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DATE: **December 4, 2020**

TO: **PJM Market Participants**

FROM: **IMM**

SUBJECT: **CRF issues in the capacity market**

As a result of the significant changes to the federal tax code in December 2017, the CRF (capital recovery factor) tables in PJM OATT Attachment DD § 6.8(a) and Schedule 6A are not correct. These tables should have been updated in 2018 and should be updated prior to the next capacity market auction. Correct CRFs will ensure that offer caps and offer floors in the capacity market are correct. The required changes are clear and unambiguous. The calculations have been made and the accuracy of the calculations has not been disputed. An immediate filing to change the table based only on the known changes to the tax code would avoid potential uncertainty and confusion among market participants and would avoid any potential delay in running or finalizing the results of the capacity auctions. PJM could file the changes under FPA Section 205.

The CRF is a rate, multiplied by the relevant investment, which defines the annual payment needed to provide a return on and of capital for the investment over a defined time period. CRFs were and are calculated using a standard financial model that incorporates the weighted average cost of capital and its components, including the rate of return on equity and the interest rate on debt and the capital structure, in addition to depreciation and taxes. For example, a five year CRF will allow the recovery of 100 percent of the investment plus a return over five years. The CRF is not a black box. The basis for the CRF was clear when the CRF values were calculated in 2007 and the basis has been explained again in the PJM stakeholder process.[1] Any market participant should be able to calculate CRF rates using the same assumptions. This issue has been made clear to PJM and to PJM stakeholders since the summer.

The current CRF table in Attachment DD was created in 2007 as part of the new RPM capacity market design. The CRF table provided for the accelerated return of incremental investment (PI) in capacity resources based on concerns about the fact that some relatively old generating units would be required to make substantial investments related to pollution controls. The cost associated with the incremental investment (APIR) is part of the avoidable cost rate (ACR), which was the only offer cap in use at the time. APIR is equal to PI * CRF. The same CRF values, for the black start time periods, were used in OATT Schedule 6A. The CRF issues related to black start are currently being discussed in the PJM stakeholder process.

[1] "Black Start Issues," presented at the August 6, 2020, and September 3, 2020, PJM Operating Committee Meetings, and revised on September 9, 2020. The presentations can be found at: <https://www.monitoringanalytics.com/reports/Presentations/2020.shtml>.

The current CRF table includes tax rates and depreciation provisions in the tax code that are no longer correct. The result is that the current tariff CRF values are significantly too high. A combination of modified depreciation rules and a reduction of the corporate tax rate has reduced the calculated CRF values required to provide the same return on and of capital as provided by the prior CRF values when the prior tax provisions were in effect. A reduced amount of revenue is required in order to provide full recovery on and of the relevant capital investment. Table 1 includes the existing and new CRF values based solely on changes to the federal tax code.

To the extent that APIR is part of ACR offer caps or MOPR offer floors in any future capacity market auction, the CRF table should be modified to reflect the current tax code. Use of the current CRF values would overstate ACR offer caps and overstate MOPR offer floors. It is logically possible that the CRF values will not affect any offers but that will not be known until all offer caps and floors are calculated. The modified CRF values should be included in the PJM tariff for use in unit specific calculations of ACR offer caps and MOPR offer floors. In the future, the CRF values should always reflect the currently applicable tax code, or known changes to the applicable tax code, which would apply to the relevant investment.

Table 1

Age of Existing Unit	Remaining Life of Plant	Current Levelized CRF	Adjusted Levelized CRF
1 to 5	30	0.107	0.082
6 to 10	25	0.114	0.088
11 to 15	20	0.125	0.096
16 to 20	15	0.146	0.111
21 to 25	10	0.198	0.144
25 Plus	5	0.363	0.246
Mandatory CapEx	4	0.450	0.297
40 Plus Alternative	1	1.100	1.075