Considerations for Resilience Guidelines for Clean Energy Plans

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Background/Objectives. In 2021, the Oregon Legislature enacted a 100 percent clean electricity by 2040 standard that requires the Oregon Public Utility Commission (PUC) to oversee utility planning for aggressive clean energy deployment through Clean Energy Plans. These plans set mandatory emissions reductions targets and must include a risk-based examination of resiliency opportunities, including costs, benefits, consequences, and outcomes in line with industry standards and PUC guidelines.

Resilience is a moving target in the electrical industry and among regulators. As the meaning of resilience and its relationship with reliability metrics and regulatory standards evolves, establishing a shared understanding of approaches, considerations, and examples of risk-based approaches is vital for power system and community resilience planning. The Oregon PUC is interested in the resilience of the community, not just of the grid, which calls for understanding the community impacts and equity of resilience actions. Resilience has been defined as the robustness and recovery characteristics of utility infrastructure and operations, which avoid or minimize service interruptions during an extraordinary and hazardous event. The material in this presentation was prepared in direct coordination with the Oregon PUC and Oregon electricity stakeholders to provide guidance on potential PUC resilience guidelines for Clean Energy Plans.

Approach/Activities. This presentation emphasizes a customer-focused approach to planning for power system and community resilience that addresses grid and customer-sited resilience measures and impacts. Based on direct engagement with utility regulators, utilities and consumer and low-income advocates in Oregon, a process was developed to identify emerging best practices in utility planning for resilience considering community impacts. Best practices from existing utility resilience and climate adaptation plans are summarized as are key insights from the literature on connecting utility resilience to community resilience. Topics addressed include best practices in utility risk assessments, accounting for variations in costs, consequences and hardships experienced, considering and weighing resilience investments against each other (including using emerging risk spend efficiency approaches), and considerations for planning for the resilience contributions of distributed energy resources.

Different communities have different capacities to plan for and respond to extreme events, which must be accounted for during the risk evaluation, resilience planning, and investment process. Methods for engaging in these analyses that may fit the needs of stakeholders are presented.

Results/Lessons Learned. A resilience planning analysis process is proposed that includes four key steps: define resilience goals; develop system and resilience metrics; characterize threats and their probabilities and consequences; and evaluate effectiveness and cost of alternative resilience measures for avoiding or mitigating threats. Best practices in existing utility planning and regulatory guidance and processes are presented. Resilience definitions in the electricity sector are examined and compared with reliability standards, in addition to methods of risk assessment, accounting for variations in consequences experienced, and opportunities for investment to support resilience.