Black Start and System Restoration Phase 2

Draft Straw Proposal

February 14, 2017

Table of Contents

Black Start and System Restoration

1 Introduction and Background

The purpose of this paper is to propose changes to the current practice regarding the ISO's procurement and compensation for black start services, in light of the need for additional black start capability. This proposal includes a process to procure this capability and allocate costs of that procurement. The ISO requests stakeholder feedback on this proposal.

Today, based on NERC reliability standard EOP-005-2, transmission operators must have approved plans for system restoration following widespread outages.[1] Based on the ISO's review of the timelines associated with the ISO and utilities' system restoration plans, , additional black start resources are required in the greater San Francisco Bay area in order to provide reasonably consistent service with other major population centers in the state. To secure this additional capability, the ISO needs to adopt an appropriate selection and procurement process. In addition, while the incremental cost for the provision of this service is relatively small compared to the overall cost of electricity supply, fair cost allocation is an important consideration.

2 Stakeholder process

In comments on the ISO's issue paper regarding this initiative, Pacific Gas and Electric and NRG Energy Incorporated support the ISO's expedited schedule. However, Six Cities, Southern California Edison, Calpine Corporation and NRG Energy are concerned with the lack of detailed technical and contractual information provided so far. These entities have asked for additional information identifying the requirements and future contractual arrangements for incremental black start resources.

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[1] Pursuant to NERC Reliability Standard EOP-005-2, a transmission operator must have a restoration plan approved by its Reliability Coordinator. System restoration plans must be submitted to the Reliability Coordinator on an annual basis. The ISO currently has an approved system restoration plan. The ISO tariff requires the ISO to determine the amount and location of black start generation it requires through a system restoration plan that meets the requirements of applicable reliability criteria. This plan draws from and considers the system restoration plans of participating transmission owners. The ISO may, however, identify black start generation needs for the ISO system not identified in participating transmission owners' system restoration plans.

The ISO started this initiative to develop a process for acquiring and allocating costs for these services. Specific technical and contractual terms are not required to develop these methodologies. However, the technical and contractual requirements remain critical to the actual selection and procurement process. Therefore, the ISO will develop the detailed specific black start technical requirements prior to initiating any procurement process. The ISO has set out an accelerated stakeholder process schedule and appreciates stakeholder participation in this effort.

Remaining Stakeholder process schedule		
Step	**Date**	**Activity**
Draft Straw Proposal	February 14, 2017	Post Draft Straw Proposal
	February 21, 2017	Stakeholder Call on Draft Straw Proposal
	February 28, 2017	Stakeholder Comments Due
Draft Final Proposal	March 14, 2017	Post Draft Final Proposal
	March 21, 2017	Stakeholder Call on Final Proposal
	April 4, 2017	Stakeholder comments due
Board approval	May 2, 2017	ISO Board of Governors meeting

3 FERC Cost Allocation Principles

Order Nos. 890 and 1000 set forth FERC's cost allocation principles. They are based on two significant principles for FERC: (1) rates should reasonably align cost allocation for any given transmission facility or group of facilities with the distribution of benefits from the facilities; and (2) cost allocation is not an exact science. FERC recognizes the need for allows ISOs/RTOs flexibility in allocating costs for transmission facilities as long as there is reasonable cost-benefit alignment, adequate incentives to construct new transmission, and general support among the participants across the ISO territory.[2] In Order No. 1000, FERC specified six cost allocation principles for new transmission projects:

1. Costs must be allocated in a way that is roughly commensurate with benefits.

[2] *See Preventing Undue Discrimination and Preference in Transmission Service*, Order No. 890, FERC Stats. & Regs. ¶ 31,241 at P 559; *order on reh'g*, Order No. 890-A, FERC Stats. & Regs. ¶ 31,261 (2007), *order on reh'g*, Order No. 890-B, 123 FERC ¶ 61,299 (2008), *order on reh'g*, Order No. 890-C, 126 FERC ¶ 61,228, *order on clarification*, Order No. 890-D, 129 FERC ¶ 61,126 (2009).

2. Costs may not be allocated involuntarily to those who do not benefit.
3. A benefit to cost threshold may not exceed 1.25.[3]
4. Costs may not be allocated involuntarily to a region outside of the facility's location.
5. The process for determining benefits and beneficiaries must be transparent.
6. A planning region may choose to use different allocation methods for different types of projects.[4]

The ISO plans to generally rely on these cost allocation principles in connection with procuring additional black start capability. The requests stakeholder comment regarding whether these cost allocation principles are valid for this initiative.

4 Straw Proposal

The ISO had requested stakeholders provide comments to determine the appropriate cost allocation and procurement process for additional black start resources in the greater Bay area.

4.1 Procurement

Pacific Gas and Electric believes that the Participating Transmission Owner associated with the region where the black start services are located should be involved in determining the selection criteria and consulted as to whether the resources selected to provide black start service meet the ISO specified restoration needs. Six Cities, Calpine Corporation and NRG Energy, Inc. specifically support a competitive procurement process in which eligible offers are considered based on technical characteristics and cost. As mentioned earlier, the development of the technical specification defining the black start resource constraints and requirements will be completed prior to the procurement process. However, many of the technical aspects and general engineering considerations have been defined in other ISO's/RTO's. For example PJM has already conducted multiple black start resource procurement cycles. The information included in these solicitations provide more specifics concerning black start technical requirements. The information can be found on PJM's website. The link is included here;

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[3] This principle refers to the threshold criterion a transmission planning entity applies to approve an economic transmission project; in effect, it says that the threshold cannot be so high as to prevent approval of projects whose benefits are shown to exceed their costs. Given the significant economic costs associated with a widespread outage, the cost of additional black start capability should easily meet this threshold criterion.

[4] *Transmission Planning and Cost Allocation by Transmission Owning and Operating Public Utilities*, Order No. 1000, FERC Stats. & Regs. ¶ 31,323 at P 612 et seq. (2011), *order on reh'g*, Order No. 1000-A, 139 FERC ¶ 61,132, *order on reh'g*, Order No. 1000-B, 141 FERC ¶ 61,044 (2012*), aff'd sub nom. S.C. Pub. Serv. Auth. v. FERC*, 762 F.3d 41 (D.C. Cir. 2014).

http://www.pjm.com/markets-and-operations/ancillary-services.aspx

Examples of potential selection criteria include; generator minimum load, geographical location with respect to cranking path and any critical loads, interconnection voltage, facility MW and MVAR capabilities, type of unit, etc.

The ISO has considered the comments submitted by stakeholders and, without the disclosure of any Critical Energy Infrastructure Information (CEII), agrees that securing additional black start resources should be done through an open and transparent competitive procurement process. In concert with a detailed technical specification and pro-forma contract, the ISO will develop a Request for Proposal (RFP) for this service.

The ISO proposes the following general RFP process steps;

1. The ISO, in concert with the affected PTO, develops a black start technical specification document that defines requirements and key selection criteria.
2. The ISO issues an RFP for incremental black start resources.
3. The ISO provides the affected PTO the proposals for review and evaluation.
4. The affected PTO applies the selection criteria and submits a written recommendation to the ISO with supporting analysis.
5. The ISO reviews the recommendation against the selection criteria and approves or rejects it.
6. If approved, the ISO initiates a contracting process with the black start resource and PTO.

The ISO requests stakeholder comment on this proposal for black start procurement.

4.2 Cost Allocation

Pacific Gas and Electric, Six Cities and Southern California Edison provided comments recommending that the ISO allocate the costs of incremental black start capability to those customers that benefit from the resource. These parties argue that distributing these costs to all ISO grid customers would not be equitable. Additional comments submitted by Pacific Gas and Electric, Six Cities and Calpine Corporation recognize that potential market power issues exist because there may be a limited set of resources available to meet the incremental black start service in the greater San Francisco Bay Area. To this end, each stakeholder noted that compensation for this service should be based on a cost of service

model that reflect capital and fixed operations and maintenance costs plus a reasonable margin.

The ISO proposes to allocate the incremental costs of black start services to the respective Participating Transmission Owner (PTO) area in which the incremental black start capability is located. The CAISO would invoice the PTO for incremental black start costs and the PTO would recover the costs through their reliability services tariff. Under this tariff, the ISO identifies certain reliability-related costs in support of transmission service provided by the CAISO. The CAISO charges these costs to the transmission owners and the transmission owner then passes through these CAISO charges to its customers under its own transmission owner tariff, through a reliability services rate schedule. The ISO anticipates it will need to modify its tariff to revise the list of reliability services to include incremental black start capability. Transmission owners may also need to update their reliability services rate schedules in their own transmission owner tariff. The CAISO recognizes this approach would allocate incremental black start costs to all transmission customers within a PTO transmission access charge area. However, to the extent this capability assists in restoring the PTO's system, all transmission customers will benefit from this restoration. Moreover, to the extent PTO is a transmission operator under the NERC functional model, the CAISO anticipates any incremental black start capability would become part of the PTO's system restoration plan under EOP-005-02.

The ISO also proposes to evaluate potential black start service providers based on a cost of service model and compensate providers using such a model.

The ISO requests stakeholder comment on this proposal for compensation and cost allocation. Specifically, the CAISO requests comments on whether the use of a transmission owner's reliability services rate schedule is an appropriate cost recovery mechanism for incremental black start capability costs. In addition, the CAISO requests stakeholder comments on the categories of costs it should consider in connection with procuring incremental black start capability.

5 Contractual Considerations

The length of any contractual commitment by the ISO and the black start service provider carry different risks and benefits to each party. A longer commitment term to the ISO will provide greater certainty of sufficient black start capability, but the ISO may also want reasonable exit provisions to address changes in circumstances. Similarly, a longer term contract provides greater certainty to the black start service provider, but also could restrict future flexibility for the resource.

Given the feedback received to date, the ISO is considering that the term of black start service provision contracts should take into account the cost-of-service based approach anticipated for compensating black start service providers. These arrangements should be expected to provide some reasonable expectation of cost recovery and margin to the black start service provider, but predicated on the basis that the resource is providing an incremental service – as opposed to an RMR arrangement - that would not provide sufficient revenue to keep an otherwise uneconomic resource in operation. Further, the black start service providers would not want future operation – up to and including retirement – to be overly limited for the relatively marginal incremental benefits obtained by providing black start service provision. The ISO requests stakeholder comment on the appropriate term for any contract to secure additional black start capability. The ISO also requests stakeholder comment on whether any selection criteria should assess the likelihood that a resource will operate for the duration of the black start agreement (i.e. does the resource have a resource adequacy contract for the term of the proposed black start agreement).

Given this context, the ISO considers that a multi-year contract term with exit provisions is appropriate. A five or (preferably) a ten year term, evergreen unless cancelled, seems a reasonable approach. For termination provisions, the ISO could consider either requiring a 1 year notice requirement if the objective is to allow a replacement resource to be identified and service provision to commence to enable the option of developing an RMR contract to retain the resource until a replacement resource can be brought into effect. Rather than speculating on how long alternate as-yet-unidentified resources would need to be ready to provide black start services, the ISO considers the shorter termination provisions a reasonable approach to bridge putting an RMR agreement in place. RMR arrangements including black start service provision could in turn bridge getting alternative resources in place and operational.

6 Next steps

As a next step, the ISO will conduct a conference call to discuss this straw proposal on February 21, 2017. The ISO then invites stakeholders to submit comments on the ISO's straw proposal. Comments are due February 28, 2017 and should be submitted to InitiativeComments@caiso.com.

Following review and evaluation of the comments received, the ISO will consider potential revisions to its proposal and issue a draft final proposal on March 14, 2017.