protection criteria across all in-scope data. AE does not agree viewing Real-time Assessment and monitoring/control data without context will adversely affect the reliability of the BES. Confidentiality need not be protected for all in-scope data.

Additionally, AE realizes the SDT does not specifying controls to protect confidentiality and integrity, but the only method available to achieve the proposed requirement is encryption. FERC Order 822 states (on page 39), “it is reasonable to conclude that any lag in communication speed resulting from implementation of protections [encryption technologies] should only be measureable on the order of milliseconds and, therefore, will not adversely impact Control Center communications,” but AE believes that statement refers only to a single data stream. Encryption of multiple data streams at once - from one to many points, - may add latency require more computing resources.

Likes 0	
Dislikes 0	

Response

Nicholas Lauriat - Network and Security Technologies - 1	
Answer	No
Document Name	
Comment	

N&ST is concerned with the fact the draft Implementation Guidance for CIP-012 describes a scenario in which BES Control Centers are exchanging data with a “3rd party” (Figure 4, “Network Diagram depicting communications through a 3rd party”). Although the SDT clearly believes that such communications would be in scope for CIP-012 R1, it is N&ST’s opinion that as presently written, R1 would *not* apply. Figure 4 depicts two Control Centers communicating with a 3rd party, not with each other.

Suggested rewording: REPLACE: “...develop one or more documented plan(s) to mitigate the risk of the unauthorized disclosure or modification of Real-time Assessment and Real-time monitoring and control data while being transmitted between any Control Centers.”

WITH: “...develop one or more documented plan(s) to mitigate the risk of the unauthorized disclosure or modification of Real-time Assessment and Real-time monitoring and control data while being transmitted between (1) any two Control Centers, or (2) between a Control Center and a third-party that provides Real-time Assessment data.”

Likes 0	
Dislikes 0	
Response	

Shannon Mickens - Southwest Power Pool, Inc. (RTO) - 2 - SPP RE, Group Name SPP Standards Review Group	
Answer	No
Document Name	
Comment	

The SPP Standards Review Group appreciates the time and effort expended by the drafting team to further this effort and supports the current standard’s development as an objective based standard, rather than as a prescriptive based standard.

The SPP Standards Review Group appreciates the time and effort expended by the drafting team to further this effort and supports the current standard’s development as an objective based standard, rather than as a prescriptive based standard. The SPP Standards Review Group would recommend a formal definition for “Demarcation Point” be included in the NERC Glossary of Terms and define the protection, if required. Additionally, the SPP Standards Review Group requests clarification whether Demarcation Points need to be classified as CIP Assets or just identified in the documented plan(s)?

Likes 0	
Dislikes 0	
Response	

Barry Lawson - National Rural Electric Cooperative Association - 4	
Answer	No
Document Name	
Comment	
NRECA supports the structure of R1 and we appreciate the removal of “data used for Operational Planning Analysis” language. However, new language was also added to R1 and we are unsure of what qualifies as “control data” as used in this requirement. NRECA reviewed the related draft Implementation Guidance and draft Technical Rationale and we did not see any information that explained what “control data” is. Please provide clarity on what “control data” means.	
Likes 0	
Dislikes 0	
Response	

Terry Harbour - Berkshire Hathaway Energy - MidAmerican Energy Co. - 1	
Answer	No
Document Name	
Comment	
We do not agree with two separate requirements, one for a plan and one to implement. We recommend following precedent in the other CIP standards, for example, CIP-004-011. The obligation can be accomplished with one requirement, as follows. “The Responsible Entity shall implement one or more documented process(es) to mitigate the risk of the unauthorized disclosure or modification of Real-time Assessments and Real-time monitoring and control data while being transmitted between any Control Centers, except under CIP Exceptional Circumstances. This excludes oral communications. The process(es) shall identify: 1.1 security protection used to mitigate risk of unauthorized disclosure or modification of Real-time Assessment and Real-time monitoring and control data while being transmitted between Control Centers. 1.2 demarcation point(s) where security protection is applied for transmitting Real-time Assessment and Real-time monitoring and control data between Control Centers. Demarcation points identified by the Responsible Entity do not add additional Cyber Assets to the scope of the CIP Reliability Standards; and 1.3 roles and responsibilities of each Responsible Entity for applying security protection to the transmission of Real-time Assessment and Real-time monitoring and control data between Control Centers, when the Control Centers are owned or operated by different Responsible Entities.” This also includes important scoping from the implementation guidance that belongs in the requirement, that demarcation points don’t add additional Cyber Assets to the scope of the CIP standards.	
Likes 0	
Dislikes 0	
Response	

Lona Calderon - Salt River Project - 1,3,5,6 - WECC	
Answer	No
Document Name	
Comment	

SRP agrees the data should be protected. SRP also agrees the protections for the data in scope must ensure the data has not been modified, and that FERC directed NERC to “specify how the confidentiality, integrity, and availability of each type of bulk electric system data should be protected while it is being transmitted.” However, SRP takes exception to the extent the proposed standard requires the data in scope to be protected. FERC Order 822 states on page 36, “…we recognize that not all communication network components and data pose the same risk to bulk electric system reliability and may not require the same level of protection.” However, the proposed standard applies the same criteria of protection against unauthorized disclosure across all of the data within the defined scope. SRP does not agree viewing of the Real-time Assessment and Real-time monitoring and control data without context will decrease the reliable operation of the BES and asserts confidentiality does not need to be protected for all data under this scope.

Additionally, SRP recognizes the SDT is not specifying the controls used to protect confidentiality and integrity. However, the only method available to achieve the proposed required objective is to implement encryption. FERC Order 822 states on page 39, “it is reasonable to conclude that any lag in communication speed resulting from implementation of protections [encryption technologies] should only be measureable on the order of milliseconds and, therefore, will not adversely impact Control Center communications,” but SRP asserts this statement only refers to a single data stream. It is unknown what encryption will do when dealing with multiple data streams being transmitted at once, from one to many points, not only to the latency added for the reliable operation of the BES, but also to the computing resources.

Likes 0	
Dislikes 0	

Response

Annette Johnston - Berkshire Hathaway Energy - MidAmerican Energy Co. - 3

Answer	No
Document Name	

Comment

Support Terry Harbour comments (Berhshire Hathaway - MidAmerican Energy Company)

Likes 0	
Dislikes 0	

Response

Oshani Pathirane - Oshani Pathirane On Behalf of: Payam Farahbakhsh, Hydro One Networks, Inc., 1, 3; - Oshani Pathirane

Answer	No
Document Name	

Comment

While Hydro One supports the general intent of the Standard, we request that our suggestions below are incorporated. We do not agree with the addition of R1.3. We believe that this wording does not sufficiently address potential disagreements between entities. The Standard should address a situation in which two entities at each end of a communication link cannot reach an agreement on the level of protection that needs to be applied to the communication link between their Control Centres, or, the situation in which one entity’s plan does not align with another entity’s plan.

In addition, it is not clear how the Standard addresses Control Centres that will be built in the future. The term “plan” and verbiage of Requirement 1 suggests that this may be a one-time plan that will address existing Control Centres only.

An alternative approach may be to remove the word “plan” and simply require entities to implement logical/physical controls that both entities agree upon. If the entities cannot reach an agreement, a third party can be selected to provide a resolution.

In addition, the measures (M1) do not sufficiently describe how compliance would be demonstrated.

Likes 0	
Dislikes 0	

Response

Lan Nguyen - CenterPoint Energy Houston Electric, LLC - 1 - Texas RE

Answer	No
Document Name	

Comment

No, CenterPoint Energy Houston Electric, LLC (“CenterPoint Energy”) does not agree with this revision. CenterPoint Energy recommends the following revisions to proposed Requirement R1:

The Responsible Entity shall develop one or more documented plan(s) to mitigate the risk of unauthorized disclosure or modification of Real-time Assessment and Real-time monitoring data while being transmitted between Control Centers. This requirement excludes oral communications. The plan shall include: [Violation Risk Factor: Medium] [Time Horizon: Operations Planning].

CenterPoint Energy recommends the SDT remove the phrase “and control” from the expanded phrase “Real-time monitoring and control data.” The inclusion of the phrase “and control” may create confusion and does not align with TOP-003 and IRO-010 data specification Requirements. Additionally, the phrase was not mentioned in FERC Order 822. The SDT recognizes in the corresponding Technical Rationale document that “in practice Real-time control data is not transmitted separately from Real-time monitoring data.” Given this practice, the introduction of the concept of separately transmitted “Real-time control data” may create confusion on whether there are additional data specification responsibilities besides those detailed in TOP-003 and IRO-010. Additionally, when control signals that result in the physical operation of BES elements are transmitted between Control Centers, such control signals receive the same protection from unauthorized disclosure or modification as the data and information identified as necessary to perform Real-time Assessments and Real-time monitoring. Thus, there is no need for the additional language to the phrase and no additional benefit to the industry or Reliability.

CenterPoint Energy also recommends removing the word “any” from the phrase “any Control Center” because the word is too broad and does not add value or clarity to the requirement.

CenterPoint Energy also notes that the definition of Control Center is currently being revised. CenterPoint Energy recommends that the definition of Control Center be finalized before the final ballot of CIP-012-1.

Likes 0	

Dislikes 0	
Response	
Rachel Coyne - Texas Reliability Entity, Inc. - 10	
Answer	No
Document Name	
Comment	

While the SDT believes the "integrity and availability of sensitive bulk electric system data", as noted in FERC Order No. 822, paragraph 54, is addressed in R1, Texas RE notes the use of the term "or": Identification of security protection used to mitigate the risk of unauthorized disclosure **or** modification of Real-time Assessment and Real-time monitoring and control data while being transmitted between Control Centers. In its response, the SDT specifically referenced the Consideration of Issue or Directive document. In that document, the SDT makes clear that entities may elect, solely at their discretion, to protect communications links, data, or both.

Texas RE believes this directly conflicts with the plain language in FERC Order No. 822, P. 54. FERC made it clear that protections should apply to both communication links and sensitive data. However, the SDT has specified such protections could be potentially applied solely to communications links or sensitive data. That is, the SDT has endorsed permitting responsible entities to simply elect to plan and implement physical protections for communications links. This would "mitigate" the risk of an unauthorized disclosure or modification of data using one of the delineated methods. As such, the responsible entity would potentially be compliant with the standard without proposing or implementing any logical protections for sensitive data during its transmission. This appears counter to FERC's intent to protect "**both** the integrity and availability of sensitive bulk electric system data." FERC Order No. 822, P. 54. Texas RE maintains its recommendation to 1) change "or" to "and"; and 2) change the phrase risk of unauthorized disclosure or modification to integrity and availability of sensitive bulk electric system data.

Additionally, Since GO does not appear in the definition of Control Center, Texas RE suggests removing GO from the applicability section.

Likes 0	
Dislikes 0	
Response	
Jennifer Hohenshilt - Talen Energy Marketing, LLC - 6	
Answer	No
Document Name	
Comment	

We have no technical concerns with the proposed standard, but it is unclear how 3rd party-owned Control Centers that GO/GOPs use through an agency relationship are to be addressed. CIP-012-1 states in sect. 4.1, "The requirements in this standard apply to the following functional entities, referred to as 'Responsible Entities,' that own or operate a Control Center,"… "4.1.2. Generator Operator,"…"4.1.3. Generator Owner." GO/GOPs do not operate agency-relationship Control Centers any more than they own them, so CIP-012-1 responsibilities apparently rest with the owners of 3rdparty Control Centers and not with the GO/GOPs that hire them. It is unclear how these obligations are communicated and administered, however, since 3rd-party Control Center owners are not (and cannot be) NERC-registered entities.

Likes 0	
Dislikes 0	

Response

Jeanne Kurzynowski - Consumers Energy Company - 1,3,4,5 - RF

Answer	No
Document Name	

Comment

The requirement as written does not provide clear threshold on the type of Control Centers that should be in scope for this standard, i.e. does this requirement apply to high/medium impact BES Cyber Systems, or it also applies to low impact BES Cyber System. Please clarify. Please also consider how to incorporate the scoping criteria into CIP-002 standard.

Likes 0	
Dislikes 0	

Response

Ginette Lacasse - Seattle City Light - 1,3,4,5,6 - WECC, Group Name Seattle City Light Ballot Body

Answer	No
Document Name	

Comment

We support SRP and Chelan PUD comments.

Likes 0	
Dislikes 0	

Response

Joe Tarantino - Joe Tarantino On Behalf of: Arthur Starkovich, Sacramento Municipal Utility District, 4, 1, 5, 6, 3; Beth Tincher, Sacramento Municipal Utility District, 4, 1, 5, 6, 3; Jamie Cutlip, Sacramento Municipal Utility District, 4, 1, 5, 6, 3; Kevin Smith, Balancing Authority of Northern California, 1; Nicole Looney, Sacramento Municipal Utility District, 4, 1, 5, 6, 3; Susan Oto, Sacramento Municipal Utility District, 4, 1, 5, 6, 3; - Joe Tarantino

Answer	No
Document Name	

Comment	
It not clear who will maintain responsibility for compliance with the standard and who will be audited.	
Likes 0	
Dislikes 0	
Response	

Leonard Kula - Independent Electricity System Operator - 2	
Answer	No
Document Name	
Comment	
We are still unclear on the included data. For R1.2, recommend that the Entities should mutually agree on the demarcation points. For R1.3, we are concerned with resolution of disagreements between different Entities.	
Likes 0	
Dislikes 0	
Response	

Kevin Salsbury - Berkshire Hathaway - NV Energy - 5	
Answer	No
Document Name	
Comment	
It is unnecessary to have 2 Requirements for this Standard, especially with each Requirement currently identified to have the same enforceable date. NV Energy recommends following precedence of other Standards and combining the Requirements into a single requirement that states, "An entity shall implement one or more document processes/plans....". .	
Likes 0	
Dislikes 0	
Response	

sean erickson - Western Area Power Administration - 1

Answer	No
Document Name	

Comment

WAPA does not agree with two separate requirements, one for a plan and one for implementation. We recommend following precedent in the other CIP standards, for example, CIP-004-6. The obligation can be accomplished with one requirement, as follows.

R1. “The Responsible Entity shall implement one or more documented process(es) to mitigate the risk of the unauthorized disclosure or modification of Real-time Assessments and Real-time monitoring and control data while being transmitted between any Control Centers, except under CIP Exceptional Circumstances. This excludes oral communications. The process(es) shall identify:

R1.1 security protection used to mitigate risk of unauthorized disclosure or modification of Real-time Assessment and Real-time monitoring and control data while being transmitted and received between Control Centers,

R1.2 demarcation point(s) where security protection is applied for transmitting Real-time Assessment and Real-time monitoring and control data between Control Centers. Demarcation points identified by the Responsible Entity do not add additional Cyber Assets to the scope of the CIP Reliability Standards; and

R1.3. Identification of roles and responsibilities of each Responsible Entity for applying security protection to the transmission of Real-time Assessment and Real-time monitoring and control data between Control Centers, when the Control Centers are owned or operated by different Responsible Entities.

Other changes in this recommended language:

R1.1 was changed to clarify that data is being protected while being “transmitted and received” between Control Centers.

R1.2 was changed to include important scoping from the implementation guidance that belongs in the requirement, that demarcation points don’t add additional Cyber Assets to the scope of the CIP standards.

Likes 0	
Dislikes 0	

Response

Ruida Shu - Northeast Power Coordinating Council - 1,2,3,4,5,6,7,8,9,10 - NPCC, Group Name RSC no Dominion and ISO-NE

Answer	No
Document Name	

Comment

We are still unclear on the included data. For R1.2, recommend that the Entities should mutually agree on the demarcation points. For R1.3, we are concerned with resolution of disagreements between different Entities.

Likes 0	
Dislikes 0	

Response

Rick Applegate - Tacoma Public Utilities (Tacoma, WA) - 6	
Answer	No
Document Name	
Comment	
Tacoma Power endorses the draft comments shared with it by Salt River Project (SRP), which follow: SRP agrees the data should be protected. SRP also agrees the protections for the data in scope must ensure the data has not been modified, and that FERC directed NERC to “specify how the confidentiality, integrity, and availability of each type of bulk electric system data should be protected while it is being transmitted.” However, SRP takes exception to the extent the proposed standard requires the data in scope to be protected. FERC Order 822 states on page 36, “…we recognize that not all communication network components and data pose the same risk to bulk electric system reliability and may not require the same level of protection.” However, the proposed standard applies the same criteria of protection against unauthorized disclosure across all of the data within the defined scope. SRP does not agree viewing of the Real-time Assessment and Real-time monitoring and control data without context will decrease the reliable operation of the BES and asserts confidentiality does not need to be protected for all data under this scope. Additionally, SRP recognizes the SDT is not specifying the controls used to protect confidentiality and integrity. However, the only method available to achieve the proposed required objective is to implement encryption. FERC Order 822 states on page 39, “it is reasonable to conclude that any lag in communication speed resulting from implementation of protections [encryption technologies] should only be measureable on the order of milliseconds and, therefore, will not adversely impact Control Center communications,” but SRP asserts this statement only refers to a single data stream. It is unknown what encryption will do when dealing with multiple data streams being transmitted at once, from one to many points, not only to the latency added for the reliable operation of the BES, but also to the computing resources.	
Likes 0	
Dislikes 0	
Response	

Richard Vine - California ISO - 2	
Answer	Yes
Document Name	
Comment	
The California ISO supports the comments of the IRC Security Working Group (SWG)	
Likes 0	
Dislikes 0	
Response	

Sean Cavote - PSEG - 1,3,5,6 - NPCC,RF, Group Name PSEG REs	
Answer	Yes
Document Name	

Comment	
PSEG agrees with the revision; however, the SDT should clarify that it is permissible for the demarcation point to be located outside the ESP/PSP.	
Likes 4	PSEG - Public Service Electric and Gas Co., 1, Smith Joseph; PSEG - Public Service Electric and Gas Co., 3, Mueller Jeffrey; Long Island Power Authority, 1, Ganley Robert; PSEG - PSEG Fossil LLC, 5, Kucey Tim
Dislikes 0	
Response	
Ronald Donahey - TECO - Tampa Electric Co. - 3	
Answer	Yes
Document Name	
Comment	
TEC wishes to endorse the comment of the Edison Electric Institute.	
Likes 0	
Dislikes 0	
Response	
Lynn Goldstein - PNM Resources - Public Service Company of New Mexico - 3	
Answer	Yes
Document Name	
Comment	
PNMR Agrees with the SDT and AEP's comments to remove Operational and Planning data from the scope of the Standard. However we do not share AEP's concerns and comments regarding market related data.	
Likes 0	
Dislikes 0	
Response	
Colby Bellville - Duke Energy - 1,3,5,6 - FRCC,SERC,RF, Group Name Duke Energy	
Answer	Yes
Document Name	

Comment	
Duke Energy agrees with the revision, however, we feel that in order to ensure consistency throughout the industry, the drafting team should consider developing definitions for Real-time Monitoring and Real-time Control Data. Neither of these terms are NERC defined, and could lead to varying interpretations throughout the industry. Does the Real-time Monitoring data only include the data specified in TOP-003 and IRO-010? Does it include SCADA data used specifically to control field assets like generators (AGC) , circuit breakers, relays, etc.? The standard would be improved with additional clarity around these terms.	
Likes 0	
Dislikes 0	
Response	
Shannon Fair - Colorado Springs Utilities - 1,3,5,6	
Answer	Yes
Document Name	
Comment	
CSU agrees the data should be protected. SRP also agrees the protections for the data in scope must ensure the data has not been modified, and that FERC directed NERC to "specify how the confidentiality, integrity, and availability of each type of bulk electric system data should be protected while it is being transmitted." However, CSU takes exception to the extent the proposed standard requires the data in scope to be protected. FERC Order 822 states on page 36, "…we recognize that not all communication network components and data pose the same risk to bulk electric system reliability and may not require the same level of protection." However, the proposed standard applies the same criteria of protection against unauthorized disclosure across all of the data within the defined scope. CSU does not agree viewing of the Real-time Assessment and Real-time monitoring and control data without context will decrease the reliable operation of the BES and asserts confidentiality does not need to be protected for all data under this scope.	
Likes 0	
Dislikes 0	
Response	
Amy Casuscelli - Xcel Energy, Inc. - 1,3,5,6 - MRO,WECC,SPP RE	
Answer	Yes
Document Name	
Comment	
Xcel Energy agrees with the removal of language related to Planning Analysis, but continues to have concerns with implementation of this Standards as related to the term and definition of Control Center. Specifically, Xcel Energy is concerenced with the definition of "associated data centeres" as part of the Control Center. The Standard does not appear to apply to communication between the control center and a field device (per reference model on page 5 of Technical Rationale). However, if there is a control center communicating with a device that aggregates multiple field devices, such as a dual ported RTU, is that aggregating device location considered an associated data center?	
Likes 0	

Dislikes 0	

Response

Elizabeth Axson - Electric Reliability Council of Texas, Inc. - 2

Answer	Yes
Document Name	

Comment

ERCOT signs onto the comments of the SRC/ITC/SWG of the IRC, pasted below.

Comments: The SRC & ITC SWG offers the following comment and recommendation. To draw a more clear line to the TOP-003 and IRO-010 standards, the SWG recommends revising Requirement R1 as follows, “For Real-time Assessment and Real-time monitoring and control data, as documented by a Reliability Coordinator, Transmission Operator, or Balancing Authority, the Responsible Entity shall develop one or more documented plan(s) to mitigate the risk of the unauthorized disclosure or modification of the data while it is being transmitted between Control Centers. This excludes oral communications, regardless of transport means.”

Likes 0	
Dislikes 0	

Response

Chantal Mazza - Hydro-Qu?bec TransEnergie - 2 - NPCC

Answer	Yes
Document Name	

Comment

R1 addresses developing a plan and R2 implementing the plan. In numerous EOP standards involving plans as well as in IRO-014, the terminology used is “develop, maintain and implement”. Maintenance of a plan i.e. keeping it up to date is essential. Thus we recommend modifying R1 so that it reads :

R1. The Responsible Entity shall develop and maintain one or more documented plan(s) to mitigate (…)

This comment is more of a comprehension question. If we take for example the following : we have two control centers and the distance between the two control centers is approximately 20 miles (32Km) .

One control center has two buildings and the distance between the two buildings is approximately 70 miles (112Km). One building is for the Operating personnel hosting facility, which has a defined PSP and an ESP. The other building, is the data Center (hosting RAS servers), which has a defined PSP and an ESP.

There is a communication link (70 miles (112Km)) between the Operating personnel hosting building and the data center building. This communication link would not be subject of CIP-012. The communication link (20 miles (32Km)) between the two control centers would be subject to the CIP-012.

Is this comprehension correct?	
Likes 0	
Dislikes 0	
Response	
Andrey Komissarov - Andrey Komissarov On Behalf of: Jerome Gobby, Sempra - San Diego Gas and Electric, 5, 3, 1; - Andrey Komissarov	
Answer	Yes
Document Name	
Comment	
SDG&E is in agreement with Duke Energy's comments	
Likes 0	
Dislikes 0	
Response	
Laurie Williams - PNM Resources - Public Service Company of New Mexico - 1	
Answer	Yes
Document Name	
Comment	
PNMR Agrees with the SDT and AEP's comments to remove Operational and Planning data from the scope of the Standard. However we do not share AEP's concerns and comments regarding market related data.	
Likes 0	
Dislikes 0	
Response	
Karie Barczak - DTE Energy - Detroit Edison Company - 3,4,5, Group Name DTE Energy - DTE Electric	
Answer	Yes
Document Name	
Comment	

Scoping to real-time data is appropriate as entities share significant amounts of data between control centers for coordination, safety, and operations that would not have an 15 minute impact on the BES. The requirement should only apply to real-time data that would impact BES operations.

Likes 0	
Dislikes 0	

Response

David Francis - SRC - 2 - MRO,Texas RE,NPCC,SERC,RF, Group Name SRC + SWG

Answer	Yes
Document Name	

Comment

Comments: The SRC & ITC SWG offers the following comment and recommendation. To draw a more clear line to the TOP-003 and IRO-010 standards, the SWG recommends revising Requirement R1 as follows, "For Real-time Assessment and Real-time monitoring and control data, as documented by a Reliability Coordinator, Transmission Operator, or Balancing Authority, the Responsible Entity shall develop one or more documented plan(s) to mitigate the risk of the unauthorized disclosure or modification of the data while it is being transmitted between Control Centers. This excludes oral communications, regardless of transport means."

Likes 0	
Dislikes 0	

Response

Steven Powell - Trans Bay Cable LLC - NA - Not Applicable - WECC

Answer	Yes
Document Name	

Comment

Likes 0	
Dislikes 0	

Response

Kara White - NRG - NRG Energy, Inc. - 3,4,5,6 - FRCC,MRO,WECC,Texas RE,NPCC,SERC,SPP RE,RF

Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Brian Millard - Tennessee Valley Authority - 1,3,5,6 - SERC, Group Name Tennessee Valley Authority	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Aaron Ghodooshim - FirstEnergy - FirstEnergy Corporation - 3, Group Name FirstEnergy Corporation	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Glen Farmer - Avista - Avista Corporation - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	

Dislikes 0	
Response	
Vivian Vo - APS - Arizona Public Service Co. - 3	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Eleanor Ewry - Puget Sound Energy, Inc. - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Chris Scanlon - Exelon - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Laura Nelson - IDACORP - Idaho Power Company - 1	
Answer	Yes

Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Maryanne Darling-Reich - Black Hills Corporation - 1,3,5,6 - WECC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
David Ramkalawan - Ontario Power Generation Inc. - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Brandon McCormick - Brandon McCormick On Behalf of: Ginny Beigel, City of Vero Beach, 3; Lynne Mila, City of Clewiston, 4; Tom Reedy, Florida Municipal Power Pool, 6; - Brandon McCormick, Group Name FMPA	
Answer	Yes
Document Name	
Comment	
Likes 0	

Dislikes 0	

Response

Douglas Webb - Douglas Webb On Behalf of: Harold Wyble, Great Plains Energy - Kansas City Power and Light Co., 5, 1, 3, 6; James McBee, Great Plains Energy - Kansas City Power and Light Co., 5, 1, 3, 6; Jessica Tucker, Great Plains Energy - Kansas City Power and Light Co., 5, 1, 3, 6; Jim Flucke, Great Plains Energy - Kansas City Power and Light Co., 5, 1, 3, 6; - Douglas Webb

Answer	Yes
Document Name	

Comment

Likes 0	
Dislikes 0	

Response

larry brusseau - Corn Belt Power Cooperative - 1

Answer	Yes
Document Name	

Comment

Likes 0	
Dislikes 0	

Response

RoLynda Shumpert - SCANA - South Carolina Electric and Gas Co. - 1,3,5,6 - SERC

Answer	Yes
Document Name	

Comment

Likes 0	
Dislikes 0	

Response

Sergio Banuelos - Tri-State G and T Association, Inc. - 1,3,5 - MRO,WECC

Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
W. Dwayne Preston - Austin Energy - 3	
Answer	
Document Name	
Comment	
I support Andrew Gallo's Comments from Austin Energy.	
Likes 0	
Dislikes 0	
Response	

2. Requirement R1: The SDT seeks comment on scoping sensitive BES data as it applies to Real-time Assessment and Real-time monitoring and control data. Do you agree with scoping CIP-012-1 Requirement R1 in this manner? Please provide comment in support of your response.

sean erickson - Western Area Power Administration - 1

Answer	No
Document Name	

Comment

WAPA agrees with the removal of “data related to Operational Planning Analysis” from R1. However, clarification is needed to ensure that the “control data” term is consistently applied and clearly addresses the intent of FERC’s directive. Additionally, important scoping from the implementation guidance belongs in the requirement, that demarcation points don’t add additional Cyber Assets to the scope of the CIP standards.

Likes 0	
Dislikes 0	

Response

Andrey Komissarov - Andrey Komissarov On Behalf of: Jerome Gobby, Sempra - San Diego Gas and Electric, 5, 3, 1; - Andrey Komissarov

Answer	No
Document Name	

Comment

SDG&E is in agreement with Xcel Energy's comments

Likes 0	
Dislikes 0	

Response

Joe Tarantino - Joe Tarantino On Behalf of: Arthur Starkovich, Sacramento Municipal Utility District, 4, 1, 5, 6, 3; Beth Tincher, Sacramento Municipal Utility District, 4, 1, 5, 6, 3; Jamie Cutlip, Sacramento Municipal Utility District, 4, 1, 5, 6, 3; Kevin Smith, Balancing Authority of Northern California, 1; Nicole Looney, Sacramento Municipal Utility District, 4, 1, 5, 6, 3; Susan Oto, Sacramento Municipal Utility District, 4, 1, 5, 6, 3; - Joe Tarantino

Answer	No
Document Name	

Comment

We have a concern regarding real time assessment, the real time assessment is a study about the system condition and is not going to change the status of the power system. The data does not need to be protected to this level because knowledge of the data would not lead to scenario that would impact the BES within 15 minutes. Additionally, the operators validate the data through reasonable tests before they make operational actions.

Likes 0	
Dislikes 0	

Response

Jeanne Kurzynowski - Consumers Energy Company - 1,3,4,5 - RF

Answer	No
Document Name	

Comment

Please clarify the scope of the standard and requirement.

Likes 0	
Dislikes 0	

Response

Rachel Coyne - Texas Reliability Entity, Inc. - 10

Answer	No
Document Name	

Comment

Texas RE notes the SDT modified R1 to apply to Real-time Assessment (RTA) and Real-time monitoring to be consistent with the definition of Control Center, however, Texas RE recommends including Operational Planning Analysis (OPA). The SDT's position is that OPA data for the next day, if rendered unavailable, would not adversely impact the reliable operation of the BES within 15 minutes. However, impact to the reliable operation of the BES within 15 minutes should not be the only consideration for protection of OPA data. Texas RE notes that OPA and RTA data are distinguishable only by the period that data is actually used. Most important, OPA's data risk of unauthorized disclosure should be mitigated consistent with other similar sensitive data. For example, if a registered entity's communications between Control Centers were compromised, OPA data may be useful in the planning of future attacks on the BES. The OPA data includes information such an evaluation of projected system conditions to assess anticipated (pre-Contingency) and potential (post-Contingency) conditions for next-day operations. The evaluation also reflects load forecasts; generation output levels; Interchange; known Protection System and Special Protection System status or degradation. It is not difficult to think of a scenario whereby unauthorized disclosure of OPA data, may adversely impact the reliable operation of the BES within 15 minutes.

Since the SDT is electing not to directly reference other standards, the SDT could change the language of R1 to say: *The Responsible Entity shall develop one or more documented plan(s) to mitigate the risk of unauthorized disclosure or modification of data as defined by the data specification* *required to fulfill operational and planning responsibilities while being transmitted between any Control Centers.* This would make CIP-012-1 consistent with the IRO-010 and TOP-003 Standards, as well as include the OPA data.

Since the terms "Real-time monitoring" and "control data", used in part 1.3, is not defined, Texas RE requests the SDT provide examples of this type of data. This could be done as part of the Implementation Guidance document.

Texas RE requests the SDT describe the types of controls it expects to see that are not covered by IRO-010 and TOP-003.

Likes 0	
Dislikes 0	

Response

Amy Casuscelli - Xcel Energy, Inc. - 1,3,5,6 - MRO,WECC,SPP RE

Answer	No
Document Name	

Comment

Xcel Energy believes that the types of data to be within scope, as identified by data specification lists orginating from Requirements TOP-003 and IRO-010 are not specific enough to determine or limit the types of data or communciation methods that would need to be protected as Real Time Assessment, Real Time Monitoring, or Control Data. These lists contain data and methods of communicating data that Xcel Energy would not clasify as Real Time Assessment, Real Time Monitoring, or Control Data. Xcel Energy's concern is that NERC and/or Regional Entites may. The inclusion of all data types and methods on these lists could bring systems like corporate email into scope, which Xcel Energy would adamantly oppose. We suggest adding further clarification as to what types of data are included as Real Time Assessment, Real Time Monitoring and Control Data.

Likes 0	
Dislikes 0	

Response

Lan Nguyen - CenterPoint Energy Houston Electric, LLC - 1 - Texas RE

Answer	No
Document Name	

Comment

As mentioned in the Response to Question No. 1, the phrase "and control" should be removed from the requirement.

Likes 0	
Dislikes 0	

Response

Annette Johnston - Berkshire Hathaway Energy - MidAmerican Energy Co. - 3	
Answer	No
Document Name	
Comment	
Support Terry Harbour comments (Berhshire Hathaway - MidAmerican Energy Company)	
Likes 0	
Dislikes 0	
Response	

Terry Harbour - Berkshire Hathaway Energy - MidAmerican Energy Co. - 1	
Answer	No
Document Name	
Comment	
Important scoping from the implementation guidance belongs in the requirement, that demarcation points don't add additional Cyber Assets to the scope of the CIP standards.	
Likes 0	
Dislikes 0	
Response	

Barry Lawson - National Rural Electric Cooperative Association - 4	
Answer	No
Document Name	
Comment	
Same comments as question 1 above.	
Likes 0	
Dislikes 0	
Response	

Richard Jackson - U.S. Bureau of Reclamation - 1	
Answer	No
Document Name	
Comment	

Reclamation does not agree with the scope of CIP-012-1 Requirement R1.

Reclamation recommends the SDT implement the following:

- Clearly specify that each Responsible Entity is required to mitigate the risk of unauthorized disclosure or modification of **its own** BES Data between **its own** Control Centers.

Add the following definition to the NERC Glossary of Terms:

BES Data: BES reliability operating services information related to the entity's high and medium impact Control Centers which affects Operational Planning Analysis, Real-time Assessments, and Real-time monitoring and control of the facility, and would affect the operation of the BES if compromised.

Likes 0	
Dislikes 0	
Response	

Paul Huettl - Basin Electric Power Cooperative - 6	
Answer	No
Document Name	
Comment	
Please refer to NRECA comments.	
Likes 0	
Dislikes 0	
Response	

Russel Mountjoy - Midwest Reliability Organization - 10, Group Name MRO NSRF	
Answer	No
Document Name	
Comment	

We agree with the removal of “data related to Operational Planning Analysis” from R1. However, clarification is needed to ensure that the “control data” term is consistently applied and clearly addresses the intent of FERC’s directive. Additionally, important scoping from the implementation guidance belongs in the requirement, that demarcation points don’t add additional Cyber Assets to the scope of the CIP standards.

Likes 0	
Dislikes 0	
Response	
Aaron Cavanaugh - Bonneville Power Administration - 1,3,5,6 - WECC	
Answer	No
Document Name	
Comment	
While BPA agrees with the exclusion of Operational Planning Analysis from the scope of R1, we still do not agree with the need for CIP-012.	
Likes 0	
Dislikes 0	
Response	
Janis Weddle - Public Utility District No. 1 of Chelan County - 6, Group Name Chelan PUD	
Answer	No
Document Name	
Comment	
CHPD requests more formal definition of terms that describe the data in question. Consider a NERC Glossary term of “BES data” (used in this question) to address “monitoring” and “control” data types in a single definition. A potential, admittedly simple, initial definition to consider: BES Data – Electronic data used by BES Cyber Systems to perform Supervisory Control and Data Acquisition (SCADA). If the STD believes that monitoring and control data should be defined separately, then CHPD instead requests new NERC Glossary terms for “monitoring data” and “control data” in place of a combined definition.	
Likes 5	Public Utility District No. 1 of Snohomish County, 5, Nietfeld Sam; Snohomish County PUD No. 1, 6, Lu Franklin; Public Utility District No. 1 of Snohomish County, 1, Duong Long; Snohomish County PUD No. 1, 3, Oens Mark; Public Utility District No. 1 of Snohomish County, 4, Martinsen John
Dislikes 0	
Response	

Sean Bodkin - Dominion - Dominion Resources, Inc. - 6, Group Name Dominion	
Answer	No
Document Name	
Comment	
The term “control data” is not defined. Dominion Energy recommends either defining the term or providing additional guidance on its meaning in the GTB. In addition, Part 1.3 is strictly administrative in nature and does not enhance the reliability of the BES. We recommend that this part be removed in its entirety. Finally, Dominion Energy is concerned that the demarcation line between Entities is not clearly defined.	
Likes 0	
Dislikes 0	
Response	

Rick Applegate - Tacoma Public Utilities (Tacoma, WA) - 6	
Answer	Yes
Document Name	
Comment	
Tacoma Power endorses the draft comments shared with it by Salt River Project (SRP), which follow: SRP agrees scoping CIP-012-1 Requirement R1 in this manner and thanks the SDT for the opportunity to comment on the scope. However, as stated in SRP’s response to question 1, SRP does not agree viewing of the Real-time Assessment and Real-time monitoring and control data without context will decrease the reliable operation of the BES and asserts confidentiality does not need to be protected for all data under this scope.	
Likes 0	
Dislikes 0	
Response	

David Francis - SRC - 2 - MRO,Texas RE,NPCC,SERC,RF, Group Name SRC + SWG	
Answer	Yes
Document Name	
Comment	
None	

Likes 0	
Dislikes 0	
Response	
Ruida Shu - Northeast Power Coordinating Council - 1,2,3,4,5,6,7,8,9,10 - NPCC, Group Name RSC no Dominion and ISO-NE	
Answer	Yes
Document Name	
Comment	
We conceptually agree with the scoping but need more details on "monitoring and control data." We agree with the removal of "Operational Planning Analysis."	
Likes 0	
Dislikes 0	
Response	
Leonard Kula - Independent Electricity System Operator - 2	
Answer	Yes
Document Name	
Comment	
We conceptually agree with the scoping but need more details on "monitoring and control data." We agree with the removal of "Operational Planning Analysis."	
Likes 0	
Dislikes 0	
Response	
Brandon McCormick - Brandon McCormick On Behalf of: Ginny Beigel, City of Vero Beach, 3; Lynne Mila, City of Clewiston, 4; Tom Reedy, Florida Municipal Power Pool, 6; - Brandon McCormick, Group Name FMPA	
Answer	Yes
Document Name	
Comment	
FMPA agrees with the removal of data used for Operational Planning Analysis	

Likes 0	
Dislikes 0	

Response

Laurie Williams - PNM Resources - Public Service Company of New Mexico - 1

Answer	Yes
Document Name	

Comment

PNMR agrees with the scoping of sensitive BES data to Real-time Assessment and Real-time monitoring and control data. While others have commented a concern regarding a lack of formal NERC Glossary of Terms definition, PNMR does not share this concern. If this concept was used beyond this standard then a formal defined term would be appropriate.

Likes 0	
Dislikes 0	

Response

Ginette Lacasse - Seattle City Light - 1,3,4,5,6 - WECC, Group Name Seattle City Light Ballot Body

Answer	Yes
Document Name	

Comment

We support SRP and Chelan PUD comments.

Likes 0	
Dislikes 0	

Response

Maryanne Darling-Reich - Black Hills Corporation - 1,3,5,6 - WECC

Answer	Yes
Document Name	

Comment

Sensitive BES data required Real-time Assessments, Real-time Monitoring and Control data is the appropriate scope in CIP-012-1 Requirement R1

Likes 0	

Dislikes 0	
Response	
Shannon Fair - Colorado Springs Utilities - 1,3,5,6	
Answer	Yes
Document Name	
Comment	
CSU agrees scoping CIP-012-1 Requirement R1 in this manner and thanks the SDT for the opportunity to comment on the scope. However, as stated in SRP's response to question 1, SRP does not agree viewing of the Real-time Assessment and Real-time monitoring and control data without context will decrease the reliable operation of the BES and asserts confidentiality does not need to be protected for all data under this scope.	
Likes 0	
Dislikes 0	
Response	
Lona Calderon - Salt River Project - 1,3,5,6 - WECC	
Answer	Yes
Document Name	
Comment	
SRP agrees scoping CIP-012-1 Requirement R1 in this manner and thanks the SDT for the opportunity to comment on the scope. However, as stated in SRP's response to question 1, SRP does not agree viewing of the Real-time Assessment and Real-time monitoring and control data without context will decrease the reliable operation of the BES and asserts confidentiality does not need to be protected for all data under this scope.	
Likes 0	
Dislikes 0	
Response	
Lynn Goldstein - PNM Resources - Public Service Company of New Mexico - 3	
Answer	Yes
Document Name	
Comment	
PNMR agrees with the scoping of sensitive BES data to Real-time Assessment and Real-time monitoring and control data. While others have commented a concern regarding a lack of formal NERC Glossary of Terms definition, PNMR does not share this concern. If this concept was used beyond this standard then a formal defined term would be appropriate.	

Likes 0	
Dislikes 0	
Response	
Andrew Gallo - Austin Energy - 6	
Answer	Yes
Document Name	
Comment	
AE does not, however, agree viewing Real-time Assessment and monitoring/control data without context will adversely affect reliable operation of the BES and believes not all in-scope data requires the same level of confidentiality.	
Likes 0	
Dislikes 0	
Response	
Vivian Vo - APS - Arizona Public Service Co. - 3	
Answer	Yes
Document Name	
Comment	
The revised scoping appropriately omits operational planning.	
Likes 0	
Dislikes 0	
Response	
Ronald Donahey - TECO - Tampa Electric Co. - 3	
Answer	Yes
Document Name	
Comment	
TEC wishes to endorse the comment of the Edison Electric Institute.	
Likes 0	
Dislikes 0	

Response	
Richard Vine - California ISO - 2	
Answer	Yes
Document Name	
Comment	
The California ISO supports the comments of the IRC Security Working Group (SWG)	
Likes 0	
Dislikes 0	
Response	
Brian Millard - Tennessee Valley Authority - 1,3,5,6 - SERC, Group Name Tennessee Valley Authority	
Answer	Yes
Document Name	
Comment	
TVA agrees that the proposed scoping of sensitive BES data consistent with existing standards is appropriate. This approach helps clarify what data to protect should the entity choose an application layer protection, and may also aid in identifying the links to which the controls are applied.	
Likes 0	
Dislikes 0	
Response	
Aaron Austin - AEP - 3	
Answer	Yes
Document Name	
Comment	
AEP believes this aligns with CIP-002 identification processes and narrows the scope appropriately.	
Likes 0	
Dislikes 0	
Response	

Sergio Banuelos - Tri-State G and T Association, Inc. - 1,3,5 - MRO,WECC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
RoLynda Shumpert - SCANA - South Carolina Electric and Gas Co. - 1,3,5,6 - SERC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Karie Barczak - DTE Energy - Detroit Edison Company - 3,4,5, Group Name DTE Energy - DTE Electric	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Kevin Salsbury - Berkshire Hathaway - NV Energy - 5	
Answer	Yes
Document Name	
Comment	

Likes 0	
Dislikes 0	
Response	
larry brusseau - Corn Belt Power Cooperative - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Douglas Webb - Douglas Webb On Behalf of: Harold Wyble, Great Plains Energy - Kansas City Power and Light Co., 5, 1, 3, 6; James McBee, Great Plains Energy - Kansas City Power and Light Co., 5, 1, 3, 6; Jessica Tucker, Great Plains Energy - Kansas City Power and Light Co., 5, 1, 3, 6; Jim Flucke, Great Plains Energy - Kansas City Power and Light Co., 5, 1, 3, 6; - Douglas Webb	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
David Ramkalawan - Ontario Power Generation Inc. - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

Elizabeth Axson - Electric Reliability Council of Texas, Inc. - 2	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

Jennifer Hohenshilt - Talen Energy Marketing, LLC - 6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

Laura Nelson - IDACORP - Idaho Power Company - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

Chris Scanlon - Exelon - 1	
Answer	Yes
Document Name	
Comment	

Likes 0	
Dislikes 0	
Response	
Oshani Pathirane - Oshani Pathirane On Behalf of: Payam Farahbakhsh, Hydro One Networks, Inc., 1, 3; - Oshani Pathirane	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Colby Bellville - Duke Energy - 1,3,5,6 - FRCC,SERC,RF, Group Name Duke Energy	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Shannon Mickens - Southwest Power Pool, Inc. (RTO) - 2 - SPP RE, Group Name SPP Standards Review Group	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Nicholas Lauriat - Network and Security Technologies - 1	

Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Eleanor Ewry - Puget Sound Energy, Inc. - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Glen Farmer - Avista - Avista Corporation - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Sean Cavote - PSEG - 1,3,5,6 - NPCC,RF, Group Name PSEG REs	
Answer	Yes
Document Name	
Comment	

Likes 2	PSEG - Public Service Electric and Gas Co., 1, Smith Joseph; PSEG - Public Service Electric and Gas Co., 3, Mueller Jeffrey
Dislikes 0	
Response	
Aaron Ghodooshim - FirstEnergy - FirstEnergy Corporation - 3, Group Name FirstEnergy Corporation	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Donald Lock - Talen Generation, LLC - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Kara White - NRG - NRG Energy, Inc. - 3,4,5,6 - FRCC,MRO,WECC,Texas RE,NPCC,SERC,SPP RE,RF	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

Steven Powell - Trans Bay Cable LLC - NA - Not Applicable - WECC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

W. Dwayne Preston - Austin Energy - 3	
Answer	
Document Name	
Comment	
I support Andrew Gallo's Comments from Austin Energy.	
Likes 0	
Dislikes 0	
Response	

3. Requirement R2: The SDT drafted CIP-012-1 Requirement R2 for the Responsible Entity to implement the plan(s) specified in Requirement R1, except under CIP Exceptional Circumstances. Do you agree with this revision? If not, please provide the basis for your disagreement and an alternate proposal.

Aaron Cavanaugh - Bonneville Power Administration - 1,3,5,6 - WECC	
Answer	No
Document Name	
Comment	
While BPA agrees with the language of R2, we still do not agree with the need for CIP-012, or with the standard as currently drafted.	
Likes 0	
Dislikes 0	
Response	

Russel Mountjoy - Midwest Reliability Organization - 10, Group Name MRO NSRF	
Answer	No
Document Name	
Comment	

The NSRF does not agree with two separate requirements, one for a plan and one to implementation. We recommend following precedent in the other CIP standards, for example, CIP-004-6. The obligation can be accomplished with one requirement, as follows.

R1. “The Responsible Entity shall implement one or more documented process(es) to mitigate the risk of the unauthorized disclosure or modification of Real-time Assessments and Real-time monitoring and control data while being transmitted between any Control Centers, except under CIP Exceptional Circumstances. This excludes oral communications. The process(es) shall identify:

R1.1 security protection used to mitigate risk of unauthorized disclosure or modification of Real-time Assessment and Real-time monitoring and control data while being transmitted between Control Centers,

R1.2 demarcation point(s) where security protection is applied for transmitting Real-time Assessment and Real-time monitoring and control data between Control Centers. Demarcation points identified by the Responsible Entity do not add additional Cyber Assets to the scope of the CIP Reliability Standards; and

For R1.3, please see our rational in question 6. R1.3 Identify each Responsible Entity for applying security protection(s) to the transmission of Real-time Assessment and Real-time monitoring and control data between Control Centers, when the Control Centers are owned or operated by different Responsible Entities.”

This also includes important scoping from the implementation guidance that belongs in the requirement, that demarcation points don’t add additional Cyber Assets to the scope of the CIP standards.

Likes 0	
Dislikes 0	

Response	
Richard Jackson - U.S. Bureau of Reclamation - 1	
Answer	No
Document Name	
Comment	

Reclamation recommends the SDT implement the following:

- Replace the term “plan” with “process” for consistency with other CIP standards.
- Change Requirement R2:

from: The Responsible Entity shall implement the plan(s) specified in Requirement R1, except under CIP Exceptional Circumstances

to: The Responsible Entity shall implement the process(s) specified in Requirement R1, except under CIP Exceptional Circumstances

Likes 0	
Dislikes 0	
Response	
Terry Harbour - Berkshire Hathaway Energy - MidAmerican Energy Co. - 1	
Answer	No
Document Name	
Comment	

We do not agree with two separate requirements, one for a plan and one to implement. We recommend following precedent in the other CIP standards, for example, CIP-004-011. The obligation can be accomplished with one requirement, as follows. “The Responsible Entity shall implement one or more documented process(es) to mitigate the risk of the unauthorized disclosure or modification of Real-time Assessments and Real-time monitoring and control data while being transmitted between any Control Centers, except under CIP Exceptional Circumstances. This excludes oral communications. The process(es) shall identify: 1.1 security protection used to mitigate risk of unauthorized disclosure or modification of Real-time Assessment and Real-time monitoring and control data while being transmitted between Control Centers. 1.2 demarcation point(s) where security protection is applied for transmitting Real-time Assessment and Real-time monitoring and control data between Control Centers. Demarcation points identified by the Responsible Entity do not add additional Cyber Assets to the scope of the CIP Reliability Standards; and 1.3 roles and responsibilities of each Responsible Entity for applying security protection to the transmission of Real-time Assessment and Real-time monitoring and control data between Control Centers, when the Control Centers are owned or operated by different Responsible Entities.” This also includes important scoping from the implementation guidance that belongs in the requirement, that demarcation points don’t add additional Cyber Assets to the scope of the CIP standards.

Likes 0	
Dislikes 0	
Response	

Annette Johnston - Berkshire Hathaway Energy - MidAmerican Energy Co. - 3	
Answer	No
Document Name	
Comment	
Support Terry Harbour comments (Berhshire Hathaway - MidAmerican Energy Company)	
Likes 0	
Dislikes 0	
Response	
Oshani Pathirane - Oshani Pathirane On Behalf of: Payam Farahbakhsh, Hydro One Networks, Inc., 1, 3; - Oshani Pathirane	
Answer	No
Document Name	
Comment	
We require clarity on how the implementation plan will address Control Centres that will be built in the future.	
Likes 0	
Dislikes 0	
Response	
Rachel Coyne - Texas Reliability Entity, Inc. - 10	
Answer	No
Document Name	
Comment	
Texas RE appreciates the SDT's response. As Texas RE previously noted, it does not necessarily oppose a CIP Exceptional Circumstances exception from the implementation requirements set forth in CIP-012-1 R2. However, despite the SDT's response, it remains unclear why certain CIP exception conditions, such as an imminent hardware failure, should necessarily trigger a relaxation of physical security protections for communications links transmitted sensitive data in all circumstances.	
Likes 0	
Dislikes 0	
Response	

Jeanne Kurzynowski - Consumers Energy Company - 1,3,4,5 - RF	
Answer	No
Document Name	
Comment	
Requirement R2 can be combined with Requirement R1 so that it is written in a consistent approach with other FERC approved CIP requirements.	
Likes 0	
Dislikes 0	
Response	
Kevin Salsbury - Berkshire Hathaway - NV Energy - 5	
Answer	No
Document Name	
Comment	
It is unnecessary to have 2 Requirements for this Standard, especially with each Requirement currently identified to have the same enforceable date. NV Energy recommends following precedence of other Standards and combining the Requirements into a single requirement that states, "An entity shall implement one or more document processes/plans....". .	
Likes 0	
Dislikes 0	
Response	
sean erickson - Western Area Power Administration - 1	
Answer	No
Document Name	
Comment	
WAPA does not agree with two separate requirements, one for a plan and one for implementation. We recommend following precedent in the other CIP standards, for example, CIP-004-6. The obligation can be accomplished with one requirement. See response to question 1.	
Likes 0	
Dislikes 0	
Response	

Paul Huettl - Basin Electric Power Cooperative - 6	
Answer	Yes
Document Name	
Comment	
Please refer to NRECA comments.	
Likes 0	
Dislikes 0	
Response	
Richard Vine - California ISO - 2	
Answer	Yes
Document Name	
Comment	
The California ISO supports the comments of the IRC Security Working Group (SWG)	
Likes 0	
Dislikes 0	
Response	
Glen Farmer - Avista - Avista Corporation - 5	
Answer	Yes
Document Name	
Comment	
A plan would be created to outline protections and classify BES data moving between control centers.	
Likes 0	
Dislikes 0	
Response	
Lona Calderon - Salt River Project - 1,3,5,6 - WECC	

Answer	Yes
Document Name	
Comment	
SRP agrees on implementing a plan and agrees a CIP Exceptional Circumstance is in order.	
Likes 0	
Dislikes 0	
Response	
Shannon Fair - Colorado Springs Utilities - 1,3,5,6	
Answer	Yes
Document Name	
Comment	
CSU agrees on implementing a plan and agrees a CIP Exceptional Circumstance is in order.	
Likes 0	
Dislikes 0	
Response	
Ginette Lacasse - Seattle City Light - 1,3,4,5,6 - WECC, Group Name Seattle City Light Ballot Body	
Answer	Yes
Document Name	
Comment	
We support SRP and Chelan PUD comments.	
Likes 0	
Dislikes 0	
Response	
David Francis - SRC - 2 - MRO,Texas RE,NPCC,SERC,RF, Group Name SRC + SWG	
Answer	Yes
Document Name	

Comment	
None	
Likes 0	
Dislikes 0	
Response	
Steven Powell - Trans Bay Cable LLC - NA - Not Applicable - WECC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Kara White - NRG - NRG Energy, Inc. - 3,4,5,6 - FRCC,MRO,WECC,Texas RE,NPCC,SERC,SPP RE,RF	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Sean Bodkin - Dominion - Dominion Resources, Inc. - 6, Group Name Dominion	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	

Response	
Janis Weddle - Public Utility District No. 1 of Chelan County - 6, Group Name Chelan PUD	
Answer	Yes
Document Name	
Comment	
Likes 5	Public Utility District No. 1 of Snohomish County, 5, Nietfeld Sam; Snohomish County PUD No. 1, 6, Lu Franklin; Public Utility District No. 1 of Snohomish County, 1, Duong Long; Snohomish County PUD No. 1, 3, Oens Mark; Public Utility District No. 1 of Snohomish County, 4, Martinsen John
Dislikes 0	
Response	
Aaron Austin - AEP - 3	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Brian Millard - Tennessee Valley Authority - 1,3,5,6 - SERC, Group Name Tennessee Valley Authority	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Donald Lock - Talen Generation, LLC - 5	
Answer	Yes

Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Aaron Ghodooshim - FirstEnergy - FirstEnergy Corporation - 3, Group Name FirstEnergy Corporation	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Sean Cavote - PSEG - 1,3,5,6 - NPCC,RF, Group Name PSEG REs	
Answer	Yes
Document Name	
Comment	
Likes 2	PSEG - Public Service Electric and Gas Co., 1, Smith Joseph; PSEG - Public Service Electric and Gas Co., 3, Mueller Jeffrey
Dislikes 0	
Response	
Vivian Vo - APS - Arizona Public Service Co. - 3	
Answer	Yes
Document Name	
Comment	
Likes 0	

Dislikes 0	
Response	
Andrew Gallo - Austin Energy - 6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Lynn Goldstein - PNM Resources - Public Service Company of New Mexico - 3	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Eleanor Ewry - Puget Sound Energy, Inc. - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Nicholas Lauriat - Network and Security Technologies - 1	
Answer	Yes

Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Shannon Mickens - Southwest Power Pool, Inc. (RTO) - 2 - SPP RE, Group Name SPP Standards Review Group	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Colby Bellville - Duke Energy - 1,3,5,6 - FRCC,SERC,RF, Group Name Duke Energy	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Barry Lawson - National Rural Electric Cooperative Association - 4	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	

Response	
Lan Nguyen - CenterPoint Energy Houston Electric, LLC - 1 - Texas RE	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Chris Scanlon - Exelon - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Amy Casuscelli - Xcel Energy, Inc. - 1,3,5,6 - MRO,WECC,SPP RE	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Laura Nelson - IDACORP - Idaho Power Company - 1	
Answer	Yes
Document Name	

Comment	
Likes 0	
Dislikes 0	
Response	
Jennifer Hohenshilt - Talen Energy Marketing, LLC - 6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Maryanne Darling-Reich - Black Hills Corporation - 1,3,5,6 - WECC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Elizabeth Axson - Electric Reliability Council of Texas, Inc. - 2	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

Joe Tarantino - Joe Tarantino On Behalf of: Arthur Starkovich, Sacramento Municipal Utility District, 4, 1, 5, 6, 3; Beth Tincher, Sacramento Municipal Utility District, 4, 1, 5, 6, 3; Jamie Cutlip, Sacramento Municipal Utility District, 4, 1, 5, 6, 3; Kevin Smith, Balancing Authority of Northern California, 1; Nicole Looney, Sacramento Municipal Utility District, 4, 1, 5, 6, 3; Susan Oto, Sacramento Municipal Utility District, 4, 1, 5, 6, 3; - Joe Tarantino	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Chantal Mazza - Hydro-Qu?bec TransEnergie - 2 - NPCC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Andrey Komissarov - Andrey Komissarov On Behalf of: Jerome Gobby, Sempra - San Diego Gas and Electric, 5, 3, 1; - Andrey Komissarov	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Laurie Williams - PNM Resources - Public Service Company of New Mexico - 1	
Answer	Yes

Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
David Ramkalawan - Ontario Power Generation Inc. - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Brandon McCormick - Brandon McCormick On Behalf of: Ginny Beigel, City of Vero Beach, 3; Lynne Mila, City of Clewiston, 4; Tom Reedy, Florida Municipal Power Pool, 6; - Brandon McCormick, Group Name FMPA	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Douglas Webb - Douglas Webb On Behalf of: Harold Wyble, Great Plains Energy - Kansas City Power and Light Co., 5, 1, 3, 6; James McBee, Great Plains Energy - Kansas City Power and Light Co., 5, 1, 3, 6; Jessica Tucker, Great Plains Energy - Kansas City Power and Light Co., 5, 1, 3, 6; Jim Flucke, Great Plains Energy - Kansas City Power and Light Co., 5, 1, 3, 6; - Douglas Webb	
Answer	Yes
Document Name	
Comment	

Likes 0	
Dislikes 0	
Response	
larry brusseau - Corn Belt Power Cooperative - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Karie Barczak - DTE Energy - Detroit Edison Company - 3,4,5, Group Name DTE Energy - DTE Electric	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
RoLynda Shumpert - SCANA - South Carolina Electric and Gas Co. - 1,3,5,6 - SERC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Sergio Banuelos - Tri-State G and T Association, Inc. - 1,3,5 - MRO,WECC	

Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Rick Applegate - Tacoma Public Utilities (Tacoma, WA) - 6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Ronald Donahey - TECO - Tampa Electric Co. - 3	
Answer	
Document Name	
Comment	
TEC wishes to endorse the comment of the Edison Electric Institute.	
Likes 0	
Dislikes 0	
Response	
W. Dwayne Preston - Austin Energy - 3	
Answer	
Document Name	
Comment	

I support Andrew Gallo's Comments from Austin Energy.

Likes 0	
Dislikes 0	

Response

4. Implementation Plan: The SDT revised the Implementation Plan to make the standard effective the first day of the first calendar quarter that is twenty-four (24) calendar months after the effective date of the applicable governmental authority's order approving the standard, or as otherwise provided for by the applicable governmental authority. Do you agree with this proposal? If you think an alternate implementation time period is needed, please provide a detailed explanation of actions and time needed to meet the implementation deadline.

Rick Applegate - Tacoma Public Utilities (Tacoma, WA) - 6	
Answer	No
Document Name	
Comment	

Tacoma Power endorses the draft comments shared with it by Salt River Project (SRP), which follow:

Overall, SRP does not agree with twenty-four (24) calendar months for the implementation of Requirements R1 and R2. Although SRP recognizes the SDT is not specifying the controls to be used to protect confidentiality and integrity, the only examples provided in the implementation guidance includes encryption. If there are other methods available to achieve the security objective, SRP asks the SDT to provide them. However, the only method available to achieve the proposed required objective, on the ICCP network, is to implement encryption. As FERC order 822 states on page 37, "if several registered entities have joint responsibility for a cryptographic key management system used between their respective Control Centers, they should have the prerogative to come to a consensus on which organization administers that particular key management system." Furthermore, the FERC order states on page 38, "While responsible entities are required to exchange real-time and operational planning data necessary to operate the bulk electric system using mutually agreeable security protocols, there is no technical specification for how this transfer of information should incorporate mandatory security controls." These are activities and specifications that must be created and agreed upon by all registered entities involved in the data transfer. As such the timeline is reliant on registered entities working together on a common solution and would not be achievable within 24 calendar months.

Additionally, if encryption fails, SRP would lose Real-time Assessment and Real-time monitoring and control data. There are many opportunities for encryption to fail that must be addressed. The implementation of encryption requires a pilot to truly understand and address the mechanisms of failure, the impacts encryption would cause on the exchange of the data, and the computing resources required. A pilot also requires a great amount of coordination to execute, not only within the industry, but may also include carriers, vendors, and possibly third-party encryption key program managers.

Because of the aforementioned reasons and concerns, SRP is recommending a phased implementation for CIP-012-1. A 24 month implementation is appropriate, but only for Requirement R1. The 24 months for R1 would provide time to coordinate and create an industry-wide solution. SRP is proposing the SDT include an additional 12 months for Requirement R2. The additional 12 months would be used for a pilot and course correction if needed, in addition to understanding, formulating, and executing maintenance strategies.

Likes 0	
Dislikes 0	
Response	

Karie Barczak - DTE Energy - Detroit Edison Company - 3,4,5, Group Name DTE Energy - DTE Electric	
Answer	No
Document Name	
Comment	

This seems to be an excessively long period of time to implement this proposed standard. The security of real-time data is important and should be prioritized. Yes, entities must communicate and develop joint plans to implement, but allowing a long horizon for implementation will not enable this communication to occur faster.

Likes 0	
Dislikes 0	

Response

sean erickson - Western Area Power Administration - 1

Answer	No
Document Name	

Comment

WAPA recommends an increase to at least three years in order to coordinate with other entities, including specification, design, budgeting, implementation and testing.

Likes 0	
Dislikes 0	

Response

Andrey Komissarov - Andrey Komissarov On Behalf of: Jerome Gobby, Sempra - San Diego Gas and Electric, 5, 3, 1; - Andrey Komissarov

Answer	No
Document Name	

Comment

SDG&E is in agreement with BPA's comments

Likes 0	
Dislikes 0	

Response

Joe Tarantino - Joe Tarantino On Behalf of: Arthur Starkovich, Sacramento Municipal Utility District, 4, 1, 5, 6, 3; Beth Tincher, Sacramento Municipal Utility District, 4, 1, 5, 6, 3; Jamie Cutlip, Sacramento Municipal Utility District, 4, 1, 5, 6, 3; Kevin Smith, Balancing Authority of Northern California, 1; Nicole Looney, Sacramento Municipal Utility District, 4, 1, 5, 6, 3; Susan Oto, Sacramento Municipal Utility District, 4, 1, 5, 6, 3; - Joe Tarantino

Answer	No
Document Name	

Comment	
:Agreements between entities takes time and is it is dependent on items an entity cannot control. We recommend at least 36 months.	
Likes 0	
Dislikes 0	
Response	
Ginette Lacasse - Seattle City Light - 1,3,4,5,6 - WECC, Group Name Seattle City Light Ballot Body	
Answer	No
Document Name	
Comment	
We support SRP and Chelan PUD comments.	
Likes 0	
Dislikes 0	
Response	
Amy Casuscelli - Xcel Energy, Inc. - 1,3,5,6 - MRO,WECC,SPP RE	
Answer	No
Document Name	
Comment	
Xcel Energy does not agree with the proposed Implementation timeline. We share real time data with Registed Entities (REs) such as the Reliability Coordinators (RCs) including MISO, SPP and PEAK. Additionally, we share data with many utilties with Control Centers across our service territory. Finding a common technological solution to implement the proposed mitigating activities in the Requirements will take a substantial effort of the part of all REs. Once a common technology and all legal agreements between REs are in place, Xcel Energy may still have to purchanse and implement those technology solutions. We suggest that NERC should advise and collaborate with all RCs to agree upon a common technology first and then drive those solutions from the RC down to each utility in scope.	
Likes 0	
Dislikes 0	
Response	

Annette Johnston - Berkshire Hathaway Energy - MidAmerican Energy Co. - 3	
Answer	No
Document Name	
Comment	
Support Terry Harbour comments (Berhshire Hathaway - MidAmerican Energy Company)	
Likes 0	
Dislikes 0	
Response	
Shannon Fair - Colorado Springs Utilities - 1,3,5,6	
Answer	No
Document Name	
Comment	
Overall, CSU does not agree with twenty-four (24) calendar months for the implementation of Requirements R1 and R2. Although CSU recognizes the SDT is not specifying the controls to be used to protect confidentiality and integrity, the only examples provided in the implementation guidance includes encryption. If there are other methods available to achieve the security objective, we ask the SDT to provide them. However, the only method available to achieve the proposed required objective, on the ICCP network, is to implement encryption. As FERC order 822 states on page 37, "if several registered entities have joint responsibility for a cryptographic key management system used between their respective Control Centers, they should have the prerogative to come to a consensus on which organization administers that particular key management system." Furthermore, the FERC order states on page 38, "While responsible entities are required to exchange real-time and operational planning data necessary to operate the bulk electric system using mutually agreeable security protocols, there is no technical specification for how this transfer of information should incorporate mandatory security controls." These are activities and specifications that must be created and agreed upon by all registered entities involved in the data transfer. As such the timeline is reliant on registered entities working together on a common solution and would not be achievable within 24 calendar months. Because of the aforementioned reasons and concerns, CSU is recommending a phased implementation for CIP-012-1. A 24 month implementation is appropriate, but only for Requirement R1. The 24 months for R1 would provide time to coordinate and create an industry-wide solution. SRP is proposing the SDT include an additional 12 months for Requirement R2. The additional 12 months would be used for a pilot and course correction if needed, in addition to understanding, formulating, and executing maintenance strategies.	
Likes 0	
Dislikes 0	
Response	
Lona Calderon - Salt River Project - 1,3,5,6 - WECC	
Answer	No
Document Name	

Comment	
Overall, SRP does not agree with twenty-four (24) calendar months for the implementation of Requirements R1 and R2. Although SRP recognizes the SDT is not specifying the controls to be used to protect confidentiality and integrity, the only examples provided in the implementation guidance includes encryption. If there are other methods available to achieve the security objective, SRP asks the SDT to provide them. However, the only method available to achieve the proposed required objective, on the ICCP network, is to implement encryption. As FERC order 822 states on page 37, "if several registered entities have joint responsibility for a cryptographic key management system used between their respective Control Centers, they should have the prerogative to come to a consensus on which organization administers that particular key management system." Furthermore, the FERC order states on page 38, "While responsible entities are required to exchange real-time and operational planning data necessary to operate the bulk electric system using mutually agreeable security protocols, there is no technical specification for how this transfer of information should incorporate mandatory security controls." These are activities and specifications that must be created and agreed upon by all registered entities involved in the data transfer. As such the timeline is reliant on registered entities working together on a common solution and would not be achievable within 24 calendar months. Additionally, if encryption fails, SRP would lose Real-time Assessment and Real-time monitoring and control data. There are many opportunities for encryption to fail that must be addressed. The implementation of encryption requires a pilot to truly understand and address the mechanisms of failure, the impacts encryption would cause on the exchange of the data, and the computing resources required. A pilot also requires a great amount of coordination to execute, not only within the industry, but may also include carriers, vendors, and possibly third-party encryption key program managers. Because of the aforementioned reasons and concerns, SRP is recommending a phased implementation for CIP-012-1. A 24 month implementation is appropriate, but only for Requirement R1. The 24 months for R1 would provide time to coordinate and create an industry-wide solution. SRP is proposing the SDT include an additional 12 months for Requirement R2. The additional 12 months would be used for a pilot and course correction if needed, in addition to understanding, formulating, and executing maintenance strategies.	
Likes 0	
Dislikes 0	
Response	
Terry Harbour - Berkshire Hathaway Energy - MidAmerican Energy Co. - 1	
Answer	No
Document Name	
Comment	
At least three years are needed to coordinate with other entities, including specification, design, budgeting, implementation and testing.	
Likes 0	
Dislikes 0	
Response	
Andrew Gallo - Austin Energy - 6	
Answer	No
Document Name	

Comment

Overall, AE does not agree with twenty-four (24) calendar months for R1 and R2. Although AE recognizes the SDT does not specify the controls to protect confidentiality and integrity, the only examples provided in the implementation guidance include encryption. If other methods exist, AE believes the SDT should provide them.

The only way to achieve the proposed requirement on the ICCP network is encryption. As FERC Order 822 states (on page 37), "if several registered entities have joint responsibility for a cryptographic key management system used between their respective Control Centers, they should have the prerogative to come to a consensus on which organization administers that particular key management system." The FERC order also states (on page 38), "While responsible entities are required to exchange real-time and operational planning data necessary to operate the bulk electric system using mutually agreeable security protocols, there is no technical specification for how this transfer of information should incorporate mandatory security controls." These specifications must be created and agreed upon by all registered entities involved in the data transfer. Consequently, the time to comply depends on registered entities working together on a common solution and will likely take more than 24 months.

Additionally, if encryption fails, AE would lose Real-time monitoring and control data. Encryption may fail for many reasons. Implementing encryption should involve a pilot period to assess and address the mechanisms of failure, impacts on data exchange and the requisite computing resources. A pilot also requires coordination, not only for the industry, but also carriers, vendors, and, possibly, third-party encryption key program managers.

Consequently, AE recommends a phased implementation for CIP-012-1. A 24 month implementation is appropriate for R1 because it would provide time to coordinate and create an industry-wide solution. AE proposes the SDT grant an extra 12 months for R2 to allow for a pilot and adjustments, if needed.

Likes 0	
Dislikes 0	

Response

Russel Mountjoy - Midwest Reliability Organization - 10, Group Name MRO NSRF

Answer	No
Document Name	

Comment

The NRSF recommends an increase to at least three years in order to coordinate with other entities, including specification, design, budgeting, implementation and testing.

Likes 0	
Dislikes 0	

Response

Aaron Cavanaugh - Bonneville Power Administration - 1,3,5,6 - WECC

Answer	No
Document Name	

Comment

BPA appreciates the increase to 24 months but recommends 36 months due to BPA's large amount of applicable data, access to funds and resources to perform work required.	
Likes 0	
Dislikes 0	
Response	
David Francis - SRC - 2 - MRO,Texas RE,NPCC,SERC,RF, Group Name SRC + SWG	
Answer	Yes
Document Name	
Comment	
None	
Likes 0	
Dislikes 0	
Response	
Brandon McCormick - Brandon McCormick On Behalf of: Ginny Beigel, City of Vero Beach, 3; Lynne Mila, City of Clewiston, 4; Tom Reedy, Florida Municipal Power Pool, 6; - Brandon McCormick, Group Name FMPA	
Answer	Yes
Document Name	
Comment	
FMPA supports the additional time this implementation plan provides.	
Likes 0	
Dislikes 0	
Response	
Laurie Williams - PNM Resources - Public Service Company of New Mexico - 1	
Answer	Yes
Document Name	
Comment	

A quick internal review by PNMR SMEs indicates that this implementation plan is reasonable for the proposed standard.	
Likes 0	
Dislikes 0	
Response	
Barry Lawson - National Rural Electric Cooperative Association - 4	
Answer	Yes
Document Name	
Comment	
NRECA appreciates the change from 12 months to 24 months in the Implementation Plan.	
Likes 0	
Dislikes 0	
Response	
Vivian Vo - APS - Arizona Public Service Co. - 3	
Answer	Yes
Document Name	
Comment	
The period of 24 months will likely be reasonable; however, agreement with neighboring entities poses an unpredictable step in terms of time for completion.	
Likes 0	
Dislikes 0	
Response	
Richard Vine - California ISO - 2	
Answer	Yes
Document Name	
Comment	
The California ISO supports the comments of the IRC Security Working Group (SWG)	

Likes 0	
Dislikes 0	

Response

Paul Huettl - Basin Electric Power Cooperative - 6

Answer	Yes
Document Name	

Comment

Please refer to NRECA comments.

Likes 0	
Dislikes 0	

Response

Brian Millard - Tennessee Valley Authority - 1,3,5,6 - SERC, Group Name Tennessee Valley Authority

Answer	Yes
Document Name	

Comment

The proposed time period allows entities sufficient time to develop internal plans to implement the enhanced security requirements, negotiate the necessary security changes between entities, and to make appropriate contract adjustments with service providers.

Likes 0	
Dislikes 0	

Response

Aaron Austin - AEP - 3

Answer	Yes
Document Name	

Comment

AEP believes a 24 month Implementation Plan is adequate provided the TOP-003 and IRO-010 Real-time data and the mutually agreeable security protocols are defined prior to the beginning of the CIP-012 implementation period.

Likes 0	

Dislikes 0	
Response	
Sergio Banuelos - Tri-State G and T Association, Inc. - 1,3,5 - MRO,WECC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
RoLynda Shumpert - SCANA - South Carolina Electric and Gas Co. - 1,3,5,6 - SERC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Kevin Salsbury - Berkshire Hathaway - NV Energy - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
larry brusseau - Corn Belt Power Cooperative - 1	
Answer	Yes

Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Douglas Webb - Douglas Webb On Behalf of: Harold Wyble, Great Plains Energy - Kansas City Power and Light Co., 5, 1, 3, 6; James McBee, Great Plains Energy - Kansas City Power and Light Co., 5, 1, 3, 6; Jessica Tucker, Great Plains Energy - Kansas City Power and Light Co., 5, 1, 3, 6; Jim Flucke, Great Plains Energy - Kansas City Power and Light Co., 5, 1, 3, 6; - Douglas Webb	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
David Ramkalawan - Ontario Power Generation Inc. - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Chantal Mazza - Hydro-Qu?bec TransEnergie - 2 - NPCC	
Answer	Yes
Document Name	
Comment	
Likes 0	

Dislikes 0	
Response	
Jeanne Kurzynowski - Consumers Energy Company - 1,3,4,5 - RF	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Elizabeth Axson - Electric Reliability Council of Texas, Inc. - 2	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Maryanne Darling-Reich - Black Hills Corporation - 1,3,5,6 - WECC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Jennifer Hohenshilt - Talen Energy Marketing, LLC - 6	
Answer	Yes

Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Rachel Coyne - Texas Reliability Entity, Inc. - 10	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Laura Nelson - IDACORP - Idaho Power Company - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Chris Scanlon - Exelon - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	

Response	
Lan Nguyen - CenterPoint Energy Houston Electric, LLC - 1 - Texas RE	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Oshani Pathirane - Oshani Pathirane On Behalf of: Payam Farahbakhsh, Hydro One Networks, Inc., 1, 3; - Oshani Pathirane	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Colby Bellville - Duke Energy - 1,3,5,6 - FRCC,SERC,RF, Group Name Duke Energy	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Shannon Mickens - Southwest Power Pool, Inc. (RTO) - 2 - SPP RE, Group Name SPP Standards Review Group	
Answer	Yes
Document Name	

Comment	
Likes 0	
Dislikes 0	
Response	
Nicholas Lauriat - Network and Security Technologies - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Eleanor Ewry - Puget Sound Energy, Inc. - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Lynn Goldstein - PNM Resources - Public Service Company of New Mexico - 3	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

Glen Farmer - Avista - Avista Corporation - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Sean Cavote - PSEG - 1,3,5,6 - NPCC,RF, Group Name PSEG REs	
Answer	Yes
Document Name	
Comment	
Likes 2	PSEG - Public Service Electric and Gas Co., 1, Smith Joseph; PSEG - Public Service Electric and Gas Co., 3, Mueller Jeffrey
Dislikes 0	
Response	
Richard Jackson - U.S. Bureau of Reclamation - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Aaron Ghodooshim - FirstEnergy - FirstEnergy Corporation - 3, Group Name FirstEnergy Corporation	
Answer	Yes
Document Name	

Comment	
Likes 0	
Dislikes 0	
Response	
Donald Lock - Talen Generation, LLC - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Janis Weddle - Public Utility District No. 1 of Chelan County - 6, Group Name Chelan PUD	
Answer	Yes
Document Name	
Comment	
Likes 5	Public Utility District No. 1 of Snohomish County, 5, Nietfeld Sam; Snohomish County PUD No. 1, 6, Lu Franklin; Public Utility District No. 1 of Snohomish County, 1, Duong Long; Snohomish County PUD No. 1, 3, Oens Mark; Public Utility District No. 1 of Snohomish County, 4, Martinsen John
Dislikes 0	
Response	
Sean Bodkin - Dominion - Dominion Resources, Inc. - 6, Group Name Dominion	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	

Response	
Kara White - NRG - NRG Energy, Inc. - 3,4,5,6 - FRCC,MRO,WECC,Texas RE,NPCC,SERC,SPP RE,RF	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Steven Powell - Trans Bay Cable LLC - NA - Not Applicable - WECC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Ruida Shu - Northeast Power Coordinating Council - 1,2,3,4,5,6,7,8,9,10 - NPCC, Group Name RSC no Dominion and ISO-NE	
Answer	
Document Name	
Comment	
We are concerned about equipment under existing contracts. We suggest a solution similar to CIP-013.	
Likes 0	
Dislikes 0	
Response	
Leonard Kula - Independent Electricity System Operator - 2	
Answer	

Document Name	
Comment	
We are concerned about equipment under existing contracts. We suggest a solution similar to CIP-013.	
Likes 0	
Dislikes 0	
Response	

W. Dwayne Preston - Austin Energy - 3	
Answer	
Document Name	
Comment	
I support Andrew Gallo's Comments from Austin Energy.	
Likes 0	
Dislikes 0	
Response	

Ronald Donahey - TECO - Tampa Electric Co. - 3	
Answer	
Document Name	
Comment	
TEC wishes to endorse the comment of the Edison Electric Institute.	
Likes 0	
Dislikes 0	
Response	

5. The SDT believes proposed CIP-012-1 provides entities with flexibility to meet the reliability objectives in a cost effective manner. Do you agree? If you do not agree, or if you agree but have suggestions for improvement to enable more cost effective approaches, please provide your recommendation and, if appropriate, technical justification.

Sean Bodkin - Dominion - Dominion Resources, Inc. - 6, Group Name Dominion

Answer	No
Document Name	

Comment

At this time Dominion Energy has no information to assess the cost of a plan that has yet to be developed.

Likes 0	
Dislikes 0	

Response

Janis Weddle - Public Utility District No. 1 of Chelan County - 6, Group Name Chelan PUD

Answer	No
Document Name	

Comment

CHPD cannot determine if the objectives may be accomplished in a cost-effective manner until further clarification is provided for the terms “monitoring data” and “control data” (separate definitions) or “BES data” (combined definition). CHPD also has concerns with vendor availability, with respect to the system software implementation that will be required for all entities industry-wide. The comments provided by other entities to develop an industry-wide encryption specification is appealing and CHPD believes that would provide a better method for achieving the desired intra-entity security.

Likes 5	Public Utility District No. 1 of Snohomish County, 5, Nietfeld Sam; Snohomish County PUD No. 1, 6, Lu Franklin; Public Utility District No. 1 of Snohomish County, 1, Duong Long; Snohomish County PUD No. 1, 3, Oens Mark; Public Utility District No. 1 of Snohomish County, 4, Martinsen John
Dislikes 0	

Response

Aaron Austin - AEP - 3

Answer	No
Document Name	

Comment

AEP believes communication network security requires “mutually agreed upon: formats, processes for resolving conflicts and security protocols” between entities. However in practice, there is little that is mutually agreed upon in the data specification documents as they

relate to IRO-010 and TOP-003. The Balancing Authority, Transmission Operator and Reliability Coordinator specify the data they want to receive in the manner they want to receive it. Others receiving the requests are obligated to comply. Without additional specificity, most entities will be at the mercy of what their BAs, TOPs and RCs require. AEP believes this dependency creates only the presumption that solutions will be cost effective.

Likes 0	
Dislikes 0	

Response

Aaron Cavanaugh - Bonneville Power Administration - 1,3,5,6 - WECC

Answer	No
Document Name	

Comment

BPA's believes that if the data must be protected throughout the transmission, it would seem that could only be accomplished with encryption. For cases where the existing equipment is not capable of encryption, replacement will be costly and implementation lengthy.

Due to BPA's large amount of applicable data, access to funds and resources to perform work required, the solution will be costly.

Likes 0	
Dislikes 0	

Response

Donald Lock - Talen Generation, LLC - 5

Answer	No
Document Name	

Comment

See our response to question #1

Likes 0	
Dislikes 0	

Response

Andrew Gallo - Austin Energy - 6

Answer	No
Document Name	

Comment	
AE does not agree the proposal can be implemented in a cost-effective manner. Encryption is the only available solution to protect in-scope data confidentiality and integrity. If the implementation period remains 24 months, entities will expend more resources and capital than using a phased implementation. A phased implementation provides the ability to ensure the most effective plan and plan more accurately within budget cycles. Also, if encryption fails, AE would lose Real-time monitoring and control data. AE believes a 24 month implementation timeline will impact reliability because many opportunities exist for encryption to fail and those challenges must be addressed, which has a direct affect on cost.	
Likes 0	
Dislikes 0	
Response	

Colby Bellville - Duke Energy - 1,3,5,6 - FRCC,SERC,RF, Group Name Duke Energy	
Answer	No
Document Name	
Comment	
We are unable to answer this question in full at this time. The cost of implementation cannot be adequately assessed until discussion and coordination with our neighboring entities (control centers) has taken place. We do not know what additional protections or updates may need to be put in place until said discussions occur.	
Likes 0	
Dislikes 0	
Response	

Lona Calderon - Salt River Project - 1,3,5,6 - WECC	
Answer	No
Document Name	
Comment	
SRP does not agree the current standard and implementation plan can be executed in a cost effective manner. Encryption is the only solution available to protect both confidentiality and integrity for the data within this scope. If the implementation timeframe remains at 24 months, more resources and capital will be required versus a phased implementation. A phased implementation provides the ability to not only ensure the most effective plan, but also provides the ability to plan more accurately within budget cycles. More importantly, if encryption fails, SRP would lose Real-time Assessment and Real-time monitoring and control data. SRP is concerned a 24 month implementation timeline would impact reliability as there are many opportunities for encryption to fail that must be addressed. This has a direct correlation on cost when addressing those opportunities during this timeframe.	
Likes 0	
Dislikes 0	

Response

Shannon Fair - Colorado Springs Utilities - 1,3,5,6	
Answer	No
Document Name	
Comment	
CSU does not agree the current standard and implementation plan can be executed in a cost effective manner. Encryption is the only solution available to protect both confidentiality and integrity for the data within this scope. If the implementation timeframe remains at 24 months, more resources and capital will be required versus a phased implementation. A phased implementation provides the ability to not only ensure the most effective plan, but also provides the ability to plan more accurately within budget cycles. More importantly, if encryption fails, CSU would lose Real-time Assessment and Real-time monitoring and control data. CSU is concerned a 24 month implementation timeline would impact reliability as there are many opportunities for encryption to fail that must be addressed. This has a direct correlation on cost when addressing those opportunities during this timeframe.	
Likes 0	
Dislikes 0	
Response	

Amy Casuscelli - Xcel Energy, Inc. - 1,3,5,6 - MRO,WECC,SPP RE	
Answer	No
Document Name	
Comment	
We believe that the cost effectiveness of implementation would depend on the technology that would need to be deployed. Similar to response to question 4, NERC should advise and work with all RCs to agree upon a common technology and drive those solutions from the RC down to each utility in order to ensure cost effectiveness. The implementation of several different technologies to communicate with several different RCs and utilities would be overly burdensome and at a cost that would not be effective.	
Likes 0	
Dislikes 0	
Response	

Jennifer Hohenshilt - Talen Energy Marketing, LLC - 6	
Answer	No
Document Name	
Comment	

See response to Q1

Likes 0	
Dislikes 0	

Response

Jeanne Kurzynowski - Consumers Energy Company - 1,3,4,5 - RF

Answer	No
Document Name	

Comment
More flexibility and less guidance could lead to inconsistency on requirement implementation among different entities.

Likes 0	
Dislikes 0	

Response

Ginette Lacasse - Seattle City Light - 1,3,4,5,6 - WECC, Group Name Seattle City Light Ballot Body

Answer	No
Document Name	

Comment
We support SRP and Chelan PUD comments.

Likes 0	
Dislikes 0	

Response

Joe Tarantino - Joe Tarantino On Behalf of: Arthur Starkovich, Sacramento Municipal Utility District, 4, 1, 5, 6, 3; Beth Tincher, Sacramento Municipal Utility District, 4, 1, 5, 6, 3; Jamie Cutlip, Sacramento Municipal Utility District, 4, 1, 5, 6, 3; Kevin Smith, Balancing Authority of Northern California, 1; Nicole Looney, Sacramento Municipal Utility District, 4, 1, 5, 6, 3; Susan Oto, Sacramento Municipal Utility District, 4, 1, 5, 6, 3; - Joe Tarantino

Answer	No
Document Name	

Comment

We recommend that an encryption standard is published to guide entities. Developing protocols between entities is time consuming and costly. An exception process can be defined if needed to offer flexibility.

Likes 0	
Dislikes 0	
Response	
Andrey Komissarov - Andrey Komissarov On Behalf of: Jerome Gobby, Sempra - San Diego Gas and Electric, 5, 3, 1; - Andrey Komissarov	
Answer	No
Document Name	
Comment	
SDG&E is in agreement with BPA's comments	
Likes 0	
Dislikes 0	
Response	
RoLynda Shumpert - SCANA - South Carolina Electric and Gas Co. - 1,3,5,6 - SERC	
Answer	No
Document Name	
Comment	
SCE&G has already implemented the controls to protect sensitive Bulk Electric System (BES) data while being transmitted over communications links between BES Control Centers.	
Likes 0	
Dislikes 0	
Response	
Rick Applegate - Tacoma Public Utilities (Tacoma, WA) - 6	
Answer	No

Document Name	

Comment

Tacoma Power endorses the draft comments shared with it by Salt River Project (SRP), which follow:

SRP does not agree the current standard and implementation plan can be executed in a cost effective manner. Encryption is the only solution available to protect both confidentiality and integrity for the data within this scope. If the implementation timeframe remains at 24 months, more resources and capital will be required versus a phased implementation. A phased implementation provides the ability to not only ensure the most effective plan, but also provides the ability to plan more accurately within budget cycles. More importantly, if encryption fails, SRP would lose Real-time Assessment and Real-time monitoring and control data. SRP is concerned a 24 month implementation timeline would impact reliability as there are many opportunities for encryption to fail that must be addressed. This has a direct correlation on cost when addressing those opportunities during this timeframe.

Likes 0	
Dislikes 0	

Response

Oshani Pathirane - Oshani Pathirane On Behalf of: Payam Farahbakhsh, Hydro One Networks, Inc., 1, 3; - Oshani Pathirane

Answer	No
Document Name	

Comment

Likes 0	
Dislikes 0	

Response

Russel Mountjoy - Midwest Reliability Organization - 10, Group Name MRO NSRF

Answer	Yes
Document Name	

Comment

As noted in earlier comments, clarification of the “control data” term is needed to fully assess our ability to address the standard in a cost effective manner. The flexibility built in to the current revision of R1 should support consideration of cost effective alternatives.

Likes 0	
Dislikes 0	

Response

Richard Vine - California ISO - 2	
Answer	Yes
Document Name	
Comment	
The California ISO supports the comments of the IRC Security Working Group (SWG)	
Likes 0	
Dislikes 0	
Response	
Lynn Goldstein - PNM Resources - Public Service Company of New Mexico - 3	
Answer	Yes
Document Name	
Comment	
PNMR believes the reliability objectives can be met in a cost effective manner for any internal links. However it is difficult to determine if links to external Entities can be met in a cost effective manner. PNMR agrees with AEP's concern of "mutually agreed upon: formats, processes for resolving conflicts and security protocols" can affect the cost of implementation. Yet PNMR currently does not see an instance where this would greatly impact the cost of implementation.	
Likes 0	
Dislikes 0	
Response	
Annette Johnston - Berkshire Hathaway Energy - MidAmerican Energy Co. - 3	
Answer	Yes
Document Name	
Comment	
no comments	
Likes 0	
Dislikes 0	
Response	

Lan Nguyen - CenterPoint Energy Houston Electric, LLC - 1 - Texas RE	
Answer	Yes
Document Name	
Comment	
The proposed Standard, as written, provides entities flexibility on implementation.	
Likes 0	
Dislikes 0	
Response	
Laura Nelson - IDACORP - Idaho Power Company - 1	
Answer	Yes
Document Name	
Comment	
Infrastructure will have to be added, and the standard allows for flexibility. There are some concerts that data exchange with other entities may become difficult, and it may become costly to support that infrastructure.	
Likes 0	
Dislikes 0	
Response	
Laurie Williams - PNM Resources - Public Service Company of New Mexico - 1	
Answer	Yes
Document Name	
Comment	
PNMR believes the reliability objectives can be met in a cost effective manner for any internal links. However it is difficult to determine if links to external Entities can be met in a cost effective manner. PNMR agrees with AEP's concern of "mutually agreed upon: formats, processes for resolving conflicts and security protocols" can affect the cost of implementation. Yet PNMR currently does not see an instance where this would greatly impact the cost of implementation.	
Likes 0	
Dislikes 0	
Response	

sean erickson - Western Area Power Administration - 1	
Answer	Yes
Document Name	
Comment	
As noted in earlier comments, clarification of the “control data” term is needed to fully assess our ability to address the standard in a cost effective manner. The flexibility built in to the current revision of R1 should support consideration of cost effective alternatives.	
Likes 0	
Dislikes 0	
Response	
David Francis - SRC - 2 - MRO,Texas RE,NPCC,SERC,RF, Group Name SRC + SWG	
Answer	Yes
Document Name	
Comment	
None	
Likes 0	
Dislikes 0	
Response	
Steven Powell - Trans Bay Cable LLC - NA - Not Applicable - WECC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Kara White - NRG - NRG Energy, Inc. - 3,4,5,6 - FRCC,MRO,WECC,Texas RE,NPCC,SERC,SPP RE,RF	

Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Brian Millard - Tennessee Valley Authority - 1,3,5,6 - SERC, Group Name Tennessee Valley Authority	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Aaron Ghodooshim - FirstEnergy - FirstEnergy Corporation - 3, Group Name FirstEnergy Corporation	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Richard Jackson - U.S. Bureau of Reclamation - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	

Dislikes 0	
Response	
Sean Cavote - PSEG - 1,3,5,6 - NPCC,RF, Group Name PSEG REs	
Answer	Yes
Document Name	
Comment	
Likes 2	PSEG - Public Service Electric and Gas Co., 1, Smith Joseph; PSEG - Public Service Electric and Gas Co., 3, Mueller Jeffrey
Dislikes 0	
Response	
Glen Farmer - Avista - Avista Corporation - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Vivian Vo - APS - Arizona Public Service Co. - 3	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Eleanor Ewry - Puget Sound Energy, Inc. - 5	

Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Nicholas Lauriat - Network and Security Technologies - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Shannon Mickens - Southwest Power Pool, Inc. (RTO) - 2 - SPP RE, Group Name SPP Standards Review Group	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Terry Harbour - Berkshire Hathaway Energy - MidAmerican Energy Co. - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	

Dislikes 0	
Response	
Chris Scanlon - Exelon - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Maryanne Darling-Reich - Black Hills Corporation - 1,3,5,6 - WECC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Elizabeth Axson - Electric Reliability Council of Texas, Inc. - 2	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Chantal Mazza - Hydro-Qu?bec TransEnergie - 2 - NPCC	
Answer	Yes

Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
David Ramkalawan - Ontario Power Generation Inc. - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Brandon McCormick - Brandon McCormick On Behalf of: Ginny Beigel, City of Vero Beach, 3; Lynne Mila, City of Clewiston, 4; Tom Reedy, Florida Municipal Power Pool, 6; - Brandon McCormick, Group Name FMPA	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Douglas Webb - Douglas Webb On Behalf of: Harold Wyble, Great Plains Energy - Kansas City Power and Light Co., 5, 1, 3, 6; James McBee, Great Plains Energy - Kansas City Power and Light Co., 5, 1, 3, 6; Jessica Tucker, Great Plains Energy - Kansas City Power and Light Co., 5, 1, 3, 6; Jim Flucke, Great Plains Energy - Kansas City Power and Light Co., 5, 1, 3, 6; - Douglas Webb	
Answer	Yes
Document Name	
Comment	

Likes 0	
Dislikes 0	
Response	
larry brusseau - Corn Belt Power Cooperative - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Kevin Salsbury - Berkshire Hathaway - NV Energy - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Karie Barczak - DTE Energy - Detroit Edison Company - 3,4,5, Group Name DTE Energy - DTE Electric	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Sergio Banuelos - Tri-State G and T Association, Inc. - 1,3,5 - MRO,WECC	

Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Ronald Donahey - TECO - Tampa Electric Co. - 3	
Answer	
Document Name	
Comment	
TEC wishes to endorse the comment of the Edison Electric Institute.	
Likes 0	
Dislikes 0	
Response	
W. Dwayne Preston - Austin Energy - 3	
Answer	
Document Name	
Comment	
I support Andrew Gallo's Comments from Austin Energy.	
Likes 0	
Dislikes 0	
Response	
Rachel Coyne - Texas Reliability Entity, Inc. - 10	
Answer	
Document Name	
Comment	

Texas RE does not have comments on this question.	
Likes 0	
Dislikes 0	
Response	
Leonard Kula - Independent Electricity System Operator - 2	
Answer	
Document Name	
Comment	
Cost effectiveness will be determined by the Entity's implementation and existing contracts.	
Likes 0	
Dislikes 0	
Response	
Ruida Shu - Northeast Power Coordinating Council - 1,2,3,4,5,6,7,8,9,10 - NPCC, Group Name RSC no Dominion and ISO-NE	
Answer	
Document Name	
Comment	
Cost effectiveness will be determined by the Entity's implementation and existing contracts.	
Likes 0	
Dislikes 0	
Response	

6. If you have additional comments on the proposed CIP-012-1 – Cyber Security – Communications between Control Centers drafted in response to the FERC directive that you have not provided in response to the questions above, please provide them here.

Rick Applegate - Tacoma Public Utilities (Tacoma, WA) - 6	
Answer	
Document Name	
Comment	
Thank you for your consideration.	
Likes 0	
Dislikes 0	
Response	

Brandon Cain - Southern Company - Southern Company Services, Inc. - 1,3,5,6 - FRCC,MRO,WECC,Texas RE,SERC,SPP RE, Group Name Southern Company	
Answer	
Document Name	
Comment	

Overall, Southern Company is concerned that the scope of data is too broad and subject to interpretation during audits without direct ties to the IRO and TOP standards requiring identification of the subject data. The nature of the data in Control Center environments is such that its criticality often changes based on the current situation. Entities performing TOP and BA functions, in particular, receive data from a variety of entities, each with its own data provision capabilities. A variety of data formats and delivery mechanisms are accommodated, and not all data received is needed at all times. Groupings of data and how those groupings are defined is important. Without endorsed Technical Rationale and Implementation Guidance, development of an appropriate technical plan to address this requirement and support successful audits of it remain a concern.

Southern Company feels that 12 months is appropriate to develop a plan, but an additional 24 months beyond planning may be needed to implement a reliable technical solution. Given the need to perform a proper engineering study on network infrastructure to assess current state and adapt it to meet the new requirements, additional time is needed to assess how changes may impact system and network response (loading, latency, etc). It will also be necessary to review and / or establish contracts and memorandums of understanding to ensure that we continue to reliably receive the data we need and to deliver the data that others may need from us. Inherent in these studies and implementations are additional costs that may be impacted by budget cycles, as well as the costs attributable to resource constraints given the constant environment of standards changes currently. These factors prevent any realistic analysis at this time of the cost-effectiveness of such implementations.

Apart from those noted above, Southern Company does not have any additional specific objections to the CIP-012-1 requirements, the draft Technical Rationale, or the draft Implementation Guidance. It is important to note that the Proposed Reliability Standard currently does not have *endorsed* Technical Rationale and Implementation Guidance. Due to this, Southern Company currently supports (with comments) the Proposed Reliability Standard with the understanding that NERC's endorsement of the Implementation Guidance may impact our support for a final ballot of the standard.

Likes 0	
Dislikes 0	

Response	
Sergio Banuelos - Tri-State G and T Association, Inc. - 1,3,5 - MRO,WECC	
Answer	
Document Name	
Comment	
There was a proposed revision to the definition of Control Center that was posted concurrently with the 1st posting of CIP-012-1. What is the status of that definition? Will both of these be Petitioned to FERC on the same filing? Could one get approved before the other?	
Likes 0	
Dislikes 0	
Response	
David Francis - SRC - 2 - MRO,Texas RE,NPCC,SERC,RF, Group Name SRC + SWG	
Answer	
Document Name	
Comment	
Comments: The SWG supports the objective-based requirements as written. The objective-based approach allows for Responsible Entities to select and implement the controls appropriate to their organization.	
Likes 0	
Dislikes 0	
Response	
Karie Barczak - DTE Energy - Detroit Edison Company - 3,4,5, Group Name DTE Energy - DTE Electric	
Answer	
Document Name	
Comment	
None at this time.	
Likes 0	
Dislikes 0	
Response	

Ruida Shu - Northeast Power Coordinating Council - 1,2,3,4,5,6,7,8,9,10 - NPCC, Group Name RSC no Dominion and ISO-NE	
Answer	
Document Name	
Comment	
Removal of the SDT's Guidance and Technical Basis (GTB) from the Standard makes it difficult to 1) understand the intent and 2) evaluate this version. If the GTB is not restored, we recommend posting the GTB information simultaneous with the Standard.	
Likes 0	
Dislikes 0	
Response	
Kevin Salsbury - Berkshire Hathaway - NV Energy - 5	
Answer	
Document Name	
Comment	
If the demarcation point for communication is a CIP Cyber Asset, communication of this information and responsibilities between entities for R1.2 may require NDAs between entities.	
Likes 0	
Dislikes 0	
Response	
Douglas Webb - Douglas Webb On Behalf of: Harold Wyble, Great Plains Energy - Kansas City Power and Light Co., 5, 1, 3, 6; James McBee, Great Plains Energy - Kansas City Power and Light Co., 5, 1, 3, 6; Jessica Tucker, Great Plains Energy - Kansas City Power and Light Co., 5, 1, 3, 6; Jim Flucke, Great Plains Energy - Kansas City Power and Light Co., 5, 1, 3, 6; - Douglas Webb	
Answer	
Document Name	
Comment	
None.	
Likes 0	
Dislikes 0	
Response	

Leonard Kula - Independent Electricity System Operator - 2	
Answer	
Document Name	
Comment	
Removal of the SDT’s Guidance and Technical Basis (GTB) from the Standard makes it difficult to 1) understand the intent and 2) evaluate this version. If the GTB is not restored, we recommend posting the GTB information simultaneous with the Standard.	
Likes 0	
Dislikes 0	
Response	
David Ramkalawan - Ontario Power Generation Inc. - 5	
Answer	
Document Name	
Comment	
In the case of Medium and High Control Centers, if it is intended that communication be protected up to an EAP on the ESP and/or the PSP, then it is suggested that this demarcation point requirement should be clearly stated, possibly in an additional (sub-)requirement.	
Likes 0	
Dislikes 0	
Response	
Laurie Williams - PNM Resources - Public Service Company of New Mexico - 1	
Answer	
Document Name	
Comment	
While some entities have raised a concern that encryption or other security efforts could impact availability and thus nullify the FERC mandate regarding availability, PNMR does not believe that such security measure can have a significant detrimental effect on availability if such measures are properly designed and implemented. PNMR believes that this standard really addresses the Confidentiality and Integrity of sensitive BES data while TOP-001-4 addresses the Availability of such data between primary Control Centers. Thus the standards are better ensuring all aspects of the Confidentiality-Integrity-Availability triad are addresses in some way. All three aspects can be maintained in unison. Implementing processes and procedures to address one aspect does not implicitly result in the absence or detriment of the other two.	
Likes 0	

Dislikes 0	
Response	
Melanie Seader - Edison Electric Institute - NA - Not Applicable - NA - Not Applicable	
Answer	
Document Name	
Comment	
While EEI does not currently have any specific objections to CIP-012-1 Requirements, Implementation Plan or the flexibility to meet the reliability objectives in a cost-effective manner, we do note that the Proposed Reliability Standard lacks sufficient specificity (i.e., sufficient to stand on its own), without endorsed Technical Rationale and Implementation Guidance. Relative to the draft Implementation Guidance document, EEI notes that Industry will likely find it difficult to make any final judgements on the proposed Reliability Standard without the ERO Enterprise's endorsement of the draft Implementation Guidance. We trust that once the Proposed Reliability Standard gets closer to a final ballot, the ERO Enterprise will endorse the final draft of the Implementation Guidance in accordance with the Compliance Guidance Policy. In the event, that doesn't occur, the approval of this standard may be at risk.	
Likes 0	
Dislikes 0	
Response	
Ginette Lacasse - Seattle City Light - 1,3,4,5,6 - WECC, Group Name Seattle City Light Ballot Body	
Answer	
Document Name	
Comment	
City Light would like to thank everyone for their efforts towards making this viable.	
Likes 0	
Dislikes 0	
Response	
Elizabeth Axson - Electric Reliability Council of Texas, Inc. - 2	
Answer	
Document Name	
Comment	

Comments: The SWG supports the objective-based requirements as written. The objective-based approach allows for Responsible Entities to select and implement the controls appropriate to their organization.

Likes 0	
Dislikes 0	

Response

Rachel Coyne - Texas Reliability Entity, Inc. - 10	
Answer	
Document Name	

Comment

Texas RE appreciates the SDT's efforts to better clarify the data protection obligations by establishing a requirement to create "demarcation points" between Control Centers. In particular, Texas RE applauds the SDT's amendment to recognize that communications between "any" Control Center should be protected. However, while this injects clarity into the standard, it does not completely address Texas RE's fundamental concerns with the proposed CIP-012 Standard language.

As Texas RE noted previously, Texas RE remains concerned that the proposed CIP-012-1 Standard may result in confusion, particularly among Generation Operators with Control Centers subject to the standard regarding the scope of their compliance obligations or, alternatively, may inadvertently result in a significant reliability gap given the structure of the ERCOT market. In ERCOT, generators do not communicate directly with the regional Reliability Coordinator (ERCOT). Instead, generators are required to communicate through designated entities known as Qualified Scheduling Entities (QSEs). In many instances, these QSEs are third-party entities. Within the NERC regulatory construct, Generator Operators have delegated certain NERC compliance functions to these entities, including providing data used for Operational Planning Analysis, Real-time Assessments, and Real-time monitoring. Critically, Generator Operators remain responsible for all compliance obligations associated with QSE activities in the ERCOT region.

Texas RE continues to believe that CIP-012-1 must require Generator Operators possessing Control Centers to take steps to mitigate the risk of unauthorized data disclosures at every step along the communication chain between its Control Center and the ERCOT Control Center, including steps to protect this data at third-party intermediary QSEs. Otherwise, the proposed draft of CIP-012-1 would result in a significant reliability gap as QSE communications links and data passing from the QSE to ERCOT could be potentially unsecure. Given this fact, Generator Operators will likely need to take steps to ensure that their third-party QSEs have accorded designated sensitive data appropriate protections, which could in turn require incorporating such requirements into QSE agreements or other steps.

Permitting Generator Operators to merely designate a demarcation point potentially permits such entities to unduly restrict their compliance obligations. Generator Operators could set the demarcation point at their Control Center and the QSE. As a result, data and communication links between the QSE and the ERCOT Control Center could potentially be excluded from CIP-012 protections, resulting in a fundamental reliability gap.

Texas RE continues to recommend that the SDT clarify that communications between QSEs (or equivalent in other Regions) and the RC are subject to CIP-012-1 requirements and that Responsible Entities must take steps to address mitigate the risk of unauthorized data disclosures for these communications as well in order to ensure that Responsible Entities have sufficient notice of these compliance obligations.

Likes 0	
Dislikes 0	

Response

Chris Scanlon - Exelon - 1

Answer	
Document Name	

Comment

While Exelon does not have any specific objections to CIP-012-1 Requirements, Implementation Plan or the flexibility to meet the reliability objectives in a cost-effective manner, we do note that the Proposed Reliability Standard lacks sufficient specificity (i.e., sufficient to stand on its own), without an endorsed Technical Rationale and Implementation Guidance. Relative to the draft Implementation Guidance document, Exelon notes that Industry will likely find it difficult to make any final judgments on the proposed Reliability Standard without NERC's endorsement of the draft Implementation Guidance. We trust that once the Proposed Reliability Standard gets closer to a final ballot NERC will endorse the final draft of the Implementation Guidance.

Likes 0	
Dislikes 0	

Response

Lan Nguyen - CenterPoint Energy Houston Electric, LLC - 1 - Texas RE

Answer	
Document Name	

Comment

The VRF/VSL for proposed Requirement R2 should be revised to include a moderate and high VSL, similar to the proposed Requirement R1. Implementation of the plan, but failure to implement one of the applicable parts of the plan should be Moderate VSL. Implementation of the plan, but failure to implement two of the applicable parts should be High VSL.

As stated in Response to Question No. 1, the proposed Standard should not move into final ballot until the definition of Control Center has been finalized.

Likes 0	
Dislikes 0	

Response

Annette Johnston - Berkshire Hathaway Energy - MidAmerican Energy Co. - 3	
Answer	
Document Name	
Comment	
Support Terry Harbour comments (Berhshire Hathaway - MidAmerican Energy Company) We don't see the reason for two requirements. Implementation Guidance with approved ERO deference is essential for an affirmative ballot.	
Likes 0	
Dislikes 0	
Response	
Shannon Fair - Colorado Springs Utilities - 1,3,5,6	
Answer	
Document Name	
Comment	
N/A	
Likes 0	
Dislikes 0	
Response	
Lona Calderon - Salt River Project - 1,3,5,6 - WECC	
Answer	
Document Name	
Comment	
SRP would like to thank the SDT for their efforts. This is an extremely difficult topic to handle and SRP appreciates all of the outreach the SDT has done.	
Likes 0	
Dislikes 0	

Response	
Terry Harbour - Berkshire Hathaway Energy - MidAmerican Energy Co. - 1	
Answer	
Document Name	
Comment	
The Proposed Reliability Standard lacks sufficient specificity (i.e., sufficient to stand on its own), without an endorsed Technical Rationale and Implementation Guidance. Relative to the draft Implementation Guidance document, MEC agrees with EEI that Industry will likely find it difficult to make any final judgments on the proposed Reliability Standard without NERC's endorsement of the draft Implementation Guidance. We trust that once the Proposed Reliability Standard gets closer to a final ballot NERC will endorse the final draft of the Implementation Guidance. In the event, that doesn't occur, we fear the approval of this standard may be at risk.	
Likes 0	
Dislikes 0	
Response	
W. Dwayne Preston - Austin Energy - 3	
Answer	
Document Name	
Comment	
I support Andrew Gallo's Comments from Austin Energy.	
Likes 0	
Dislikes 0	
Response	
Barry Lawson - National Rural Electric Cooperative Association - 4	
Answer	
Document Name	
Comment	
NRECA requests additional information on how the draft revised Control Center definition and the draft new CIP-12-1 will move forward after this comment period. We believe they should move forward together in any next steps in the standard development process. Currently, when reviewing the draft new CIP-12-1 it is unclear if the current approved Control Center definition or the draft revised Control Center definition is what the drafting team intends the reader to use.	

NRECA appreciates the efforts of the drafting team.

Likes 0	
Dislikes 0	

Response

Shannon Mickens - Southwest Power Pool, Inc. (RTO) - 2 - SPP RE, Group Name SPP Standards Review Group

Answer	
Document Name	

Comment

The SPP Standards Review Group proposes a few minor non-substantive edits to CIP-012-1 at Requirement R1 and Measurement M2. The edits will reference the term "plan(s)" and ensures consistent use of vernacular is used throughout the standard (see below for proposed language- in bold).

R1. The Responsible Entity shall develop one or more documented plan(s) to mitigate the risk of unauthorized disclosure or modification of Real-time Assessment and Real-time monitoring and control data while being transmitted between any Control Centers. This requirement excludes oral communications. The plan**(s)** shall include: *[Violation Risk Factor: Medium] [Time Horizon: Operations Planning]*

M2. Evidence may include, but is not limited to, documentation demonstrating implementation of the plan**(s)** developed pursuant to Requirement R1.

Likes 0	
Dislikes 0	

Response

Nicholas Lauriat - Network and Security Technologies - 1

Answer	
Document Name	

Comment

(No additional comments)

Likes 0	
Dislikes 0	

Response

Eleanor Ewry - Puget Sound Energy, Inc. - 5

Answer	
Document Name	
Comment	

Please refer to EEI's comments regarding the Proposed Reliability Standard currently lacking sufficient specificity (i.e. sufficient to stand on its own) without an endorsed Technical Rationale and Implementation Guidance.

Likes 0	
Dislikes 0	
Response	

Lynn Goldstein - PNM Resources - Public Service Company of New Mexico - 3

Answer	
Document Name	
Comment	

While some entities have raised a concern that encryption or other security efforts could impact availability and thus nullify the FERC mandate regarding availability, PNMR does not believe that such security measure can have a significant detrimental effect on availability if such measures are properly designed and implemented. PNMR believes that this standard really addresses the Confidentiality and Integrity of sensitive BES data while TOP-001-4 addresses the Availability of such data between primary Control Centers. Thus the standards are better ensuring all aspects of the Confidentiality-Integrity-Availability triad are addresses in some way. All three aspects can be maintained in unison. Implementing processes and procedures to address one aspect does not implicitly result in the absence or detriment of the other two.

Likes 0	
Dislikes 0	
Response	

Andrew Gallo - Austin Energy - 6

Answer	
Document Name	
Comment	

AE thanks the SDT for their hard work on a difficult topic and appreciates the SDT's outreach efforts.

Likes 0	
Dislikes 0	
Response	

Vivian Vo - APS - Arizona Public Service Co. - 3	
Answer	
Document Name	
Comment	

The application of any security controls requires bilateral consent. The first priority of Requirement 1 should be to identify the methods through with the Responsible Entity determines and identifies these security controls and documentation the Responsible Entity intends to utilize throughout this identification/determination process. AZPS respectfully submits, for the SDT's consideration, the following revision of Requirement 1 to address the above-referenced comments.

Proposed Revision to CIP-012-1 R1:

R1.1 Identification of methods and documentation through which the Responsible Entity will determine and identify security controls used to mitigate the risk of unauthorized disclosure or modification of Real-time Assessment and Real-time monitoring and control data while being transmitted between Control Centers, and roles and responsibilities for implementation when the Control Centers are owned or operated by different Responsible Entities;

R1.2 Identification of security controls used to mitigate the risk of unauthorized disclosure or modification of Real-time Assessment and Real-time monitoring and control data while being transmitted between Control Centers; and

R1.3 Identification of demarcation point(s) where security controls is applied for transmitting Real-time Assessment and Real-time monitoring and control data between Control Centers.

Likes 0	
Dislikes 0	
Response	

Shelby Wade - PPL - Louisville Gas and Electric Co. - 1,3,5,6 - SERC,RF, Group Name PPL NERC Registered Affiliates	
Answer	
Document Name	
Comment	

PPL NERC Registered Affiliates supports EEI's comments regarding CIP-012-1 – Cyber Security – Communications between Control Centers: "*While EEI does not have any specific objections to CIP-012-1 Requirements, Implementation Plan or the flexibility to meet the reliability objectives in a cost effective manner, we do note that the Proposed Reliability Standard lacks sufficient specificity (i.e., sufficient to stand on its own), without an endorsed Technical Rationale and Implementation Guidance. Relative to the draft Implementation Guidance document, EEI notes that Industry will likely find it difficult to make any final judgements on the proposed Reliability Standard without the ERO Enterprise's endorsement of the draft Implementation Guidance. We trust that once the Proposed Reliability Standard gets closer to a final ballot, the ERO Enterprise will endorse the final draft of the Implementation Guidance in accordance with the Compliance Guidance Policy. In the event that doesn't occur, we fear the approval of this standard may be at risk.*"

Likes 0	
Dislikes 0	
Response	

Ronald Donahey - TECO - Tampa Electric Co. - 3	
Answer	
Document Name	
Comment	
TEC wishes to endorse the comment of the Edison Electric Institute.	
Likes 0	
Dislikes 0	
Response	
Richard Vine - California ISO - 2	
Answer	
Document Name	
Comment	
The California ISO supports the comments of the IRC Security Working Group (SWG)	
Likes 0	
Dislikes 0	
Response	
Paul Huettl - Basin Electric Power Cooperative - 6	
Answer	
Document Name	
Comment	
Please refer to NRECA comments.	
Likes 0	
Dislikes 0	
Response	
Russel Mountjoy - Midwest Reliability Organization - 10, Group Name MRO NSRF	

Answer	
Document Name	
Comment	

Per R1.3, may create a level of difficulty where “each Responsible Entity” will need to know each other’s “roles and responsibilities … for applying security protection(s)”. The intent should be to assure that protections are in place and not create an administrative burden just to audit this. The use of the wording of “roles and responsibilities” does not support the cyber security protections that this Standard is trying to accomplish. Different responsible Entities may not be willing to share their “security protections” with other Entities as this may create a security gap or at the least, letting others know what protections are in place. When each Entity becomes compliant with this Standard, their plans will assure that protections are in place on “their end” of the data stream. This will assure that protections, which is the intent of this Standard.

The NSRF recommends R1.3 to read:

“Identify each Responsible Entity for applying security protection to the transmission of Real-time Assessment and Real-time monitoring and control data between Control Centers, when the Control Centers are owned or operated by different Responsible Entities”.

This recommendation will assure that each Responsible Entity will know who is on “the other end” of their data stream, which supports data security and intent of this Standard.

Likes 0	
Dislikes 0	
Response	
Aaron Cavanaugh - Bonneville Power Administration - 1,3,5,6 - WECC	
Answer	
Document Name	
Comment	
None	
Likes 0	
Dislikes 0	
Response	
Janis Weddle - Public Utility District No. 1 of Chelan County - 6, Group Name Chelan PUD	
Answer	
Document Name	
Comment	

Implementing industry-wide secure communication is a significant coordination challenge for entities and their associated vendors. The increase in security also brings increased complexity, maintenance, and failure potential that may negatively impact the reliable operation of the BES. As a result, coordination for encryption key management will become an essential activity and CHPD would, similar to other entity comments, appreciate guidance for these activities.

CHPD also has general concerns that implementing encryption results in the loss of existing application-level protocol security. For example, current security protections allow for the enforcement of specific ICCP protocol functions at the firewall perimeter. With end-to-end encryption in use (e.g., Secure ICCP) the firewall will no longer be able to inspect ICCP packets and will lose the ability to reject unauthorized commands (e.g., control, write, etc.).

Likes 5	Public Utility District No. 1 of Snohomish County, 5, Nietfeld Sam; Snohomish County PUD No. 1, 6, Lu Franklin; Public Utility District No. 1 of Snohomish County, 1, Duong Long; Snohomish County PUD No. 1, 3, Oens Mark; Public Utility District No. 1 of Snohomish County, 4, Martinsen John
Dislikes 0	

Response

Sean Bodkin - Dominion - Dominion Resources, Inc. - 6, Group Name Dominion

Answer	
Document Name	

Comment

The R1 VSL language does not accurately align with R1. Dominion Energy recommends adding the “develop” portion of R1 to the VSL language as shown in the following example.

“The Responsible Entity failed to develop and document plan(s) for Requirement R1.”

In addition, the rationale developed by the SDT does not appear to have been included in the document or moved to any type of reference document. The lack of any contextual documents creates a gap in understanding the intent of the SDT. Coupled with the lack of approved Implementation Guidance, it is difficult to support the Requirements as written.

Likes 0	
Dislikes 0	

Response

Kara White - NRG - NRG Energy, Inc. - 3,4,5,6 - FRCC,MRO,WECC,Texas RE,NPCC,SERC,SPP RE,RF

Answer	
Document Name	

Comment

N/A

Likes 0	
Dislikes 0	
Response	