

Distributed Energy Resource (DER) Scenarios

David Egan

Manager, Interconnection Projects

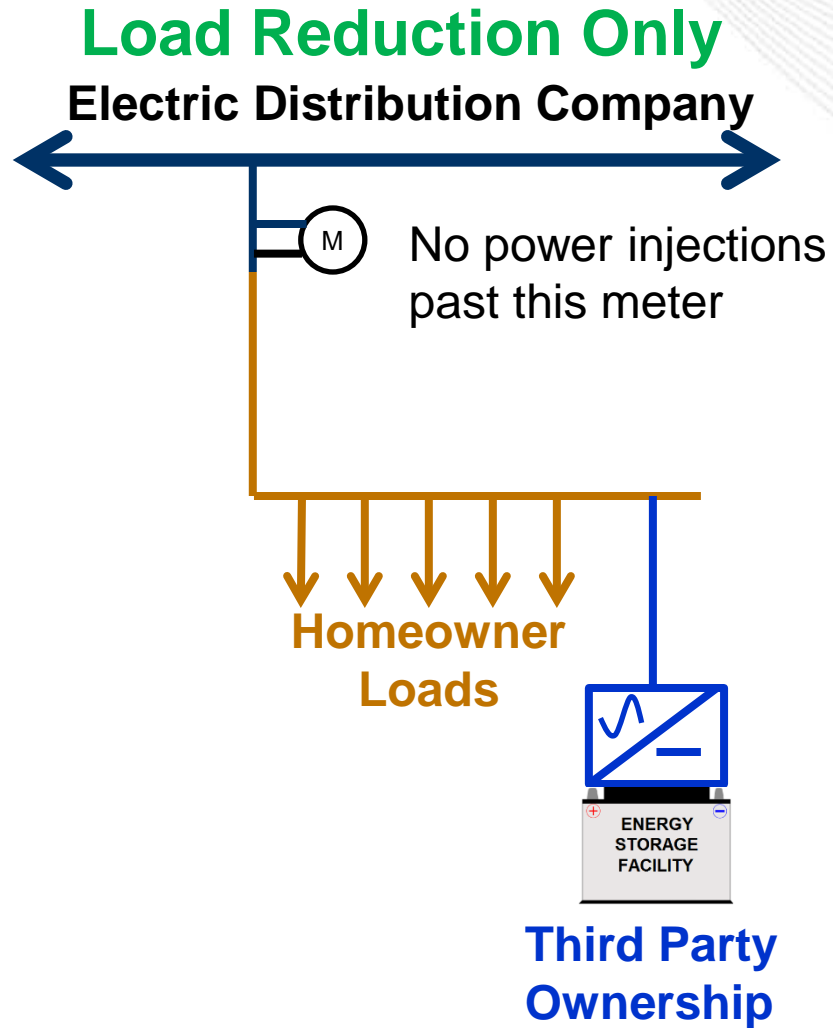
Andrew Levitt

Sr. Market Strategist

Markets and Reliability Committee

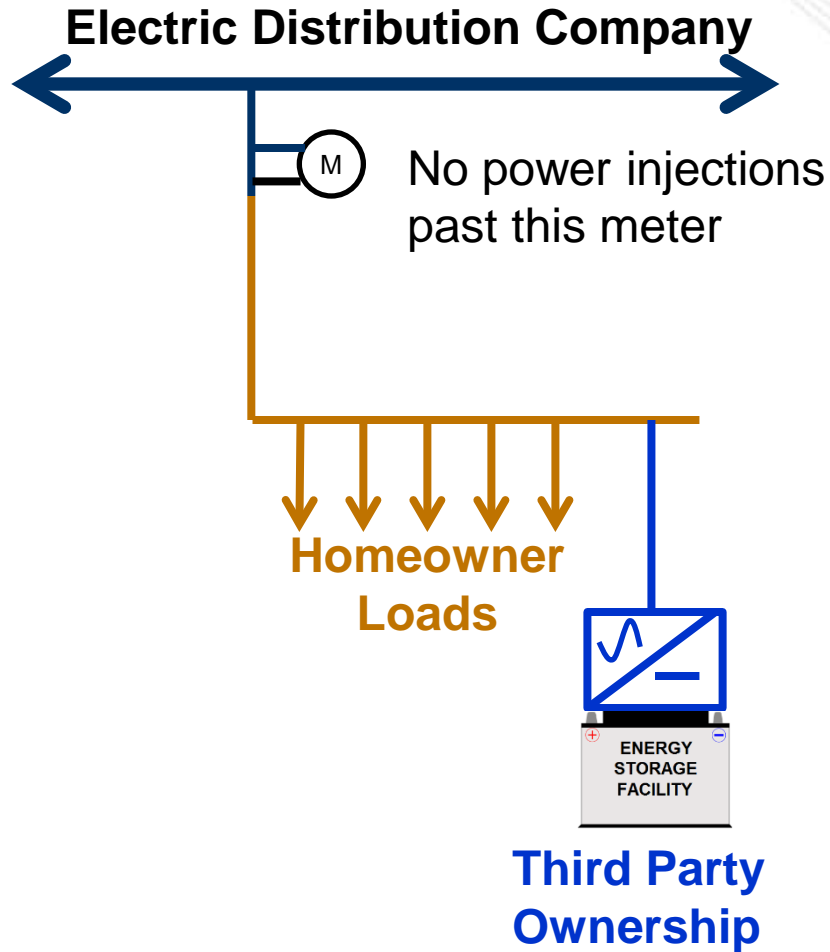
Special Meeting - DER

June 17, 2016

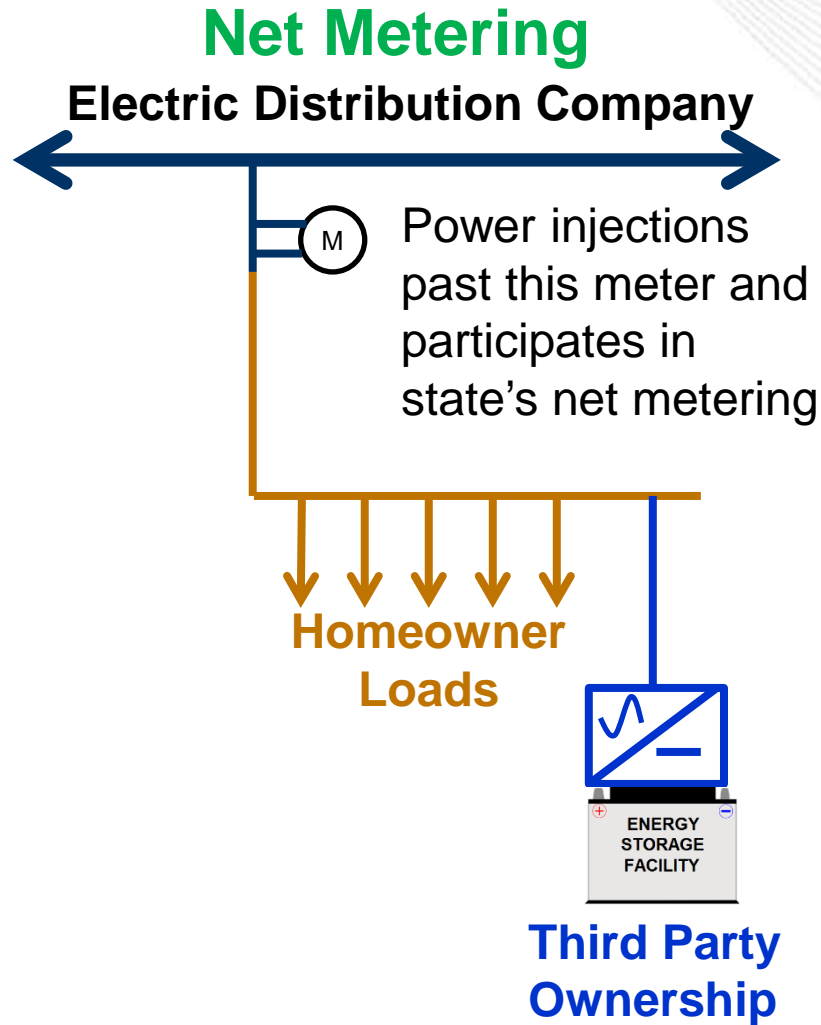


Service	Resource Location → Service Jurisdiction ↓	Load Metered		PJM Generation Metered	Off-Grid
		Not DR	DR		
PJM Energy Sales	Federal		✓	✓	
PJM Capacity Sales	Federal		✓	✓	
PJM Ancillary Services Sales	Federal		✓	✓	
Bill Reduction: Consume Less Energy	Federal/State	✓	✓		
Bill Reduction: Capacity	Federal/State	✓			
State Sale/Credit: Inject Energy (including Net Metering)	State	X			
Distribution Constraint Management	State	✓	✓	✓*	
Distribution Voltage Support	State	✓	✓	✓*	
Emergency Backup for Customer	State				✓*

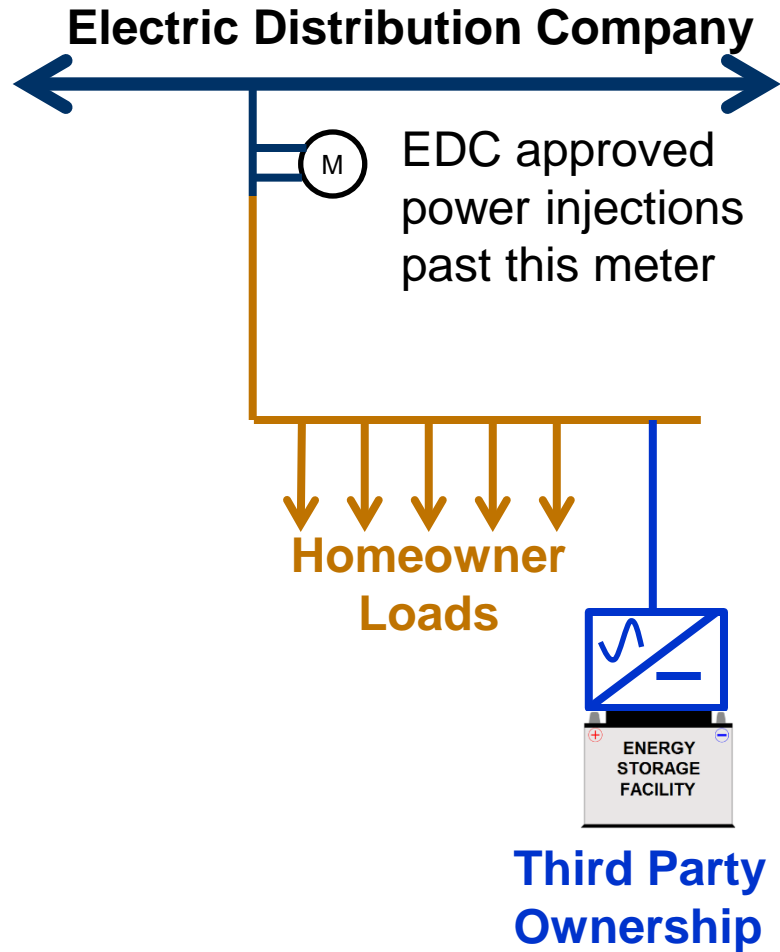
Load Reduction Only



Service	Resource Location → Service Jurisdiction ↓	Load Metered		PJM Generation Metered	Off-Grid
		Not DR	DR		
PJM Energy Sales	Federal		✓	✓	
PJM Capacity Sales	Federal		✓	✓	
PJM Ancillary Services Sales	Federal		✓	✓	
Bill Reduction: Consume Less Energy	Federal/State	✓	✓		
Bill Reduction: Capacity	Federal/State	✓			
State Sale/Credit: Inject Energy (including Net Metering)	State	✓			
Distribution Constraint Management	State	✓	✓	✓*	
Distribution Voltage Support	State	✓	✓	✓*	
Emergency Backup for Customer	State				✓*



Service	Resource Location → Service Jurisdiction ↓	Load Metered		PJM Generation Metered	Off-Grid
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PJM Capacity Sales	Federal		✓	✓	
PJM Ancillary Services Sales	Federal		✓	✓	
Bill Reduction: Consume Less Energy	Federal/State	✓	✓		
Bill Reduction: Capacity	Federal/State	✓			
State Sale/Credit: Inject Energy (including Net Metering)	State	✓			
Distribution Constraint Management	State	✓	✓	✓*	
Distribution Voltage Support	State	✓	✓	✓*	
Emergency Backup for Customer	State				✓*



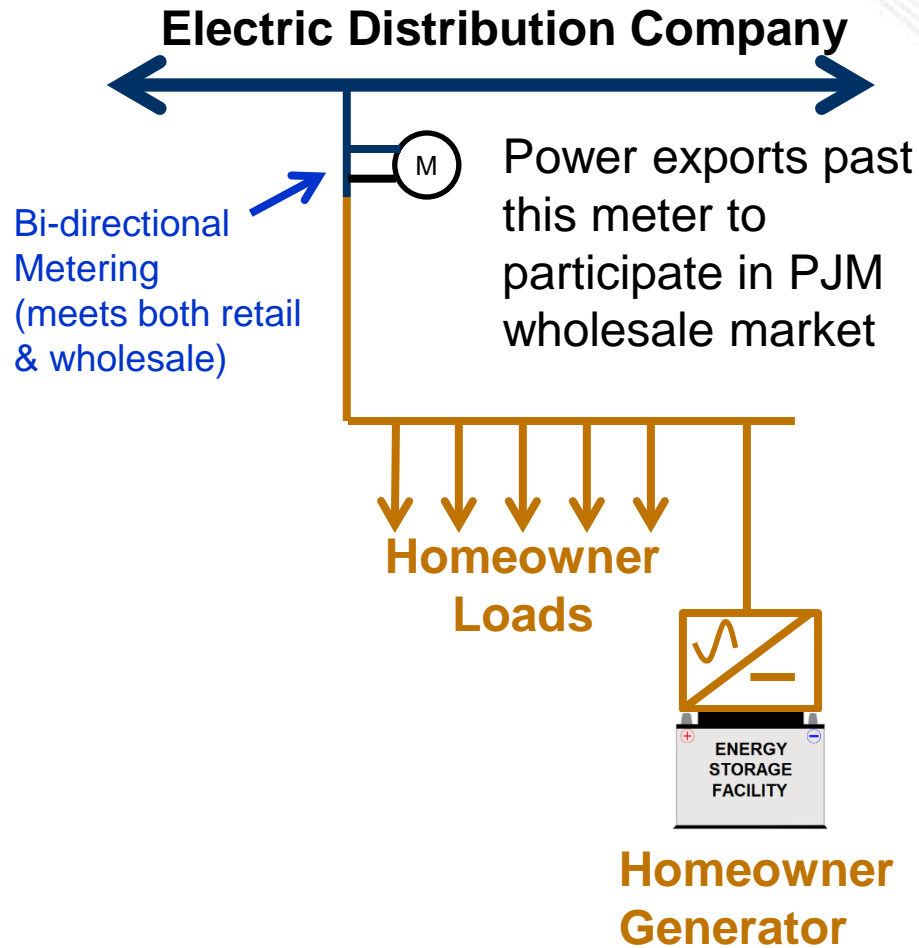
Service	Resource Location → Service Jurisdiction ↓	Load Metered		PJM Generation Metered	Off-Grid
		Not DR	DR		
PJM Energy Sales	Federal		✓	✓	
PJM Capacity Sales	Federal		✓	✓	
PJM Ancillary Services Sales	Federal		✓	✓	
Bill Reduction: Consume Less Energy	Federal/State	✓	✓		
Bill Reduction: Capacity	Federal/State	✓			
State Sale/Credit: Inject Energy (including Net Metering)	State	✓	⊘		
Distribution Constraint Management	State	✓	✓	✓*	
Distribution Voltage Support	State	✓	✓	✓*	
Emergency Backup for Customer	State				✓*

Can toggle, however can only be DR during non-injection hours. Capacity DR must be available in market to meet RPM commitments.



PJM Interconnection Request for Regulation or Generation

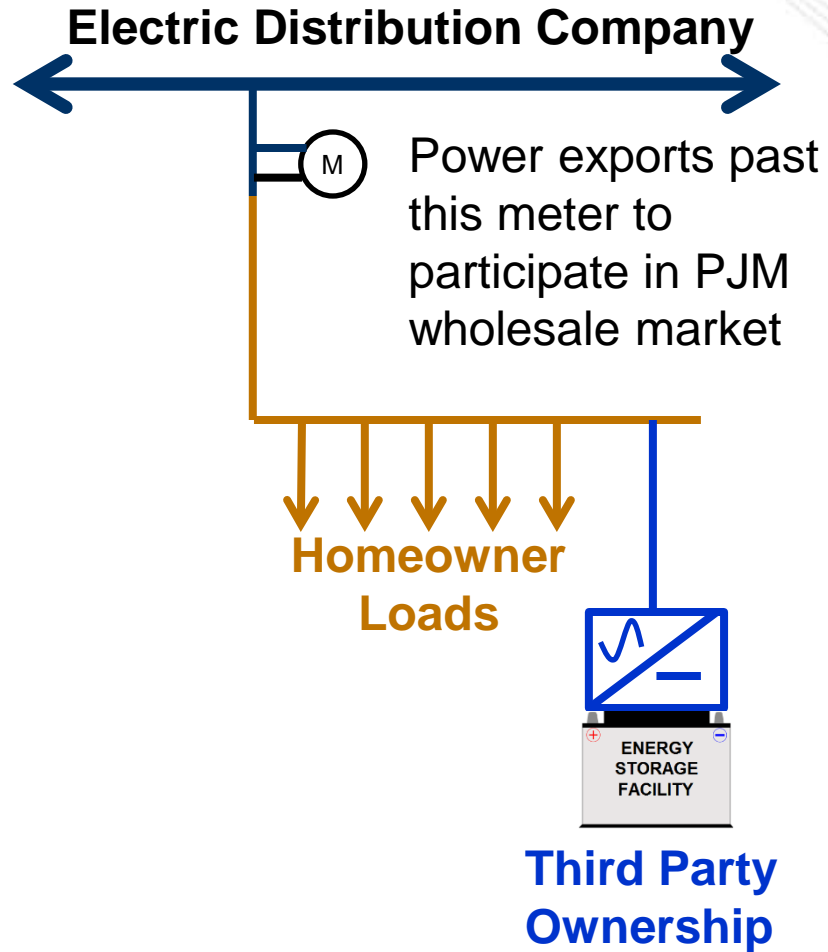
Generation Metered Wholesale Sales



Service	Resource Location → Service Jurisdiction ↓	Load Metered		PJM Generation Metered	Off-Grid
		Not DR	DR		
PJM Energy Sales	Federal		✓	✓	
PJM Capacity Sales	Federal		✓	✓	
PJM Ancillary Services Sales	Federal		✓	✓	
Bill Reduction: Consume Less Energy	Federal/State	✓	✓		
Bill Reduction: Capacity	Federal/State	✓			
State Sale/Credit: Inject Energy (including Net Metering)	State	✓			
Distribution Constraint Management	State	✓	✓	✓*	
Distribution Voltage Support	State	✓	✓	✓*	
Emergency Backup for Customer	State				✓*

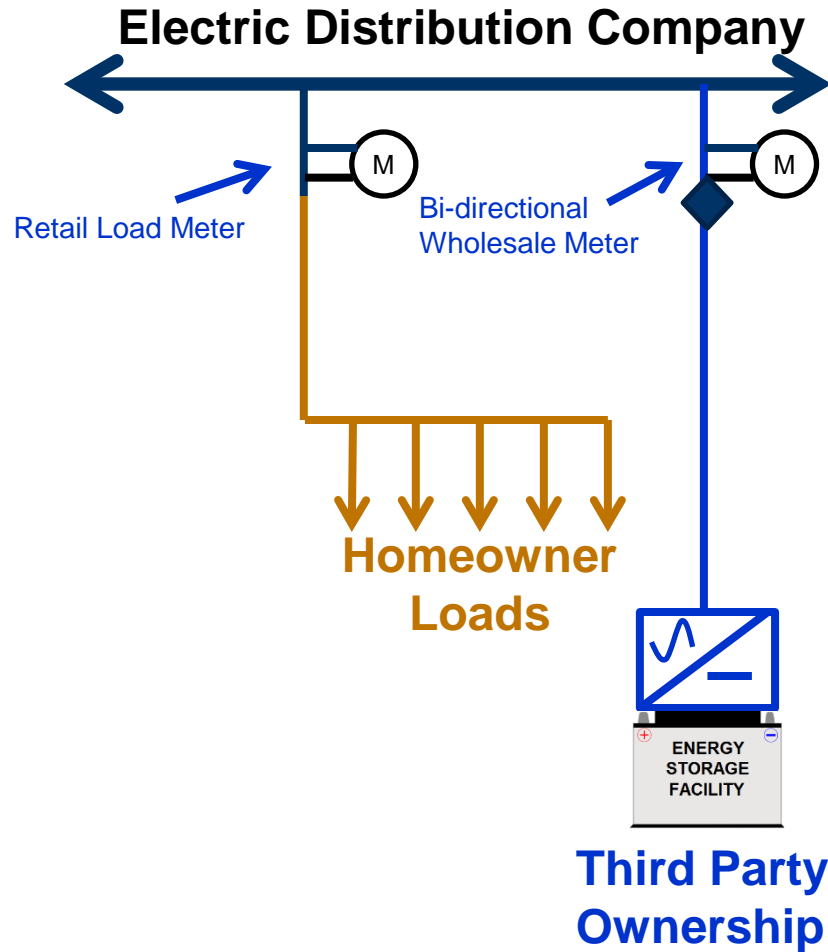


Generation Metered Wholesale Sales



❌ Not Allowed

Generation Metered Wholesale Sales

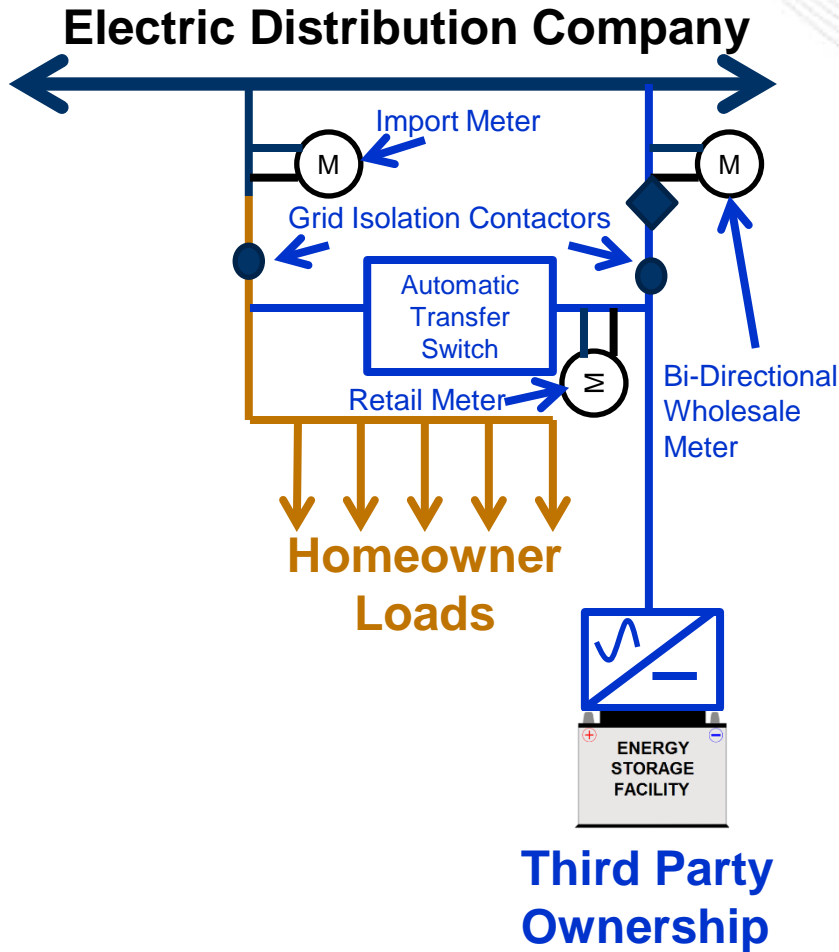


Service	Resource Location → Service Jurisdiction ↓	Load Metered		PJM Generation Metered	Off-Grid
		Not DR	DR		
PJM Energy Sales	Federal		✓	✓	
PJM Capacity Sales	Federal		✓	✓	
PJM Ancillary Services Sales	Federal		✓	✓	
Bill Reduction: Consume Less Energy	Federal/State	✓	✓		
Bill Reduction: Capacity	Federal/State	✓			
State Sale/Credit: Inject Energy (including Net Metering)	State	✓			
Distribution Constraint Management	State	✓	✓	✓*	
Distribution Voltage Support	State	✓	✓	✓*	
Emergency Backup for Customer	State				✓*

Third Party leases land from homeowner and enters PJM queue to sell power in PJM market.

* Storage may only use energy bought at wholesale for PJM Energy, Capacity and Ancillary Services.

May be allowed



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PJM Capacity Sales	Federal		✓	✓	
PJM Ancillary Services Sales	Federal		✓	✓	
Bill Reduction: Consume Less Energy	Federal/State	✓	✓		
Bill Reduction: Capacity	Federal/State	✓			
State Sale/Credit: Inject Energy (including Net Metering)	State	✓			
Distribution Constraint Management	State	✓	✓	✓*	
Distribution Voltage Support	State	✓	✓	✓*	
Emergency Backup for Customer	State				✓*

Can toggle

* Storage may only use energy bought at wholesale for PJM Energy, Capacity and Ancillary Services.

Third Party leases land from homeowner and enters PJM queue to sell power in PJM market. On loss of grid, Third Party serves homeowner through automatic transfer switch.