

Fuel Assurance for Black Start Resources Hydro Proposal Updates

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- In 2019, PJM and Market Sellers developed a fuel assurance proposal for hydro resources.
- Due to the flexibility hydro units provide to TOs during a restoration event:
 - Run of river hydro units were given a choice of meeting either a 10 hour or 16 hour minimum run time with 90% confidence*
 - Pumped Storage hydro units were given a choice of meeting either a 10 hour, 16 hour, or TO defined minimum run time

*Run of River hydro used 20+ years of river flow and storage data to determine available black start MWs at 90% confidence

- 10 hour or less minimum run time hydro maintained the hydro status quo for compensation
 - $X = 0.01$
 - $Z = 10\%$
- 16 hour minimum run time hydro were considered fuel assured and compensated at CT status quo for X and fuel assured incentive for Z
 - $X = 0.02$
 - $Z = 20\%$ (Current status quo is 10%)

- Run of River Hydro resource's monthly revenues will be calculated using the lesser of the assigned black start MW or the average MW achievable for either a 10 hour or 16 hour min run from the unit(s) for the prior month.
- Pumped Storage Hydro resource's monthly revenues will be withheld for months in which water level falls below the run hour requirement except for a regulatory requirement, an approved outage, or restoration event.

- Updated to leverage existing ELCC information, tools, and implementation
- Hydro units choose whether to be fuel assured or non-fuel assured. Fuel assured units have a 16 hour minimum run time requirement
- PJM uses ELCC tools and information to determine hydro unit MW capability and confidence levels
- Black Start Calculator MW for non-fuel assured resources is ICAP times PJM determined confidence level
- Fuel assured hydro units compensated the same as fuel assured CT units (Z factor increase for fuel assured units TBD)

	Non-Fuel Assured	Fueled Assured
Black Start MW	ICAP	ICAP * 90% confidence of 16 hours
Minimum Run Time	None	16 hours
Black Start Calculator MW	ICAP * confidence level for 16 hours	ICAP * 90% confidence of 16 hours
Revenue Calculation MW	ICAP	ICAP * 90% confidence of 16 hours
X Factor	0.01 (Status Quo)	0.02 (same as CT)
Z Factor Incentive	10%	10%
Penalty for lack of Water	None	Pumped Storage only if they fail to maintain 16 hours of storage

- Hydro confidence levels calculated on 5 year basis in coordination with Five Year RTO Wide RFP
- Confidence levels are calculated based on all black start units operating simultaneously for 16 hours
- Pumped Storage Hydro resource's monthly revenues will be withheld for months in which water level falls below the run hour requirement except for a regulatory requirement, an approved outage, or restoration event.

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