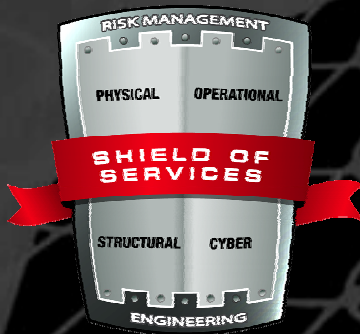




NERC Reliability Readiness

CIP-002 & Risk-based Methods for Selecting Critical Assets

DESIGN • BUILD • SECURE



Four Security Disciplines

- **Cyber**
 - NERC Readiness
 - Secured SCADA/EMS/DCS Design
- **Physical**
 - Asset Protection Standards
 - Construction Management
- **Structural**
 - Blast Analysis
 - Structural Hardening
- **Operational**
 - Grid Reliability Analysis
 - Emergency Operations Procedures



Critical Infrastructure Protection Clients

- Ameren
- Tri-State G&T
- Department of Defense
- Orlando Utilities Commission
- JEA
- MidAmerican Energy
- Kansas City Power & Light
- Hoosier Energy
- City Utilities
- Northeast Utilities
- PEPCO
- Southern Maryland Electric

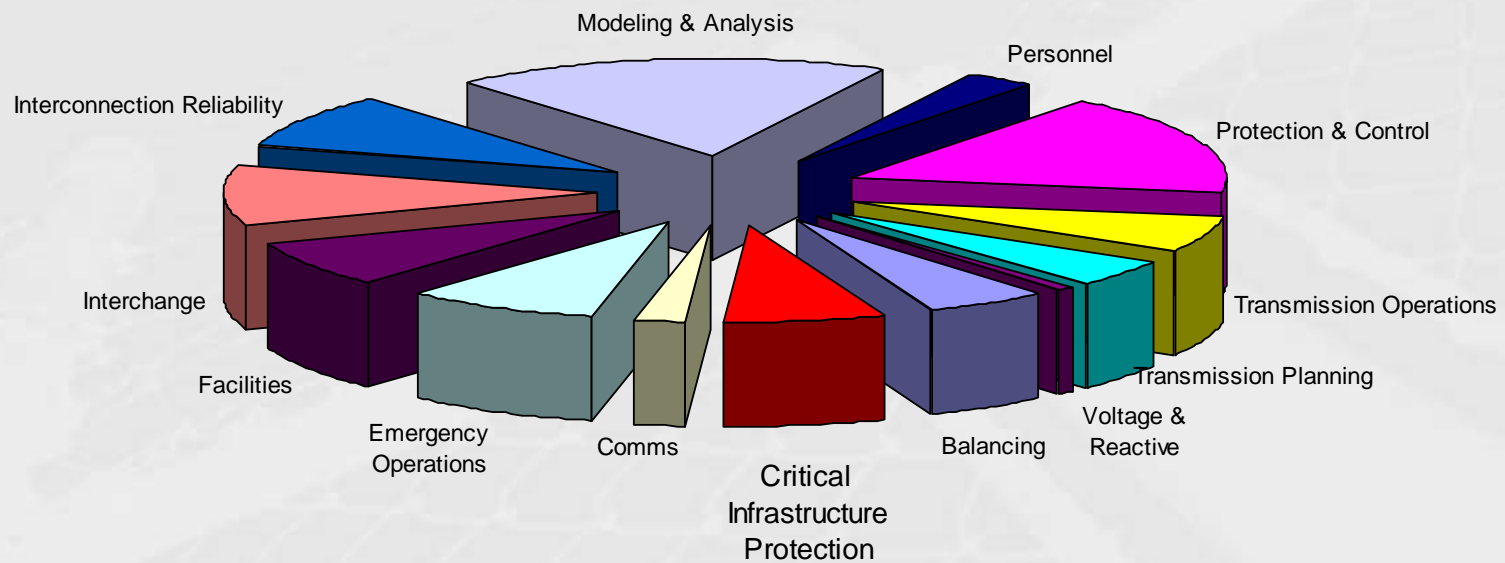




Challenges to Reliability

NERC Reliability Readiness

Security Integrated with New Standards



Atlanta, Chicago, Denver, Houston, Kansas City, Miami, Phoenix, San Diego, St Louis

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The Challenge

Each Balancing Authority shall operate such that, on a rolling 12-month basis, the average of the clock-minute averages of the Balancing Authority's Area Control Error (ACE) divided by 10B (B is the clock-minute average of the Balancing Authority Area's Frequency Bias) times the corresponding clock-minute averages of the Interconnection's Frequency Error is less than a specific limit. This limit ϵ_1^2 is a constant derived from a targeted frequency bound (separately calculated for each Interconnection) that is reviewed and set as necessary by the NERC Operating Committee.

$$AVG_{Period} \left[\left(\frac{ACE_i}{-10B_i} \right) * \Delta F_1 \right] \leq \epsilon_1^2 \text{ or } \frac{AVG_{Period} \left[\left(\frac{ACE_i}{-10B_i} \right) * \Delta F_1 \right]}{\epsilon_1^2} \leq 1$$

The equation for ACE is:

$$ACE = (NI_A - NI_S) - 10B (F_A - F_S) - I_{ME}$$

The risk-based assessment shall consider the following assets:

- R1.2.1.** Control centers and backup control centers performing the functions of the entities listed in the Applicability section of this standard.
- R1.2.2.** Transmission substations that support the reliable operation of the Bulk Electric System.
- R1.2.3.** Generation resources that support the reliable operation of the Bulk Electric System.
- R1.2.4.** Systems and facilities critical to system restoration, including blackstart generators and substations in the electrical path of transmission lines used for initial system restoration.
- R1.2.5.** Systems and facilities critical to automatic load shedding under a common control system capable of shedding 300 MW or more.
- R1.2.6.** Special Protection Systems that support the reliable operation of the Bulk Electric System.
- R1.2.7.** Any additional assets that support the reliable operation of the Bulk Electric System that the Responsible Entity deems appropriate to include in its assessment.

Strategic View of "Reliability Readiness Team"

Atlanta, Chicago, Denver, Houston

Audit Team
Analyst,
Administrator,
Architect,
Officer

Documentation

Operational
Security

Cyber
Security

Physical
Security

Readiness Team
Supervisor,
Manager,
Team Leader

Process

Security
Program

Approver(s)

Process

Enterprise
Participants

Operations
Owner

Process

Owners (Business & Operations)
Engineer,
Operator,
Dispatcher,
Technician,
Administrator,
Analyst,
Assistant

Information
Technology

Internal Audit

Human
Resources

Content

Electric

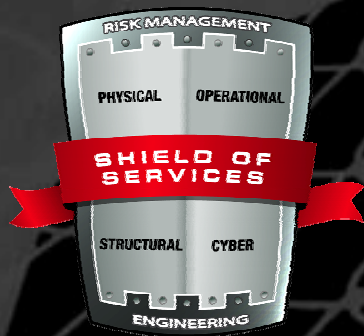
Gas

Water

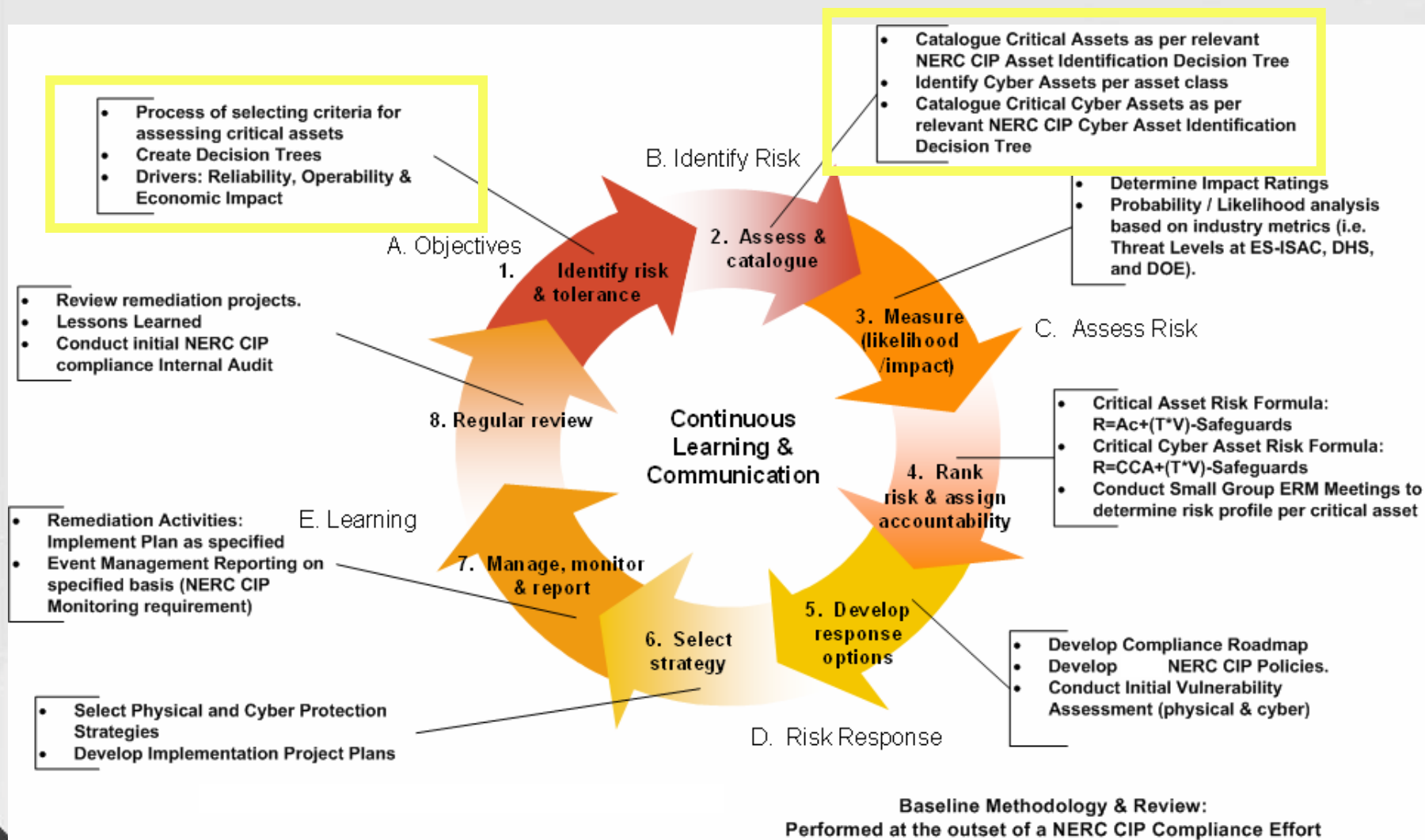
Process Control Governance: Structure of Relationships

CIP 002

DESIGN • BUILD • SECURE



Risk-based Assessment Process



Atlanta, Chicago, Denver, Houston, Kansas City, Miami, Phoenix, San Diego, St Louis

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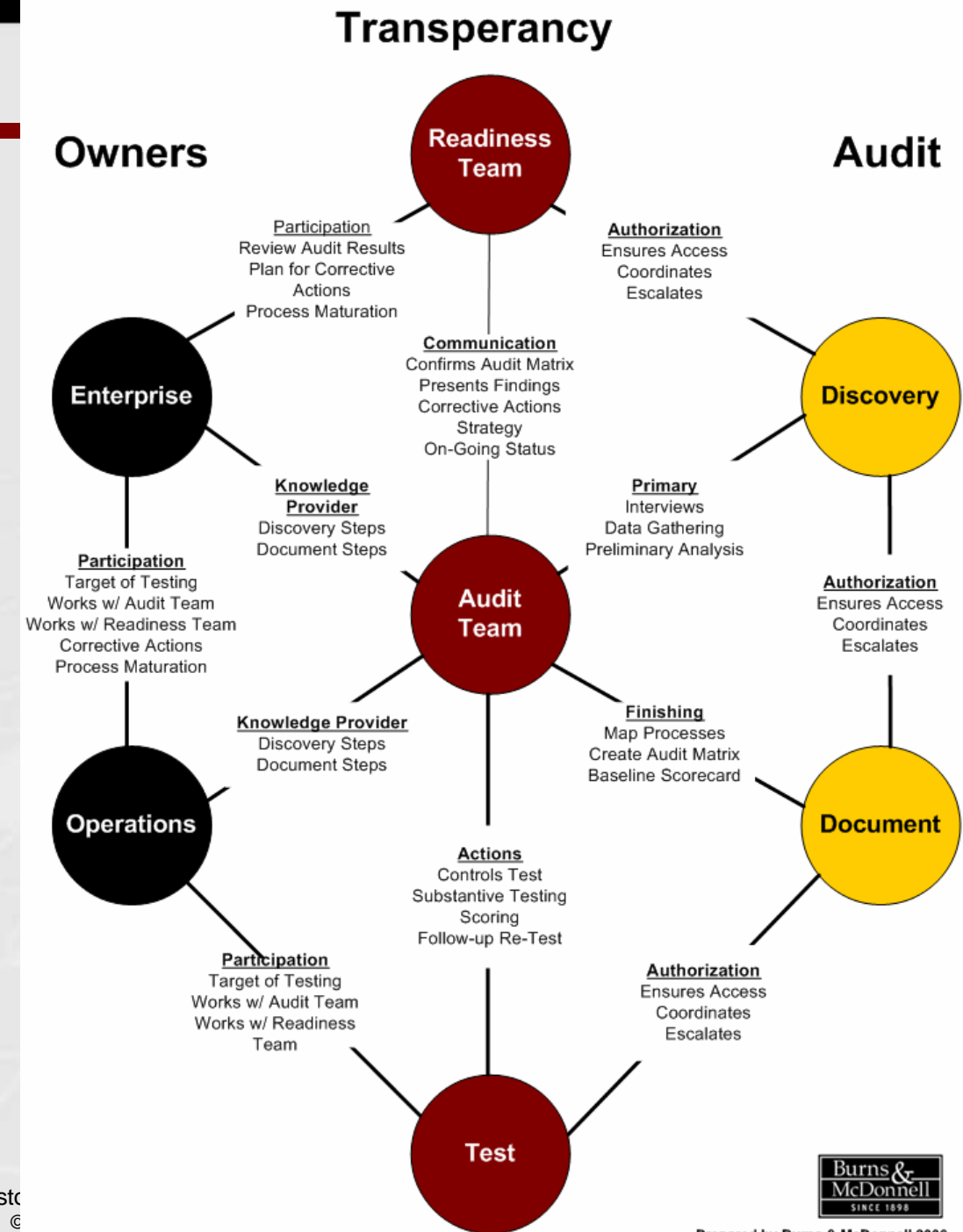
Process Control Governance

Governance, Compliance & Regulatory Control are not the same

Process Ownership	<p>Maturation: Grow from informal to formal</p> <p>Operational Processes = Business Processes</p> <p>Improve / Re-engineer based on Validation Results</p> <p>Participation in Audits and Compliance</p> <p>Process Control = Process Ownership</p>	
Audit	<p>Policy Review</p> <p>Substantive Testing / Security Diagnostic</p>	<p>Controls Testing</p> <p>Update Process</p>
Transparency	<p>Documentation: Audit Findings, Remediation Plans, Updated Policies & Procedures</p> <p>Integrate Corporate Functions: IT, HR, etc.</p>	

"NERC CIP Compliance"

Atlanta, Chicago, Denver, Houston



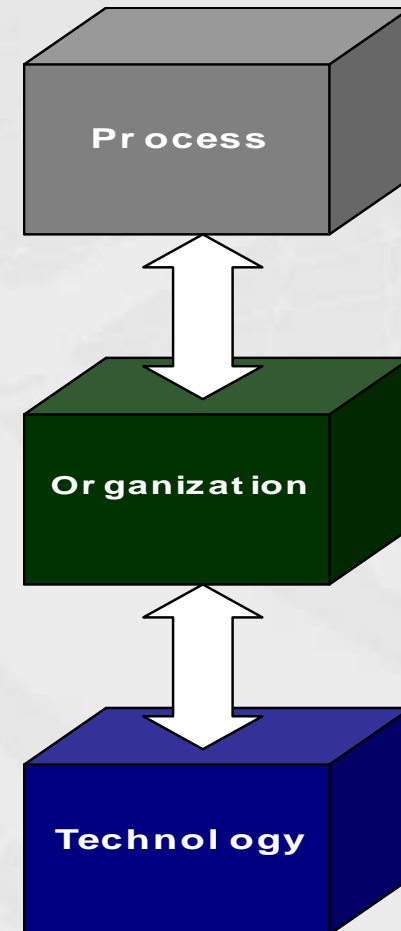
NERC CIP 002 and Beyond:

Critical Assets and Cyber Assets

Risk Management 101: Risk Management starts with what is critical and ends with managing compliance plans.

CIP 002 Challenge

- There is ambiguity in the process to determine critical assets
- Each utility may opt to approach this requirement differently
- Perceived cost of security remediation is dictating many utilities' CA list as opposed to actually addressing criticality, by using a risk based methodology
- No standard for modeling



Evaluation Criteria

The NERC CIP 002 Standard never specifically requires a “single-loss” criteria. The term “Evaluation Criteria” refers to a combination of factors for determining criticality.

Characteristics	Single Factors
Utilizes multiple factors	Single-loss focus
Weighted questions based on unique design of entities	Harder to qualify generation as critical
Flexible for different “functions”	Forces a one-size fits all approach
Entities can add, change, and/or delete “characteristics” without compromising integrity	

R1 Critical Asset Identification Method — The Responsible Entity shall identify and document a risk-based assessment methodology to use to identify its Critical Assets.

R1.1. The Responsible Entity shall maintain documentation describing its risk-based assessment methodology that includes procedures and evaluation criteria.

Our Process addresses the following:

- ✓ A Risk-based Assessment Methodology
- ✓ Distills the criteria to be used for selecting critical assets
- ✓ Provides transparency for audit compliance

CIP Process Walk-Through

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TRANSMISSION



Select a previously saved methodology or create a new methodology

Generation

[Demonstration](#) - *(Assets not Allocated)*

Transmission

[Demonstration](#) - *(0%)*

Critical Load

[Demonstration](#) - *(Assets not Allocated)*

Control Centers

[Demonstration](#)

Add Model

[Add New Model](#)

Delete Model

(Select Model) ▼

DELETE

Results

[Demonstration](#) - *(not complete)*



GENERATION



Allocate Units

The following is a list of Generation Units. In order to continue, please select units that are physically located at a Generation Station. After selection, please save the Generation Station with a unique and meaningful name. For example, if a plant has 4 Generation Units, select all 4 units, and save as a single Generation Station. All units must be allocated in this way in order to continue.

New Group Name:

BRAVO_GEN

Save

Group •	MW •
ECHO	140
DELTA	87
FOXTROT	950
GOLF	98
KILO	519
LIMA	160
SIERRA_GEN	234
XRAY	1248

Select	Asset •	MW •
<input checked="" type="checkbox"/>	BRAVO_GEN (8)	20
<input checked="" type="checkbox"/>	BRAVO_GEN (7)	20
<input checked="" type="checkbox"/>	BRAVO_GEN (6)	30
<input checked="" type="checkbox"/>	BRAVO_GEN (5)	30

NEXT



1/6

Does the Generation Station have a unit that is part of the regional Primary Path Blackstart Capability Plan (BCP) for your Balancing Authority/Security Coordinator?

•	Station ▼	Wattage •	Y/N
	BRAVO_GEN	100	<input type="radio"/> <input type="radio"/>
	DELTA	87	<input type="radio"/> <input type="radio"/>
	ECHO	140	<input type="radio"/> <input type="radio"/>
	FOXTROT	950	<input type="radio"/> <input type="radio"/>
	GOLF	98	<input type="radio"/> <input type="radio"/>
	KILO	519	<input type="radio"/> <input type="radio"/>
	LIMA	160	<input type="radio"/> <input type="radio"/>

SAVE

QUIT

PREVIOUS

NEXT



2/6

**Has the Generation Station been listed as Critical
by the Department of Homeland Security?**

•	Station ▼	Wattage •	Y/N
	BRAVO_GEN	100	<input checked="" type="radio"/> <input type="radio"/>
	DELTA	87	<input type="radio"/> <input checked="" type="radio"/>
	ECHO	140	<input checked="" type="radio"/> <input type="radio"/>
	FOXTROT	950	<input type="radio"/> <input checked="" type="radio"/>
	GOLF	98	<input checked="" type="radio"/> <input type="radio"/>
	KILO	519	<input type="radio"/> <input checked="" type="radio"/>
	LIMA	160	<input checked="" type="radio"/> <input type="radio"/>

SAVE

QUIT

PREVIOUS

NEXT



3/6

Does the generating station have any units on Automatic Generator Control (AGC)?

•	Station ▼	Wattage •	Y/N
	BRAVO_GEN	100	<input type="radio"/> <input checked="" type="radio"/>
	DELTA	87	<input type="radio"/> <input checked="" type="radio"/>
	ECHO	140	<input type="radio"/> <input checked="" type="radio"/>
	FOXTROT	950	<input type="radio"/> <input checked="" type="radio"/>
	GOLF	98	<input checked="" type="radio"/> <input type="radio"/>
	KILO	519	<input checked="" type="radio"/> <input type="radio"/>
	LIMA	160	<input type="radio"/> <input checked="" type="radio"/>

SAVE QUIT
PREVIOUS NEXT



4/6

Does the generating station have one or more units that have been identified as operating for any or all of the following reasons:

- Needed for meeting reliability criteria for interconnected systems operation.
- Needed to meet load (demand) in constrained areas.
- Needed to provide voltage or security support for the ISO, Balancing Authority, Security Coordinator, and/or any other known local area.

•	Station ▼	Wattage •	Y/N
	BRAVO_GEN	100	<input checked="" type="radio"/> <input type="radio"/>
	DELTA	87	<input checked="" type="radio"/> <input type="radio"/>
	ECHO	140	<input checked="" type="radio"/> <input type="radio"/>
	FOXTROT	950	<input type="radio"/> <input checked="" type="radio"/>
	GOLF	98	<input checked="" type="radio"/> <input type="radio"/>
	KILO	519	<input type="radio"/> <input checked="" type="radio"/>
	LIMA	160	<input type="radio"/> <input checked="" type="radio"/>

SAVE

QUIT

PREVIOUS

NEXT

5/6

Does the Generating Station have a unit with responsibility as part of a specific operating procedure?

•	Station ▼	Wattage •	Y/N
	BRAVO_GEN	100	<input checked="" type="radio"/> <input type="radio"/>
	DELTA	87	<input checked="" type="radio"/> <input type="radio"/>
	ECHO	140	<input type="radio"/> <input checked="" type="radio"/>
	FOXTROT	950	<input checked="" type="radio"/> <input type="radio"/>
	GOLF	98	<input type="radio"/> <input checked="" type="radio"/>
	KILO	519	<input type="radio"/> <input checked="" type="radio"/>
	LIMA	160	<input type="radio"/> <input checked="" type="radio"/>

SAVE

QUIT

PREVIOUS

NEXT



6/6

Other than Generation Stations containing Blackstart Units, does the Generation Station provide greater than 400 MW of power?

•	Station ▼	Wattage •	Y/N
	ECHO	140	<input checked="" type="radio"/> <input type="radio"/>
	FOXTROT	950	<input checked="" type="radio"/> <input type="radio"/>
	GOLF	98	<input checked="" type="radio"/> <input type="radio"/>
	KILO	519	<input type="radio"/> <input checked="" type="radio"/>
	LIMA	160	<input type="radio"/> <input checked="" type="radio"/>
	SIERRA_GEN	234	<input type="radio"/> <input checked="" type="radio"/>
	XRAY	1248	<input checked="" type="radio"/> <input type="radio"/>

SAVE

QUIT

PREVIOUS

NEXT



GENERATION



Generation Methodology

Please select the Wattage value that, according to company policy, would designate a Generation Station as a Critical Asset, regardless of the results of answers to questions posed previously.

☐ 100MW ☐ 300MW ☐ 600MW ☒ 1000MW ☐ 2000MW ☐ N/A

Asset ▼	Wattage •	Type ▲
BRAVO_GEN	100	Generation
DELTA	87	Generation
ECHO	140	Generation
FOXTROT	950	Generation
GOLF	98	Generation
KILO	519	Generation
LIMA	160	Generation
SIERRA_GEN	234	Generation
XRAY	1248	Generation

CONTINUE



GENERATION



Generation Methodology Results

Based on your responses, the following assets will be removed. Please indicate any that in your business judgement should remain on the list.

Asset ▼	Wattage •	Is Critical?	Comments
BRAVO_GEN	100	<input type="checkbox"/>	<input type="text"/>
DELTA	87	<input type="checkbox"/>	<input type="text"/>

UPDATE

CONTINUE



2/6

Is the Transmission Asset part of a looped 100KV or higher circuit?

•	Asset ▼	Voltage •	Y/N
	ALPHA (1)	345	<input checked="" type="radio"/> <input type="radio"/>
	ALPHA (2)	138	<input checked="" type="radio"/> <input type="radio"/>
	ALPHA (3)	138	<input checked="" type="radio"/> <input type="radio"/>
	BRAVO (1)	138	<input checked="" type="radio"/> <input type="radio"/>
	CHARLIE (1)	34.5	<input type="radio"/> <input checked="" type="radio"/>
	GARFIELD (2)	69	<input type="radio"/> <input checked="" type="radio"/>
	GOLF (1)	138	<input type="radio"/> <input checked="" type="radio"/>

SAVE QUIT
PREVIOUS NEXT



3/6

Is the Transmission Asset supporting a Critical Generation Station?

•	Asset ▼	Voltage •	Y/N
	ALPHA (1)	345	<input checked="" type="radio"/> <input type="radio"/>
	ALPHA (2)	138	<input checked="" type="radio"/> <input type="radio"/>
	ALPHA (3)	138	<input type="radio"/> <input checked="" type="radio"/>
	BRAVO (1)	138	<input type="radio"/> <input checked="" type="radio"/>
	CHARLIE (1)	34.5	<input type="radio"/> <input checked="" type="radio"/>
	GARFIELD (2)	69	<input type="radio"/> <input checked="" type="radio"/>
	GOLF (1)	138	<input type="radio"/> <input checked="" type="radio"/>

SAVE

QUIT

PREVIOUS

NEXT



4/6

Does the Transmission Asset provide ties to NERC CIP qualifying entities or connect two or more Balancing Authorities?

Resources:

NERC Functional Model, Version 2

ftp://www.nerc.com/pub/sys/all_updl/oc/fmrtg/Functional_Model_Version_2.pdf

NERC Registered Entity List

<http://www.nerc.com/~org/entities/index.html>

•	Asset ▼	Voltage •	Y/N
	ALPHA (1)	345	<input checked="" type="radio"/> <input type="radio"/>
	ALPHA (2)	138	<input checked="" type="radio"/> <input type="radio"/>
	ALPHA (3)	138	<input type="radio"/> <input checked="" type="radio"/>
	BRAVO (1)	138	<input type="radio"/> <input checked="" type="radio"/>
	CHARLIE (1)	34.5	<input type="radio"/> <input checked="" type="radio"/>
	GARFIELD (2)	69	<input type="radio"/> <input checked="" type="radio"/>
	GOLF (1)	138	<input checked="" type="radio"/> <input type="radio"/>

SAVE

QUIT

PREVIOUS

NEXT



5/6

Based upon a steady-state power flow analysis, a transient stability analysis, or both is there an identified case for an asset where the loss of one or more busses may cause any of the following:

- System instability
- Unacceptable system dynamic response or equipment tripping
- Voltage levels in violation of applicable emergency limits
- Loadings on transmission facilities in violation of applicable emergency limits
- Unacceptable loss of load

•	Asset ▼	Voltage •	Y/N
	ALPHA (1)	345	<input checked="" type="radio"/> <input type="radio"/>
	ALPHA (2)	138	<input checked="" type="radio"/> <input type="radio"/>
	ALPHA (3)	138	<input type="radio"/> <input checked="" type="radio"/>
	BRAVO (1)	138	<input type="radio"/> <input checked="" type="radio"/>
	CHARLIE (1)	34.5	<input type="radio"/> <input checked="" type="radio"/>
	GARFIELD (2)	69	<input type="radio"/> <input checked="" type="radio"/>
	GOLF (1)	138	<input checked="" type="radio"/> <input type="radio"/>

SAVE

QUIT

PREVIOUS

NEXT



6/6

Does the Transmission Asset have a responsibility as part of a specific operating procedure?

•	Asset ▼	Voltage •	Y/N
	ALPHA (1)	345	<input checked="" type="radio"/> <input type="radio"/>
	ALPHA (2)	138	<input checked="" type="radio"/> <input type="radio"/>
	ALPHA (3)	138	<input type="radio"/> <input checked="" type="radio"/>
	BRAVO (1)	138	<input type="radio"/> <input checked="" type="radio"/>
	CHARLIE (1)	34.5	<input type="radio"/> <input checked="" type="radio"/>
	GARFIELD (2)	69	<input type="radio"/> <input checked="" type="radio"/>
	GOLF (1)	138	<input checked="" type="radio"/> <input type="radio"/>

SAVE

QUIT

PREVIOUS

NEXT



TRANSMISSION



Transmission Methodology

Please select the voltage transmission value that, according to company policy, would designate a Transmission Asset as a Critical Asset, regardless of the results of answers to questions posed previously.

☐ 69kV ☐ 115kV ☐ 138kV ☐ 161kV ☒ 230kV ☐ 345kV ☐ 500kV ☐ 765kV ☐ N/A

Asset ▼	Voltage •	Type •
ALPHA (1)	345	Transmission
ALPHA (2)	138	Transmission
ALPHA (3)	138	Transmission
BRAVO (1)	138	Transmission
CHARLIE (1)	34.5	Transmission
GARFIELD (2)	69	Transmission
GOLF (1)	138	Transmission
GOLF (2)	16	Transmission
GOLF (3)	34.5	Transmission

CONTINUE



TRANSMISSION



Transmission Methodology Results

Based on your responses, the following assets will be removed. Please indicate any that in your business judgement should remain on the list.

Asset ▼	Voltage •	Is Critical?	Comment
GARFIELD (2)	69	<input type="checkbox"/>	<input type="text"/>

UPDATE

CONTINUE



1/6

Is the Transmission Asset required for the operation of a National-level Critical Infrastructure Customer, (e.g. Oil and Gas Production, Finance Center, Military Center, etc)?

•	Asset ▼	Voltage •	Unit •	Type •	Y/N	Comment
	ALPHA (1)	345	kV	Transmission	<input checked="" type="radio"/> <input type="radio"/>	<input type="text"/>
	ALPHA (2)	138	kV	Transmission	<input type="radio"/> <input checked="" type="radio"/>	<input type="text"/>
	ALPHA (3)	138	kV	Transmission	<input checked="" type="radio"/> <input type="radio"/>	<input type="text"/>
	BRAVO (1)	138	kV	Transmission	<input type="radio"/> <input checked="" type="radio"/>	<input type="text"/>
	CHARLIE (1)	34.5	kV	Transmission	<input checked="" type="radio"/> <input type="radio"/>	<input type="text"/>
	GARFIELD (2)	69	kV	Transmission	<input type="radio"/> <input checked="" type="radio"/>	<input type="text"/>
	GOLF (1)		kV	Transmission	<input checked="" type="radio"/> <input type="radio"/>	<input type="text"/>

SAVE QUIT
PREVIOUS NEXT



2/6

Is the Transmission Asset required for the operation of a Local-level Critical Infrastructure Customer, (e.g. First Responders, Local Government Continuity, Water/Wastewater, etc)?

•	Asset ▼	Voltage •	Unit •	Type •	Y/N	Comment
	ALPHA (1)	345	kV	Transmission	<input checked="" type="radio"/> <input type="radio"/>	<input type="text"/>
	ALPHA (2)	138	kV	Transmission	<input type="radio"/> <input checked="" type="radio"/>	<input type="text"/>
	ALPHA (3)	138	kV	Transmission	<input checked="" type="radio"/> <input type="radio"/>	<input type="text"/>
	BRAVO (1)	138	kV	Transmission	<input type="radio"/> <input checked="" type="radio"/>	<input type="text"/>
	CHARLIE (1)	34.5	kV	Transmission	<input checked="" type="radio"/> <input type="radio"/>	<input type="text"/>
	GARFIELD (2)	69	kV	Transmission	<input type="radio"/> <input checked="" type="radio"/>	<input type="text"/>
	GOLF (1)		kV	Transmission	<input checked="" type="radio"/> <input type="radio"/>	<input type="text"/>

SAVE	QUIT
PREVIOUS	NEXT



3/6

Is the Generation Asset required for the operation of a National-level Critical Infrastructure Customer, (e.g. Oil and Gas Production, Finance Center, Military Center, etc)?

•	Asset ▼	Wattage •	Unit •	Type •	Y/N	Comment
	BRAVO_GEN	100	MW	Generation	<input checked="" type="radio"/> <input type="radio"/>	<input type="text"/>
	DELTA	87	MW	Generation	<input type="radio"/> <input checked="" type="radio"/>	<input type="text"/>
	ECHO	140	MW	Generation	<input type="radio"/> <input checked="" type="radio"/>	<input type="text"/>
	FOXTROT	950	MW	Generation	<input checked="" type="radio"/> <input type="radio"/>	<input type="text"/>
	GOLF	98	MW	Generation	<input checked="" type="radio"/> <input type="radio"/>	<input type="text"/>
	KILO	519	MW	Generation	<input type="radio"/> <input checked="" type="radio"/>	<input type="text"/>
	LIMA	160	MW	Generation	<input checked="" type="radio"/> <input type="radio"/>	<input type="text"/>



4/6

Is the Generation Asset required for the operation of a Local-level Critical Infrastructure Customer, (e.g. First Responders, Local Government Continuity, Water/Wastewater, etc)?

•	Asset ▼	Wattage •	Unit •	Type •	Y/N	Comment
	BRAVO_GEN	100	MW	Generation	<input checked="" type="radio"/> <input type="radio"/>	<input type="text"/>
	DELTA	87	MW	Generation	<input type="radio"/> <input checked="" type="radio"/>	<input type="text"/>
	ECHO	140	MW	Generation	<input type="radio"/> <input checked="" type="radio"/>	<input type="text"/>
	FOXTROT	950	MW	Generation	<input type="radio"/> <input checked="" type="radio"/>	<input type="text"/>
	GOLF	98	MW	Generation	<input checked="" type="radio"/> <input type="radio"/>	<input type="text"/>
	KILO	519	MW	Generation	<input checked="" type="radio"/> <input type="radio"/>	<input type="text"/>
	LIMA	160	MW	Generation	<input type="radio"/> <input checked="" type="radio"/>	<input type="text"/>



5/6

Is there a Control Center associated with the asset that could affect the reliable operation of a National-level Critical Infrastructure Customer?

•	Asset ▼	Capacity •	Unit •	Type •	Y/N	Comment
	ALPHA (1)	345	kV	Transmission	<input checked="" type="radio"/> <input type="radio"/>	<input type="text"/>
	ALPHA (2)	138	kV	Transmission	<input type="radio"/> <input checked="" type="radio"/>	<input type="text"/>
	ALPHA (3)	138	kV	Transmission	<input type="radio"/> <input checked="" type="radio"/>	<input type="text"/>
	BRAVO (1)	138	kV	Transmission	<input type="radio"/> <input checked="" type="radio"/>	<input type="text"/>
	BRAVO_GEN	100	MW	Generation	<input checked="" type="radio"/> <input type="radio"/>	<input type="text"/>
	CHARLIE (1)	34.5	kV	Transmission	<input checked="" type="radio"/> <input type="radio"/>	<input type="text"/>
	DELTA	87	MW	Generation	<input type="radio"/> <input checked="" type="radio"/>	<input type="text"/>

SAVE QUIT
PREVIOUS NEXT



6/6

Is there a Control Center associated with the asset that could affect the reliable operation of a Local-level Critical Infrastructure Customer?

•	Asset ▼	Capacity •	Unit •	Type •	Y/N	Comment
	ALPHA (1)	345	KV	Transmission	<input checked="" type="radio"/> <input type="radio"/>	<input type="text"/>
	ALPHA (2)	138	KV	Transmission	<input type="radio"/> <input checked="" type="radio"/>	<input type="text"/>
	ALPHA (3)	138	KV	Transmission	<input type="radio"/> <input checked="" type="radio"/>	<input type="text"/>
	BRAVO (1)	138	KV	Transmission	<input type="radio"/> <input checked="" type="radio"/>	<input type="text"/>
	BRAVO_GEN	100	MW	Generation	<input checked="" type="radio"/> <input type="radio"/>	<input type="text"/>
	CHARLIE (1)	34.5	KV	Transmission	<input type="radio"/> <input checked="" type="radio"/>	<input type="text"/>
	DELTA	87	MW	Generation	<input type="radio"/> <input checked="" type="radio"/>	<input type="text"/>

SAVE

QUIT

PREVIOUS

NEXT

Survey Results

The results of the Transmission, Generation, Critical Load, and Control Center evaluation methodologies are displayed below. By clicking on the column headings, the results may be sorted by that column. Please note that the "NEXT" button at the bottom will export these results to a printable page for report preparation.

		TRANSMISSION						GENERATION						CRITICAL LOAD						CRITICAL?		Comment
Asset ▼	Type •	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6	%	Y / N	
ALPHA (2)	Trans		●	●	●	●	●													42%	<input type="radio"/> <input checked="" type="radio"/>	<input type="text"/>
ALPHA (3)	Trans	●	●											●	●					33%	<input type="radio"/> <input checked="" type="radio"/>	<input type="text"/>
BRAVO (1)	Trans	●	●																	17%	<input type="radio"/> <input checked="" type="radio"/>	<input type="text"/>
BRAVO GEN	Gen															●	●	●	●	33%	<input type="radio"/> <input checked="" type="radio"/>	<input type="text"/>
California CC	Control																			100%	<input checked="" type="radio"/> <input type="radio"/>	<input type="text"/>
CHARLIE (1)	Trans	●												●	●			●		33%	<input type="radio"/> <input checked="" type="radio"/>	<input type="text"/>
DELTA	Gen																			0%	<input type="radio"/> <input checked="" type="radio"/>	<input type="text"/>
ECHO	Gen							●	●		●		●						●	42%	<input type="radio"/> <input checked="" type="radio"/>	<input type="text"/>
FOXTROT	Gen									●	●					●				25%	<input type="radio"/> <input checked="" type="radio"/>	<input type="text"/>
GARFIELD (2)	Trans																	●		8%	<input type="radio"/> <input checked="" type="radio"/>	<input type="text"/>
GOLF	Gen							●	●	●	●		●			●	●	●	●	75%	<input checked="" type="radio"/> <input type="radio"/>	<input type="text"/>
GOLF (1)	Trans			●	●	●								●	●					42%	<input type="radio"/> <input checked="" type="radio"/>	<input type="text"/>

Survey Results

The results of the Transmission, Generation, Critical Load, and Control Center evaluation methodologies are displayed below. Please note that the download link will export these results to an Excel compatible format.

		TRANSMISSION						GENERATION						CRITICAL LOAD						CRITICAL?		Comment
Asset ▼	Type •	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6	%	Y/N•	
ALPHA (2)	Trans		●	●	●	●	●													42%	No	
ALPHA (3)	Trans	●	●											●	●					33%	No	
BRAVO (1)	Trans	●	●																	17%	No	
BRAVO_GEN	Gen													●						33%	No	
California CC	CC																			100%	Yes	
CHARLIE (1)	Trans	●												●	●			●		33%	No	
DELTA	Gen																			0%	No	
ECHO	Gen							●	●		●		●	●						42%	No	
FOXTROT	Gen											●	●	●						25%	No	
GARFIELD (2)	Trans																	●		8%	No	
GOLF	Gen							●	●	●	●		●	●						75%	Yes	
GOLF (1)	Trans				●	●	●							●	●					42%	No	
GOLF (2)	Trans					●	●											●	●	33%	No	
GOLF (3)	Trans	●			●		●							●	●				●	50%	No	
INDIA (1)	Trans		●				●													17%	No	
INDIA (2)	Trans	●	●	●	●	●	●							●	●			●	●	83%	Yes	
KILO	Gen									●				●						25%	No	



1/6

Does the Generation Station have a unit that is part of the regional Primary Path Blackstart Capability Plan (BCP) for your Balancing Authority/Security Coordinator?

•	Station ▼	Wattage •	Y/N
	BRAVO_GEN	100	<input type="radio"/> <input type="radio"/>
	DELTA	87	<input type="radio"/> <input type="radio"/>
	ECHO	140	<input type="radio"/> <input type="radio"/>
	FOXTROT	950	<input type="radio"/> <input type="radio"/>
	GOLF	98	<input type="radio"/> <input type="radio"/>
	KILO	519	<input type="radio"/> <input type="radio"/>
	LIMA	160	<input type="radio"/> <input type="radio"/>

SAVE

QUIT

PREVIOUS

NEXT



2/6

**Has the Generation Station been listed as Critical
by the Department of Homeland Security?**

•	Station ▼	Wattage •	Y/N
	BRAVO_GEN	100	<input checked="" type="radio"/> <input type="radio"/>
	DELTA	87	<input type="radio"/> <input checked="" type="radio"/>
	ECHO	140	<input checked="" type="radio"/> <input type="radio"/>
	FOXTROT	950	<input type="radio"/> <input checked="" type="radio"/>
	GOLF	98	<input checked="" type="radio"/> <input type="radio"/>
	KILO	519	<input type="radio"/> <input checked="" type="radio"/>
	LIMA	160	<input checked="" type="radio"/> <input type="radio"/>

SAVE

QUIT

PREVIOUS

NEXT



3/6

Does the generating station have any units on Automatic Generator Control (AGC)?

•	Station ▼	Wattage •	Y/N
	BRAVO_GEN	100	<input type="radio"/> <input checked="" type="radio"/>
	DELTA	87	<input type="radio"/> <input checked="" type="radio"/>
	ECHO	140	<input type="radio"/> <input checked="" type="radio"/>
	FOXTROT	950	<input type="radio"/> <input checked="" type="radio"/>
	GOLF	98	<input checked="" type="radio"/> <input type="radio"/>
	KILO	519	<input checked="" type="radio"/> <input type="radio"/>
	LIMA	160	<input type="radio"/> <input checked="" type="radio"/>

SAVE QUIT
PREVIOUS NEXT



4/6

Does the generating station have one or more units that have been identified as operating for any or all of the following reasons:

- Needed for meeting reliability criteria for interconnected systems operation.
- Needed to meet load (demand) in constrained areas.
- Needed to provide voltage or security support for the ISO, Balancing Authority, Security Coordinator, and/or any other known local area.

•	Station ▼	Wattage •	Y/N
	BRAVO_GEN	100	<input checked="" type="radio"/> <input type="radio"/>
	DELTA	87	<input checked="" type="radio"/> <input type="radio"/>
	ECHO	140	<input checked="" type="radio"/> <input type="radio"/>
	FOXTROT	950	<input type="radio"/> <input checked="" type="radio"/>
	GOLF	98	<input checked="" type="radio"/> <input type="radio"/>
	KILO	519	<input type="radio"/> <input checked="" type="radio"/>
	LIMA	160	<input type="radio"/> <input checked="" type="radio"/>

SAVE

QUIT

PREVIOUS

NEXT

5/6

Does the Generating Station have a unit with responsibility as part of a specific operating procedure?

•	Station ▼	Wattage •	Y/N
	BRAVO_GEN	100	<input checked="" type="radio"/> <input type="radio"/>
	DELTA	87	<input checked="" type="radio"/> <input type="radio"/>
	ECHO	140	<input type="radio"/> <input checked="" type="radio"/>
	FOXTROT	950	<input checked="" type="radio"/> <input type="radio"/>
	GOLF	98	<input type="radio"/> <input checked="" type="radio"/>
	KILO	519	<input type="radio"/> <input checked="" type="radio"/>
	LIMA	160	<input type="radio"/> <input checked="" type="radio"/>

SAVE

QUIT

PREVIOUS

NEXT

6/6

Other than Generation Stations containing Blackstart Units, does the Generation Station provide greater than 400 MW of power?

•	Station ▼	Wattage •	Y/N
	ECHO	140	<input checked="" type="radio"/> <input type="radio"/>
	FOXTROT	950	<input checked="" type="radio"/> <input type="radio"/>
	GOLF	98	<input checked="" type="radio"/> <input type="radio"/>
	KILO	519	<input type="radio"/> <input checked="" type="radio"/>
	LIMA	160	<input type="radio"/> <input checked="" type="radio"/>
	SIERRA_GEN	234	<input type="radio"/> <input checked="" type="radio"/>
	XRAY	1248	<input checked="" type="radio"/> <input type="radio"/>

SAVE

QUIT

PREVIOUS

NEXT



1/6

Is the Transmission Asset part of a Regional System Restoration Plan, as determined by your Balancing Authority/Security Coordinator?

•	Asset ▼	Voltage •	Y/N
	ALPHA (1)	345	<input type="radio"/> <input checked="" type="radio"/>
	ALPHA (2)	138	<input type="radio"/> <input checked="" type="radio"/>
	ALPHA (3)	138	<input checked="" type="radio"/> <input type="radio"/>
	BRAVO (1)	138	<input checked="" type="radio"/> <input type="radio"/>
	CHARLIE (1)	34.5	<input checked="" type="radio"/> <input type="radio"/>
	GARFIELD (2)	69	<input type="radio"/> <input checked="" type="radio"/>
	GOLF (1)	138	<input type="radio"/> <input checked="" type="radio"/>

SAVE

QUIT

PREVIOUS

NEXT



2/6

Is the Transmission Asset part of a looped 100KV or higher circuit?

•	Asset ▼	Voltage •	Y/N
	ALPHA (1)	345	<input checked="" type="radio"/> <input type="radio"/>
	ALPHA (2)	138	<input checked="" type="radio"/> <input type="radio"/>
	ALPHA (3)	138	<input checked="" type="radio"/> <input type="radio"/>
	BRAVO (1)	138	<input checked="" type="radio"/> <input type="radio"/>
	CHARLIE (1)	34.5	<input type="radio"/> <input checked="" type="radio"/>
	GARFIELD (2)	69	<input type="radio"/> <input checked="" type="radio"/>
	GOLF (1)	138	<input type="radio"/> <input checked="" type="radio"/>

SAVE	QUIT
PREVIOUS	NEXT



3/6

Is the Transmission Asset supporting a Critical Generation Station?

•	Asset ▼	Voltage •	Y/N
	ALPHA (1)	345	<input checked="" type="radio"/> <input type="radio"/>
	ALPHA (2)	138	<input checked="" type="radio"/> <input type="radio"/>
	ALPHA (3)	138	<input type="radio"/> <input checked="" type="radio"/>
	BRAVO (1)	138	<input type="radio"/> <input checked="" type="radio"/>
	CHARLIE (1)	34.5	<input type="radio"/> <input checked="" type="radio"/>
	GARFIELD (2)	69	<input type="radio"/> <input checked="" type="radio"/>
	GOLF (1)	138	<input type="radio"/> <input checked="" type="radio"/>

SAVE

QUIT

PREVIOUS

NEXT



4/6

Does the Transmission Asset provide ties to NERC CIP qualifying entities or connect two or more Balancing Authorities?

Resources:

NERC Functional Model, Version 2

ftp://www.nerc.com/pub/sys/all_updl/oc/fmrtg/Functional_Model_Version_2.pdf

NERC Registered Entity List

<http://www.nerc.com/~org/entities/index.html>

•	Asset ▼	Voltage •	Y/N
	ALPHA (1)	345	<input checked="" type="radio"/> <input type="radio"/>
	ALPHA (2)	138	<input checked="" type="radio"/> <input type="radio"/>
	ALPHA (3)	138	<input type="radio"/> <input checked="" type="radio"/>
	BRAVO (1)	138	<input type="radio"/> <input checked="" type="radio"/>
	CHARLIE (1)	34.5	<input type="radio"/> <input checked="" type="radio"/>
	GARFIELD (2)	69	<input type="radio"/> <input checked="" type="radio"/>
	GOLF (1)	138	<input checked="" type="radio"/> <input type="radio"/>

SAVE

QUIT

PREVIOUS

NEXT



5/6

Based upon a steady-state power flow analysis, a transient stability analysis, or both is there an identified case for an asset where the loss of one or more busses may cause any of the following:

- System instability
- Unacceptable system dynamic response or equipment tripping
- Voltage levels in violation of applicable emergency limits
- Loadings on transmission facilities in violation of applicable emergency limits
- Unacceptable loss of load

•	Asset ▼	Voltage •	Y/N
	ALPHA (1)	345	<input checked="" type="radio"/> <input type="radio"/>
	ALPHA (2)	138	<input checked="" type="radio"/> <input type="radio"/>
	ALPHA (3)	138	<input type="radio"/> <input checked="" type="radio"/>
	BRAVO (1)	138	<input type="radio"/> <input checked="" type="radio"/>
	CHARLIE (1)	34.5	<input type="radio"/> <input checked="" type="radio"/>
	GARFIELD (2)	69	<input type="radio"/> <input checked="" type="radio"/>
	GOLF (1)	138	<input checked="" type="radio"/> <input type="radio"/>

SAVE

QUIT

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NEXT



6/6

Does the Transmission Asset have a responsibility as part of a specific operating procedure?

•	Asset ▼	Voltage •	Y/N
	ALPHA (1)	345	<input type="radio"/> <input type="radio"/>
	ALPHA (2)	138	<input type="radio"/> <input type="radio"/>
	ALPHA (3)	138	<input type="radio"/> <input checked="" type="radio"/>
	BRAVO (1)	138	<input type="radio"/> <input checked="" type="radio"/>
	CHARLIE (1)	34.5	<input type="radio"/> <input checked="" type="radio"/>
	GARFIELD (2)	69	<input type="radio"/> <input checked="" type="radio"/>
	GOLF (1)	138	<input checked="" type="radio"/> <input type="radio"/>

SAVE

QUIT

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NEXT



TRANSMISSION



Transmission Methodology

Please select the voltage transmission value that, according to company policy, would designate a Transmission Asset as a Critical Asset, regardless of the results of answers to questions posed previously.

☐ 69kV ☐ 115kV ☐ 138kV ☐ 161kV ☒ 230kV ☐ 345kV ☐ 500kV ☐ 765kV ☐ N/A

Asset ▼	Voltage •	Type •
ALPHA (1)	345	Transmission
ALPHA (2)	138	Transmission
ALPHA (3)	138	Transmission
BRAVO (1)	138	Transmission
CHARLIE (1)	34.5	Transmission
GARFIELD (2)	69	Transmission
GOLF (1)	138	Transmission
GOLF (2)	16	Transmission
GOLF (3)	34.5	Transmission

CONTINUE



1/6

Is the Transmission Asset required for the operation of a National-level Critical Infrastructure Customer, (e.g. Oil and Gas Production, Finance Center, Military Center, etc)?

•	Asset ▼	Voltage •	Unit •	Type •	Y/N	Comment
	ALPHA (1)	345	kV	Transmission	<input checked="" type="radio"/> <input type="radio"/>	<input type="text"/>
	ALPHA (2)	138	kV	Transmission	<input type="radio"/> <input checked="" type="radio"/>	<input type="text"/>
	ALPHA (3)	138	kV	Transmission	<input checked="" type="radio"/> <input type="radio"/>	<input type="text"/>
	BRAVO (1)	138	kV	Transmission	<input type="radio"/> <input checked="" type="radio"/>	<input type="text"/>
	CHARLIE (1)	34.5	kV	Transmission	<input checked="" type="radio"/> <input type="radio"/>	<input type="text"/>
	GARFIELD (2)	69	kV	Transmission	<input type="radio"/> <input checked="" type="radio"/>	<input type="text"/>
	GOLF (1)		kV	Transmission	<input checked="" type="radio"/> <input type="radio"/>	<input type="text"/>



3/6

Is the Generation Asset required for the operation of a National-level Critical Infrastructure Customer, (e.g. Oil and Gas Production, Finance Center, Military Center, etc)?

•	Asset ▼	Wattage •	Unit •	Type •	Y/N	Comment
	BRAVO_GEN	100	MW	Generation	<input checked="" type="radio"/> <input type="radio"/>	<input type="text"/>
	DELTA	87	MW	Generation	<input type="radio"/> <input checked="" type="radio"/>	<input type="text"/>
	ECHO	140	MW	Generation	<input type="radio"/> <input checked="" type="radio"/>	<input type="text"/>
	FOXTROT	950	MW	Generation	<input checked="" type="radio"/> <input type="radio"/>	<input type="text"/>
	GOLF	98	MW	Generation	<input checked="" type="radio"/> <input type="radio"/>	<input type="text"/>
	KILO	519	MW	Generation	<input type="radio"/> <input checked="" type="radio"/>	<input type="text"/>
	LIMA	160	MW	Generation	<input checked="" type="radio"/> <input type="radio"/>	<input type="text"/>

Survey Results

The results of the Transmission, Generation, Critical Load, and Control Center evaluation methodologies are displayed below. By clicking on the column headings, the results may be sorted by that column. Please note that the "NEXT" button at the bottom will export these results to a printable page for report preparation.

		TRANSMISSION						GENERATION						CRITICAL LOAD						CRITICAL?		Comment
Asset ▼	Type •	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6	%	Y / N	
ALPHA (2)	Trans		●	●	●	●	●													42%	<input type="radio"/> <input checked="" type="radio"/>	<input type="text"/>
ALPHA (3)	Trans	●	●											●	●					33%	<input type="radio"/> <input checked="" type="radio"/>	<input type="text"/>
BRAVO (1)	Trans	●	●																	17%	<input type="radio"/> <input checked="" type="radio"/>	<input type="text"/>
BRAVO GEN	Gen															●	●	●	●	33%	<input type="radio"/> <input checked="" type="radio"/>	<input type="text"/>
California CC	Control																			100%	<input checked="" type="radio"/> <input type="radio"/>	<input type="text"/>
CHARLIE (1)	Trans	●												●	●			●		33%	<input type="radio"/> <input checked="" type="radio"/>	<input type="text"/>
DELTA	Gen																			0%	<input type="radio"/> <input checked="" type="radio"/>	<input type="text"/>
ECHO	Gen							●	●		●		●						●	42%	<input type="radio"/> <input checked="" type="radio"/>	<input type="text"/>
FOXTROT	Gen										●	●				●				25%	<input type="radio"/> <input checked="" type="radio"/>	<input type="text"/>
GARFIELD (2)	Trans																	●		8%	<input type="radio"/> <input checked="" type="radio"/>	<input type="text"/>
GOLF	Gen							●	●	●	●		●			●	●	●	●	75%	<input checked="" type="radio"/> <input type="radio"/>	<input type="text"/>
GOLF (1)	Trans			●	●	●								●	●					42%	<input type="radio"/> <input checked="" type="radio"/>	<input type="text"/>

Survey Results

The results of the Transmission, Generation, Critical Load, and Control Center evaluation methodologies are displayed below. Please note that the download link will export these results to an Excel compatible format.

		TRANSMISSION						GENERATION						CRITICAL LOAD						CRITICAL?		Comment
Asset ▼	Type •	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6	%	Y/N•	
ALPHA (2)	Trans		●	●	●	●	●													42%	No	
ALPHA (3)	Trans	●	●											●	●					33%	No	
BRAVO (1)	Trans	●	●																	17%	No	
BRAVO_GEN	Gen													●						33%	No	
California CC	CC																			100%	Yes	
CHARLIE (1)	Trans	●												●	●			●		33%	No	
DELTA	Gen																			0%	No	
ECHO	Gen							●	●		●		●	●						42%	No	
FOXTROT	Gen											●	●	●						25%	No	
GARFIELD (2)	Trans																	●		8%	No	
GOLF	Gen							●	●	●	●		●	●						75%	Yes	
GOLF (1)	Trans				●	●	●							●	●					42%	No	
GOLF (2)	Trans					●	●											●	●	33%	No	
GOLF (3)	Trans	●			●		●							●	●				●	50%	No	
INDIA (1)	Trans		●				●													17%	No	
INDIA (2)	Trans	●	●	●	●	●	●							●	●			●	●	83%	Yes	
KILO	Gen									●				●						25%	No	



Thank You

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