

Expected Peak Loads in the RPM

7th Plan: SAAC Webinar

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Expected Peak Load Distribution?

- Since the RPM is a agent-based model that uses distributions of variables to emulate uncertainty risk, inputs like Load, Gas Price, Hydro Energy, and Carbon are input as distributions to be sampled.
- Need to generate an Expected Peak Load Forecast Distribution that will be consistent with a weather-normalized average load distribution.

Inputs Needed: Peak Load Distribution

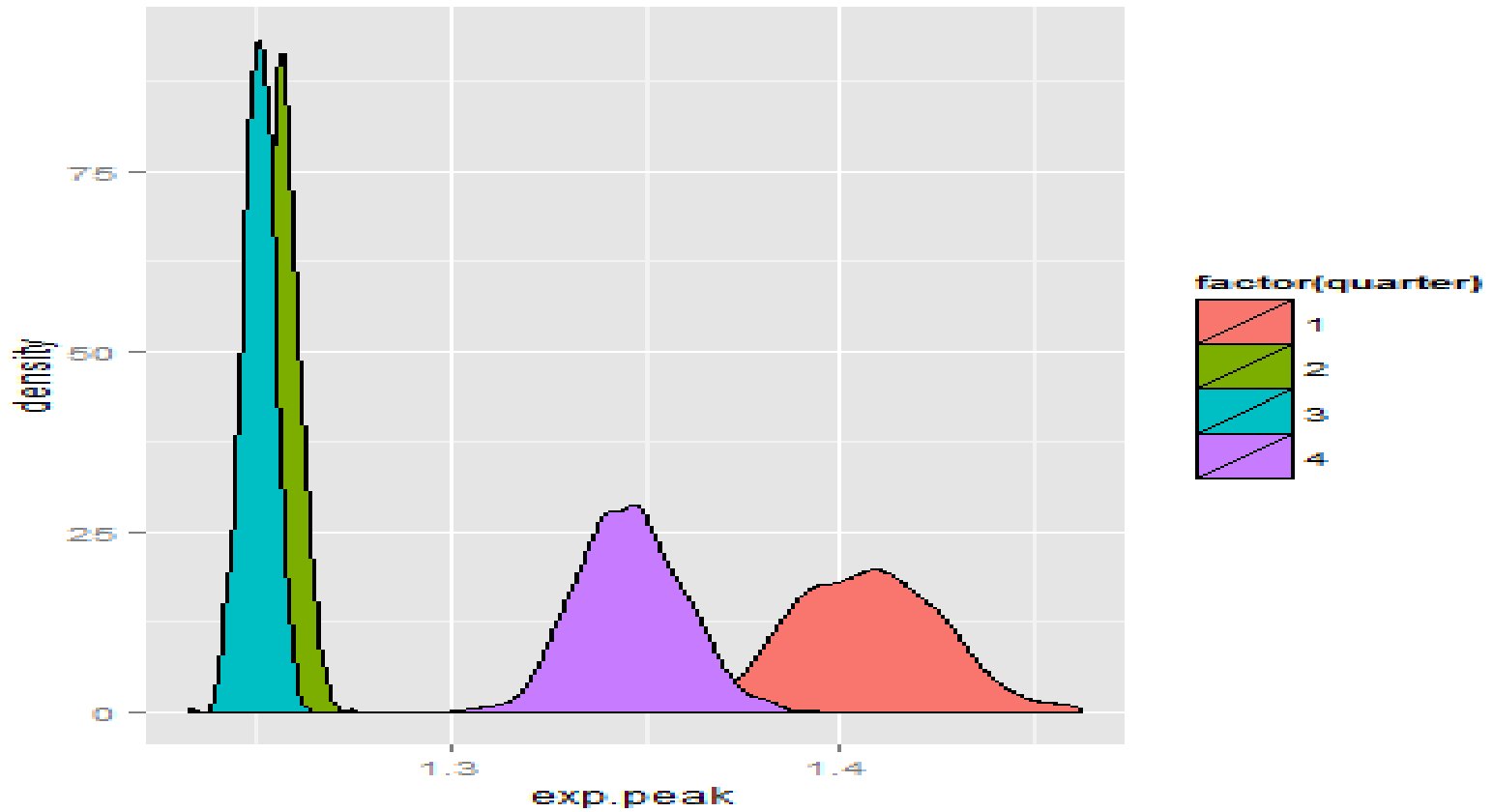
Inputs

- Daily weather-normalized loads (low, medium, high)
- Hourly forecast loads from 1928-2013 (low, medium, high) accounting for weather.
 - Per the process previously described about generating an hourly forecast by combining the short-term hourly shape and long term forecast.

Methodology for Creating Distribution

1. Calculate monthly peak and average load from the hourly forecast for each year from 1928-2013.
2. Then, calculate peak and average load factors by dividing the monthly peak and average loads by monthly weather normalized load. Multiply them together to create a combined peak load factor.
3. Determine the 4 quarterly combined peak load factors (Q1-Q4) in each year from 1928-2013 by finding the maximum monthly combined peak load factor.
4. Generate a random sample of 80 combined peak factors from each quarter and take the mean of the combined peak factors.
5. Repeat 999 more times with replacement to develop a quarterly expected combined peak distribution.

Example of Expected Peak Factor Distributions



Distribution of Expected Peak Load Factors

- The distribution of Expected Quarterly Peak Load Factors can be sampled in RPM and applied to quarterly weather normalized load to create quarterly expected peak load.
- This quarterly expected peak load (MW) as well as the weather normalized load (MWa) in conjunction with the appropriate ARMs are used when evaluating new resource builds for capacity and energy adequacy.