



2026 Black Start Reliability Backstop Request for Fuel Assured Black Start Service Proposals

PJM Interconnection LLC

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1.0: Purpose / Statement

1.1. Purpose

PJM is initiating a Black Start Reliability Backstop RFP in accordance with PJM Manual M14D Section 10.3, to solicit proposals to satisfy the minimum Fuel Assured Black Start requirement established in PJM Manual 36 within the areas identified on the map below.

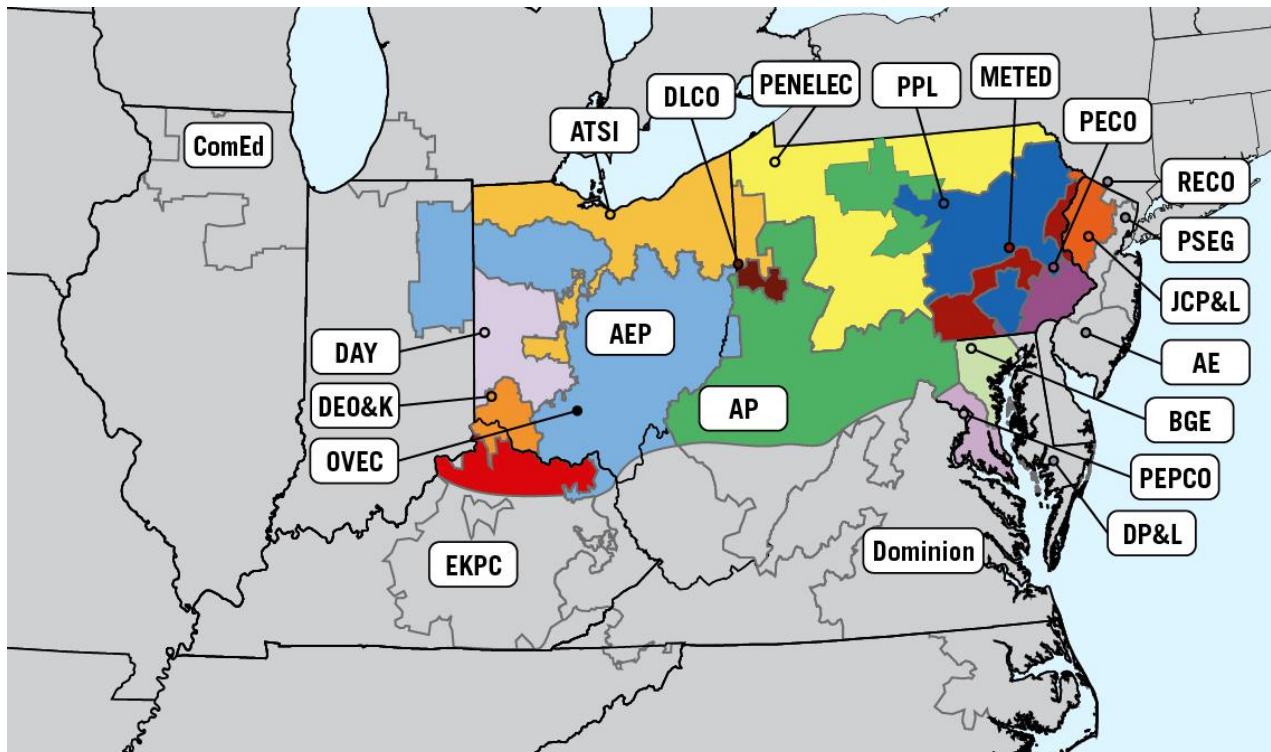
PJM will accept proposals from Transmission and Generation Owners. Transmission Owners whose zone has not met the minimum Fuel Assured Black Start requirement are required to respond to this RFP.

PJM will consider both Fuel Assured and Non-Fuel Assured proposals from new or existing units, including projects to add Black Start capability or enhance existing Black Start Units, provided the proposed solution satisfies the Fuel Assured Black Start requirement for the applicable zone. Proposed units must be physically located within or electrically connected to the PJM Region.

Units currently providing Black Start or Fuel Assured Black Start Service are not required to respond to this RFP and are expected to continue providing such service in accordance with the PJM Tariff, applicable Manuals, governing documents, and any approved revisions thereto.

Existing Black Start Units that are not currently providing Fuel Assured Black Start Service but are capable of meeting PJM's Fuel Assured Black Start requirements, must submit a proposal in response to this RFP to be considered for Fuel Assured Black Start Service.

PJM is implementing a two-tiered (Level 1 and Level 2) approach to the Black Start Reliability Backstop RFP process. Proposals should be submitted in accordance with PJM's Level 1 and Level 2 RFP process in [Section 4.0](#)



1.2. RFP Timeline

The market window for this RFP is from October 19, 2026, through March 5, 2027.

RFP Process Milestone	Date
PJM posts RFP	October 19, 2026
RFP interested parties submit Level 1 proposals to PJM	November 20, 2026
PJM response to Level 1 proposals	December 18, 2026
Bidders submit RFP Level 2 proposals to PJM	March 5, 2027
PJM evaluation and award of viable Black Start solutions	March 5, 2027 – June 1, 2027
Target In-Service Date for Awards pending equipment lead times, construction, etc.	June 1, 2030

1.3. Informational WebEx Meeting

PJM will conduct a PJM Operating Committee Special Session WebEx Meeting on October 22, 2026, from 1- 3 PM. The purpose of this informational WebEx meeting is to review the RFP document and address questions. PJM will provide responses to questions asked during this WebEx meeting and post these responses under the Black Start Services heading on the [PJM's Ancillary Services webpage](#).

1.4. Black Start and Fuel Assurance Requirements

All Black Start Units must meet the minimum capabilities listed below during restoration events. These capabilities must be demonstrated in accordance with the criteria set forth in the PJM Tariff, Manuals and other governing documents, as they may be amended occasionally, and will remain in effect for the duration of the commitment to provide Black Start Service

- (a) A Black Start Unit must have the ability to start without an outside electrical supply.
- (b) A Black Start Unit must be able to close its output circuit breaker to a dead (de-energized) bus within 180 minutes (or less, based on the characteristics of the specific critical load) of a request from the Transmission Owner or PJM.
- (c) A synchronous Black Start Unit must maintain the following:
 - i. Maintain frequency under varying load with the governor operating in automatic isochronous mode
 - ii. Maintain voltage under varying load with automatic voltage regulator in automatic and voltage control mode (excludes controlling with power factor or MVAR control mode)
 - iii. A Black Start Unit is expected to maintain black start output for at least 16-hours or as defined by the Transmission Owner system restoration plan, whichever is less
- (d) An inverter based Black Start unit must have a control scheme to maintain voltage and frequency in grid forming mode.

- (e) The Black Start cranking resource must have sufficient fuel to keep the Black Start unit in standby mode (power to auxiliary loads required to Black Start when called to do so) for 24 hours and three start attempts.

In addition to the Black Start Service requirements above, Fuel Assured Black Start Units must be capable of running 16 hours or more at full load or the proposed black start MWs during a restoration event. Black Start Fuel Assurance is achieved by either:

- (a) storing at least 16 hours of fuel and non-fuel consumables on site,
- (b) operating independently on 2 or more interstate pipelines,
- (c) being directly connected to a natural gas gathering facility,
- (d) or having a hydro or non-hydro intermittent or hybrid resource that has been evaluated by the Transmission Provider to be capable of providing no less than 16 hours of operation per day, which need not be continuous, at a megawatt level that provides a confidence level of 90% based on an evaluation of the unit's historical operation over a representative period of time, and meets any other requirements specified in the PJM manuals.

PJM makes no representations or warranties regarding the ability of a Black Start Unit Owner to meet all applicable NERC Reliability Standards. It is the sole responsibility of the Black Start Unit owner to ensure that its proposed Black Start Unit meets all applicable NERC Reliability Standards, as necessary to support the provision of Black Start Service and to comply with the NERC Compliance Registry requirements.

See Section 8.9 of "Black Start Generator Reference Guide" for "NERC Reliability Standards."

1.5. Black Start Service Availability Date

PJM's target in-service date for Black Start or Fuel Assured Black Start Service is June 1, 2030. Proposals with a projected in-service date beyond June 1, 2030, will be considered, provided the proposed schedule reflects reasonable assumptions regarding current supply chain conditions, contractor availability, permitting, construction constraints, and are consistent with the terms and conditions of the PJM Tariff and Manuals (see Section 8 of RFP). The resource owner must complete all required Black Start testing successfully and be incorporated into the Transmission Owner's restoration plan to enter Black Start or Fuel Assured Black Start Service.

2.0: Company Background

PJM coordinates and directs the operation of the region's transmission grid for all or parts of 13 states and the District of Columbia, administers wholesale power markets for the region, and plans for regional transmission expansion improvements to maintain grid reliability. More information can be found at www.pjm.com

3.0: General Terms

By submitting a proposal to this RFP, you are agreeing to be bound by the rates, terms and conditions of service as set forth in PJM's Open Access Transmission Tariff, ("Tariff"), the Amended and Restated Operating Agreement of PJM Interconnection, L.L.C. ("Operating Agreement"), and/or all other applicable PJM Manuals or other governing agreements, as they may be amended from time to time.

Acceptance of RFP proposals by PJM will be in the form of a notification letter. There will be no separate agreement for Black Start Service or Fuel Assured Black Start Service between the Black Start Unit Owner and PJM since all the terms and conditions are covered by the governing agreements and any FERC approved changes thereto. For the avoidance of doubt, selection of Black Start and Fuel Assured Black Start units does not confer transmission rights or Capacity Interconnection Rights to units that have not been studied pursuant to PJM's Generation Interconnection Procedures or appropriate parallel process.

In the event of a conflict between the terms and conditions of this RFP document and the terms and conditions of the governing agreements, the terms and conditions of the governing agreements shall control. The notification letter conveys no rights other than those specified in the governing documents.

3.1. Proposal in Effect

Modifications to proposals shall be communicated to PJM throughout the RFP process. A proposal may be withdrawn or cancelled by written notice to PJM at any time prior to entering Black Start Service.

3.2. Acceptance of Proposal

PJM reserves the right to reject any proposal, in whole or in part, if it does not satisfy PJM's Black Start or Fuel Assured Black Start requirements or otherwise fails to address the needs of a transmission zone. PJM will award Black Start or Fuel Assured Black Start Service to the proposal that best satisfies the requirements and evaluation criteria. PJM will award the Transmission proposed solution if it is the only option submitted and is determined to be viable. PJM assumes no obligation to provide a reason for rejection of a respondent's proposal. PJM reserves the right to amend or withdraw this RFP at any time. Respondents assume the risk that PJM may reject proposals for any reason and may withdraw the RFP without incurring any liability.

If a submitted proposal is accepted, and after project award and commencement of work the Black Start Unit Owner projects either a significant delay in the original schedule or a significant increase in estimated costs, the Black Start Unit Owner will notify PJM as soon as possible of these significant changes. Refer to PJM Manual 12 Section 4.5 for other cost reporting requirements.

Selection of Black Start and Fuel Assured Black Start units specified in this RFP are based on the established terms and conditions in the PJM Tariff and Manuals.

3.3. Retention of Respondent Material

PJM reserves the right to retain all proposals, including proprietary documentation regardless of which response is selected.

3.4. Confidential Matters – PJM Data

All data and information gathered by the respondent and its agents shall be treated by the respondent and its agents as confidential and Critical Electric Infrastructure Information (CEII). ***The respondent and its agents shall not disclose or communicate the aforementioned matters to a third party, or use them in advertising, publicity, propaganda, and/or in another job or jobs, unless written consent is obtained from PJM.*** Respondent and its agents shall protect against the unauthorized disclosure of the Confidential Information to third parties.

Notwithstanding anything in the foregoing to the contrary, if respondent is required by applicable law, order, or in the course of regulatory, administrative or judicial proceedings, to disclose to third parties, information that is otherwise required to be maintained in confidence pursuant to this RFP, respondent or its designated agents, representatives, or contractors may make disclosure of such information; provided, however, that as soon as respondent learns of the disclosure requirement and prior to it or its designated agents, representatives, or contractors making disclosure, respondent shall notify PJM of the requirement and the terms thereof, and respondent shall, at its sole expense, to the maximum extent practicable minimize the disclosure of the information consistent with applicable law, including but not limited to seeking non-public status for confidential and CEII submitted to any such regulatory, administrative or judicial authorities. ***Respondent acknowledges that the status or planned status of any Black Start Unit to provide Black Start Service is CEII and should not be disclosed to any other parties without CEII restrictions including but not limited to signing a Nondisclosure Agreement and requesting that any governmental agency or regulatory authority to whom respondent is required to disclose CEII shall exempt the CEII from further disclosures under applicable Freedom of Information Act or similar legal requirements.***

4.0: Proposal Guidelines

PJM is implementing a two-tiered (Level 1 and Level 2) approach to the Black Start Reliability Backstop RFP process.

4.1. Level 1 RFP Proposals

Interested parties shall submit completed non-binding Level 1 proposals by email to BlackStart@pjm.com by **23:59 on November 20, 2026**. Individual Level 1 forms shall be submitted for each proposed Black Start site. Multiple proposal options at the same site can be submitted using a single Level 1 form.

PJM will notify all Level 1 proposals by the target date of **December 18, 2026**, on whether to proceed with a Level 2 proposal. PJM's notification to a resource owner requesting a Level 2 proposal is not a guarantee that the RFP proposal will be selected; it is just an initial indication that PJM is interested in pursuing further analysis and studies to determine the viability of the proposal.

The Level 1 proposal form "2026 PJM Black Start Reliability Backstop RFP Level 1 Proposal Response" is posted under PJM's Market & Operations -> Ancillary Services -> Black Start Services -> Active Requests for Proposals webpage at <http://www.pjm.com/markets-and-operations/ancillary-services.aspx>, and requests basic information such as:

1 | Type of Proposal

(a) Generation Owner Proposals

- i. Existing Black Start Unit
- ii. New Black Start Unit

(b) Transmission Owner Proposals

- i. GO Owned Solution: Contract with an existing Black Start Resource
- ii. GO Owned Solution: Contract for building a New Black Start Resource
- iii. TO Owned Solution

- 2 | Unit name, location, contact information, PJM Market unit ID, interconnected transmission voltage level, Transmission Owner zone)
- 3 | Unit characteristics (ICAP, black start MW, unit type, primary/secondary fuel, fuel type, fuel storage/firm gas contracts)
- 4 | Fuel Assured Black Start Service Information (basic Fuel Assurance details for respective fuel type)
- 5 | General operational characteristics (minimum load, emissions limitations, CC steam bypass capabilities)

4.2. Level 2 RFP Proposals

Resource owners shall submit completed non-binding Level 2 RFP proposals with detailed responses for ALL questions as indicated in [Section 5](#) “RFP Proposals” by email to BlackStart@pjm.com by **23:59 on March 5, 2027**. Resource owners shall submit a single Level 2 Excel form “2026 Black Start Reliability Backstop RFP for Fuel Assured Black Start Service Level 2 Proposal Response” for all proposals. Individual columns shall be used for each Black Start site. Black Start sites with multiple proposals must use separate columns for each proposal. Resource owners must select their proposal type using the drop-down menu on the top row of the Level 2 form.

The Level 2 form “2026 Black Start Reliability Backstop RFP for Fuel Assured Black Start Service Level 2 Proposal Response” is posted under PJM’s Market & Operations -> Ancillary Services -> Black Start Services -> Active Requests for Proposals webpage at <http://www.pjm.com/markets-and-operations/ancillary-services.aspx>, and requests detailed information such as:

- 1 | Purpose and Scope
- 2 | Generator or Transmission Owner Operational Details
- 3 | Total Estimated Capital Costs
 - (a) GO Proposals - Black Start Service and/or Fuel Assured Black Start Service
Please ensure Black Start capital costs are entered separately from Fuel Assurance capital costs.
 - (b) TO Proposals – Estimated Capital Costs, proposed contractual obligations, and regulatory cost recovery approach
- 4 | Project Schedule
- 5 | Black Start Unit Owner Contact Information (if applicable)

4.3. Evaluation and Acceptance of Proposals

PJM utilizes the following evaluation criteria in the RFP selection process. Preferred Black Start solutions typically include units located in close proximity (from a transmission topology perspective) to PJM-defined Critical Loads in Attachment A in PJM Manual 36 which include quicker starting generation resources, nuclear safe shutdown loads, and electric-powered gas compressor stations.

PJM will perform technical evaluations in coordination with the applicable Transmission Owner(s) to assess the technical feasibility of proposed solutions, taking into consideration Critical Load requirements, location, operational characteristics (including cranking load, start time, limitations, etc.), and zonal Black Start and Fuel Assured Black Start needs.

Units awarded Black Start or Fuel Assured Black Start Service shall provide that service exclusively to PJM during a PJM restoration event, regardless of any other contractual obligations including but are not limited to off-system sales, host loads, and other ancillary services. Any actual or potential conflicts shall be disclosed to PJM for review.

PJM proposal evaluation criteria includes:

1 | Technical Feasibility

(a) Reliability Analysis/NERC Standard EOP-005 Studies:

- i. Feasibility of power flow study results, including operating within thermal and voltage limits, adequate reactive capability to handle line charging of cranking path and critical load requirements.
- ii. Feasibility of dynamic simulation study results, including operating within voltage, frequency and stability limits.

(b) Unit Location/Characteristics:

- i. Geographically and electrically diverse from other Black Start Units in the TO zone.
- ii. Within TO zone or cross-zonal Black Start
- iii. Interconnection voltage level.
- iv. Type of resource: CT, Combined Cycle (or CT that is part of a Combined Cycle plant), Hydro, Diesel, Storage, Hybrids (renewables with storage), etc.
- v. Unit can serve multiple transmission outlets or support redundant cranking paths.
- vi. Unit can provide Black Start to more than one TO zone
- vii. Age of unit

(c) Operational/Environmental Restrictions:

- i. Limitations such as slow ramp to minimum load after synchronizing, minimum load requirements for stabilizing load, turn down ratio, and other operational limitations.
- ii. Operational or procedural restrictions to Reactive MVAR Capability curve.
- iii. Environmental permit change(s) needed to operate at emergency minimum output during restoration or other environmental limitations. Willingness to pursue permit language or a waiver to allow operations from Full Speed No Load up to Minimum Emissions Compliant load for extended periods of time during a grid restoration event.
- iv. Unit is able to meet minimum run hour requirements per OATT Schedule 6A (16 hours or as indicated in TO Restoration Plan).
- v. Unit's historical availability (GADs).

(d) Black Start Testing Requirements:

- i. Unit's ability to meet PJM Black Start testing requirements, in accordance with the terms and conditions of the Tariff and Manuals, as amended from time to time (e.g., ability to close to a dead bus in 180 min., ability to operate at reduced loads during testing while islanded).
- ii. Required testing exemptions (e.g., special switching, stabilizing loads, breaker closing to a live bus, load banks)?

- (e) Fuel Assurance
- (f) Fuel Type/Fuel diversity
- (g) Dual fuel capability/availability, including logistics assessments such as:
 - i. Unit's ability to start on both primary and secondary fuel
 - ii. Start-up fuel requirements before running on primary or alternate fuel
 - iii. Special switching requirements to move from primary to alternate fuel (or vice versa)
- (h) Analysis of the bidder's description of the level of onsite fuel storage, any permitting limitations (and challenges to obtain permits) associated with burning on-site fuel and a description of the planned arrangements to both obtain and replenish on-site fuel;
- (i) Primary firm gas transportation contract vs. secondary firm or interruptible gas contracts;
- (j) Analysis of the bidder's detailed description of planned or existing interconnections to one or more natural gas pipelines.
- (k) Zonal minimum Black Start Fuel Assurance criteria, pursuant to PJM Manual 36.
- (l) Incremental Restoration Time Increase of 10 hours or more, as identified in a PJM zonal reliability analysis.

2 | Cost/Schedule

GO Proposals

- (a) Annual Revenue Requirements (Capital Costs, Net Present Value comparison)
 - i. Capital Costs/Black Start MWs
 - ii. Net Present Value/Black Start MWs
- (b) Black Start recovery period based on unit age upon entering Black Start Service
- (c) Cost recovery method – Base Formula Rate, NERC CIP Rate, Capital Recovery Factor Rate, FERC Rate.
- (d) Proposed Black Start In-service Date

TO Proposals

- (a) Capital Costs and Net Present Value comparison
 - i. Total Capital Costs/Black Start MWs
 - ii. Net Present Value/Black Start MWs
- (b) Contractual Terms
 - i. Annual Cost
 - ii. Duration of Contract
 - iii. Performance Penalties if applicable
 - iv. Termination clauses if applicable

(c) Proposed Black Start In-service Date

4.4. PJM Contact Information

ALL communication regarding this RFP should be sent electronically to only the contact email address below:

PJM Contact for all RFP communications: BlackStart@pjm.com

5.0: Level 2 RFP Proposals Details

RFP Level 2 Proposals will include responses to all information requested in Section 5.0. The technical details indicated by the section headings below for Sections 5.1 through 5.5 shall be submitted using the Level 2 form “2026 Black Start Reliability Backstop RFP for Fuel Assured Black Start Service Level 2 Proposal Response” posted under PJM’s Market & Operations -> Ancillary Services -> Black Start Services -> Active Requests for Proposals webpage at <http://www.pjm.com/markets-and-operations/ancillary-services.aspx>

5.1. Purpose and Scope

Details for the following Purpose and Scope sections required in Level 2 proposals should be provided to PJM on the separate “PJM 2026 Black Start Reliability Backstop RFP for Fuel Assured Black Start Service Level 2 Proposal Response” form. Respondents should populate the respective data fields for each Black Start and/or Fuel Assurance proposal. Additional columns can be added if needed for multiple proposals.

5.1.1. Facility

5.1.2. Black Start Unit

5.1.3. Interconnection

5.1.4. Necessary Upgrades(s) for Black Start Capability

5.2. Generator Operational Details

Details for the following Generator Operational Details sections required in Level 2 proposals should be provided to PJM on the separate “PJM 2026 Black Start Reliability Backstop RFP for Fuel Assured Black Start Service Level 2 Proposal Response” form. Respondents should populate the respective data fields for each Black Start and/or Fuel Assurance proposal. Additional columns can be added if needed for multiple proposals.

5.2.1. Fuel Assurance Requirements

5.2.2. One-Line Diagram

5.2.3. Unit Capabilities

5.2.4. Reactive Capability

5.2.5. Unit Permit Limitations

5.2.6. Additional Unit Details Based on Unit Type

5.3. Generation Owner (GO) Solution

Details for the following Generation Owner (GO) Solution sections required in in Level 2 proposals should be provided to PJM on the separate “PJM 2026 Black Start Reliability Backstop RFP for Fuel Assured Black Start Service Level 2 Proposal Response” form. Respondents should populate the respective data fields for each Black Start and/or Fuel Assurance proposal. Additional columns can be added if needed for multiple proposals.

- 5.3.1. Estimated Capital Costs
- 5.3.2. Estimated Fixed Black Start Service Cost
- 5.3.3. Estimated Black Start Service Annual O&M Cost
- 5.3.4. Estimated Black Start Service Annual Fuel Storage Costs

5.4. Transmission Owner (TO) Solution

Details for the following Transmission Owner (TO) Solution sections required in Level 2 proposals should be provided to PJM on the separate “PJM 2026 Black Start Reliability Backstop RFP for Fuel Assured Black Start Service Level 2 Proposal Response” form. Respondents should populate the respective data fields for each Black Start and/or Fuel Assurance proposal. Additional columns can be added if needed for multiple proposals.

5.4.1. Ownership Model

Indicate if Transmission Owner will i. Contract with a Generation Owner of an Existing Fuel Assured Black Start Resource, ii. Contract with a Generation Owner to build a new Fuel Assured Black Start Resource, or iii. Own a Fuel Assured Black Start Resource.

5.4.2. Estimated Capital Costs

Provide detailed summary of capital costs for Fuel Assured Black Start Service at a minimum including engineering, construction, materials, in-house labor, overheads and contingency costs

5.4.3. Proposed Contractual Obligations

Outline contracts with Generation Owners to provide Fuel Assured Black Start Service OR intent for Transmission Owner to build and own Fuel Assured Black Start Unit

5.4.4. Regulatory Cost Recovery Approach

Detail how Transmission Owner will recover capital costs, through its Transmission Tariff or other recovery methods.

5.5. Project Schedule

Details for the following Project Schedule sections required in Level 2 proposals should be provided to PJM on the separate “PJM 2026 Black Start Reliability Backstop RFP for Fuel Assured Black Start Service Level 2 Proposal Response” form. Respondents should populate the respective data fields for each Black Start and/or Fuel Assurance proposal. Additional columns can be added if needed for multiple proposals.

5.5.1. Estimated In-Service Date

Indicate the estimated in-service date as a Black Start capable unit.

5.5.2. Project Schedule

Detail the project milestones in tabular and/or graphical form. Include the milestone description and projected start/finish dates.

5.5.3. Procurement Plan

Detail any work that is planned with vendors.

5.6. Black Start Unit Owner Contact Information

Details for the following Contact Information sections required in Level 2 proposals should be provided to PJM on the separate “PJM 2026 Black Start Reliability Backstop RFP for Fuel Assured Black Start Service Level 2 Proposal Response” form. Respondents should populate the respective data fields for each Black Start and/or Fuel Assurance proposal. Additional columns can be added if needed for multiple proposals.

	Name	Title	Company	Phone Number	Email Address
Primary Contact					
Alternate Contact					

6.0: Black Start Compensation, Testing and Termination Business Rules

6.1. Black Start Service and/or Fuel Assured Black Start Service Annual Revenue Requirements through Schedule 6A (Non-TO Solutions)

A unit can only recover Black Start costs through Schedule 6A of the PJM Tariff by entering Black Start or Fuel Assured Black Start Service. A selected unit’s Black Start and Fuel Assured Black Start Annual Revenue Requirements will be calculated based upon actual costs submitted to the PJM Independent Market Monitor for review and PJM for approval.

Details of the PJM Black Start and Fuel Assured Black Start Annual Revenue Requirements available are contained in the PJM Tariff – Schedule 6A Black Start Service Section 18. Black Start Annual Revenue Requirements are calculated using the following equation:

$$\{(Fixed\ BSSC) + (Variable\ BSSC) + (Training\ Costs) + (Fuel\ Storage\ Costs)\} * (1 + Z)$$

Fuel Assured Black Start Service costs are included in Fixed BSSC, Variable BSSC, Fuel Storage Costs and the incentive factor (Z) as shown below.

6.1.1. Black Start Service Annual Revenue Components

Only one of the following rates should be selected for the unit’s Fixed Black Start Service Costs (Fixed BSSC) (Capital) regardless of whether the unit is recovering Black Start Service Costs and/or Fuel Assurance Capital Costs in accordance with the terms and conditions of the Tariff, Schedule 6A, and the PJM Manuals, as they may be amended from time to time.

- Proposed or existing Black Start Units electing to not document Black Start Capital Costs, Fuel Assurance Capital Cost, or not requiring additional Black Start Capital Costs should select the Base Formula Rate
- Proposed or existing Black Start Units that choose to recover documented Black Start Capital Costs (including capital costs for NERC Standard Compliance) and/or Fuel Assurance Capital Costs should select the Capital Cost Recovery Rate (CRF). For units that select the Capital Cost Recovery Rate, the

Levelized CRF and Black Start Service Term of Commitment are based on the Age of the Black Start unit as of the In-Service Date. Black Start Units selecting the CRF Rate have a commitment period equal to the life of the Black Start equipment. Refer to section 6.2.1.4 for additional details.

- (c) Proposed or existing Black Start Units electing to recover only the Black Start Capital Costs associated with compliance with applicable mandatory NERC CIP Reliability Standards and/or Fuel Assurance Capital Costs should select the Capital Cost Recovery Rate – NERC-CIP Specific Recovery. For units that select the Capital Cost Recovery Rate – NERC-CIP Specific Recovery, the Levelized CRF and Black Start Service Term of Commitment are based on the age of the Black Start Unit as of the In-Service Date or the Capital Improvement Lifespan. Black Start Units selecting the NERC-CIP Specific Recovery rate have a commitment period equal to the life of the Black Start equipment. Refer to section 6.2.1.4 for additional details.
- (d) Units requesting cost recovery in accordance with a FERC-approved rate are required to file, and receive approval of, their cost recovery method with FERC, upon acceptance for Black Start Service.

The unit's projected annual Variable Black Start Service Costs ("Variable BSSC") should include Black Start O&M directly related to providing Black Start or Fuel Assured Black Start service. O&M costs may also include the cost to maintain compliance with NERC Reliability Standards necessary to provide the Service.

6.1.1.1. Training Costs

Black Start Unit's will be compensated for Training Costs at the level of \$3,750 per year, per plant.

6.1.1.2. Fuel Storage Costs

Units that use Oil Fuel shall estimate the annual Fuel Storage Costs based on a 16-hour run period and a Bond Rate of 6.04% and a 12-month forward strip of 3.005.

6.1.1.3. Z-Factor

Non-Fuel Assured Units using the Base Formula Rate for Fixed Black Start Service Costs will be able to use an Incentive Factor (Z) of 10 percent. Fuel Assured Units using the Base Formula Rate for Fixed Black Start Service Costs will be able to use an Incentive Factor (Z) of 20 percent. For all units recovering either Black Start Service Capital Costs, NERC-CIP Capital Costs, and/or Fuel Assurance Capital costs in Fixed Black Start Service Costs shall have an incentive Factor (Z) of 0 percent

6.1.1.4. Capital Recovery Factors (CRF)

Recovery periods for capital costs are indicated in Table 1 below. CRF rates are updated and posted annually by PJM and are subject to change based on bond rates and tax law changes. For the proposes of submitted proposals, annual revenue estimates should be based on 2026/2027 Delivery Year. Selected Black Start units will utilize the posted future CRF when available for the actual in-service date. CRFs for the 2026/2027 Delivery Year can be found in the [PJM Calculated Capital Recovery Factors](#).

Age of Black Start Unit (Years)	Incremental Black Start Capital Cost Recovery Period (Years)	Fuel Assurance Capital Cost Recovery Period (Years)
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1 to 5	20	20
6 to 10	15	15
11 to 15	10	10
16+	5	10

Table 1: Recovery Periods

Additional guidance on the calculation of a Unit's Annual Black Start Service Revenue Requirements may be found in the Black Start Costs submittal forms. The Black Start Costs submittal forms are specific to the selected recovery rate and can be found below:

- (a) [Base Formula Rate](#)
- (b) [Capital Recovery Rate](#)
- (c) [NERC-CIP Rate \(contact PJM for additional details\)](#)

6.1.2. Submittal of Estimated Capital Cost, Actual Capital Cost and Annual Black Start Service Costs

6.1.2.1. Evidence of upgrade Cost

A selected Black Start Unit owner must submit data supporting actual capital and annual Black Start service costs and Fuel Assurance Capital Costs to PJM and the IMM in accordance with Section 17B of Schedule 6A of the Tariff.

6.1.2.2. Timing of submittal of estimated costs

A selected Black Start Unit owner must submit a best estimate of the unit's projected actual upgrade for Black Start Service and/or Fuel Assured Black Start Service Capital Costs, variable Black Start Service costs, and fuel storage costs to PJM at the time the unit enters Black Start service, to serve as an interim annual revenue requirement until reconciliation and approval of final actual upgrade capital costs is complete.

6.1.2.3. Timing of review and final determination of actual costs:

A selected Black Start Unit owner must submit supporting data and documentation of actual upgrade Black Start Service and Fuel Assurance Capital Costs to PJM and the IMM no later than 90 days after entering Black Start Service. The supporting data and documentation can be submitted on a monthly basis as incurred or as a single submittal at the completion of the work, but all cost documentation must be submitted no later than 90 days after the unit enters Black Start Service.

A selected Black Start Unit owner must submit documentation of other annual revenue costs including variable Black Start cost and fuel storage costs to PJM and the IMM within 90 days after entering Black Start Service. Annual variable Black Start Service can include annualized capital costs, Black Start O&M costs, existing unit level annual VOM costs and NERC Standard compliance costs.

6.1.2.4. Timing of Black Start Service monthly credits

New Black Start Unit owner's monthly Black Start credits will be held by PJM in a non-interest bearing account until PJM or the Federal Energy Regulatory Commission accepts the owner's annual revenue requirement pursuant to Section 17B of Schedule 6A of the PJM Tariff. Monthly credits for the unit's Annual Revenue Requirement including recovery of actual Black Start Service or Fuel Assurance Capital upgrade costs will begin after the Black Start Unit's Annual Revenue Requirement is accepted by PJM and will include monthly credits held by PJM back to the unit's in-service date including any required estimated revenue true up.

6.1.2.5. Supporting Documentation

Supporting documentation for actual capital costs will include but not be limited to the following:

- 1) Third party invoices supporting costs for contractor services and materials;
- 2) Time sheets or other project tracking documentation for internal labor costs (components of labor rates) including rate sheets and applicable overheads;
- 3) When internal costs are charged to the project, they must include documentation supporting all costs that will be included and a breakdown of how the costs were developed;
- 4) When application and certificates for payment are used to confirm completion of any portion of the project, they must be signed and notarized. The signature and notarization must be visible on any copies provided.

Supporting documentation for variable Black Start costs and fuel storage costs (if applicable) will include but not be limited to the following:

- 1) Time sheets or other project tracking documentation for internal labor costs (components of labor rates) including rate sheets and applicable overheads;
- 2) Time sheets or other project tracking documentation for internal labor costs (components of labor rates) including rate sheets and applicable overheads;
- 3) If the unit can be fired on oil, additional required documentation for the claimed Minimum Tank Suction Level(s), size of tanks, and burn rates. If the tank is shared with other resources, a complete explanation with all supporting data of how tank use is shared and the allocation factor(s) used is required.

6.1.2.6. Cost evidence disputes

The IMM will provide feedback and attempt to come to agreement on the level of each component in the Black Start Service revenue requirement within 90 days after the Black Start Unit owner's final submittal of cost documentation or other date as specified in Schedule 6A section 17B.

If the IMM and the Black Start Unit owner are unable to come to an agreement on the project upgrade costs or any other annual costs to be reimbursed to the Black Start Unit owner, then the Black Start Unit owner must notify PJM that it disagrees with the IMM's determination of costs within seven (7) days after the IMM submittal of the Annual Revenue Requirement to PJM. The Black Start Unit owner shall also submit its proposed costs to PJM provided it has participated in good faith in the process and the Black Start revenue requirements are no higher than the level defined in any agreement reached by the Black Start Unit owner and the IMM. PJM will review the proposed costs submitted by the Black Start Unit owner and determine whether to accept the owner's proposed costs within 30 days after the Black Start Unit owner's written disagreement is received by PJM. If the Black Start Unit owner and PJM are unable to reach agreement on the costs to be reimbursed, then the Black Start Unit owner may file its own proposed costs for reimbursement with the Federal Energy Regulatory Commission for approval.

6.1.2.7. Changes to revenue requirement

If a Black Start Unit owner incurs additional costs after the initial in-service date to maintain the Black Start Unit's Black Start capability, the Black Start Unit owner can submit data evidencing those costs to the IMM pursuant to Section 17 of Schedule 6A and adjust its revenue requirement going forward to recover such costs, along with an applicable extension to the Black Start commitment term. However, the existing revenue requirement must be effective at least 12 months prior to making such change. Per Section 17A of Schedule 6A: "No change to a Black Start Service revenue requirement shall become effective until the existing revenue requirement has been effective for at least twelve months."

6.1.3. Compensation for Energy Output

6.1.3.1. Testing

Compensation for the energy output delivered by the Black Start Unit during annual testing will be provided at the higher of the Black Start Unit's cost-capped offer or real-time locational marginal price ("LMP") in accordance with Section 13 of Schedule 6A of the Tariff and Manual 28 Section 5.2.7.

Black Start Units that close to a dead bus during the test and do not provide energy to the grid will be compensated for the unit's start cost plus one hour of no-load.

6.1.3.2. Emergency Black Start dispatch

In the event of emergency Black Start dispatch, a Black Start Unit owner shall be compensated for the Black Start Unit's energy output at the unit's cost-capped offer, until such time that PJM is able to reestablish the energy markets and calculate an LMP.

6.1.3.3. Cost-capped offer

The unit's Cost based offer will be developed in accordance with the guidelines provided in Manual 15 "Cost Development Guidelines."

6.1.3.4. Black Start Unit Configurations

Black Start configurations in which a cranking resource participates in PJM's Capacity and/or Energy Markets and is used to start a Black Start unit that also participates in PJM's Capacity and/or Energy Markets may result in the cranking resource being designated as the Black Start unit, while the unit being started will be treated as Critical Load for restoration purposes. Any Black Start configuration changes during the RFP process or Black Start or Fuel Assured Black Start service must be communicated to PJM in advance to assess restoration impacts.

6.1.4. Black Start Commitment & Termination of Service

6.1.4.1. Commitment to Black Start Service

Black Start Units recovering costs under the PJM Tariff, Schedule 6A, Section 5 (Base Formula Rate) have an initial commitment to provide Black Start Service for two years. Units that enter Black Start Service under the Base Formula Rate do not have a lifetime commitment.

Black Start Units that have elected to recover Black Start Service, NERC-CIP Capital Costs, and/or Fuel Assured Black Start Capital Cost under Tariff, Schedule 6A, Section 6 (Capital Recovery Rates) and selected in this RFP have a Black Start Service commitment for the initial capital recovery period based on the age of the unit plus the lifetime of the Black Start equipment. After the initial capital recovery period is complete, a Black Start Unit will receive the compensation set forth in the Tariff for units under PJM Tariff, Schedule 6A, Section 5.

As set forth in PJM Tariff, Schedule 6A Section 18, for purposes of such compensation for a Black Start Unit's with a term of commitment under Section 5, "Black Start Unit Capacity" means the entire installed capacity of the current delivery year of Black Start Unit.

6.1.4.2. Termination by Black Start Unit

Selected Black Start Units pursuant to PJM Tariff, Schedule 6A, Section 5 (Base Formula Rate), foregoing documented capital cost recovery may terminate the provision of Black Start Service with by providing at least one year's advance notice. Such notice may not be issued until at least one year after the unit begins providing Black Start Service.

Selected Black Start Units pursuant PJM Tariff, Schedule 6A, Section 6 (Capital Recovery Rates), electing to recover documented Black Start Service, NERC-CIP, and/or Fuel Assured Black Start Service Capital Cost may terminate provision of Black Start Service with one year written advance notice provided the Black Start Unit's owner demonstrates to the satisfaction of PJM that at least one of the following reasons for such termination apply:

- (a) Black Start Unit retirement or deactivation with at least one year's notice;
- (b) Expiration of a state, federal, or other governmental agency permit(s) required for Black Start Service with at least one year's notice; or
- (c) Additional capital is required by the Black Start Unit owner to maintain Black Start Service capability. In which case, the Black Start Unit will submit a proposal to PJM's Black Start Service RFP in accordance with the procedures set forth in Manual 12 and only continue to provide Black Start Service if selected by PJM in the RFP evaluation process.

6.1.4.3. In the event that a Black Start Unit fails to fulfill its commitment established under Section 6 (Capital Recovery Rates), such unit shall forego any otherwise existing entitlement to future revenues collected pursuant to this Schedule 6A and fully refund any amount of the Black Start Capital Costs recovered under a FERC-approved rate (recovered on an accelerated basis pursuant to the provisions of section 17(i) of this Schedule 6A) in excess of the amount that would have been recovered pursuant to section 18 of this Schedule 6A during the same period, but such unit remains eligible to establish a new commitment under section 5 or 6 of this Schedule 6A. Black Start Units that are selected to provide Black Start Service pursuant to Schedule 6A, section 6 that subsequently transition from the Capital Cost Recovery Rate to the Base Formula Rate shall have a lifetime commitment and can only terminate for a reason specified as listed above. Termination by PJM

Pursuant to Schedule 6A of the Tariff, PJM may terminate provision of Black Start Service with one-year advance notice to Black Start Unit owner (before or after actual in-service of the Black Start Unit), but the Black Start Unit owner will be reimbursed for any amount of unrecovered Fixed BSSC (as defined in the Tariff in Schedule 6A, Section 18) for a period not to exceed five years.

6.2. Transmission Owner Solutions

Transmission Owner solutions must satisfy PJM's Black Start and/or Fuel Assured Black Start requirements in Sections 7 through 15 of Schedule 6A of PJM's Tariff, Manuals, and governing documents. The Transmission Owner shall be responsible for establishing terms and conditions associated with its proposed solution, including, but not limited to, compensation, cost recovery, performance penalties, and service termination provisions. Such arrangements shall not conflict or supersede PJM's operational requirements, PJM Tariff, or applicable governing documents.

If PJM selects a Transmission Owner's proposed solution and the solution subsequently fails to satisfy PJM's Black Start or Fuel Assured Black Start requirements, resulting in a Black Start deficiency, PJM may need to procure additional Black Start or Fuel Assured Black Start service through its Black Start procurement process, as set forth in PJM Manual 14D, Section 10, to address the reliability need.

Transmission Owners providing Black Start or Fuel Assured Black Start Service must notify PJM of their intent to terminate such service as early as practicable, but no less than one year prior to the proposed termination date.

Transmission Owner solutions awarded through a Black Start Reliability Backstop RFP shall be subject to cost recovery through such Transmission Owner's annual revenue requirement under such Transmission Owner's Tariff, Attachment H, as filed with, and accepted by, FERC under Section 205 of the Federal Power Act and in accordance with PJM Tariff, Part I, section 9, or through such other cost recovery mechanism, provided that such cost recovery mechanism is filed with and accepted by FERC.

6.3 Black Start Testing Requirements

6.3.1 Annual Test

To receive Black Start Service revenues, the Black Start Unit must have a successful annual test on record with PJM within the preceding 13 months in accordance with Schedule 6A, Section 14, of the PJM Tariff and PJM Manual 12 Section 4.5.12 and 4.5.13 as amended from time to time. During its Black Start test, the Black Start Unit must be able to close to a dead bus and be able to maintain voltage and frequency for 30 minutes in automatic control mode (eg. Isochronous mode, grid forming mode, etc.) . A Black Start unit that is unable to maintain voltage or frequency for 30 minutes must have a state, federal, or other governmental agency permit limiting the run time.

Fuel Assured Black Start Units that are dual fuel must conduct an annual test on both fuels. The Black Start Unit owner shall determine the time of the annual test.

6.3.2 Failed Annual Test

If a Non-fuel Assured Black Start Unit or Fuel Assured Black Start Unit fails any annual test, it may be re-tested within a 10-day period without financial penalty as long as the 10-day period does not cross over the 13-month requirement. If the Black Start Unit does not successfully pass a Black Start test within the 10-day period immediately following a failed test, monthly black start revenues will be forfeited from the time of the first day of the month in which the unsuccessful test occurred until the first day of the first month after the unit successfully passes a Black Start test.

If after entering Black Start Service, a Black Start Unit owner does not make the necessary repairs to enable the Black Start Unit to pass the annual test within 90 days of the due date for the annual test, the Black Start Unit will immediately cease to qualify as a Black Start Unit. Provided, however, the 90-day period may be extended up to one year with PJM approval. If the 90-day period is extended, the Black Start Unit owner will continue to forfeit all revenues starting from the first day of the month in which the unsuccessful test occurred until the first day of the first month after the unit successfully passes a Black Start test.

6.4 Black Start Unit/Transmission Owner Coordination

Black Start Unit and TO will coordinate the modification to the electrical protection system (transmission system and Black Start Unit Facility) to protect the Black Start Unit and grid during Black Start startup and operation. Each party will be responsible for the cost of any upgrades to its portion of the system (i.e., Black Start Unit owner will be responsible for upgrades to the Black Start Unit, TO will be responsible for upgrades to the Transmission System).

The Black Start Unit owner and TO will develop the communication protocol between TO and Black Start Unit to meet black start dispatch requirements.

The Black Start Unit owner and TO will develop the TO System Restoration Plan to include the Black Start Unit operational limitations.

The Black Start Unit owner and PJM will develop procedures for both the Black Start Unit acceptance test and annual test.

6.5 In-Service Date Delays

The Black Start Unit owner will make every reasonable effort to make the estimated in-service date indicated in their RFP proposal. Should the project be delayed, The Black Start Unit owner will immediately notify PJM of the delay and make every effort to minimize the impact. The Black Start Unit owner will not be required to pay any penalty for any such delays under PJM's current governing documents.

7.0: Deliverables

7.1. Governor Settings for Droop and Isochronous Mode

The selected Black Start Resource owner shall provide both Isochronous and Droop governor settings or equivalent settings for inverter-based resources to PJM as soon as they become available and at least 180 days prior to entering Black Start Service. A study will be performed to confirm there are no voltage or frequency instabilities during grid restoration.

Any changes that are implemented to either the Isochronous or Droop governor settings during actual testing or commissioning of the Black Start Resource shall be provided to PJM within 30 days of the change. The settings changes will again be validated by PJM to ensure there are no instabilities as a result of the changes.

If any stability issues are identified, the Black Start Resource owner will coordinate with PJM to modify governor settings to resolve the issue. The updated settings will be provided to PJM for additional validation. This process will be repeated until all voltage and frequency stability issues are resolved.

7.2. As-Built Drawings

As-Built Electrical drawings shall be provided to PJM within 30 days of the Black Start Resource entering Black Start Service. The drawings shall reflect the connection from the cranking source to the Black Start resource and from the Black Start resource to the grid. The drawings shall be submitted in PDF format.

7.3. Permit Modifications

If needed, the selected Black Start Resource shall have permit language or waivers to allow operation at Full Speed No Load (FSNL) up to Minimum Emissions Compliant Load (MECL) for an extended period of time during a grid restoration emergency. Proposed permit language will be provided to PJM for review prior to submission to the regulatory agency.

8.0: Black Start Reference Guide

Index of documents and manuals reflect effective versions at the time of this RFP's posting.

8.1 Index of Documents and Manuals

PJM Open Access Transmission Tariff Schedule 6A – Black Start Service

PJM Tariff requirements for Black Start and Fuel Assured Black Start generators.

Manual M-01, Rev 51 – Control Center and Data Exchange Requirements

Describes the control center and telecommunication requirements between PJM and its members.

Manual M-10, Rev 46 – Pre-Scheduling Operations

Describes the pre-scheduling process and information required from generation resources.

Manual M-12, Rev 57 – Balancing Operations

Describes the real time operations process.

Manual M-14D, Rev 71 – Generator Operational Requirements

Provides a general overview of generator operational requirements.

Manual M-27, Rev 103 – Open Access Transmission Tariff Accounting

Describes the accounting for transmission services within the PJM Open Access Transmission Tariff.

Manual M-36, Rev 36 – System Restoration

Describes how PJM and the PJM Members are expected to respond to system disturbance conditions or system blackout.

NERC Reliability Standards***8.2 PJM Open Access Transmission Tariff Schedule 6A – Black Start Service***

Existing version:

<https://www.pjm.com/directory/merged-Tariffs/oatt.pdf>

- Black Start Service Provisions
- Performance Standards and Outage Restrictions
- Testing Requirements
- Revenue Requirements and Recovery Rates
- Credits
- Charges

8.3 Manual M-01, Rev 51 – Control Center and Data Exchange Requirements

Existing version:

<https://www.pjm.com/-/media/documents/manuals/m01.ashx>

- Member Control Center Requirements
 - Data and voice communications
 - Staffing
 - Facility requirements
 - Periodic testing of telecommunications

8.4 Manual M-10, Rev 46 – Pre-Scheduling Operations

Existing version:

<https://www.pjm.com/-/media/documents/manuals/m10.ashx>

Planned Outage Restrictions for Black Start Units

8.5 Manual M-12, Rev 57 – Balancing Operations

Existing version:

<https://www.pjm.com/-/media/documents/manuals/m12.ashx>

- Black Start Service
- Definitions
- Minimum Critical Unit Requirements
- Product Description
 - Generation Owner's Commitment
 - Performance Standards

- Testing
 - Training Standards and Records
 - Non-performance
 - Termination of Black Start Service
- Attachment C: PJM Black Start Report Forms for:
 - Black Start Tests Generation and Transmission
 - Automatic Load Rejection Tests
 - Formulaic Cost Data
 - Actual Cost Data

8.6 Manual M-14D, Rev 71 – Generator Operational Requirements

Existing version:

<https://www.pjm.com/-/media/documents/manuals/m14d.ashx>

- Black Start Generation Procurement
 - Black Start Selection Process
 - Black Start Reliability Backstop RFP Process
 - Generator reactive capability testing requirements for Black Start Units.

8.7 Manual M-27, Rev 103 – Open Access Transmission Tariff Accounting

Existing version:

<https://www.pjm.com/-/media/documents/manuals/m27.ashx>

- Black Start Service Accounting
- Black Start Service Credits and Charges

8.8 Manual M-36, Rev 36 – System Restoration

Existing version:

<https://www.pjm.com/-/media/documents/manuals/m36.ashx>

- Generation
 - Communications
 - Governor & Frequency Control
 - Cranking Paths
 - Cranking Power
- Transmission
 - Voltage Regulation and Control
 - Energization Guidelines
- System Restoration Plan Guidelines
- Cross-Zonal Coordination
- Minimum Critical Black Start Requirement

8.9 NERC Reliability Standards

NERC Reliability Standards, as applicable. <https://www.nerc.com/pa/Stand/Pages/default.aspx>