

Black Start Service Task Force PJM Refurbishment Proposal

Revision 4

January 31, 2012



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Procedural Background

BSSTF charter was endorsed by the MIC in August 2010 to do the following: “Develop RFP processes similar to Black Start Replacement Process to accommodate unit restorations”. This white paper is intended to give a detailed overview of the process in which units can apply for refurbishment and how proposed compensation is developed for units under different conditions.

Current Process and Proposed Process Overview

Currently the Black Start Replacement process is covered in Manual 14D. The process includes submittal of notice of Deactivation or notice of termination from black start service. PJM and the Transmission Owner (“TO”) will discuss feasible sites for replacement black start, and if replacement is necessary. If replacement is necessary, PJM will issue a Request for Proposal (“RFP”) for replacement black start. In the proposed black start refurbishment process there are two tracks, one for refurbishment of components of the unit directly related to black start (components that the unit would not have if not for the fact it provides black start), and one for complete refurbishment or unit would otherwise retire.

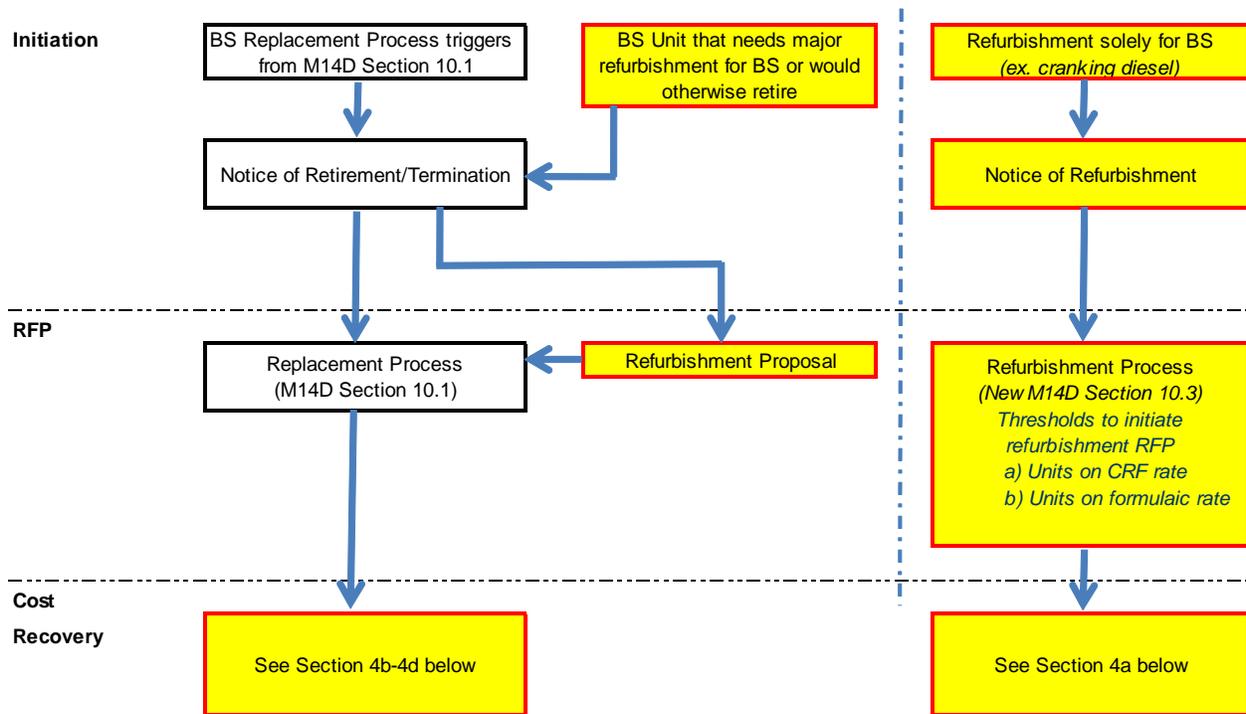


Figure 1: Current and Proposed Process *

* Proposed processes are highlighted yellow – details to be outlined in new Manual M14D Section 10.3 language.

Proposed Manual M14D Section 10.3 language:

1. An Incumbent BSU that needs a major repair to equipment solely necessary for Black Start Service and wishes to continue in the service can request to recover the cost of the repair under Schedule 6A Paragraph 5 by submitting a refurbishment proposal to PJM for evaluation. The refurbishment proposal will be evaluated under thresholds below to determine if the incremental repair costs are sufficient to trigger an RFP or if it qualifies for inclusion under the unit's existing Black Start commitment as an incremental cost under Schedule 6A.
 - a. For an Incumbent BSU on a Capital Recovery Factor (CRF) rate: if refurbishment proposal is greater than the remaining CRF payments then an RFP is required. As the Incumbent BSU gets closer to the end of commitment the threshold reduces and the likelihood for an RFP will increase.
 - b. For Incumbent BSU on formulaic rate: if refurbishment cost proposal is 110 percent of current revenue requirement then an RFP is required.
2. The incumbent or currently in-service Black Start unit ("Incumbent BSU") that needs major refurbishment, overhauls, or repairs to continue in Black Start Service ***and*** as a Generation Resource in PJM, must submit a notice of termination of Black Start Service ***and a notice of Deactivation*** to trigger the Black Start Replacement Process. The Incumbent BSU may be able to submit its anticipated cost of refurbishment, overhaul, or repair as a bid in the Black Start Replacement Process Request for Proposal (RFP) as delineated in Paragraph 4 below.
3. An Incumbent BSU that has submitted a notice of termination of Black Start Service and/or a notice of Deactivation and/or whose bid was not selected in Black Start Replacement or Refurbishment Process may be needed to provide Black Start Service temporarily until the replacement black Start resource is available. Any additional capital investment and/or extended black start payments required for the Incumbent BSU to continue to provide temporary Black Start Service will addressed through existing tariff rules for RMR.
4. Cost recovery methodologies for the following scenarios:
 - a. Incumbent BSU requests cost recovery for an incremental refurbishment, overhaul, or repair for equipment deemed solely necessary for the purpose of providing Black Start Service (e.g. cranking diesel):
 - 1) If the costs requested are less than the applicable RFP thresholds, the Incumbent BSU receives cost recovery for equipment refurbishment through Schedule 6A black start revenues. If the Incumbent BSU is also a Capacity Resource in RPM, it receives and retains RPM revenues as normal. Unit Capacity included in a Fixed Resource Requirement (FRR) Capacity Plan does not receive RPM revenues.
 - 2) If the costs requested are greater than the applicable RFP thresholds and the Incumbent BSU is the evaluated lowest bid in the RFP, the

Incumbent BSU receives cost recovery for equipment refurbishment through Schedule 6A black start revenues. If the Incumbent BSU is also a Capacity Resource in RPM, it receives and retains RPM revenues as normal. Unit Capacity included in a FRR Capacity Plan does not receive RPM revenues.

- 3) If the costs requested are greater than the applicable RFP thresholds, the Incumbent BSU is not the evaluated lowest bid in the RFP and the unit is needed to temporarily provide Black Start Service, the incumbent BSU may seek cost recovery under an RMR.

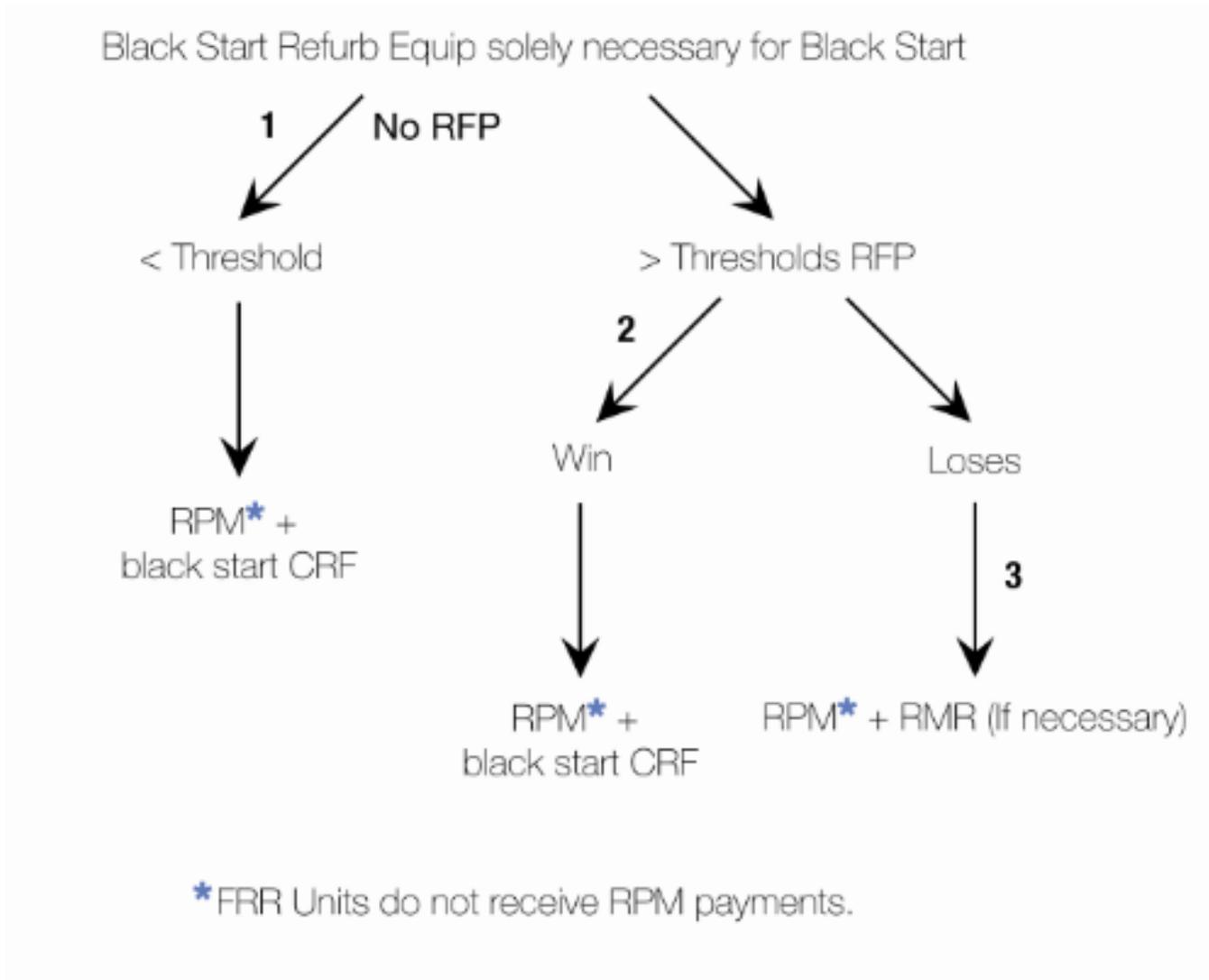
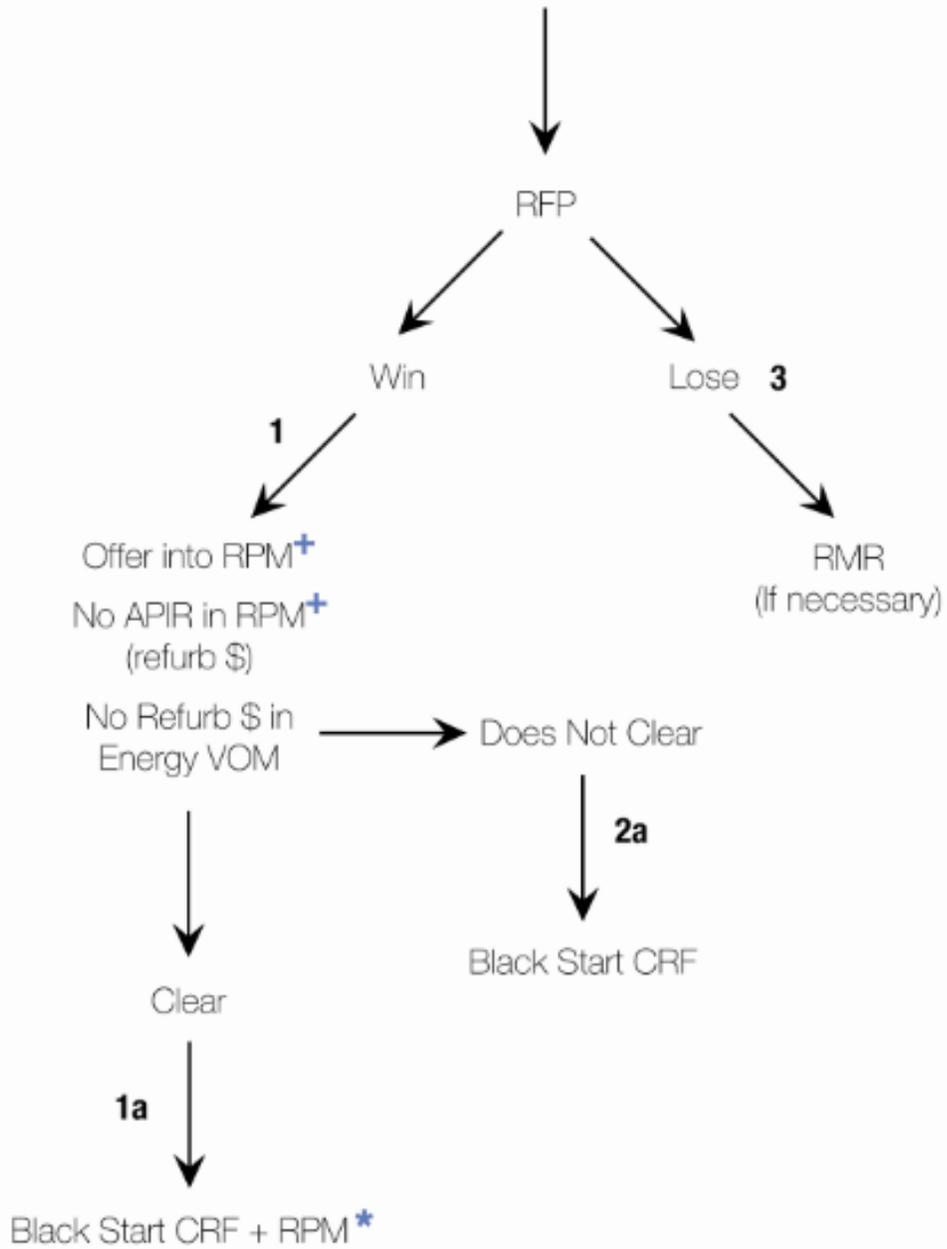


Figure 2: M14D Section 10.3.4a- Incumbent BSU requests cost recovery for an incremental refurbishment, overhaul, or repair for equipment deemed solely necessary for the purpose of providing Black Start Service (i.e. cranking diesel)

- b. Incumbent BSU that needs a major refurbishment, overhaul, or repair to continue providing Black Start Service and has submitted a Notice of Deactivation, chooses to submit its anticipated refurbishment, overhaul, or repair costs as a bid proposal in the Black Start Replacement RFP Process.
 - 1) If the Incumbent BSU's major refurbishment bid is selected through the RFP process, they must offer their available capacity into an RPM BRA or IA, the refurbishment costs that will be recovered through the CRF provisions of schedule 6A shall not be included in APIR for RPM or VOM for energy cost offers. Unit Capacity included in a FRR Capacity Plan does not offer into RPM. However, the ACR as defined by Section 6.8 of Attachment DD, net of Expected Energy and Ancillary Service Revenues as defined in Attachment DD would be allowed in the Market Seller Offer Cap. If the Incumbent BSU clears in an RPM BRA or IA to become a Capacity Resource, or already has an existing obligations as a Capacity Resource in RPM or an FRR Capacity Plan:
 - a. The Incumbent BSU will receive the Black Start Revenues under the CRF provisions of Schedule 6A and any cleared RPM auction or FRR capacity revenues during the recovery period.
 - 2) If the Incumbent BSU's major refurbishment bid is selected through the RFP process, and it does not clear an RPM BRA or IA to become a Capacity Resource and is not included in an FRR Capacity Plan:
 - a. For any Delivery Years for which the Incumbent BSU did not clear an RPM Base Residual Auction (BRA) or Incremental Auction (IA) and is not already a committed Capacity Resource in RPM or an FRR capacity Plan, refurbishment costs will be recovered under the appropriate CRF rate in schedule 6A..
 - 3) If the Incumbent BSU is not the evaluated lowest bid in the RFP and the unit is needed to temporarily provide Black Start Service, the incumbent BSU may seek cost recovery under an RMR.

Black Start Unit needs major refurb or will retire & terminate Black Start



+ FRR Units do not offer into RPM
 * FRR Units do not receive RPM payments.

Figure 3: M14D Section 10.3.4b - Incumbent BSU submits Notice of Deactivation and requires major refurbishment to remain in service and provide black start service.

- c. An existing Non-Black Start Unit (i.e. CT or Diesel) submits the cost for incremental upgrades solely necessary to become a black start unit and is the lowest evaluated bid in the Black Start Replacement RFP process:
 - 1) The upgraded Non-Black Start unit receives cost recovery for incremental black start equipment through Schedule 6A black start revenues. If the Non-Black Start Unit is also a Capacity Resource receives and retains RPM or FRR revenues as normal. Incremental black start equipment costs that are recovered through schedule 6A shall not be included in APIR for RPM.

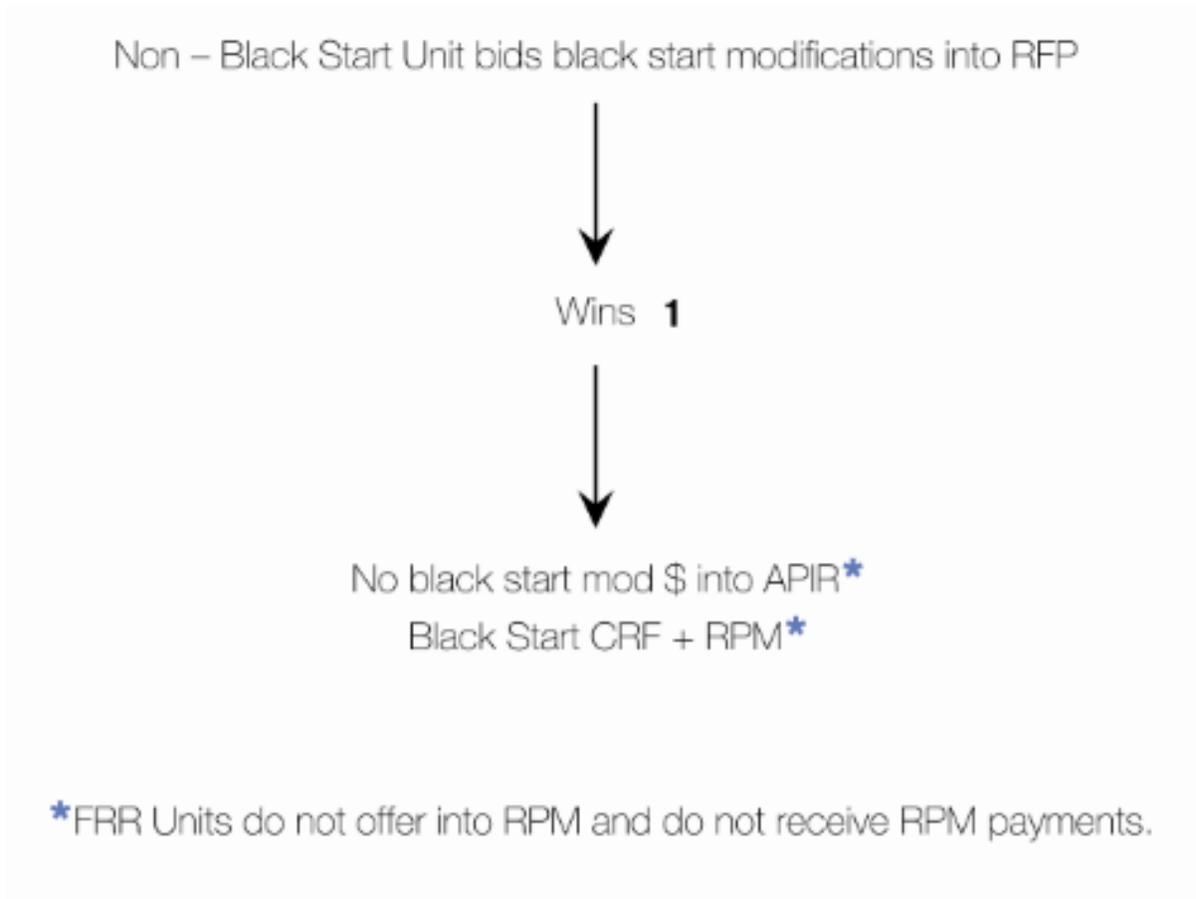


Figure 4: M14D Section 10.3.4c - Non BSU submits incremental costs to become Black Start and wins RFP.

- d. A new Black Start Capable Unit submits its construction costs and is the lowest evaluated bid in the Black Start Replacement RFP process:
- 1) The new Black Start Capable Unit must offer their capacity into an RPM BRA or IA unless the capacity is included in an FRR capacity Plan. The construction costs that will be recovered through the CRF provisions of schedule 6A shall not be included in APIR for RPM or VOM for energy cost offers. However, avoidable costs, as defined by Section 6.8 of Attachment DD, net of Expected Energy and Ancillary Service Revenues as defined in Attachment DD would be allowed in the Market Seller Offer Cap. Unit capacity included in an FRR Capacity Plan does not offer into RPM. If the new Black Start Capable unit clears in an RPM BRA or IA to become a Capacity Resource, or already has an existing obligations as a Capacity Resource in RPM or an FRR Capacity Plan:
 - a. The new Black Start Capable Unit will receive the Black Start Revenues under the CRF provisions of Schedule 6A and any cleared RPM auction or FRR capacity revenues during the recovery period.
 - 2) If the new Black Start Capable Unit does not clear in an RPM BRA or IA to become a Capacity Resource and is not in an FRR Capacity Plan:
 - a. For any Delivery Years for which the new Black Start Capable Unit does not clear an RPM Base Residual Auction (BRA) or Incremental Auction (IA) and is not already a committed Capacity Resource in RPM or an FRR capacity Plan, construction costs will be recovered under the appropriate CRF rate in schedule 6A..

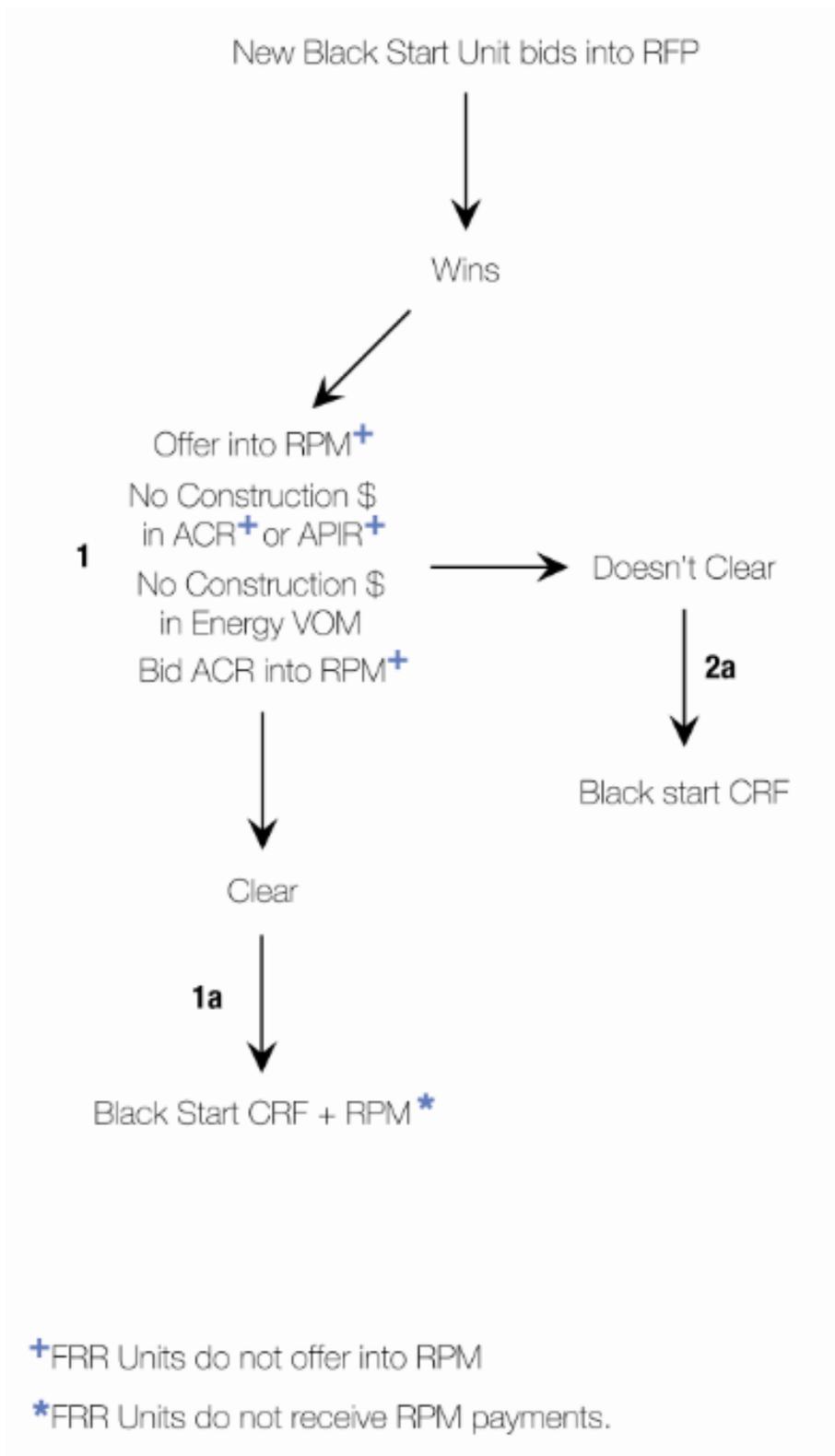


Figure 5: M14D Section 10.3.4d - Non BSU submits incremental costs to become Black Start and wins RFP.

Appendix A – Definition and Purpose of Fixed Resource Requirement (FRR) Alternative from Manual 18

1. The purpose of the Fixed Resource Requirement (FRR) Alternative is to provide a Load Serving Entity (LSE) with the option to submit a FRR Capacity Plan and meet a fixed capacity resource requirement as an alternative to the requirement to participate in the PJM Reliability Pricing Model (RPM), which includes a variable capacity resource requirement.
2. The FRR Alternative allows an LSE, subject to certain conditions, to avoid direct participation in the RPM Base Residual Auctions and the Incremental Auctions; however, such LSE is required to submit a FRR Capacity Plan to satisfy the unforced capacity obligation for all loads in an FRR Service Area, including all expected load growth in the FRR Service Area.
3. An LSE serving load in an FRR Service Area under the FRR Alternative does not pay an RPM Locational Reliability Charge. The portions of capacity resources included in an LSE's FRR Capacity Plan do not receive any RPM Resource Clearing Prices.

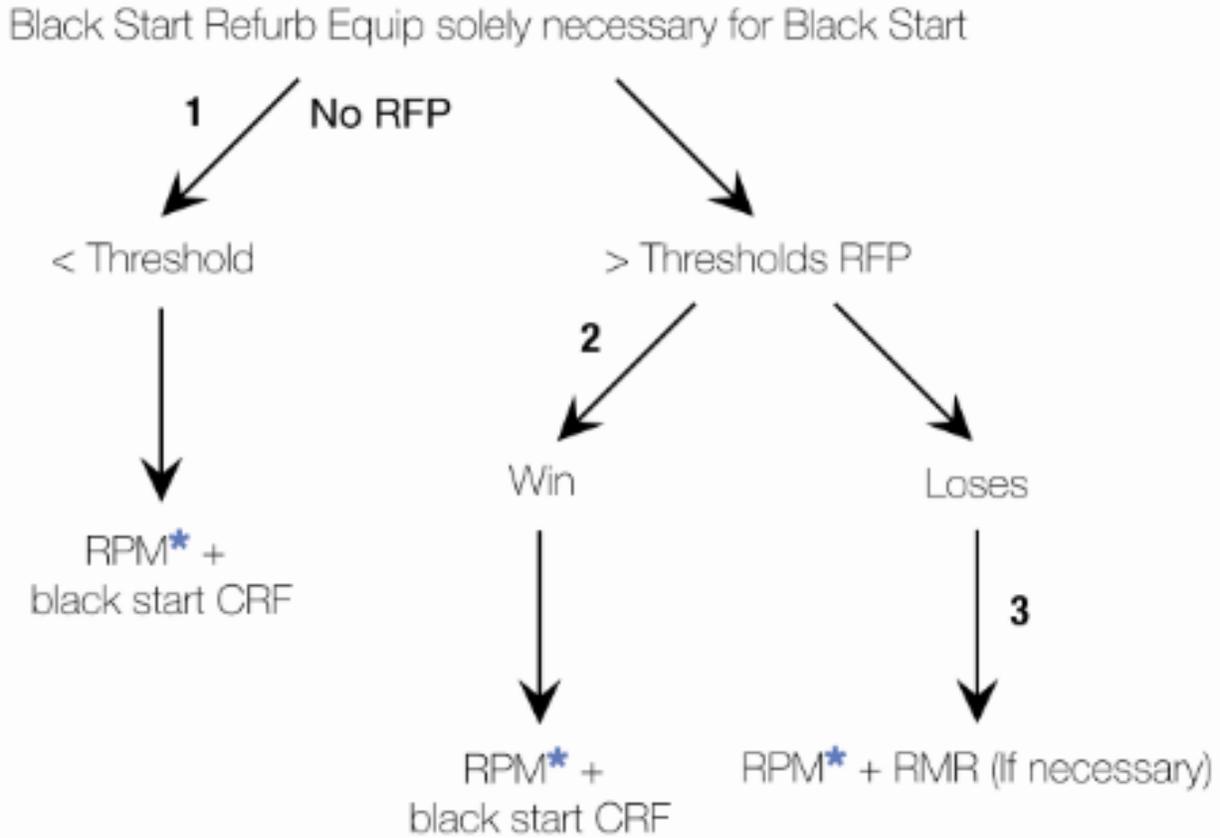
Appendix B –Cost Recovery Proposal A & B (as of August 18, 2011 BSSTF Meeting)

Black Start Refurbishment Process			
Cost recovery methodology during the capital recovery period.			
<p>Unit that needs major refurbishment for black start and has submitted retirement notice and chooses to submit a refurbishment proposal and is selected through replacement RFP process. Major refurbishment of a black start unit is historically a very rare case.</p> <p>General Features:</p> <p>Allows for PJM and TO to continue black start services on a unit that would otherwise retire.</p> <p>RFP provides the evaluated lowest cost of black start service to TO at a necessary location.</p> <p>RMR and/or a Cost of Service Filing with FERC are the fall back if there is no award to the incumbent or a new entry in the RFP.</p>			
Proposal A		Proposal B	
Refurbishment costs that will be recovered through schedule 6A shall not be included in APIR for RPM or VOM. The unit will receive the greater of black start revenues (per Schedule 6A) or any cleared RPM auction revenues during the recovery period.		Refurbishment costs that will be recovered through schedule 6A shall not be included in APIR for RPM or VOM.	
PROS	CONS	PROS	CONS
TO pays all capital cost initially needed to refurbish the unit to keep the unit in service for both black start and capacity, therefore the higher of the two payments is appropriate.	<p>Uses RPM revenues to subsidize other services?</p> <p>Return on specific project capital included but no recovery for other capital costs or avoidable O&M (generator operating at a</p>	<p>GOs make be more likely to make an offer to perform refurbishment.</p> <p>Preserve separation of payments for different services.</p>	Capital costs to be covered under Sched 6A must be incremental costs solely for the purpose of Black Start and not used for the provision of other services (double recovery?).

<p>No Tariff change required.</p> <p>Rate payers get the capacity of the resource and the supplier gets appropriately compensated for the service provided which is the higher of black start or RPM.</p> <p>Supplier continues to receive energy and ancillary service revenue.</p>	<p>loss) during the recovery period.</p> <p>Two units providing the same services could be compensated differently.</p>		<p>Tariff revision required.</p>
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Appendix C –Cost Recovery Proposal A1 (as of December 16, 2011 BSSTF Meeting)

4. Cost recovery methodologies for the following scenarios:
 - a. Incumbent BSU requests cost recovery for an incremental refurbishment, overhaul, or repair for equipment deemed solely necessary for the purpose of providing Black Start Service (e.g. existing cranking diesel):
 1. If the costs requested are less than the applicable RFP thresholds, the Incumbent BSU receives cost recovery for equipment refurbishment through Schedule 6A black start revenues. If the Incumbent BSU is also a Capacity Resource in RPM, it receives and retains RPM revenues as normal. Unit Capacity included in a Fixed Resource Requirement (FRR) Capacity Plan does not receive RPM revenues.
 2. If the costs requested are greater than the applicable RFP thresholds and the Incumbent BSU is the evaluated lowest bid in the RFP, the Incumbent BSU receives cost recovery for equipment refurbishment through Schedule 6A black start revenues. If the Incumbent BSU is also a Capacity Resource in RPM, it receives and retains RPM revenues as normal. Unit Capacity included in a FRR Capacity Plan does not receive RPM revenues.
 3. If the costs requested are greater than the applicable RFP thresholds, the Incumbent BSU is not the evaluated lowest bid in the RFP and the unit is needed to temporarily provide Black Start Service, the incumbent BSU may seek cost recovery under an RMR.



* FRR Units do not receive RPM payments.

Figure 2: M14D Section 10.3.4a- Incumbent BSU requests cost recovery for an incremental refurbishment, overhaul, or repair for equipment deemed solely necessary for the purpose of providing Black Start Service (i.e. cranking diesel)

- b. Incumbent BSU that needs a major refurbishment, overhaul, or repair to continue providing Black Start Service and has submitted a Notice of Deactivation, chooses to submit its anticipated refurbishment, overhaul, or repair costs as a bid proposal in the Black Start Replacement RFP Process.
 - 1) If the Incumbent BSU's major refurbishment bid is selected through the RFP process, they must offer their available capacity into a RPM BRAs or IAs, the refurbishment costs that will be recovered through the CRF provisions of schedule 6A shall not be included in APIR for RPM or VOM for energy cost offers. Unit Capacity included in a FRR Capacity Plan does not offer into RPM. However, the ACR as defined by Section 6.8 of Attachment DD, net of Expected Energy and Ancillary Service

Revenues as defined in Attachment DD would be allowed in the Market Seller Offer Cap. If the Incumbent BSU clears in a RPM BRA or IA to become a Capacity Resource, or already has an existing obligations as a Capacity Resource in RPM or a FRR Capacity Plan:

- b. The Incumbent BSU will receive the greater of Black Start Revenues under the CRF provisions of per Schedule 6A less any cleared RPM auction or FRR capacity revenues net of the ACR during the recovery period.
 - i. By definition, since non-capitalized avoidable costs defined in the ACR are allowed in the RPM offer, an Incumbent BSU that clears in RPM will recover those avoidable costs through RPM rather than in Schedule 6A.
 - ii. Recovery of refurbishment costs under the CRF provisions of Schedule 6A will be offset by the “Net RPM Revenues” defined as RPM revenues less the Market Seller Offer Cap.
 - iii. Unit Capacity included in a FRR Capacity Plan does not receive RPM payments. The actual capacity revenues that the unit receives will be used to determine an equivalent RPM rate in determining black start cost recovery.
 - c. To the extent RPM or FRR revenues exceed Black Start revenues that cover refurbishment and avoidable costs, the Incumbent BSU would then be compensated under the non-CRF provisions of Schedule 6A for Black Start and retain all RPM or FRR revenues.
- 2) If the Incumbent BSU’s major refurbishment bid is selected through the RFP process, and it does not clear in a RPM BRA or IA to become a Capacity Resource and is not included in a FRR Capacity Plan:
- b. For any Delivery Years for which the Incumbent BSU did not clear an RPM Base Residual Auction (BRA) or Incremental Auction (IA) and is not already a committed Capacity Resource in RPM or a FRR capacity Plan, refurbishment costs will be recovered under the appropriate CRF rate in schedule 6A as the entirety of these costs would be considered to be solely necessary for the purposes of Black Start Service.
 - c. Incumbent BSUs that are not Capacity Resources in RPM or a FRR Capacity Plan may recover any other incurred avoidable costs as defined in the ACR in Section 6.8 of Attachment DD required to allow the Incumbent BSU to provide Black Start Service as these costs would then be considered solely necessary for the purposes of Black Start Service.
- 3) If the Incumbent BSU is not the evaluated lowest bid in the RFP and the unit is needed to temporarily provide Black Start Service, the incumbent BSU may seek cost recovery under an RMR.

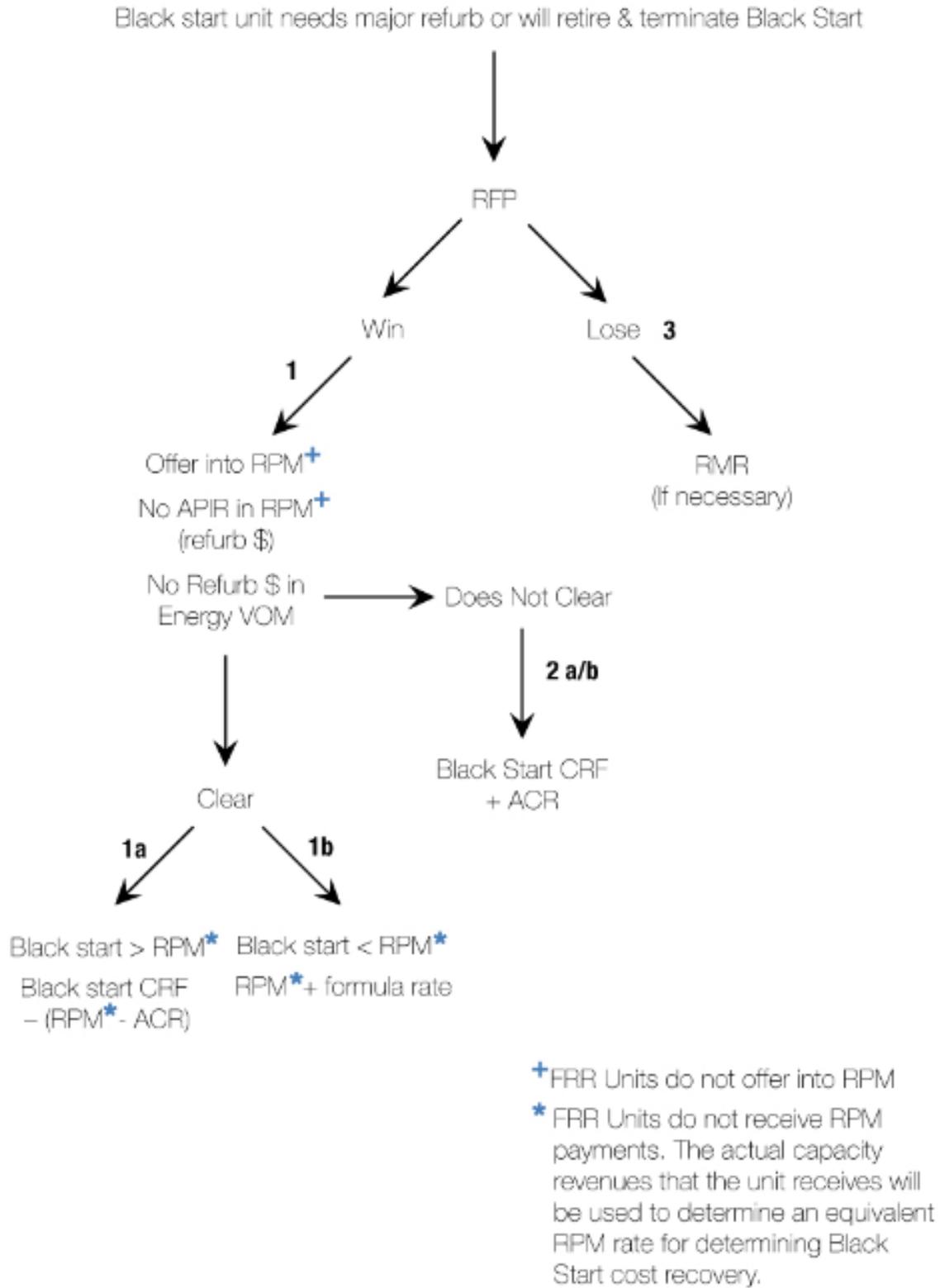


Figure 3: M14D Section 10.3.4b - Incumbent BSU submits Notice of Deactivation and requires major refurbishment to remain in service and provide black start service.

- c. An existing Non-Black Start Unit (i.e. CT or Diesel) submits the cost for incremental upgrades solely necessary to become a black start unit and is the lowest evaluated bid in the Black Start Replacement RFP process:
1. The upgraded Non-Black Start unit receives cost recovery for incremental black start equipment through Schedule 6A black start revenues. If the Non-Black Start Unit is also a Capacity Resource receives and retains RPM or FRR revenues as normal. Incremental black start equipment costs that are recovered through schedule 6A shall not be included in APIR for RPM.

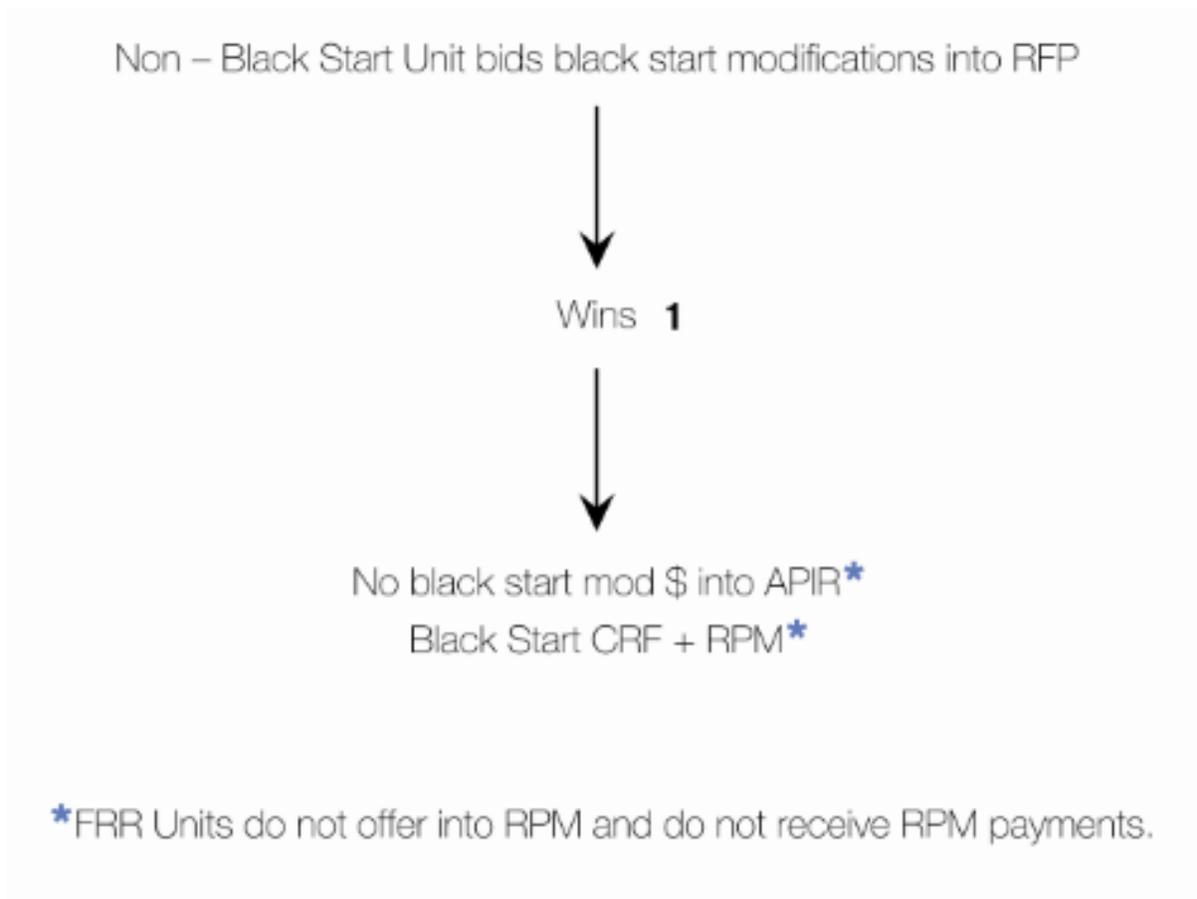


Figure 4: M14D Section 10.3.4c - Non BSU submits incremental costs to become Black Start and wins RFP.

- d. A new Black Start Capable Unit submits its construction costs and is the lowest evaluated bid in the Black Start Replacement RFP process:
- 1) The new Black Start Capable Unit must offer their capacity into RPM BRAs or IAs unless the capacity is included in a FRR capacity Plan. The construction costs that will be recovered through the CRF provisions of schedule 6A shall not be included in APIR for RPM or VOM for energy cost offers. However, avoidable costs, as defined by Section 6.8 of Attachment DD, net of Expected Energy and Ancillary Service Revenues as defined in Attachment DD would be allowed in the Market Seller Offer Cap. Unit capacity included in a FRR Capacity Plan does not offer into RPM. If the new Black Start Capable unit clears in a RPM BRA or IA to become a Capacity Resource, or already has an existing obligations as a Capacity Resource in RPM or a FRR Capacity Plan:
 - b. The new Black Start Capable Unit will receive the greater of Black Start Revenues under the CRF provisions of per Schedule 6A less any cleared RPM auction revenues net of the ACR during the recovery period.
 - i. By definition, since non-capitalized avoidable costs are allowed in the RPM offer, the new Black Start Capable unit that clears in RPM will recover those avoidable costs through RPM rather than in Schedule 6A
 - ii. Recovery of construction costs under the CRF provisions of Schedule 6A will be offset by the “Net RPM Revenues” defined as RPM revenues less the Market Seller Offer Cap.
 - iii. Unit Capacity included in a FRR Capacity Plan does not receive RPM payments. The actual capacity revenues that the unit receives will be used to determine an equivalent RPM rate in determining black start cost recovery.
 - c. To the extent RPM or FRR revenues exceed Black Start revenues that cover construction and avoidable costs, the new Black Start Capable unit would then be compensated under the non-CRF provisions of Schedule 6A for Black Start and retains all RPM or FRR revenues.
 - 2) If the new Black Start Capable Unit does not clear in a RPM BRA or IA to become a Capacity Resource and is not in a FRR Capacity Plan:
 - b. For any Delivery Years for which the new Black Start Capable Unit does not clear an RPM Base Residual Auction (BRA) or Incremental Auction (IA) and is not already a committed Capacity Resource in RPM or a FRR capacity Plan, construction costs will be recovered under the appropriate CRF rate in schedule 6A as the entirety of these costs would be considered to be solely necessary for the purposes of Black Start Service.
 - c. New Black Start Capable units that are not Capacity Resources in RPM or a FRR Capacity Plan may recover any other incurred avoidable costs as defined in the ACR in Section 6.8 of Attachment DD required to allow the

new Black Start Capable Unit to provide Black Start Service as these costs would then be considered solely necessary for the purposes of Black Start Service.

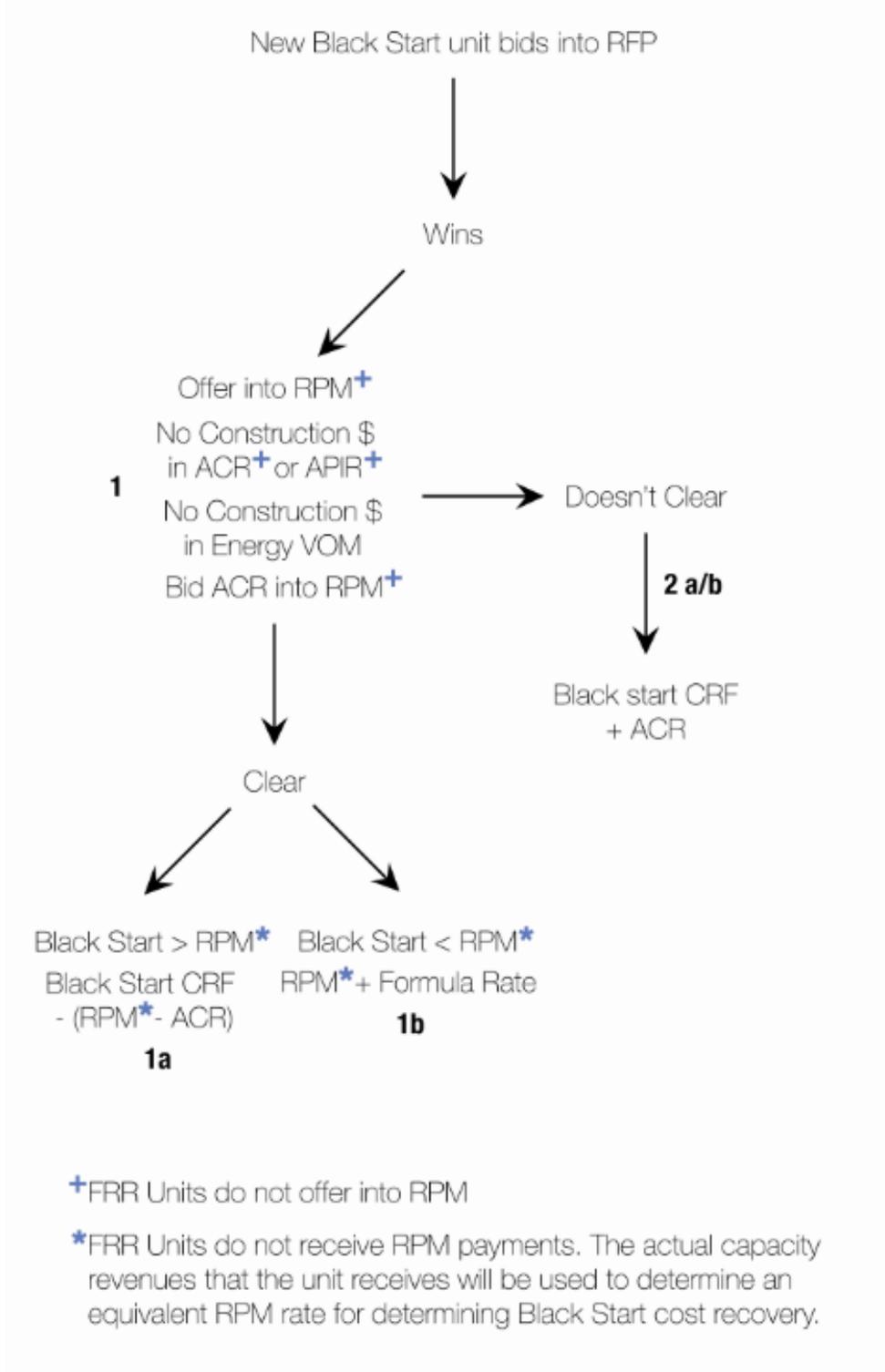


Figure 5: M14D Section 10.3.4d - Non BSU submits incremental costs to become Black Start and wins RFP.