3.2.6.2.1 Peak Load Estimate

(1) ERCOT shall prepare, at least annually, a forecast of the total peak Load for both summer and winter Peak Load Seasons for the current year and a minimum of ten future years using an econometric forecast, taking into account econometric inputs, weather conditions, demographic data and other variables as deemed appropriate by ERCOT. The firm Peak Load Season estimate shall be determined by the following equations:

**TOTPKLD**s, *i***= PKLD** *s, i* + **ENERGYEFF** *s, i*

**FIRMPKLD *s, i* = TOTPKLD s, *i* – LRRRS *s, i* –LRNSRS­ *s, i* – IDPV**s, *i***– ERS *s, i* – CLR *s, i* – ENERGYEFF *s, i***

|  |
| --- |
| ***[NPRR863: Replace the formula “FIRMPKLD s, i” above with the following upon system implementation:]***  **FIRMPKLD *s, i* = TOTPKLD s, *i*– LRRRS *s, i* – LRECRS *s, i* –LRNSRS­ *s, i* – IDPV**s, *i***– ERS *s, i* – CLR *s, i* – ENERGYEFF *s, i*** |

The above variables are defined as follows:

|  |  |  |
| --- | --- | --- |
| Variable | Unit | Definition |
| PKLD *s, i* | MW | *Seasonal Peak Demand Estimate*—The Peak Load Estimate for the Peak Load Season *s* for the year *i.* based on normal weather |
| FIRMPKLD *s, i* | MW | *Firm Peak Load Estimate*—The Firm Peak Load Estimate for the Peak Load Season *s* for the year *i.* |
| TOTPKLD *s, i* | MW | *Total Peak Load Estimate*—The Total Peak Load Estimate for the Peak Load Season *s* for the year *i.* |
| LRRRS *s, i* | MW | *Load Resource providing RRS*—The amount of RRS a Load Resource is providing for the Peak Load Season *s* for the year *i*. |
| |  |  |  |  | | --- | --- | --- | --- | | ***[NPRR863: Insert the variable “LRECRS s, i” below upon system implementation:]***   | LRECRS *s, i* | MW | *Load Resource providing ECRS*—The amount of ECRS a Load Resource is providing for the Peak Load Season *s* for the year *i*. | | --- | --- | --- | | | | |
| LRNSRS *s, i* | MW | *Load Resource providing Non-Spinning Reserve (Non-Spin)*—The estimated amount of Non-Spin that Load Resources are providing for the Peak Load Season *s* for the year *i.* |
| IDPVs, *i* | MW | *Incremental Forecasted Peak Load Reduction from Distributed Solar PhotoVoltaic Generation*—The reduction in the Total Peak Load estimate, TOTPKLD, for year *i* and Peak Load Season *s*, due to incremental growth in distributed Solar PhotoVoltaic capacity not accounted for in the econometric forecast model from which the Peak Demand estimates are derived. ERCOT shall publish procedures describing the incremental distributed PhotoVoltaic peak load reduction forecasting process on the ERCOT website. |
| ERS *s, i* | MW | *Emergency Response Service (ERS)*—The estimated amount of ERS for the Peak Load Season *s* for the year *i* calculated as follows:   |  |  |  | | --- | --- | --- | | **Year (i)** | **Winter Peak Load** | **Summer Peak Load** | | Current Year (i = 1) | The simple average of the amount of ERS procured by ERCOT for the current year Standard Contract Term of October 1 to January 31 for the ERS Time Periods covering all or any part of Hour Ending 0600 and Hour Ending 1800.   |  | | --- | | ***[NPRR984: Replace the definition above with the following on October 1, 2021 and upon system implementation:]***  The simple average of the amount of ERS procured by ERCOT for the current year Standard Contract Term of December 1 to March 31 for the ERS Time Periods covering all or any part of Hour Ending 0600 and Hour Ending 1800. | | The amount of ERS procured by ERCOT for the current year Standard Contract Term of June 1 through September 30 for an ERS Time Period covering all or any part of Hour Ending 1800. | | Second Year (i = 2) | The current year Winter Peak Load ERS amount escalated by the compound annual growth rate of the three Winter Peak Load ERS amounts preceding the current year. | The current year Summer Peak Load ERS amount escalated by the compound annual growth rate of the three Summer Peak Load ERS amounts preceding the current period. | | Third Year (i = 3) | The second year Winter Peak Load ERS amount escalated by the compound annual growth rate of the three Winter Peak Load ERS amounts preceding the current year. | The second year Summer Peak Load ERS amount escalated by the compound annual growth rate of the three Summer Peak Load ERS amounts preceding the current year. | | Years after Third Year (i > 3) | Equal to third year amount. | Equal to third year amount. | |
| CLR *s, i* | MW | *Amount of Controllable Load Resource*—Estimated amount of Controllable Load Resource that is available for Dispatch by ERCOT during the current year *i* for the Peak Load Season *s* not already included in LRRRS or LRNSRS. This value does not include Wholesale Storage Load (WSL).   |  | | --- | | ***[NPRR863: Insert the definition above with the following upon system implementation:]***  *Amount of Controllable Load Resource*—Estimated amount of Controllable Load Resource that is available for Dispatch by ERCOT during the current year *i* for the Peak Load Season *s* not already included in LRRRS, LRECRS, or LRNSRS. This value does not include Wholesale Storage Load (WSL). | |
| ENERGYEFF *s, i* | MW | *Amount of Energy Efficiency Programs Procured*—Estimated amount of energy efficiency programs procured by Transmission and/or Distribution Service Providers (TDSPs) pursuant to P.U.C. Subst. R. 25.181, Energy Efficiency Goal, for the Peak Load Season *s* for the year *i.* ERCOT may also consider any energy efficiency and/or Demand response initiatives reported by NOIEs. |
| *i* | None | Year. |
| *s* | None | Peak Load Season. |

3.2.6.2.2 Total Capacity Estimate

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

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

The above variables are defined as follows:

| Variable | Unit | Definition |
| --- | --- | --- |
| TOTCAP *s, i* | MW | *Total Capacity*—Estimated total capacity available during the Peak Load Season *s* for the year *i.* |
| INSTTHERMCAP *s, i* | MW | *Seasonal Net Max Sustainable Rating for Thermal Resources*—The Seasonal net max sustainable rating for the Peak Load Season *s* as reported through the approved Resource Registration process for each operating fossil-fueled, nuclear and biomass-fueled Generation Resource for the year *i,* excluding Distribution Generation Resources (DGRs), Resources operating under RMR Agreements, and Switchable Generation Resources (SWGRs). |
| PUNCAP *s, i* | MW | *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. |
| 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*. |
| HYDROPEAKPCT*s,* | % | *Seasonal Peak Average Hydro Capacity as a Percent of Installed Capacity*—The average hydroelectric 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 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. |
| HYDROCAP *s, i* | MW | *Hydro Unit Capacity*— The capacity available for all existing hydro Generation Resources for the summer and winter Peak Load Season *s* and year *i*, multiplied by HYDROEAKPCT for summer and winter Peak Load Seasons *s*. |
| 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 through 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. |
| REGDGCAP *s, i* | MW | *Registered Distributed Generation Capacity*—The aggregate amount of registered Distributed Generation capacity identified through the approved Resource Registration system for each operating Resource for year *i* and Peak Load Season *s*. The capacity estimates will be separately reported for Distribution Generation Resources (DGRs) and Settlement Only Distribution Generators (SODGs). Emergency Response Service (ERS) capacity provided by Distribution Generators shall be excluded. The capacity calculations will reflect adjustments to account for peak average availabilities by Peak Load Season for applicable fuel/technology types. ERCOT shall publish procedures on ERCOT’s website for determining peak average capacity availability adjustments for each registered Distributed Generation category. When possible, the capacity estimates shall also be adjusted to account for units removed from the Resource Registration system and outages lasting more than 180 days. |
| 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 through the approved Resource 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 through 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 through 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 available by July 1 and December 1 for the summer and winter Peak Load Seasons *s*, respectively, 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. New, non-IRR generating capacity is excluded if the Generation Interconnection or Change Request (GINR) project status in the online Resource Integration and Ongoing Operations (RIOO) interconnection services system is set to “Cancelled” or “Inactive” or if the Resource was previously mothballed or retired and does not have an owner that intends to operate it. For the purposes of this section, ownership of a mothballed or retired Resource for which a new generation interconnection is sought can only be satisfied by proof of site control as described in paragraph (1)(a), (b), or (d) of Planning Guide Section 5.4.9, Proof of Site Control. |
| PLANIRR *s, i, r* | MW | *New IRR Capacity*—For new WGRs, the capacity available by July 1 and December 1 for the summer and winter Peak Load Seasons *s,* respectively, 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. New IRR capacity is excluded if the GINR project status in the online RIOO interconnection services system is set to “Cancelled,” or “Inactive.” |
| LTOUTAGE *s, i* | MW | *Forced Outage Capacity Reported in a Notification of Suspension of Operations—*For non-IRRs whose operation has been suspended due to a Forced Outage as reported in a Notification of Suspension of Operations (NSO), the sum of Seasonal net max sustainable ratings for Peak Load Seasons *s* for year *i*, as reported in the NSO forms. For IRRs, use the PLANIRR *s, i, r* calculated for each 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 an 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 Generation Resources and SOGs within Private Use Networks, the retired capacity amount is the peak average capacity contribution included in PUNCAP. For reporting of individual Generation Resources and SOGs 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. |
| *i* | None | Year. |
| *s* | None | Summer and winter Peak Load Seasons for year *i*. |
| *r* | None | Coastal, Panhandle, and Other 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: Aransas, Brazoria, Calhoun, Cameron, Kenedy, Kleberg, Matagorda, Nueces, Refugio, San Patricio, and Willacy. The Panhandle region is defined as the following counties: Armstrong, Bailey, Briscoe, Carson, Castro, Childress, Cochran, Collingsworth, Crosby, Dallam, Deaf Smith, Dickens, Donley, Floyd, Gray, Hale, Hall, Hansford, Hartley, Hemphill, Hockley, Hutchinson, Lamb, Lipscomb, Lubbock, Moore, Motley, Ochiltree, Oldham, Parmer, Potter, Randall, Roberts, Sherman, Swisher, and Wheeler. The Other region consists of all other counties in the ERCOT Region. |