Individual Commenter Information			
(Comple	ete thi	s page for comments from one organization or individual.)	
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Telephone: 2	262 506	6885	
E-mail: j	shaver@	Datcllc.com	
NERC Region		Registered Ballot Body Segment	
☐ ERCOT	\boxtimes	1 — Transmission Owners	
☐ FRCC		2 — RTOs, ISOs,	
oxtimes MRO		3 — Load-serving Entities	
		4 — Transmission-dependent Utilities	
⊠ RFC		5 — Electric Generators	
SERC		6 — Electricity Brokers, Aggregators, and Marketers	
∐ SPP		7 — Large Electricity End Users	
∐ WECC		8 — Small Electricity End Users	
∐ NA – No Applicable	t 🗀	9 — Federal, State, Provincial Regulatory or other Government Entities	
		10 — Regional Reliability Organizations and Regional Entities	

Group Name:						
Lead Contact:						
Contact Organization:						
Contact Segment:						
Contact Telephone:						
Contact E-mail:						
Additional Member Name	Additional Member Organization	Region*	Segment*			

^{*}If more than one Region or Segment applies, indicate the best fit for the purpose of these comments. Regional acronyms and segment numbers are shown on prior page.

This project involves upgrading the requirements in these four standards:

EOP-005 — System Restoration Plans

EOP-006 — Reliability Coordination – System Restoration

EOP-007 — Establish, Maintain, and Document a Regional Blackstart Capability Plan

EOP-009 — Documentation of Blackstart Generating Unit Test Results

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- Added a new attachment to the SAR that includes additional issues that should be addressed during the refinement of the standards these are issues raised by stakeholders during the first comment period for the System Restoration and Blackstart SAR.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1.	Do you agree with the revised scope of the proposed SAR?
	Yes
	⊠ No
	Comments: The SAR must describe, at a high level, the projected role each of the selected entities will play. This information will provide the industry with a greater understanding of the SAR's impact and work direction.
2.	The SAR drafting team has checked off a large number of responsible entities as being applicable entities. We have done this in order to provide sufficient flexibility to the eventual standard drafting team and due to the fact that system restoration and blackstart can potentially touch so many different functional areas of operations.
	Do you agree that the TOP should be responsible for securing blackstart services?
	☐ Yes
	⊠ No
	Comments:
	Depends: The TOP is currently responsible for transporting energy supplied from the Black Start generator interconnection point to restore the transmission grid as a whole under the restoration services portion of the Transmission Tariff. The costs of planning for, and implementing this responsibility are currently reimbursed under the network transmission tariff.
	If by "securing blackstart services" it is intended that the TOP must contract with generators or otherwise arrange with "Black Start Generators" to provide this capability, ATC cannot support this approach unless a mechanism is also provided that will allow the TOP to include any costs that might be incurred in transmission rates.

ATC, is willing to be responsible as the TOP to enter into agreements for Black Start Services with generators that are interconnected to ATC's transmission facilities, and anticipate making the necessary tariff filings or otherwise arrange for reimbursement for any costs incurred through the regional transmission organization.

If the Standard is eventually written that the TOP is responsible for "procuring" or "arranging" for the service, an adequate timeframe prior to implementation of the requirement must be allowed to pursue the necessary rate and other tariff approval together with the required agreements prior to this standard becoming enforceable.

Comment Form — 2nd Draft of SAR for System Restoration and Blackstart

3.	The SAR DT has checked off a large number of responsible entities as being applicable entities. We have done this in order to provide sufficient flexibility to the eventual SDT and due to the fact that system restoration and blackstart can potentially touch so many different functional areas of operations.
	Do you agree that a Generator Owner and/or Generator Operator should have a documented plan for non-blackstart units to be restarted after a blackout?
	⊠ Yes
	□ No
	Comments:
4.	Do you agree that the SAR is ready to move forward to the standards drafting stage?
	☐ Yes
	⊠ No
	Comments: See our comments in questions 1 and 2

Individual Commenter Information			
(Comple	te thi	s page for comments from one organization or individual.)	
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NERC Region		Registered Ballot Body Segment	
☐ ERCOT	\boxtimes	1 — Transmission Owners	
☐ FRCC		2 — RTOs, ISOs,	
		3 — Load-serving Entities	
		4 — Transmission-dependent Utilities	
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SERC		6 — Electricity Brokers, Aggregators, and Marketers	
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Group Name:			
Lead Contact:			
Contact Organization:			
Contact Segment:			
Contact Telephone:			
Contact E-mail:			
Additional Member Name	Additional Member Organization	Region*	Segment*

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Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1.	Do you agree with the revised scope of the proposed SAR? ☐ Yes ☐ No
	Comments:
2.	The SAR drafting team has checked off a large number of responsible entities as being applicable entities. We have done this in order to provide sufficient flexibility to the eventual standard drafting team and due to the fact that system restoration and blackstart can potentially touch so many different functional areas of operations.
	Do you agree that the TOP should be responsible for securing blackstart services?
	Yes □ No
	Comments: It is important to consider the issue of security when documenting a cranking path. The TOP should never be required to disclose the entire cranking path to other entities, like the Gen Operator. The Gen Operator does not need to know the entire cranking path in order to ensure blackstart services.
3.	The SAR DT has checked off a large number of responsible entities as being applicable entities. We have done this in order to provide sufficient flexibility to the eventual SDT and due to the fact that system restoration and blackstart can potentially touch so many different functional areas of operations.
	Do you agree that a Generator Owner and/or Generator Operator should have a documented plan for non-blackstart units to be restarted after a blackout?
	☐ Yes ☐ No
	Comments: While a documented plan for the restarting of non-blackstart units is not necessary, it is important that testing of blackstart units proves that the unit is capable of starting the non-blackstart units.
4.	Do you agree that the SAR is ready to move forward to the standards drafting stage?
	Comments:

Individual Commenter Information			
(Comple	ete thi	s page for comments from one organization or individual.)	
Name:	Steve M	yers	
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NERC Region		Registered Ballot Body Segment	
		1 — Transmission Owners	
☐ FRCC		2 — RTOs, ISOs,	
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		4 — Transmission-dependent Utilities	
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Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

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	□ No
	Comments:
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	□ No
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	Do you agree that a Generator Owner and/or Generator Operator should have a documented plan for non-blackstart units to be restarted after a blackout?
	⊠ Yes
	□ No
	Comments: All generators should know what their role is in a system restoration or blackstart effort. If they are on the blackstart initiation, such as serving as a black start resource or as a "next start" unit, they should have a documented plan included in the applicable regional or operational area black start plan. If they are not in the initiation stage of the effort, they should have a documented procedure of how and when they would be started and re-synchronized as the restoration effort progresses.
4.	Do you agree that the SAR is ready to move forward to the standards drafting stage?
	⊠ Yes
	□ No
	Comments:

Individual Commenter Information			
(Comple	te thi	s page for comments from one organization or individual.)	
Name: R	oger C	hampagne	
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NERC Region		Registered Ballot Body Segment	
☐ ERCOT	\boxtimes	1 — Transmission Owners	
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extstyle ext		4 — Transmission-dependent Utilities	
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	Do you agree that a Generator Owner and/or Generator Operator should have a documented plan for non-blackstart units to be restarted after a blackout?
	Comments: HQT agrees that a Generator Owner and/or Generator Operator should have a plan to be ready to re-start non-blackstart units after a blackout. This readiness for energization should also apply to all distributors and loads connected to the bulk electrical system (BES) as well. However, a NERC standard requirement(s) to have a documented plan for generating units to be restarted after a blackout should be limited to the 'restoration plan participants" on the cranking path only. The cranking path to be developed in the restoration plan would include those units that must be started or resynchronized to support the integrity of the path.
4.	Do you agree that the SAR is ready to move forward to the standards drafting stage? ☐ Yes ☐ No Comments:

Individual Commenter Information			
(Comple	ete thi	s page for comments from one organization or individual.)	
Name: F	Ron Fal	setti	
Organization: I	ESO		
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NERC Region		Registered Ballot Body Segment	
☐ ERCOT		1 — Transmission Owners	
☐ FRCC	\boxtimes	2 — RTOs, ISOs,	
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Group Name:			
Lead Contact:			
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	Do you agree that a Generator Owner and/or Generator Operator should have a documented plan for non-blackstart units to be restarted after a blackout?
	∑ Yes
	No Comments: Each generator owner and/or generator operator should typically have a plan to be ready to re-start after a trip or blackout, when the power system is reenergized and conditions warrant. This readiness for energization should also apply to all distributors and loads connected to the bulk electrical system (BES) as well.
	However, a NERC standard requirement(s) to have a documented plan for generating units to be restarted after a blackout should be limited to the 'restoration plan participants" on the cranking path only. The cranking path to be developed in the restoration plan would include those units that must be started or resynchronized to support the integrity of the path.
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Comments: Provided our comment in Q3 can be addressed in the final SAR that will be used by the $\ensuremath{\mathsf{SDT}}$

Comment Form — 2nd Draft of SAR for System Restoration and Blackstart

Individual Commenter Information					
(Complete	(Complete this page for comments from one organization or individual.)				
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Organization:					
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E-mail:					
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Group Name: IRC Standards Review Committee

Lead Contact: Charles Yeung

Contact Organization: SPP

Contact Segment: 2

Contact Telephone: 832-724-6142

Contact E-mail: cyeung@spp.org

Additional Member Name	Additional Member Organization	Region*	Segment*
Alicia Daugherty	РЈМ	RHC	2
Mike Calimano	NYISO	NPNN	2
Ron Falsetti	IESO	NPCC	2
Matt Goldberg	ISO-NE	NPCC	2
Brent Kingsford	CAISO	WECC	2
Anita Lee	AESO	WECC	2
Steve Myers	ERCOT	ERCOT	2
Bill Phillips	MISO	RFC	2
		+MRO	
		+SERC	

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	However, a NERC standard requirement(s) to have a documented plan for generating units to be restarted after a blackout should be limited to the 'restoration plan participants" on the cranking path only. The cranking path to be developed in the restoration plan would include those units that must be started or resynchronized to support the integrity of the path.
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Individual Commenter Information			
(Comple	ete thi	s page for comments from one organization or individual.)	
Name:	Mike Ad	ibi	
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NERC Region		Registered Ballot Body Segment	
☐ ERCOT		1 — Transmission Owners	
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Group Comments (Complete this page if comments are from a group.)			
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Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1.	Do you agree with the revised scope of the proposed SAR?
	□ No
	Comments: Blackstart can be divided into Local Blackstart (LB) and Remote Blackstart (RB). In LB the blackstart unit(s) and the non-blackstart unit(s) are adjacent to each other (not necessarily in the same plant), with simple interconnecting links. In RB (which is more prevalent), the blackstart unit(s) are located remote from the non-blackstart unit(s), and the path in between includes several levels of overhead and/or underground transmission lines, distribution system and the required and necessary related loads.

Whereas LB can readily be studied, planned, simulated, scheduled, tested, timed and measured, the RB (or remote cranking) has a number of concerns and constraints requiring close coordination and agreements between a single blackstart owner (e.g., combustion turbine operator), transmission provider (for the path), distribution provider (for the necessary load), and a single (or at most two, see EdeF procedure), non-blackstart units (e.g., steam units). Experience has shown that in general remote blackstart are difficult and costly to schedule and test. The RB feasibility study requires analytical tools such as generator reactive capability program, optimal transformer tap setting program, optimal power flow program, that are needed and not readily available to optimize generator voltage set-points and the various transformer tap positions on no-load tap changers.

Testing RB is very difficult and expensive. To illustrate the difficulties, two RB cases that apparently were feasible are briefly described:

- 1. In one RB trial, it took the entire morning shift operators for bulk power, electrical system, CT and SES to isolate and clear the path, start the CT, and energize the path. The test had to be abandoned at the end of the shift without having completed the RB. One positive lesson learned was that during an actual power system restoration, the hot restart (blackstart) of the steam unit should not be attempted.
- 2. In a second RB case, analysis and simulation showed that in spite of using several programs on an iterative basis, to optimize the CTS and SES transformer taps and generator voltage set-points, CTS could not supply nor absorb the necessary reactive power for the start up of the large induction motors in the SES. It was concluded that additional shunt reactors need to be installed to reduce the lines charging currents and thus narrow the span between over- and under-excitations demands from the CTS.

It should be recognized that RB is one of the basic and early restoration requirements. Generally, combustion turbines, low-head short-conduit hydro or low-head pumped storage is used to remotely blackstart the drum-type steam units. The drum-type units are usually base-loaded, are located remote from the load centers to which they are connected by HV and EHV lines, supply large portion of demand, with maximum elapsed time for hot re-start of 30-45 minutes and minimum elapsed time for hot restart of 3 to 4 hours, and they need cranking power for start-up.

The combustion turbines are peaking units, supply daily peak loads, are located within the load centers, with cold start-up of within 5 to 10 minutes, and hot-restart of within 2 to 3 hours. They typically need no cranking power for start up, however the probability of successful cold start-up is about 30%, i.e., one in three combustion turbines. The required RB path typically includes HV and EHV transmission lines.

RB's REACTIVE POWER PROBLEMS:

In the course of a blackstart operation, two limiting conditions place severe demands on the reactive power capability of the blackstart source. One extreme operating condition occurs during the initial energization of the transmission path when the combustion turbine station (CTS) is called upon to absorb the charging currents of the cables, the high- and extra-high voltage connecting lines. The other extreme operating condition is when the combustion turbine generators supply the large amount of reactive power required during startup of the largest auxiliary motor in the steam electric station (SES). These under-and over-excitation demands may be met by optimum selections of the CTS step-up transformer and SES step-down auxiliary transformer tap positions, and by control of the generator voltage set points. The blackstart operation is complicated by the fact that the CTS generator step up and the SES auxiliary transformers are typically equipped with no-load (fixed) taps, and they are set for normal operation. Therefore, in the planning phase and prior to the blackstart tests or during restoration, the optimum tap positions for these transformers and the correct terminal voltage set point(s) for the generator need to be determined to satisfy the two conditions. It should also be noted that not all the no-load tap changers can remotely be repositioned.

Here are the three lists of the RB concerns and constraints:

A. Concerns with the Blackstart Units:

- * Start-up probability; one CT in two or one in three.
- * Governor speed-droop, automatic or manual (if manual, it must be adjusted to less than 2% for the first unit and returned to 5% for the second unit).
- * Frequency Response to Sudden Increase in Load (in route loads are required to stabilize the CTS)
- * Power reversal relays
- * Cross compensation of dual CTs (load Hogging)
- * Under-excitation limit when energizing the path, over-excitation limit when starting the large onduction motors in SES.
- * GSU Xfmr differential relays
- * GSU and Aux Xfmr tap positions

B. Concerns with Non-Blackstart (steam) Units:

- * Start-up sequence of auxiliary induction motors (BFP. IDF, etc.)
- * Starting overcurrents of auxiliary motors (five times the running current)
- * Starting voltage dips of auxiliary motors (down to 80%)
- * Startup reactive power requirements of motors (max over-excitation)
- * Path's charging currents (max under-excitation)
- * Excessive negative sequence voltage and currents (not more than 4%)
- * Service transformer, tap position.

C. Concern the Interconnecting Path:

* Frequency Transients when energizing EHV lines

Comment Form — 2nd Draft of SAR for System Restoration and Blackstart

- * Frequency Transients when starting motors
- * Minimum source operation of distance relays
- * Reclosing schemes when energizing lines
- * Synchro-check relays and standing phase angle.

Conclusions:

Implementation of each RB operation requires:

- * the use of related Generation, Transmission and Distribution facilities
- * planning (feasibility study), analyzes, simulation, field tests, training and exercise
- * each blalkstart source has to be matched uniquely with a non-blackstart unit(s)
- * long-term contracts are required between the related G, T & D ownerships

It can also be concluded that many apparently available RBs, are not feasible. The NERC records show that they have caused considerable delays in the restoration procedure.

2. The SAR drafting team has checked off a large number of responsible entities as being applicable entities. We have done this in order to provide sufficient flexibility to the eventual standard drafting team and due to the fact that system restoration and blackstart can potentially touch so many different functional areas of operations.

Do you agree that the TOP should be responsible for securing	blackstart services?
⊠ Yes	
□ No	
Comments: The three "Questions for 2nd Posting" - Volunteer	rs

- 1. Do you agree with the revised scope of the proposed SAR?
- 2. The SAR DT has checked off a large number of responsible entities as being applicable entities. We have done this in order to provide sufficient flexibility to the eventual SDT and due to the fact that system restoration and black-start can potentially touch so many different functional areas of operations.
- a. Do you agree that the TOP should be responsible for securing black-start services?
- b. Do you agree that a Generator Owner and/or Generator Operator should have a documented plan for non-black-start units to be restarted after a blackout?
- 3. Do you agree that the SAR is ready to move forward to the standards drafting stage?

Response:

- 2-b. Agreed that a Generator Owner and/or Generator Operator should have a documented plan for starting their non-black-start units following a blackout. However, such a plan should be supported by simulation otherwise it will be meaningless.
- 3. The SAR in its present form is abstract. Both the non-black-start and black-start units need to be defined. The non-black-start units should cover types (e.g., no nuclear) and sizes (e.g., small and DG) of prime movers. And the black-start sources should include:
- 1. Combustion Turbine (local and remote)
- 2. Run-of-the-River Hydro (remote)
- 3. Pump-Storage Hydro (remote)

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- 4. Low Frequency Isolation Scheme (LFIS)
- 5. Full Load Rejection (FLR)

It is a matter of records that in the aftermath of New York's 1977 blackout, FERC required that all utilities develop restoration plans. In the process of developing such a plan, one mid-Atlantic utility tried to provide black-start source for one of its large coal-fired plants. The choices were between (1) installing combustion turbines, (2) providing a low frequency isolation scheme, or (3) equipping the base-loaded unit with full-load rejection capability. The full-load rejection alternative was selected as providing the best balance between cost and reliability. Subsequently, following a major power disturbance, the FLR successfully tripped to house load. It can be concluded that the LFIS and FLR should also be considered as the black-start source.

It should be recognized that testing of remote black-start, LFIS or FLR is extremely difficult and expensive.

3.	The SAR DT has checked off a large number of responsible entities as being applicable entities. We have done this in order to provide sufficient flexibility to the eventual SDT and due to the fact that system restoration and blackstart can potentially touch so many different functional areas of operations.
	Do you agree that a Generator Owner and/or Generator Operator should have a documented plan for non-blackstart units to be restarted after a blackout?
	⊠ Yes
	□ No
	Comments: With some reservations.
4.	Do you agree that the SAR is ready to move forward to the standards drafting stage?
	⊠ Yes
	□ No
	Comments: By and Large

Individual Commenter Information					
(Complete this page for comments from one organization or individual.)					
Name:	Kathleer	athleen Goodman			
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NERC Region		Registered Ballot Body Segment			
☐ ERCOT		1 — Transmission Owners			
☐ FRCC		2 — RTOs, ISOs,			
		3 — Load-serving Entities			
$oxed{oxed}$ NPCC		4 — Transmission-dependent Utilities			
☐ RFC		5 — Electric Generators			
☐ SERC		6 — Electricity Brokers, Aggregators, and Marketers			
☐ SPP		7 — Large Electricity End Users			
☐ WECC		8 — Small Electricity End Users			
∐ NA – No Applicable	ot 🔲	9 — Federal, State, Provincial Regulatory or other Government Entities			
		10 — Regional Reliability Organizations and Regional Entities			

Group Name:			
Lead Contact:			
Contact Organization:			
Contact Segment:			
Contact Telephone:			
Contact E-mail:			
Additional Member Name	Additional Member Organization	Region*	Segment*

^{*}If more than one Region or Segment applies, indicate the best fit for the purpose of these comments. Regional acronyms and segment numbers are shown on prior page.

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EOP-006 — Reliability Coordination – System Restoration

EOP-007 — Establish, Maintain, and Document a Regional Blackstart Capability Plan

EOP-009 — Documentation of Blackstart Generating Unit Test Results

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- Updated the SAR form to reflect the terms used in the Functional Model V3 as directed by the Standards Committee and to reference the correct version of the standards
- Added more specificity to the 'Industry Need' and 'Brief Description' sections of the SAR
- Added language to clarify that the "To Do" list (renamed as an "Issues to be Addressed" list is a list of issues to consider in the refinement of the standards, not a list of modifications that must be made to the standards
- Modified the headings in "Standard Review Forms" to more clearly identify the source of the comments listed on those forms
- Added a copy of the "Standard Review Guidelines" to clarify the scope of modifications required to upgrade this set of standards and to identify the reference used by NERC staff in evaluating the quality of existing standards
- Added a new attachment to the SAR that includes additional issues that should be addressed during the refinement of the standards these are issues raised by stakeholders during the first comment period for the System Restoration and Blackstart SAR.

1.	Do you agree with the revised scope of the proposed SAR? Yes
	□ No Comments:
2.	The SAR drafting team has checked off a large number of responsible entities as being applicable entities. We have done this in order to provide sufficient flexibility to the eventual standard drafting team and due to the fact that system restoration and blackstart can potentially touch so many different functional areas of operations.
	Do you agree that the TOP should be responsible for securing blackstart services?
	⊠ Yes
	☐ No Comments:
3.	The SAR DT has checked off a large number of responsible entities as being applicable entities. We have done this in order to provide sufficient flexibility to the eventual SDT and due to the fact that system restoration and blackstart can potentially touch so many different functional areas of operations.
	Do you agree that a Generator Owner and/or Generator Operator should have a documented plan for non-blackstart units to be restarted after a blackout?
	⊠ Yes
	⊠ No
	Comments: As a general matter, ISO-NE agrees that a Generator Owner and/or Generator Operator should have a documented plan for non-blackstart units to be restarted after a blackout. However, ISO-NE is concerned about the possibility that the Standard could end up requiring an RC, TOP, etc. to become directly involved with the Generator Owner and/or Generator Operator in the development of such a plan. The SAR should be clear that an RC, TOP, etc. shall not be designated as a responsible entity with respect to the development of such a plan and it will remain the requirement of the Owner/Operator.
4.	Do you agree that the SAR is ready to move forward to the standards drafting stage?
	✓ Yes✓ No
	Comments: ISO-NE agrees that the SAR is ready to move forward to the standards drafting stage if the concern expressed in our response to Question 3 above is addressed.

Individual Commenter Information			
(Comple	ete thi	s page for comments from one organization or individual.)	
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NERC Region		Registered Ballot Body Segment	
☐ ERCOT	\boxtimes	1 — Transmission Owners	
☐ FRCC		2 — RTOs, ISOs,	
		3 — Load-serving Entities	
		4 — Transmission-dependent Utilities	
RFC		5 — Electric Generators	
SERC		6 — Electricity Brokers, Aggregators, and Marketers	
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∐ WECC		8 — Small Electricity End Users	
∐ NA – No Applicable	ot 🗆	9 — Federal, State, Provincial Regulatory or other Government Entities	
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Group Name:			
Lead Contact:			
Contact Organization:			
Contact Segment:			
Contact Telephone:			
Contact E-mail:			
Additional Member Name	Additional Member Organization	Region*	Segment*

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1.	Do you agree with the revised scope of the proposed SAR?					
	Yes					
	⊠ No					
	Comments: During a system restoration (i.e. the August 2003 Blackout), the code of conduct was suspended so that orderly system restoration may occur. In other words, the market ceases to exist. Generator operators, transmission operators, market operators and load serving entities had to communicate and work together so that system restoration, using system load and generation may be restored. Therefore, on page SAR-6 under "Reliability and Market Interface Principles - Applicable Reliability Principles boxes 5, 6, and 7 should also be checked. Box 5 should be checked since communication is critical in a system restoration event. Box 6 should be checked because you need to have qualified people operating the system so that the personnel know what to do during a major system event. Box 7 should be checked since the system is unstable during the early hours of system restoration.					
	Standard Number EOP-005-0 is currently not applicable to the load serving entities. Load Serving Entities should be applicable since they are critical in system restoration. To restore a system, generation must come on, then load is restored, then more generation comes on, then more load is restored etc. Picking up load is crucial in system restoration.					
2.	The SAR drafting team has checked off a large number of responsible entities as being applicable entities. We have done this in order to provide sufficient flexibility to the eventual standard drafting team and due to the fact that system restoration and blackstart can potentially touch so many different functional areas of operations.					
	Do you agree that the TOP should be responsible for securing blackstart services?					
	⊠ Yes					
	□ No					
	Comments:					
3.	The SAR DT has checked off a large number of responsible entities as being applicable entities. We have done this in order to provide sufficient flexibility to the eventual SDT and due to the fact that system restoration and blackstart can potentially touch so many different functional areas of operations.					
	Do you agree that a Generator Owner and/or Generator Operator should have a documented plan for non-blackstart units to be restarted after a blackout?					
	□ No					
	Comments:					

Comment Form — 2nd Draft of SAR for System Restoration and Blackstart

4.	Do you agree that the SAR is ready to move forward to the standards drafting stage?
	□ No
	Comments:

Individual Commenter Information				
(Comple	(Complete this page for comments from one organization or individual.)			
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E-mail: r	gcoish@	ହhydro.mb.ca		
NERC Region		Registered Ballot Body Segment		
☐ ERCOT	\boxtimes	1 — Transmission Owners		
☐ FRCC		2 — RTOs, ISOs,		
oxtimes MRO	\boxtimes	3 — Load-serving Entities		
		4 — Transmission-dependent Utilities		
RFC	\boxtimes	5 — Electric Generators		
☐ SERC		6 — Electricity Brokers, Aggregators, and Marketers		
☐ SPP		7 — Large Electricity End Users		
☐ WECC		8 — Small Electricity End Users		
∐ NA – Not Applicable	t 🗆	9 — Federal, State, Provincial Regulatory or other Government Entities		
		10 — Regional Reliability Organizations and Regional Entities		

Group Name:						
Lead Contact:						
Contact Organization:	Contact Organization:					
Contact Segment:						
Contact Telephone:						
Contact E-mail:						
Additional Member Name	Additional Member Organization	Region*	Segment*			

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1.	Do you agree with the revised scope of the proposed SAR?
	∑ Yes
	☐ No Comments: A lot of good work has been put in to drafting this SAR to identify all the significant issues from the various sources for the SDT to address. This approach is an improvement over previous SARs. However, it doesn't seem clear how the SDT is to address the "fill-in-the-blanks" elements in the exisiting standards.
2.	The SAR drafting team has checked off a large number of responsible entities as being applicable entities. We have done this in order to provide sufficient flexibility to the eventual standard drafting team and due to the fact that system restoration and blackstart can potentially touch so many different functional areas of operations.
	Do you agree that the TOP should be responsible for securing blackstart services?
	⊠ Yes
	□ No
	Comments:
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	Do you agree that a Generator Owner and/or Generator Operator should have a documented plan for non-blackstart units to be restarted after a blackout?
	⊠ Yes
	□ No
	Comments: It was not clear where this was being proposed in the SAR. A good system restoration plan should outline options for how non-blackstart units will be started after a blackout. These aspects of the plan should be shared with the GO/GOP and coordinated with the GO/GOP plans.
4.	Do you agree that the SAR is ready to move forward to the standards drafting stage? ☐ Yes
	□ No
	Comments:

Comment Form — 2nd Draft of SAR for System Restoration and Blackstart

Individual Commenter Information			
(Complete	e this	s page for comments from one organization or individual.)	
Name:			
Organization:			
Telephone:			
E-mail:			
NERC Region		Registered Ballot Body Segment	
☐ ERCOT		1 — Transmission Owners	
☐ FRCC		2 — RTOs, ISOs,	
☐ MRO		3 — Load-serving Entities	
		4 — Transmission-dependent Utilities	
RFC		5 — Electric Generators	
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☐ SPP		7 — Large Electricity End Users	
∐ WECC		8 — Small Electricity End Users	
∐ NA – Not Applicable		9 — Federal, State, Provincial Regulatory or other Government Entities	
		10 — Regional Reliability Organizations and Regional Entities	

Group Name: Midwest ISO and individual stakeholders

Lead Contact: Jason Marshall

Contact Organization: Midwest ISO

Contact Segment: 2

Contact Telephone: (317) 249-5494

Contact E-mail: jmarshall@midwestiso.org

Additional Member Name	Additional Member Organization	Region*	Segment*
Brian F. Thumm	ITC	RFC	1
Jim Cyrulewski	JDRJC Associates	RFC	8

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Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree with the revised scope of the proposed SAR?

	⊠ Yes
	No Comments: While we agree with the need for some improvement in the existing standards, there are misstatements in the SAR. The RC has defined responsibilities in the present standards. The SAR implies this isn't the case. Also, a SAR should be setting a clear scope of the end product, such that a different knowledgeable people would draft similar standards. It's unclear where this will go.
2.	The SAR drafting team has checked off a large number of responsible entities as being applicable entities. We have done this in order to provide sufficient flexibility to the eventual standard drafting team and due to the fact that system restoration and blackstart can potentially touch so many different functional areas of operations.
	Do you agree that the TOP should be responsible for securing blackstart services?
	☑ Yes ☑ No Comments: We're not sure what this means. While the TOP must have a plan that will work, the question implies there must be contractual obligations that back up all plans, and perhaps all scenarios. While it's good to have cranking paths and a plan laid out, we're concerned that this standard will preclude flexibility when the real need arises.
3.	The SAR DT has checked off a large number of responsible entities as being applicable entities. We have done this in order to provide sufficient flexibility to the eventual SDT and due to the fact that system restoration and blackstart can potentially touch so many different functional areas of operations.
	Do you agree that a Generator Owner and/or Generator Operator should have a documented plan for non-blackstart units to be restarted after a blackout?
	 ✓ Yes ☐ No Comments: We agree that all generator operators should have an understanding of their role and possible scenarios they will face. The generator operators should also test or train on their plan/role periodically.
4.	Do you agree that the SAR is ready to move forward to the standards drafting stage? \boxtimes Yes \boxtimes No

Comments: Again, we agree for some improvement, but we have difficulty in understanding where this is going.

Comment Form — 2nd Draft of SAR for System Restoration and Blackstart

Individual Commenter Information				
(Complete	(Complete this page for comments from one organization or individual.)			
Name:				
Organization:				
Telephone:				
E-mail:				
NERC Region		Registered Ballot Body Segment		
☐ ERCOT		1 — Transmission Owners		
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	\boxtimes	10 — Regional Reliability Organizations and Regional Entities		

Group Name: NPCC CP9, Reliability Standards Working Group

Lead Contact: Guy V. Zito

Contact Organization: Northeast Power Coordinating Council

Contact Segment: 10

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3 3 3					
Additional Member Name	Additional Member Organization	Region*	Segment*		
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Ed Thompson	ConEd	NPCC	1		
Herb Schrayshuen	National Grid US	NPCC	1		
Kathleen Goodman	ISO-New England	NPCC	2		
Bill Shemley	ISO-New England	NPCC	2		
Greg Campoli	New York ISO	NPCC	2		
Roger Champagne	TransEnergie HydroQuebec	NPCC	1		
Bruno Jesus	Hydro One Networks	NPCC	1		
Jerad Barnhart	NStar	NPCC	1		
Murale Gopinathan	Northeast Utilities	NPCC	1		
Al Adamson	New York State Reliability Council`	NPCC	10		
Don Nelson	MA Dept. Of Tel. and Energy	NPCC	9		
Randy Macdonald	New Brunswick System Operator	NPCC	2		

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- Added a new attachment to the SAR that includes additional issues that should be addressed during the refinement of the standards — these are issues raised by stakeholders during the first comment period for the System Restoration and Blackstart SAR.

1.	Do you agree with the revised scope of the proposed SAR? Yes
	□ No Comments:
2.	The SAR drafting team has checked off a large number of responsible entities as being applicable entities. We have done this in order to provide sufficient flexibility to the eventual standard drafting team and due to the fact that system restoration and blackstart can potentially touch so many different functional areas of operations.
	Do you agree that the TOP should be responsible for securing blackstart services?
	⊠ Yes
	□ No
	Comments:
3.	The SAR DT has checked off a large number of responsible entities as being applicable entities. We have done this in order to provide sufficient flexibility to the eventual SDT and due to the fact that system restoration and blackstart can potentially touch so many different functional areas of operations.
	Do you agree that a Generator Owner and/or Generator Operator should have a documented plan for non-blackstart units to be restarted after a blackout?
	⊠ No
	Comments: NPCC participating members agree that a Generator Owner and/or Generator Operator should have a plan to be ready to re-start non-blackstart units after a blackout.
	However, a NERC standard requirement(s) to have a documented plan for generating units to be restarted after a blackout should be limited to the 'restoration plan participants" on the cranking path only. The cranking path to be developed in the restoration plan would include those units that must be started or resynchronized to support the integrity of the path.
4.	Do you agree that the SAR is ready to move forward to the standards drafting stage?
	⊠ Yes
	□ No Comments:

Individual Commenter Information			
(Comple	ete thi	s page for comments from one organization or individual.)	
Name:	Michael	Calimano	
Organization: N	New You	rk Independent System Operator	
Telephone: 5	518-356	-6129	
E-mail: r	ncalim	ano@nyiso.com	
NERC Region		Registered Ballot Body Segment	
☐ ERCOT		1 — Transmission Owners	
☐ FRCC	\boxtimes	2 — RTOs, ISOs,	
☐ MRO		3 — Load-serving Entities	
\boxtimes NPCC		4 — Transmission-dependent Utilities	
☐ RFC		5 — Electric Generators	
SERC		6 — Electricity Brokers, Aggregators, and Marketers	
☐ SPP		7 — Large Electricity End Users	
☐ WECC		8 — Small Electricity End Users	
∐ NA – No Applicable	t 🗆	9 — Federal, State, Provincial Regulatory or other Government Entities	
		10 — Regional Reliability Organizations and Regional Entities	

Group Name:			
Lead Contact:			
Contact Organization:			
Contact Segment:			
Contact Telephone:			
Contact E-mail:			
Additional Member Name	Additional Member Organization	Region*	Segment*

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EOP-005 — System Restoration Plans

EOP-006 — Reliability Coordination – System Restoration

EOP-007 — Establish, Maintain, and Document a Regional Blackstart Capability Plan

EOP-009 — Documentation of Blackstart Generating Unit Test Results

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- Updated the SAR form to reflect the terms used in the Functional Model V3 as directed by the Standards Committee and to reference the correct version of the standards
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	□ No Comments:
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	Do you agree that the TOP should be responsible for securing blackstart services?
	⊠ Yes
	□ No Comments:
3.	The SAR DT has checked off a large number of responsible entities as being applicable entities. We have done this in order to provide sufficient flexibility to the eventual SDT and due to the fact that system restoration and blackstart can potentially touch so many different functional areas of operations.
	Do you agree that a Generator Owner and/or Generator Operator should have a documented plan for non-blackstart units to be restarted after a blackout?
	⊠ Yes
	⊠ No
	Comments: Each generator owner and/or generator operator should typically have a plan to be ready to re-start after a trip or blackout, when the power system is reenergized and conditions warrant. This readiness for energization should also apply to all distributors and loads connected to the bulk electrical system (BES) as well.
	However, a NERC standard requirement(s) to have a documented plan for generating units to be restarted after a blackout should be limited to the 'restoration plan participants" on the cranking path only. The cranking path to be developed in the restoration plan would include those units that must be started or resynchronized to support the integrity of the path.
4.	Do you agree that the SAR is ready to move forward to the standards drafting stage?
	∑ Yes
	□ No Comments:
	COHHICHS.

Individual Commenter Information			
(Comple	ete thi	s page for comments from one organization or individual.)	
Name: E	Brett Ko	elsch	
Organization: I	PEC		
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E-mail: b	orett.koe	elsch@pgnmail.com	
NERC Region		Registered Ballot Body Segment	
☐ ERCOT	\boxtimes	1 — Transmission Owners	
☐ FRCC		2 — RTOs, ISOs,	
☐ MRO	\boxtimes	3 — Load-serving Entities	
		4 — Transmission-dependent Utilities	
RFC	\boxtimes	5 — Electric Generators	
oxtimes SERC	\boxtimes	6 — Electricity Brokers, Aggregators, and Marketers	
☐ SPP		7 — Large Electricity End Users	
☐ WECC		8 — Small Electricity End Users	
∐ NA – No Applicable	t 🔲	9 — Federal, State, Provincial Regulatory or other Government Entities	
		10 — Regional Reliability Organizations and Regional Entities	

Group Name:			
Lead Contact:			
Contact Organization:			
Contact Segment:			
Contact Telephone:			
Contact E-mail:			
Additional Member Name	Additional Member Organization	Region*	Segment*

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	□ No
	Comments:
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	Do you agree that a Generator Owner and/or Generator Operator should have a documented plan for non-blackstart units to be restarted after a blackout?
	⊠ Yes
	□ No
	Comments:
4.	Do you agree that the SAR is ready to move forward to the standards drafting stage?
	∑ Yes
	□ No Comments:
	Comments:

Comment Form — 2nd Draft of SAR for System Restoration and Blackstart

Individual Commenter Information			
(Complete	e this	s page for comments from one organization or individual.)	
Name:			
Organization:			
Telephone:			
E-mail:			
NERC Region		Registered Ballot Body Segment	
☐ ERCOT	\boxtimes	1 — Transmission Owners	
☐ FRCC		2 — RTOs, ISOs,	
☐ MRO		3 — Load-serving Entities	
☐ NPCC		4 — Transmission-dependent Utilities	
RFC	\boxtimes	5 — Electric Generators	
⊠ SERC		6 — Electricity Brokers, Aggregators, and Marketers	
☐ SPP		7 — Large Electricity End Users	
☐ WECC		8 — Small Electricity End Users	
∐ NA – Not Applicable		9 — Federal, State, Provincial Regulatory or other Government Entities	
		10 — Regional Reliability Organizations and Regional Entities	

Group Name: Southern Company

Lead Contact: J. T. Wood

Contact Organization: Southern Company Services

Contact Segment:

Contact Telephone: 205-257-6236

Contact E-mail: jtwood@southernco.com

Additional Member Name	Additional Member Organization	Region*	Segment*
Tom Higgins	Southern Company Services		5
Jim Busbin	Southern Company Services		1
Marc Butts	Southern Company Services		1
*If we we there are Device a Comme	and and the death of the form		C Al

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	Do you agree that the TOP should be responsible for securing blackstart services? ☐ Yes ☐ No Comments:
3.	The SAR DT has checked off a large number of responsible entities as being applicable entities. We have done this in order to provide sufficient flexibility to the eventual SDT and due to the fact that system restoration and blackstart can potentially touch so many different functional areas of operations.
	Do you agree that a Generator Owner and/or Generator Operator should have a documented plan for non-blackstart units to be restarted after a blackout? Yes No Comments: Black start of non-blackstart units should basically be the same as a normal start-up.
4.	Do you agree that the SAR is ready to move forward to the standards drafting stage? Yes No Comments:

Individual Commenter Information			
(Comple	te thi	s page for comments from one organization or individual.)	
Name: M	like Pf	eister	
Organization: S	alt Rive	er Project	
Telephone: 6	02-236	-3970	
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NERC Region		Registered Ballot Body Segment	
☐ ERCOT		1 — Transmission Owners	
☐ FRCC		2 — RTOs, ISOs,	
☐ MRO		3 — Load-serving Entities	
☐ NPCC		4 — Transmission-dependent Utilities	
☐ RFC		5 — Electric Generators	
☐ SERC		6 — Electricity Brokers, Aggregators, and Marketers	
∐ SPP		7 — Large Electricity End Users	
⊠ WECC		8 — Small Electricity End Users	
∐ NA – Not Applicable		9 — Federal, State, Provincial Regulatory or other Government Entities	
		10 — Regional Reliability Organizations and Regional Entities	

Group Name:			
Lead Contact:			
Contact Organization:			
Contact Segment:			
Contact Telephone:			
Contact E-mail:			
Additional Member Name	Additional Member Organization	Region*	Segment*

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1.	Do you agree with the revised scope of the proposed SAR? ☐ Yes
	□ No Comments:
2.	The SAR drafting team has checked off a large number of responsible entities as being applicable entities. We have done this in order to provide sufficient flexibility to the eventual standard drafting team and due to the fact that system restoration and blackstart can potentially touch so many different functional areas of operations.
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	⊠ Yes
	□ No
	Comments:
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	Do you agree that a Generator Owner and/or Generator Operator should have a documented plan for non-blackstart units to be restarted after a blackout?
	⊠ Yes
	□ No
	Comments:
4.	Do you agree that the SAR is ready to move forward to the standards drafting stage?
	∑ Yes
	□ No
	Comments:

Individual Commenter Information		
(Comple	te thi	s page for comments from one organization or individual.)
Name: J	im Sor	rels
Organization: A	merica	n Electric Power
Telephone: 614-716-2370		
E-mail: j	hsorrel	ls@aep.com
NERC Region		Registered Ballot Body Segment
	\boxtimes	1 — Transmission Owners
☐ FRCC		2 — RTOs, ISOs,
☐ MRO		3 — Load-serving Entities
		4 — Transmission-dependent Utilities
⊠ RFC	\boxtimes	5 — Electric Generators
SERC		6 — Electricity Brokers, Aggregators, and Marketers
⊠ SPP		7 — Large Electricity End Users
☐ WECC		8 — Small Electricity End Users
∐ NA – Not Applicable	t 🗆	9 — Federal, State, Provincial Regulatory or other Government Entities
		10 — Regional Reliability Organizations and Regional Entities

Group Name:			
Lead Contact:			
Contact Organization:			
Contact Segment:			
Contact Telephone:			
Contact E-mail:			
Additional Member Name	Additional Member Organization	Region*	Segment*

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EOP-006 — Reliability Coordination – System Restoration

EOP-007 — Establish, Maintain, and Document a Regional Blackstart Capability Plan

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Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

۱.	Do you agree with the revised scope of the proposed SAR? Yes
	No Comments: Concerning Phase III/IV comments, bullets 2 & 3 require the designation of a cranking path as part of a blackstart agreement between the transmission operator and generator owner. As it is unknown a priori how the electric system may break apart during a system collapse, the designation of a cranking path as part of a blackstart agreement unduly restricts the options available during restoration and may even make restoration impossible due to a contractually imposed constraint(s).
	No 'market' based or artificially imposed constraints should be placed on the system during restoration. System restoration operations, other than providing blackstart resources, should be not be 'market' based.
2.	The SAR drafting team has checked off a large number of responsible entities as being applicable entities. We have done this in order to provide sufficient flexibility to the eventual standard drafting team and due to the fact that system restoration and blackstart can potentially touch so many different functional areas of operations.
	Do you agree that the TOP should be responsible for securing blackstart services?
	∑ Yes
	☐ No Comments:
3.	The SAR DT has checked off a large number of responsible entities as being applicable entities. We have done this in order to provide sufficient flexibility to the eventual SDT and due to the fact that system restoration and blackstart can potentially touch so many different functional areas of operations.
	Do you agree that a Generator Owner and/or Generator Operator should have a documented plan for non-blackstart units to be restarted after a blackout?
	☐ Yes ☐ No Comments: This is not needed. The system restoration plan provides the necessary steps to provide cranking power to non-blackstart units. Once these units have had cranking power restored, the start up procedures are the same as if these units were returning from a scheduled/unscheduled outage during normal system operation. Is there really any need to have this documented?

4. Do you agree that the SAR is ready to move forward to the standards drafting stage?

Comment Form — 2 nd Draft of SAR for Sy	ystem Restoration and Blackstart
Yes	
⊠ No	
Comments: See items 1 & 3 above.	

Individual Commenter Information			
(Complete this page for comments from one organization or individual.)			
Name: E	Brian Th	umm	
Organization: I	TC Hold	dings	
Telephone: 248.374.7846			
E-mail: b	othumm	@itctransco.com	
NERC Region		Registered Ballot Body Segment	
☐ ERCOT	\boxtimes	1 — Transmission Owners	
☐ FRCC		2 — RTOs, ISOs,	
☐ MRO		3 — Load-serving Entities	
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	□ No Comments:
2.	The SAR drafting team has checked off a large number of responsible entities as being applicable entities. We have done this in order to provide sufficient flexibility to the eventual standard drafting team and due to the fact that system restoration and blackstart can potentially touch so many different functional areas of operations.
	Do you agree that the TOP should be responsible for securing blackstart services?
	 ☐ Yes ☑ No Comments: We are not sure what "securing" means. We also feel that generator owners/operators should be compelled by the Standards to provide blackstart services, and that the cost recovery for providing such services should not fall back on the Transmission Operator.
3.	The SAR DT has checked off a large number of responsible entities as being applicable entities. We have done this in order to provide sufficient flexibility to the eventual SDT and due to the fact that system restoration and blackstart can potentially touch so many different functional areas of operations.
	Do you agree that a Generator Owner and/or Generator Operator should have a documented plan for non-blackstart units to be restarted after a blackout?
	 ✓ Yes ☐ No Comments: In addition, the Generator Operator should demonstrate, through testing or simulation, that the non-blackstart unit can in fact be restarted using the blackout generator.
4.	Do you agree that the SAR is ready to move forward to the standards drafting stage? ☐ Yes ☐ No Comments: