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| NPRR Number | [958](http://www.ercot.com/mktrules/issues/NPRR958) | NPRR Title | Modifications to Wind and Solar Capacity Calculations in the CDR |
| Date of Decision | September 25, 2019 |
| Action | Recommended Approval |
| Timeline  | Normal |
| Proposed Effective Date | November 1, 2019 |
| Priority and Rank Assigned | Not Applicable |
| Nodal Protocol Sections Requiring Revision  | 3.2.6.2.2, Total Capacity Estimate |
| Related Documents Requiring Revision/Related Revision Requests | None |
| Revision Description | This Nodal Protocol Revision Request (NPRR) modifies the calculation of the wind and solar capacities used in the Report on Capacity, Demand and Reserves in the ERCOT Region (CDR). It also better aligns the solar capacity calculation with the wind capacity calculation. |
| Reason for Revision |  Addresses current operational issues. Meets Strategic goals (tied to the [ERCOT Strategic Plan](http://www.ercot.com/content/news/presentations/2013/ERCOT%20Strat%20Plan%20FINAL%20112213.pdf) or directed by the ERCOT Board). Market efficiencies or enhancements Administrative Regulatory requirements Other: (explain)*(please select all that apply)* |
| Business Case | Under the current methodology to calculate the Seasonal Peak Average Wind Capacity as a Percent of Installed Capacity, historic years of data are averaged together with no weighting, resulting in years with lower installed wind capacity having an outsized effect on the final capacity estimate. This NPRR changes the simple average to a weighted average, where each year is weighted by its installed capacity. This improves the calculation by counting each megawatt (MW) of capacity equally.Additionally, this NPRR improves the method of calculating solar capacity in the CDR. The calculation for solar capacity would follow the same procedure as the wind capacity calculation with the exception of using the past three years rather than up to the past ten years. |
| Credit Work Group Review | ERCOT Credit Staff and the Credit Work Group (Credit WG) have reviewed NPRR958 and do not believe that it requires changes to credit monitoring activity or the calculation of liability. |
| PRS Decision | On 8/15/19, PRS voted unanimously to recommend approval of NPRR958 as submitted. All Market Segments were present for the vote. On 9/12/19, PRS voted unanimously to endorse and forward to TAC the 8/15/19 PRS Report and Impact Analysis for NPRR958. All Market Segments were present for the vote.  |
| Summary of PRS Discussion | On 8/15/19, ERCOT Staff declared intent for NPRR958’s calculations to begin taking effect December 2019. On 9/12/19, there was no discussion. |
| TAC Decision | On 9/25/19, TAC voted unanimously to recommend approval of NPRR958 as recommended by PRS in the 9/12/19 PRS Report. All Market Segments were present for the vote. |
| Summary of TAC Discussion | On 9/25/19, there was no discussion. |
| ERCOT Opinion | ERCOT supports approval of NPRR958. |

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| Market Segment | Not applicable |

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| **Comments Received** |
| **Comment Author** | **Comment Summary** |
| None |  |

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| Market Rules Notes |

Please note NPRR959, Creation of a Panhandle Region for Calculation of Seasonal Peak Average Capacity Contributions for Wind, also proposes revisions to Section 3.2.6.2.2.

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| Proposed Protocol Language Revision |

***3.2.6.2.2 Total Capacity Estimate***

(1) The total capacity estimate shall be determined based on the following equation:

**TOTCAP *s ,i* = INSTCAP *s*, *i +* PUNCAP *s, i +* WINDCAP *s, i, r*  + HYDROCAP *s, i* + SOLARCAP*s,*** ***i* + RMRCAP *s,*** ***i* + DCTIECAP *s* + PLANDCTIECAP** *s* **+ SWITCHCAP *s, i* + MOTHCAP *s, i* + PLANNON *s, i* + PLANIRR *s, i, r* – UNSWITCH *s, i* – RETCAP *s, i***

The above variables are defined as follows:

| **Variable** | **Unit** | **Definition** |
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| TOTCAP *s, i* | MW | *Total Capacity*—Estimated total capacity available during the Peak Load Season *s* for the year *i.* |
| INSTCAP *s, i* | MW | *Seasonal Net Max Sustainable Rating*—The Seasonal net max sustainable rating for the Peak Load Season *s* as reported in the approved Resource Registration process for each operating Generation Resource for the year *i* excluding WGRs, hydro Generation Resource capacity, solar unit capacity, Resources operating under RMR Agreements, and Generation Resources capable of “switching” from the ERCOT Region to a non-ERCOT Region. |
| PUNCAP *s, i* | MW | *Private Use Network Capacity*—The forecasted generation capacity available to the ERCOT Transmission Grid, net of self-serve load, from All-Inclusive Generation Resources in Private Use Networks for Peak Load Season *s* and year *i*. The capacity forecasts are developed as follows. First, a base capacity forecast, determined from Settlement data, is calculated as the average net generation capacity available to the ERCOT Transmission Grid during the 20 highest system-wide peak Load hours for each preceding three year period for Peak Load Season *s* and year *i*. The base capacity forecast is then adjusted by adding the aggregated incremental forecasted annual changes in net generation capacity as of the start of the summer Peak Load Season *s* for forecast year *i* reported for Private Use Networks pursuant to Section 10.3.2.4, Reporting of Net Generation Capacity. This calculation is limited to All-Inclusive Generation Resources in Private Use Networks (1) with a Resource Commissioning Date that occurs no later than the start of the most current Peak Load Season used for the calculation, and (2) that have not been permanently retired by the start of the most current Peak Load Season used for the calculation.

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| ***[NPRR921: Replace the definition above with the following upon system implementation of NPRR889:]****Private Use Network Capacity*—The forecasted generation capacity available to the ERCOT Transmission Grid, net of self-serve load, from Generation Resources and Settlement Only Generators (SOGs) in Private Use Networks for Peak Load Season *s* and year *i*. The capacity forecasts are developed as follows. First, a base capacity forecast, determined from Settlement data, is calculated as the average net generation capacity available to the ERCOT Transmission Grid during the 20 highest system-wide peak Load hours for each preceding three year period for Peak Load Season *s* and year *i*. The base capacity forecast is then adjusted by adding the aggregated incremental forecasted annual changes in net generation capacity as of the start of the summer Peak Load Season *s* for forecast year *i* reported for Private Use Networks pursuant to Section 10.3.2.4, Reporting of Net Generation Capacity. This calculation is limited to Generation Resources and SOGs in Private Use Networks (1) with a Resource Commissioning Date that occurs no later than the start of the most current Peak Load Season used for the calculation, and (2) that have not been permanently retired by the start of the most current Peak Load Season used for the calculation. |

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| WINDPEAKPCT *s, r* | % | *Seasonal Peak Average Wind Capacity as a Percent of Installed Capacity*—The average WGR capacity available for the summer and winter Peak Load Seasons *s* and region *r*, divided by the installed capacity for region *r*, expressed as a percentage. The Seasonal Peak Average, derived from Settlement data, is first calculated as the average capacity during the 20 highest system-wide peak Load hours for a given year’s summer and winter Peak Load Seasons. The final value is the weighted average of the previous ten eligible years of Seasonal Peak Average values where each year is weighted by its installed capacity. Eligible years include 2009 through the most recent year for which COP data is available for the summer and winter Peak Load Seasons. If the number of eligible years is less than ten, the average shall be based on the number of eligible years available. This calculation is limited to WGRs (1) with a Resource Commissioning Date that occurs no later than the start of the most current Peak Load Season used for the calculation, and (2) that have not been permanently retired by the start of the most current Peak Load Season used for the calculation. |
| WINDCAP *s, i, r* | MW | *Existing WGR Capacity*—The capacity available for all existing WGRs for the summer and winter Peak Load Seasons *s,* year *i*, and region *r*, multiplied by WINDPEAKPCT for summer and winter Peak Load Seasons *s* and region *r*. |
| HYDROCAP*s, i* | MW | *Hydro Unit Capacity*—The average hydro Generation Resource capacity available, as determined from the COP, during the highest 20 peak Load hours for each preceding three year period for Peak Load Season *s* and year *i*. This calculation is limited to hydro Generation Resources (1) with a Resource Commissioning Date that occurs no later than the start of the most current Peak Load Season used for the calculation, and (2) that have not been permanently retired by the start of the most current Peak Load Season used for the calculation. |
| SOLARPEAKPCT *s* | % | *Seasonal Peak Average Solar Capacity as a Percent of Installed Capacity*—The average PVGR capacity available for the summer and winter Peak Load Seasons *s*, divided by the installed capacity, expressed as a percentage. The Seasonal Peak Average, derived from Settlement data, is first calculated as the average capacity during the 20 highest system-wide peak Load hours for a given year’s summer and winter Peak Load Seasons. The final value is the weighted average of the previous three years of Seasonal Peak Average values where each year is weighted by its installed capacity. This calculation is limited to PVGRs (1) with a Resource Commissioning Date that occurs no later than the start of the most current Peak Load Season used for the calculation, and (2) that have not been permanently retired by the start of the most current Peak Load Season used for the calculation. |
| SOLARCAP*s, i* | MW | *Existing PVGR Capacity*—The capacity available for all existing PVGRs for the summer and winter Peak Load Season *s* and year *i*, multiplied by SOLARPEAKPCT for summer and winter Peak Load Seasons *s.* |
| RMRCAP *s, i* | MW | *Seasonal Net Max Sustainable Rating for Generation Resource providing RMR Service*—The Seasonal net max sustainable rating for the Peak Load Season *s* as reported in the approved Resource Registration process for each Generation Resource providing RMR Service for the year *i* until the approved exit strategy for the RMR Resource is expected to be completed. |
| DCTIEPEAKPCT *s* | % | *Seasonal Peak Average Capacity for existing DC Tie Resources as a Percent of Installed DC Tie Capacity*—The average net emergency DC Tie imports for the summer and winter Peak Load Seasons *s*, divided by the total installed DC Tie capacity for Peak Load Seasons *s*, expressed as a percentage. The average net emergency DC Tie imports is calculated for the SCED intervals during which ERCOT declared an Energy Emergency Alert (EEA). This calculation is limited to the most recent single summer and winter Peak Load Seasons in which an EEA was declared. The total installed DC Tie capacity is the capacity amount at the start of the Peak Load Seasons used for calculating the net DC Tie imports. |
| DCTIECAP *s* | MW | *Expected Existing DC Tie Capacity Available under Emergency Conditions*—DCTIEPEAKPCT*s* multiplied by the installed DC Tie capacity available for the summer and winter Peak Load Seasons *s*, adjusted for any known capacity transfer limitations. |
| PLANDCTIECAP *s* | MW | *Expected Planned DC Tie Capacity Available under Emergency Conditions*—DCTIEPEAKPCT*s* multiplied by the maximum peak import capacity of planned DC Tie projects included in the most recent Steady State Working Group (SSWG) base cases, for the summer and winter Peak Load Seasons *s*. The import capacity may be adjusted to reflect known capacity transfer limitations indicated by transmission studies. |
| SWITCHCAP *s, i* | MW | *Seasonal Net Max Sustainable Rating for Switchable Generation Resource*—The Seasonal net max sustainable rating for the Peak Load Season *s* as reported in the approved Resource asset registration process for each Generation Resource for the year *i* that can electrically connect (i.e., “switch”) from the ERCOT Region to another power region. |
| MOTHCAP *s, i* | MW | *Seasonal Net Max Sustainable Rating for Mothballed Generation Resource*—The Seasonal net max sustainable rating for the Peak Load Season *s* as reported in the approved Resource Registration process for each Mothballed Generation Resource for the year *i* based on the lead time and probability information furnished by the owners of Mothballed Generation Resources pursuant to Section 3.14.1.9, Generation Resource Status Updates.If the value furnished by the owner of a Mothballed Generation Resource pursuant to Section 3.14.1.9 is greater than or equal to 50%, then use the Seasonal net max sustainable rating for the Peak Load Season *s* as reported in the approved Resource registration process for the Mothballed Generation Resource for the year *i*. If the value furnished by the owner of a Mothballed Generation Resource pursuant to Section 3.14.1.9 is less than 50%, then exclude that Resource from the Total Capacity Estimate. |
| PLANNON *s, i* | MW | *New, non-IRR Generating Capacity*—The amount of new, non-IRR generating capacity for the Peak Load Season *s* and year *i* that: (a) has a Texas Commission on Environmental Quality (TCEQ)-approved air permit, (b) has a federal Greenhouse Gas permit, if required, (c) has obtained water rights, contracts or groundwater supplies sufficient for the generation of electricity at the Resource, and (d) has a signed Standard Generation Interconnect Agreement (SGIA), or a public, financially-binding agreement between the Resource owner and TSP under which generation interconnection facilities would be constructed; or for a Municipally Owned Utility (MOU) or Electric Cooperative (EC), a public commitment letter to construct a new Resource. Exclude new, non-IRR generating capacity that has met the requirements of (a), (b), (c) and (d) above for which ERCOT has received written Notification from the developer that the new capacity will not be constructed. |
| PLANIRR *s, i, r* | MW | *New IRR Capacity*—For new WGRs, the capacity available for the summer and winter Peak Load Seasons *s,* year *i*, and region *r*, multiplied by WINDPEAKPCT for summer and winter Load Season *s* and region *r*. For new PVGRs, the capacity available for the summer and winter Peak Load Seasons *s* and year *i*, multiplied by SOLARPEAKPCT for summer and winter Load Seasons *s*. New IRRs must have an SGIA or other public, financially binding agreement between the Resource owner and TSP under which generation interconnection facilities would be constructed or, for a MOU or EC, a public commitment letter to construct a new IRR. |
| UNSWITCH *s, i*  | MW | *Capacity of Unavailable Switchable Generation Resource*—The amount of capacity reported by the owners of a switchable Generation Resource that will be unavailable to ERCOT during the Peak Load Season *s* and year *i* pursuant to paragraph (2) of Section 16.5.4, Maintaining and Updating Resource Entity Information. |
| RETCAP *s, i* | MW | *Capacity Pending Retirement*—The amount of capacity in Peak Load Season *s* of year *i* that is pending retirement based on information submitted on a Notification of Suspension of Operations (NSO) form (Section 22, Attachment E, Notification of Suspension of Operations) pursuant to Section 3.14.1.11, Budgeting Eligible Costs, but is under review by ERCOT pursuant to Section 3.14.1.2, ERCOT Evaluation Process, that has not otherwise been considered in any of the above defined categories. For All-Inclusive Generation Resources within Private Use Networks, the retired capacity amount is the peak average capacity contribution included in PUNCAP. For reporting of individual All-Inclusive Generation Resources in the Report on the Capacity, Demand and Reserves in the ERCOT Region, only the summer net max sustainable rating included in the NSO shall be disclosed.

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| *i* | None | Year. |
| *s* | None | Summer and winter Peak Load Seasons for year *i*. |
| *r* | None | Coastal and non-coastal wind regions. WGRs are classified into regions based on the county that contains their Point of Interconnection (POI). The coastal region is defined as the following counties: Cameron, Willacy, Kenedy, Kleberg, Nueces, San Patricio, Refugio, Aransas, Calhoun, Matagorda, and Brazoria. The non-coastal region consists of all other counties in the ERCOT Region. |