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| PGRR Number | 042 | PGRR Title | Regional Transmission Plan Model Reserve Requirement and Load-Generation Imbalance Methodology |
| Date Posted | February 04, 2015 |
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| Requested Resolution | Normal  |
| Planning Guide Sections Requiring Revision  | 3.1.4.1, Development of Regional Transmission Plan |
| **Other Binding Documents Requiring Revision or Related Revision Requests** | None. |
| Revision Description | This Planning Guide Revision Request (PGRR) establishes a required reserve amount for Regional Transmission Plan base cases, documents the methodology to be used when total generation capacity in a case is less than Load plus losses plus the reserve amount, and conforms the maximum dispatch level for Wind-powered Generation Resources (WGRs) and solar Resources to the capacity level used in the Capacity, Demand, and Reserves report. |
| 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) |

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| **Business Case** |
| **Qualitative Benefits** | * Increases transparency regarding ERCOT’s Regional Transmission Plan study approach.
* Explicitly allows ERCOT to address a shortage of generation capacity in Regional Transmission Plan base cases.
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| **Quantitative Benefits** | * Not quantified.
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| **Impact to Market Segments** | * Minimal impact to market segments.
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| **Other** |  |

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| Sponsor |
| Name | Jeff Billo |
| E-mail Address | jbillo@ercot.com |
| Company | ERCOT |
| Phone Number | 512-248-6334 |
| Cell Number |  |
| Market Segment | Not applicable. |

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| **Market Rules Staff Contact** |
| **Name** | Brian Manning |
| **E-Mail Address** | Brian.manning@ercot.com |
| **Phone Number** | 512-248-3937 |

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| Proposed Guide Language Revision |

**3.1.4.1 Development of Regional Transmission Plan**

(1) The starting base cases for the Regional Transmission Plan development are created by removing all Tier 1, 2 and 3 projects that have not undergone RPG Project Review from the most recent SSWG summer peak base cases to address the planning horizon. The planning process begins with computer modeling studies of the generation and Transmission Facilities and substation Loads under normal conditions in the ERCOT System. Contingency conditions along with changes in Load and generation that might be expected to occur in operation of the ERCOT Transmission Grid are also modeled. To maintain adequate service and minimize interruptions during Outages, model simulations are used to identify adverse results based upon the planning criteria and to examine the effectiveness of various problem-solving alternatives.

(2) The effectiveness of each alternative will be evaluated under a variety of possible operating environments because Loads and operating conditions cannot be predicted with certainty. As a result, repeated simulations under different conditions are often required. In addition, options considered for future installation may affect other alternatives so that several different combinations must be evaluated, thereby multiplying the number of simulations required.

(3) Once feasible alternatives have been identified, the process is continued with a comparison of those alternatives. To determine the most favorable, the short-range and long-range benefits of each must be considered including operating flexibility and compatibility with future plans.

(4) The total generation capacity in a Regional Transmission Plan base case before contingency outages will be greater than or equal to the peak Load in the case plus losses plus a reserve of 2800 MW.

(5) If the total generation capacity in a Regional Transmission Plan base case is not sufficient to satisfy the requirement in paragraph (4) above, ERCOT will group one or more weather zones into a study region and create a separate base case for each study region for the season and year being studied.

(a) ERCOT will set Load and generation inside the study region consistent with the study assumptions for the Regional Transmission Plan. ERCOT will not change Load or total generation capacity inside the study region to satisfy the requirement in paragraph (4) above. ERCOT may redispatch dispatchable generation inside the study region as necessary.

(b) ERCOT may use the following procedures in the order listed to satisfy the requirement in paragraph (4) above.

(i) ERCOT may increase the dispatch level of each Wind-powered Generation Resource (WGR) and solar Resource outside the study region to a level that does not exceed the following maximums.

(A) For a WGR, the maximum dispatch level is the capacity of the WGR multiplied by the seasonal peak average wind capacity for the region in which the WGR is located for the season under study.

(1) The seasonal peak average wind capacity for a region for a season is equal to the average wind capacity available for a region for a season divided by the installed capacity for the region. The average wind capacity available for a region for a season is first calculated as the average capacity during the 20 highest system-wide peak Load hours for a given year’s season. The final value is the average of the previous ten eligible years of seasonal peak average values. Eligible years include 2009 through the most recent year for which COP data is available for the season. If the number of eligible years is less than ten, the average will be based on the number of eligible years available. This calculation is limited to WGRs that have been in operation as of January 1 for each year of the period used for the calculation.

(2) 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 is defined as all other counties in the ERCOT Region.

(B) For a solar Resource, the maximum dispatch level is 100% of the nameplate capacity of the solar Resource until a threshold value of 200 MWs of registered wholesale solar capacity is reached. Once the 200 MW threshold is reached, the maximum dispatch level is the nameplate capacity of the solar Resource multiplied by the average solar unit capacity available for the season under study, as determined from the COP, during the highest 20 peak Load hours for each preceding three year period divided by the total registered wholesale solar capacity in the ERCOT Region.

(ii) Load outside the study region may be reduced to a level sufficient to meet the requirement in paragraph (4) irrespective of historical peak Load coincidence factors among weather zones.