Secondary Electric System Benefits from Clean Energy Measures				
Electric System Benefit	Applicable Clean Energy Resources	Considerations for Determining Whether to Analyze	Who Usually Conducts Analysis?	When is Analysis Usually Conducted?
Avoided Ancillary Services	• Resources that can start during blackout, ramp up quickly, or provide reactive power. • Resources closer to loads.	• Usually smaller benefits than traditionally analyzed benefits . • Market price data available for some services in some markets (e.g., PJM). • Ancillary service savings from clean resources often site-specific and difficult to estimate. • Separating ancillary service value from capacity value in long run analysis may be difficult.	• Utilities conduct in-depth modeling. • PUCs and other stakeholders review utility's results and/or conduct own analysis.	• Resource planning and proceedings. • Area-specific DSM program development.
Wholesale Market Price Effects	• All clean resources . • Resources that operate during peak hours.	• Benefits depend on market/pricing structure and peaking resources and forecasted reserve margins. • Actual market price data generally available. • Studies to estimate benefits may be complex.	• ISOs and utilities conduct in-depth modeling. • PUCs, other stakeholders review utility's results and/or conduct own analysis.	• Resource planning and proceedings. • Area-specific DSM program development. • Policy studies.
Increased reliability and power quality	• Distributed resources. • Resources close to load or with high power quality . • All resources that operate as baseload units. • All load reducing resources that increase surplus generating and T&D capacity in region.	• Historical reliability data often available. • Historical power quality data rare. • Studies for converting to dollar value complex and controversial. • Benefits are especially valuable for manufacturing processes that are sensitive to power quality or regions where reliability is significant concern.	• Utilities conduct in-depth modeling . • PUCs and other stakeholders review utility's results and/or conduct own analysis.	• Usually ad hoc studies.

Secondary Electric System Benefits from Clean Energy Measures				
Electric System Benefit	Applicable Clean Energy Resources	Considerations for Determining Whether to Analyze	Who Usually Conducts Analysis?	When is Analysis Usually Conducted?
Avoided or reduced risks of overbuilding (associated with long lead-time investments, such as the risk of overbuilding the electric system)	• Distributed resources with short lead times. • Resources close to load • All clean resources.	• Historical load and load variability data often available. • Modeling varies from simple to complex.	• Utilities conduct in-depth modeling. • PUCs and other stakeholders review utility's results and/or conduct own analysis. • Policy and risk management analysts.	• Resource planning and regulatory review of planning. • Policy studies.
Avoided or reduced risks of stranded costs (from deferring investment in traditional, centralized resources until environmental and climate change policies are implemented)	• All clean energy resources.	• Modeling varies from simple to complex. • Studies to estimate benefits may be complex. • Regulatory uncertainty adds to complexity of analysis.	• Policy and risk management analysts.	• Resource planning and regulatory review of planning. • Policy studies.
Fuel and technology diversification	• All clean energy resources.	• Diversity metrics computable from generally available data • Portfolio analysis of costs vs. risks adds complexity. • Must consider existing supply resources, not just incremental new resources.	• States. • PUCs. • Utilities.	• State energy plans. • Resource planning.