

Capacity Value of Generation Resources Serving Co-Located Load

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February 9, 2022

- By definition, that portion of a generator’s capability that nets against co-located load is BtMG
- BtMG can be used to reduce the hourly energy requirements, the Peak Load Contribution (“PLC”) and the Network Service Peak Load (“NSPL”) of the co-located load potentially reducing to as low as 0 MW
 - Thus, reducing or eliminating PJM charges for energy, capacity, transmission service, transmission enhancement, ancillary services and various administrative fees
- Existing rules do not permit that portion of a generator’s capability that acts as BtMG to also qualify as Generation Capacity Resource capability

Note: Appendix provides excerpts of PJM Manual language relevant to this discussion

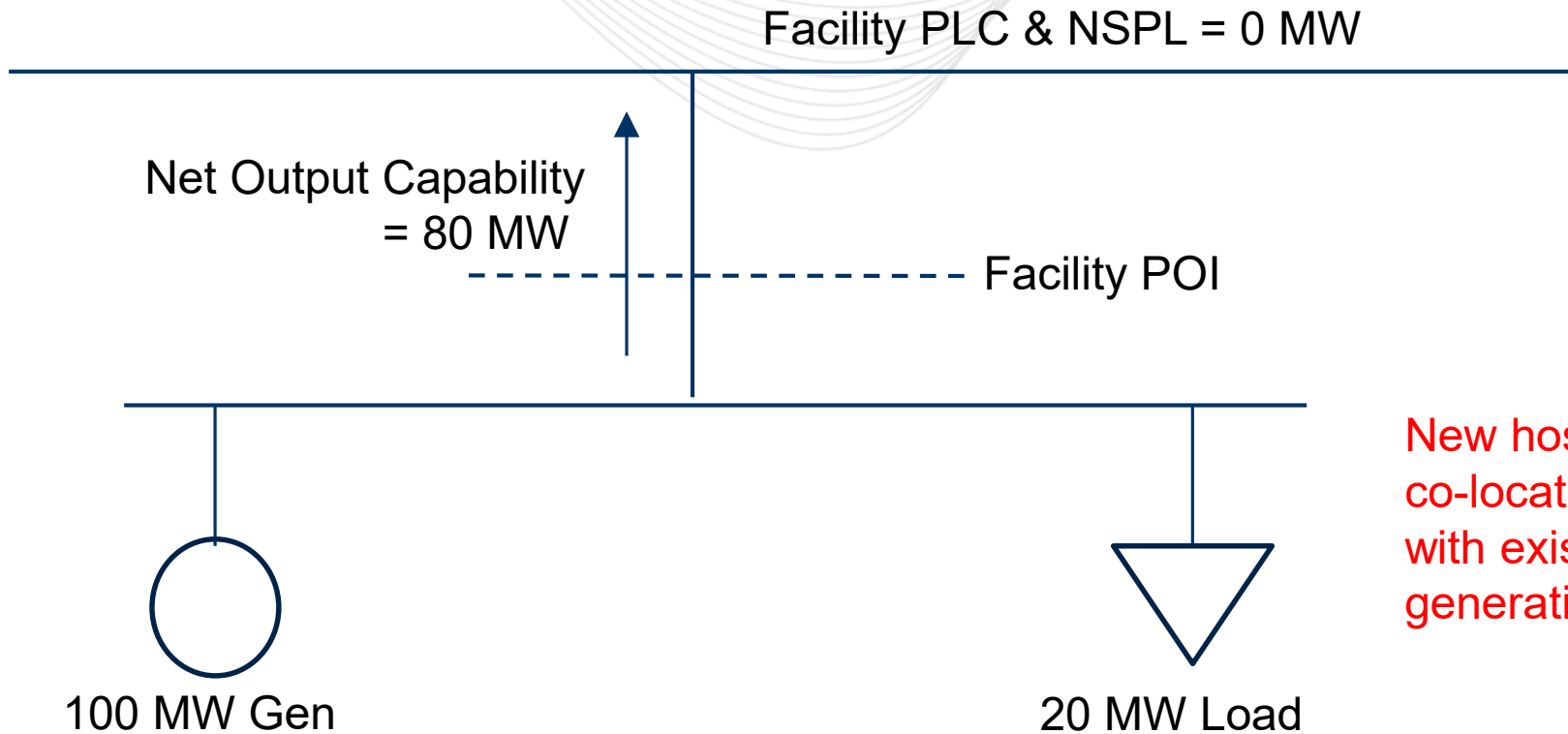
- Under current rules, the CIR and capacity value of an existing generation capacity resource that sites new load behind its meter is reduced by the MW quantity of the new host load
 - The reduction in capacity value is initially based on the highest hourly host load expected to be served by the generation resource consistent with the MW reduction in CIRs specified by the amended ISA
 - With the host load in-service for less than 3 years, the host load used in the determination of the resource's capacity value is based on the higher of (the highest metered hourly host load or the maximum expected hourly host load specified by the amended ISA)
 - Once in-service for 3 years, the host load used in the determination of the generation resource's capacity value shall be based on the highest metered hourly host load measured during the most recent three-year period

- Such reduction in generation resource capacity value shall be reflected in PJM's Capacity Exchange system via the resource owner's submittal of a capacity modification (CAPMOD) decrease effective with the date that the generation resource commences or expects to commence directly serving the new host load
 - The reduction is applied to the ICAP MW of a thermal generation capacity resource
 - The reduction is applied to the accredited UCAP capability of an ELCC Resource

- The example configuration of slide 8 shows a new 20 MW load locating behind the meter of an existing 100 MW generating unit
- The example assumes the new 20 MW load is to be served exclusively by the generating unit and never from the system
 - the load will shut down whenever the generator is not available to serve it or instantaneously disconnect for any sudden trip of the unit
- Under normal day-to-day operations, the generator produces gross output of 100 MW each hour and net hourly output to the system of 80 MW after serving the 20 MW of new co-located host load

- Under current rules, upon the addition of the new 20 MW co-located load, the CIR level and capacity value of the existing generator is reduced from 100 MW to 80 MW
- The generator's 80 MW CIR/capacity value dictates the maximum level at which the unit may participate in the PJM capacity market but does not preclude the unit from providing 100 MW of energy to the system (with shutdown of the host load) provided the 100 MW injection is consistent with the generator's ISA-specified Maximum Facility Output and provided further that the unit's energy offer contains the information specified in the Operating Agreement, Schedule 1 and Schedule 2, and the PJM Manuals, as applicable

- Because the new host load is served exclusively by the co-located generating unit, the load itself is not visible to PJM or the local TO; the addition of the new load is recognizable only by the reduction in output level normally provided by the generator prior to the addition of the load:
 - No PLC or NSPL will be assigned to the load by the TO, and,
 - The load is not reflected in PJM's metered load and therefore not reflected in the PJM peak load forecast or resultant PJM Reliability Requirement



New host load of 20 MW is co-located behind the meter with existing 100 MW generation resource

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Appendix

Excerpts of PJM Manual language relevant to the CIR/Capacity value of generation resources that serve co-located load:

- PJM Manual 14D: Generator Operational Requirements - Appendix A
- PJM Manual 14G: Generation Interconnection Requests – Section 1.6
- PJM Manual 21: Rules and Procedures for Determination of Generating Capability – Section 1

Manual 14G: Generation Interconnection Requests – Section 1.6

- Behind the Meter Generation (BtMG) is the output from generation that offsets load and does not and cannot participate in the wholesale market. Thus, in order to be considered BtMG, power claimed as BtMG must deliver energy to load without using the Transmission System or any distribution facilities
- Generation claimed as BtMG cannot participate in the PJM Capacity or energy market.
- Behind the Meter Generation cannot include (i) at any time, any portion of such generating unit(s)' capacity that is designated as a Generation Capacity Resource; or (ii) in any hour, any portion of the output of the generating unit(s) that is sold to another entity for consumption at another electrical location or into the PJM Interchange Energy Market. Behind the Meter Generation rules permit load serving entities in PJM to net operating Behind the Meter Generation against load in the calculation of charges for energy, capacity, transmission service, ancillary services and PJM administrative fees.

Manual 14G: Generation Interconnection Requests – Section 1.6

- The behind the meter load is the sum of station service and auxiliary loads used to support operation of the facility and any host/process loads to be served behind the point of interconnection. The behind the meter load provided in the New Services Request shall be the sum of the station service and auxiliary loads and the maximum host/process loads to be served behind the point of interconnection.
 - Station service and auxiliary loads used to support operation of the facility should be commensurate with those experienced coincident with the most recent 15 years PJM summer peaks (i.e. under summer conditions) in accordance with Manual 21: Rules and Procedures for Determination of Generation Capability, Section 1.2.
 - For new host/process loads to be served behind the point of interconnection, the maximum hourly integrated host/process load is to be estimated. For existing host/process loads, the maximum hourly integrated host/process load that occurred during the most recent 36 months is to be determined.
- The CIRs requested in the New Services Request may not be greater than the gross generator output of the facility less station service and auxiliary loads less the maximum host/process loads that the facility is expected to serve.

Manual 14D: Generator Operational Requirements - Appendix A

- 15. A change to BTMG status from Generation Capacity Resource and/or Energy Resource status represents a decrease in the MW of capability designated as a Generation Capacity Resource and/or Energy Resource. A decrease in the MW of capability designated as a Generation Capacity Resource requires the Capacity Market Seller to adhere to the Removal of Generation Capacity Resource Status rules in PJM Manual 18, Section 5.4.7 and OATT, Attachment DD, Section 6.6(g) for the decrease in the MW of capability designated.
- 16. A Generation Interconnection Customer may request to change all or a portion of a unit's capability from Generation Capacity Resource and/or Energy Resource status to BTMG status, or from BTMG status to Generation Capacity Resource and/or Energy Resource status (provided the generator has met the applicable requirements for Capacity Resource status and/or Energy Resource status). If a MW of capability is designated as Generation Capacity Resource such MW of capability is not able to net against the load at any time. Any portion of a unit that has been designated as a Generation Capacity Resource is subject to the same requirements as any other PJM Generation Capacity Resource.

Manual 14D: Generator Operational Requirements - Appendix A

- 17. A change from Generation Capacity Resource and/or Energy Resource status to BTMG status requires an amendment or termination of the relevant service agreement (e.g., Interconnection Service Agreement, Wholesale Market Participation Agreement, etc.). The service agreement is to be amended if the unit is to remain a partial BTMG unit after the status change. A partial BTMG unit is a unit that still has an amount of capability that is designated as a Generation Capacity Resource and/or Energy Resource. The CIRs requested in the New Services Request may not be greater than the gross generator output of the facility less station service and auxiliary loads less the maximum host/process loads that the facility is expected to serve.
- 18. A request to change from Generation Capacity Resource and/or Energy Resource status to BTMG status must be provided to PJM sufficiently in advance of the requested effective date of the status change to adhere to the Removal of Generation Capacity Resource Status rules in PJM Manual 18, Section 5.4.7 and OATT, Attachment DD, Section 6.6(g) and allow time for a necessary study (if required), FERC filing(s), and any necessary resource modeling changes in PJM tools. In addition, notice of termination or request to amend the applicable service agreement must comply with the terms and conditions of such service agreement.

Manual 21: Rules and Procedures for Determination of Generating Capability

- The CIR level of a generating unit is reflective of the net capability of the generating unit at the time of the expected summer peak (this does not include wind and solar units; wind and solar units CIRs are discussed in section 1.1.7 below).
- Installed Capacity (ICAP) of a generation resource is defined as the summer net capability of a generating unit as determined in accordance with PJM manual M-21, Rules and Procedures for Determination of Generation Capability and within the CIR limits of the bus to which it is connected.
- CIRs are retained when a generating unit proves its CIR level in the PJM Summer Capability Verification Test once in the most recent consecutive three year period.
- CIRs are lost when a generating unit fails to prove its CIR level in the PJM Summer Capability Verification Test once in the most recent consecutive three year period. CIRs, if lost, are lost immediately after the summer testing period (September 1st). For generators that have lost CIRs and whose ICAP after the CIR loss is greater than the CIR level of the generator, the ICAP of the generator must be reduced to the new CIR level or lower on February 1st of the next calendar year.

Manual 21: Rules and Procedures for Determination of Generating Capability

- Calculation of ICAP must also take into consideration station service power use and other load, such as, but not limited to, host process load (including steam, mechanical and electrical loads), scrubber load, cooling load, supplemental cooling load and any other load that supports the generating unit.
- Station service and auxiliary loads should be commensurate with those experienced coincident with the most recent 15 years PJM summer peaks (i.e. under summer conditions).
- In addition to consideration of station service, auxiliary and other load that is used to support the operation of the generating unit, the ICAP of a generation resource must also take into consideration host/process load that is located behind the generation resource's Point of Interconnection. Such load must be removed from the generator's ICAP and must be measured and reported separately for the generation resource net of station service load and other load that supports the operation of the generation resource. Co-Generators and generators supplying energy to industrial complexes typically have host and/or process loads.