Resource Adequacy in SPP

SPP’s 2014 Strategic Plan lays out the strategic initiatives our organization will undertake in support of our foundational strategies.

One of the strategic initiatives calls for refinement of SPP’s current capacity margin requirements. The Strategic Plan explains “resource adequacy will become an increasingly important component of SPP’s responsibility as the Balancing Authority.”

Assuring resource adequacy by refining our capacity margin requirements is one of SPP’s highest priorities.

The strategic plan calls for this initiative to be undertaken in support of the reliability assurance strategy, but I believe this initiative can also enhance member value and affordability. I will explain why later on.

What is Resource Adequacy?

Resource adequacy is the ability to meet electric-usage demands with sufficient generating capacity or steel in the ground. Because it takes years to construct generating capacity, resource adequacy is generally discussed, evaluated, and applied in a longer-term planning horizon that considers probabilities, peak conditions, and equipment outage conditions, ensuring adequate real-time reliability.

Resource adequacy is often expressed in terms of reserve margins. Reserve margin is the amount of excess generating capacity available to meet peak demand. Resource adequacy is often assured by imposing minimum reserve margin requirements. SPP, for example, expects each of its load-serving members to maintain at least a 12 percent capacity margin, which is equivalent to a 13.6 percent reserve margin. SPP is the only region in the country that imposes a minimum required capacity margin, as opposed to reserve margin, to assure resource adequacy. As shown below, the only difference between the two terms is the equation’s denominator determining the two quantities.

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\text{Capacity Margin} = \frac{\text{Net Total Capacity} - \text{Net Total Load}}{\text{Net Total Capacity}}
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\text{Reserve Margin} = \frac{\text{Net Total Capacity} - \text{Net Total Load}}{\text{Net Total Load}}
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Because most of the industry uses reserve margin terminology, I will use the same terminology to generally describe resource adequacy.

Resource adequacy is not a new concept, but it has become increasingly important nationally over the last couple of years. I believe this is largely due to noticeably shrinking reserve margins across much of the nation’s power grid and a broader realization of capacity costs’ impacts on energy prices. Google “resource adequacy,” and you will find a large number of concept papers and documents on the topic.

**Why is it important?**

Our resource adequacy construct is important because it is one of two ways that SPP ensures reliable supply of energy; the other is by providing adequate transmission infrastructure. This is important not only because of the reliability implications, but also because of the cost implications.

I did a quick, back-of-the-envelope calculation of how much a reduction in our current reserve margin requirement might save our region in capacity costs. OK, it was actually a back-of-the-spreadsheet analysis ... and it wasn’t really that quick.

According to my calculations, the region could save roughly $1 billion over a 30-year period for every 1 percent reduction in required reserve margin. That’s a savings of about $33 million per year for each percentage point reduction! If SPP can reduce its current reserve margin requirements while maintaining an adequate level of reliability, the savings could be huge and, in accordance with two of our strategies, could assure reliability and enhance member value and affordability.

I’m excited about the opportunity to take on this initiative with the newly formed Capacity Margin Task Force and several of our key staff. In the late 1990s, a similar task force grappled with some of the same issues then that we are now, reducing what had been a 15 percent capacity margin down to a 12 percent capacity margin requirement (SPP’s Engineering and Operating Committee approved the task force’s recommendations in 1998.) Now, nearly 17 years later, we are having some of the same debates and discussions about this very important topic. It took a while, but it appears we’ve come full circle!

Stay tuned as I discuss more resource adequacy concepts in my upcoming blogs.

**DID YOU KNOW?**

SPP had a Capacity Margin Task Force in the late 1990s, chaired by former SPP executive Les Dillahunty and current President and CEO Nick Brown served as the staff secretary.

Read more from Lanny on our website. Questions and comments can be emailed to communication@spp.org.