

ONE-PAGE ELECTRICITY MARKET DESIGN SUMMARY

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Entities responsible for electricity market functions

Where the jurisdiction procures capacity separately from energy:

1. Capacity is procured through an auction.
2. The price is set by a central authority rather than an open market mechanism.
3. Retailers/large consumers are obliged to hold contracts or capacity certificates.
4. Retailers/consumers can engage directly with producers to meet capacity obligations.

Risk management mechanisms:

1. Standardised contract forms for bilateral contracting
2. Exchange traded futures
3. Financial transmission rights, settlement residue auctions and the like

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Centrally managed, financially &/or physically firm spot energy markets.

Non-energy services. Also known as as System Support Services or Essential System Services

Retail market characteristics:

1. Whether the market allows at some or all consumers a choice of electricity retailer.
2. Minimum demand required to qualify as a contestable customer.
3. Whether the market allows consumers/retailers a choice of meter equipment and/or data provider.
4. Approach to reconciling meter data and allocating unmetered consumption.

Scheduling and dispatch characteristics:

1. Gross pool: participants offer all generation capability, all generation quantities determined in central dispatch. Net pool: participants nominate self-scheduled quantities, deviation quantities determined in central dispatch.
2. Time granularity for which dispatched quantities are calculated
3. Extent to which facility commitment is managed by the participant vs instructed by the market operator
4. Extent to which market scheduling algorithms account for network and security constraints
5. How the market algorithms treat network losses
6. Dispatch compliance requirements on intermittent generation
7. Extent to which battery storage devices can provide market services

Governance		ELECTRICITY MARKET SUMMARY - NEW ZEALAND		
Policy	Ministry of Business, Innovation & Employment	Dispatch	Settlement	
Regulation	Electricity Authority (market) Commerce Commission (monopolies)	Gross pool 1	Final prices 1	
Market design lead	Electricity Authority	Net pool 2	Trading interval 2	
Rule making	Electricity Authority	Dispatch interval 5 min 2	Energy price floor \$0/MWh	
Scheduling & dispatch	Transpower	Central commitment 3	Energy price ceiling \$20,000/MWh	
Power system operation	Transpower	Local dispatch 4	Reserve price floor \$0/MWh	
Market operation	NZx EMT (FTR), ASX (ETFs)	Dynamic loss factors 5	Reserve price ceiling None	
Metering	Vector AMS, IntelHub, SmartCo, + 9 other metering equipment providers	Intermittent held to dispatch 6	Scarcity pricing 3	
Network planning	Transpower	Full participation of batteries 7	Intervention pricing 4	
TX owner	Transpower	Interconnects		
DX owner	Vector PowerCo, Chon, Wellington Electricity, +25 other regional distributors	Local pricing 5		
		System wide pricing 6		
		Concession in price 6		
		Ancillary services		
		Service	Cost recovered from	
		Contingency Reserve	Instantaneous Reserve 6s & 60s: co-optimised with energy Over frequency reserve: contracted	IR: generators >60MW pro-rated to injection, HVDC owner OFR: Tx owner
		Regulation	Single service: contracted then cleared ahead of energy	Loads pro-rated to offtake
		Inertia	N/A	N/A
		Black start	Contracted, availability fee + event fee	Grid owner
		Network support	Voltage Support considered, but none currently contracted	Affected distributors in relevant zone per peak kVar
		Retail competition 1	Threshold 2	Metering competition 3
		Reconciliation approach 4		Global settlement 4
		Capacity		
		Auction 1		
		Administered price 2		
		Retailer obligations 3		
		Bilateral agreements 4		
		Contracts		
		OTC 1		
		ETFs 2		
		Local dispatch 3		
		Day-ahead X		
		Intra-day X		
		Real-time X		

Settlement approach:

1. Ex-ante: prices firm at time of dispatch. Ex-post: prices determined after dispatch
2. Time granularity of settlement.
3. Whether market prices are explicitly adjusted during times of scarcity.
4. Whether market prices can be adjusted where the system operator or regulator has overridden market outcomes.
5. Locational granularity of prices.
6. Extent to which prices include the effects of network congestion.

Version number and release date

Physically connected neighbouring jurisdictions



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ELECTRICITY MARKET SUMMARY – NEW ENGLAND

Governance	
Policy	6 state policy bodies
Regulation	Federal Energy Regulatory Commission (FERC) , 6 state regulators
Market design lead	Independent System Operator New England (ISO NE)
Rule making	ISO NE
Scheduling & dispatch	ISO NE
Power system operation	ISO NE
Market operation	ISO NE
Metering	Madison Electric Works , Danvers Electric Division and 59 others
Network planning	ISO NE
TX owner	30 Participating Transmission Owners (PTOs)
DX owner	Madison Electric Works , Danvers Electric Division and 59 others

Scheduling and dispatch		Settlement	
Gross pool	Central commitment	Final prices	Ex ante
Net pool	Locational dispatch	Trading interval	5 mins
Dispatch interval	Dynamic loss factors	Energy price floor	-
5 mins	Intermittent held to dispatch	Energy price ceiling	-
	Full participation of batteries	Reserve price floor	-
		Reserve price ceiling	-
		Scarcity pricing	✓
		Intervention pricing	✗
Inter-connects	Locational pricing		
13	Congestion in prices		

Capacity	Auction		Contracts	OTC	
	Administered price	✗		ETFs	✓
	Retailer obligations	✗		Locational hedges	✓
	Bilateral agreements	✓		Day-ahead	✓
			Spot	Intra-day	✗
				Real-time	✓

Ancillary services		Service	Procurement	Cost recovered from				
		Contingency Reserve	Ten Minute Spinning Reserve, Ten Minute Non-Spinning Reserve, Thirty Minute Operating Reserve procured via Forward Reserve Market (FRM) and co-optimized with energy	Tx customer serving as a Regional Network Load				
		Regulation	Procured in FRM and committed in day ahead and real time markets	Paid for as part of Regional Network Service or Through or Out Service by all Market Participants				
		Black start	Contracted	Tx customers in proportion to load				
		Network support	Contracted	Relevant Tx customer				
Retail	Retail competition	✓	Threshold	None	Metering competition	✗	Reconciliation approach	-

