

Smart Grid Functions and Benefits

Benefits			Functions																
			Smart Grid												Other				
			Fault Current Limiting	Wide Area Monitoring, Visualization, and Control	Dynamic Capability Rating	Power Flow Control	Adaptive Protection	Automated Feeder and Line Switching	Automated Islanding and Reconnection	Automated Voltage and VAR Control	Diagnosis & Notification of Equipment Condition	Enhanced Fault Protection	Real-Time Load measurement & Management	Real-time Load Transfer	Customer Electricity Use Optimization	Separation of Electricity Generation from Electricity Use	Local Production of Electricity		
Economic	Market Revenue	Energy Revenue															•		
		Capacity Revenue																•	
		Ancillary Service Revenue																•	
	Improved Asset Utilization	Optimized Generator Operation		•														•	•
		Deferred Generation Capacity Investments												•				•	•
		Reduced Ancillary Service Cost		•							•			•				•	•
	T&D Capital Savings	Reduced Congestion Cost		•	•	•												•	•
		Deferred Transmission Capacity Investments	•	•	•	•												•	•
		Deferred Distribution Capacity Investments			•									•	•			•	•
	T&D O&M Savings	Reduced Equipment Failures	•		•							•	•						
		Reduced T&D Equipment Maintenance Cost									•								
		Reduced T&D Operations Cost									•								
Theft Reduction	Reduced T&D Meter Reading Cost												•						
	Reduced Electricity Theft																		
Energy Efficiency	Reduced Electricity Losses																•	•	
	Reduced Electricity Cost																•	•	
Reliability	Power Interruptions	Reduced Sustained Outages															•	•	
		Reduced Major Outages		•															
		Reduced Restoration Cost																	
	Power Quality	Reduced Momentary Outages																•	
		Reduced Sags and Swells																•	
Environmental	Air Emissions	Reduced CO ₂ Emissions															•	•	
		Reduced SO _x , NO _x , and PM-10 Emissions															•	•	•
Security	Energy Security	Reduced Oil Usage (not monetized)																	
		Reduced Widescale Blackouts		•	•														