3.4.6 Resource Adequacy Needs and Resource Contributions

Resource adequacy needs are captured in RESOLVE by ensuring that all resource portfolios have enough capacity to meet the peak Core Northwest median peak demand plus a 15% planning reserve margin. Firm capacity resources are counted at their installed capacity. Hydro resources are counted at the 65% regional value used in PNUCC's 2021 resource adequacy analysis. Solar, wind, battery storage, pumped hydro storage, and demand response are counted at their effective load carrying capability ("ELCC") based on E3's RECAP modeling from its 2019 *Resource Adequacy in the Pacific Northwest* study.¹⁴ Figure 13 shows the initial capacity values for these resources, as well as the declining marginal contributions as more of the resource is added. RESOLVE uses these data points to develop tranches of energy storage and demand response resources with declining marginal ELCCs for each tranche. Solar and wind ELCCs are input into RESOLVE using a 2-dimensional ELCC surface that captures the interactive benefits of adding various combinations of solar and wind together. Resources on the surface (such as different wind zones) are scaled in their ELCC based on their capacity factor relative to the base capacity factor assumed in the surface.

¹⁴ Resource Adequacy in the Pacific Northwest, 2019. <u>https://www.ethree.com/wp-</u> content/uploads/2019/03/E3 Resource Adequacy in the Pacific-Northwest March 2019.pdf