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Texas Meltdown – Feb 2021

Biggest Financial Disaster in Texas
History

Exceeds Harvey and Other
Hurricanes



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The Way We Were

Vertically integrated utilities (U) regulated by each state

U controlled generation, transmission, and distribution of power to end users

Pricing based on U recovering costs plus a rate of return on invested capital

Each U was allowed a generation capacity reserve of between 20% and 35% of expected demand to cover for maintenance and extreme conditions



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How it Began

Electricity and Natural Gas De-Regulation began in 1990's

Followed successful deregulation of airlines (1970-1990) and telephone (1980-2000)

Each state has chosen a different path to deregulation

Big Movers Included

CA – Major Mishaps in 2001 with Enron Issues and more recently

TX – Organized to avoid Federal Oversight. Several mishaps

IL – Pulled back following Market Meltdown in June 1998



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Power is Not a Commodity

No storage; generation is immediately consumed or wasted.
Supply (S) & Demand (D) need to be synchronized 24 hours a day, minute by minute to maintain Grid stability

If $S > D$, imbalances are managed by adjusting supply Downwards.
If $D > S$, the system risks melt down. This is managed by cutting interruptible demand and rolling blackouts

Consumers do not respond to pricing signals in the short-term – inelastic demand

Daily D variability is wide – on-peak (7am to 7pm M-F) likely + 4x of off-peak. Pricing of on-peak and off-peak follows D



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How It Should Work - Texas

Public Utility Commission (PUC) oversees the Power Market. PUC Appointed by Governor oversees Electricity Reliability Council of Texas (ERCOT)

ERCOT role is to balance Electricity S & D. ERCOT manages S with price. ERCOT buys from generators and sells to the retail marketplace

Monthly, weekly and 24 hours ahead, daily/hourly S is tweaked to meet expected D. ERCOT manages demand with interruptible services and prioritized blackouts

24 hours ahead, IPPs (Generators) bid to Provide Firm hourly supply and Prices for the coming day

ERCOT sets daily and hourly market clearing prices at the marginal bid prices



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The Players

Generators (IPPs) – Own Generation and Produce Power
Renewable, mostly wind farms
Natural gas fired plants
Coal fired plants
Nuclear plants

Traders/Wall Street – Arbitrage S&D, and Manage Price Risk

Marketers – Offer End Users Price and Other Choices

Distribution Utilities – Manage Last Mile of Wires, and
Bill/Meter Users

Power Cooperatives and Municipalities – Buy on Behalf of
End Users

End Users- Industrial, Commercial and Residential



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Sunday Feb 14th. IPPs began to shut down between 9pm and 3am

Monday. S, initially established on Friday 12th, with expected D < 67 Gw (billion) began to drop off rapidly

It got colder. Temps for Monday dropped during Friday and Saturday, and D rose to 71 Gw.

Cold spell brought Permian gas fields off-line (gas contains water) – impacted generation
Gas-fired generation relies on JIT delivery to IPPs. Gas Supply froze

Wind Farms also froze – curtailing S.

Where It Began



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By Monday am, big power shortages occurred.
Renewables down 32%
Coal down 13%
N Gas down 32%

And Then

By 7am Monday, D was at 71 Gw and S was down to 51Gw.
By Tues D = 75Gw

D was exacerbated by big spike as most heating is power-driven in Tx.

ERCOT lifted price caps – average price increased to \$9000/Mwh, a 225x increase



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And It Got Worse

ERCOT kept the \$9,000 cap in place thru Feb 19th.
Initiated cuts to interruptible power, began to plan for rolling blackouts. These steps implemented late Monday

D continued to rise because of the cold – D was not responsive to price increases

IPPs may have curtailed S to drive prices up further. Not known at this time



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Where is the Money?

Brazos Cooperative (BBB a week earlier) received 2-Day bills from ERCOT for \$2.1Bn – filed for Ch 11 blaming a liquidity squeeze. Brazos manages power in Waco and 16 surrounding districts with 700k customers

Marketers unable pay for their power delivered during the few days. More Ch 11's to follow. Just Energy filed for Bankruptcy, citing \$250m of unexpected bills from ERCOT

An estimated \$50 Billion liquidity-driven credit freeze is in place – few have the \$ to pay their bills yet

IPPs and Other Beneficiaries are demanding payment



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The Day of Reckoning

Customers will have to pay or be subsidized by the state.
4.5m homes lost power for periods during M-Th.
50% of Texans lost access to safe drinking water.
Deaths and CO2 poisoning high.
Burst pipes, flooded premises, and BIG power bills

Wind and Other generators had sold their output at fixed price to Traders. As they were unable to deliver, they had to cover the price spread. ("Wall Street could soon become the biggest wind player in Texas" – WSJ 3/5/21)

Vistra, an IPP, lost plants and had to buy power on the open market to fulfil contracts. It lost between \$900m and \$1.3b over four days. (WSJ 3/5/21). Same thing happened to Exelon

Huge litigation going forward to collect or avoid \$ and to search for someone to blame



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Why Texas?

The same weather occurred in surrounding states, and most managed to avoid severe issues because:

Able to Transmit power from neighboring states.
(Tx cannot do this – it is mostly an island)

Less reliance on Natural Gas (a better mix of Nuclear, coal, gas, and renewables)

Gas plants in Tx not winterized for extreme cold, unlike states up north

ERCOT raised price cap without resolving S issues



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Same issue occurred in 2011 – not addressed by legislature.

Tx economy growing, low power prices. Why mess with success?

Fear of federal regulations if system opened to interstate transmission.

No political appetite.

Market disruptions may encourage additional generation

Generators (Gas and Renewables) and supplying Gas Fields need to be winterized

IPP incentives may need to be adjusted – e.g. not withholding power to drive up prices in an extreme event

Other big states need to look at their systems – especially CA (different causes)

Can Texas Be Fixed?



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Power Price Risk
is a BIG Deal

WSJ Estimates \$50 Billion of excess pricing
was Transferred During the Four Days.

(wsj 3/9/2021)

**NEVER BE CAUGHT SHORT WITH PRICE
EXPOSURE**