



Volatile Wholesale Energy Market

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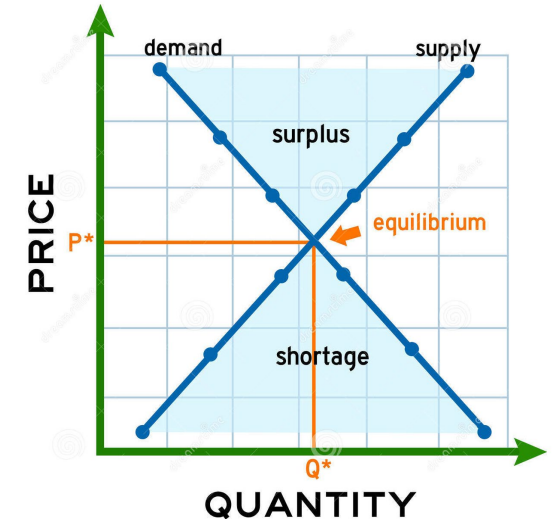
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Volatile Wholesale Energy

Energy Market Pricing: Function of Supply and Demand

Energy Market Volatility - Subject to These Major Factors:

- **Weather Changes:** Texas freeze and California / Southwest Extreme Heat Waves
- **Generation Outages:** Planned or Unplanned, Limits Supply, Prices Escalate
- **Production/Imports/Exports:** Example, Liquid Natural Gas Exports, Drives Up Prices
- **Storage Levels:** Strong Indicator of the Relative Supply and Demand (natural gas specifically)
- **Transmission Constraints:** Transmission Line Outages, Limit Supply
- **Geopolitical/Global Events:** Russia Invading of Ukraine, Saudi Arabia Limiting Oil Production

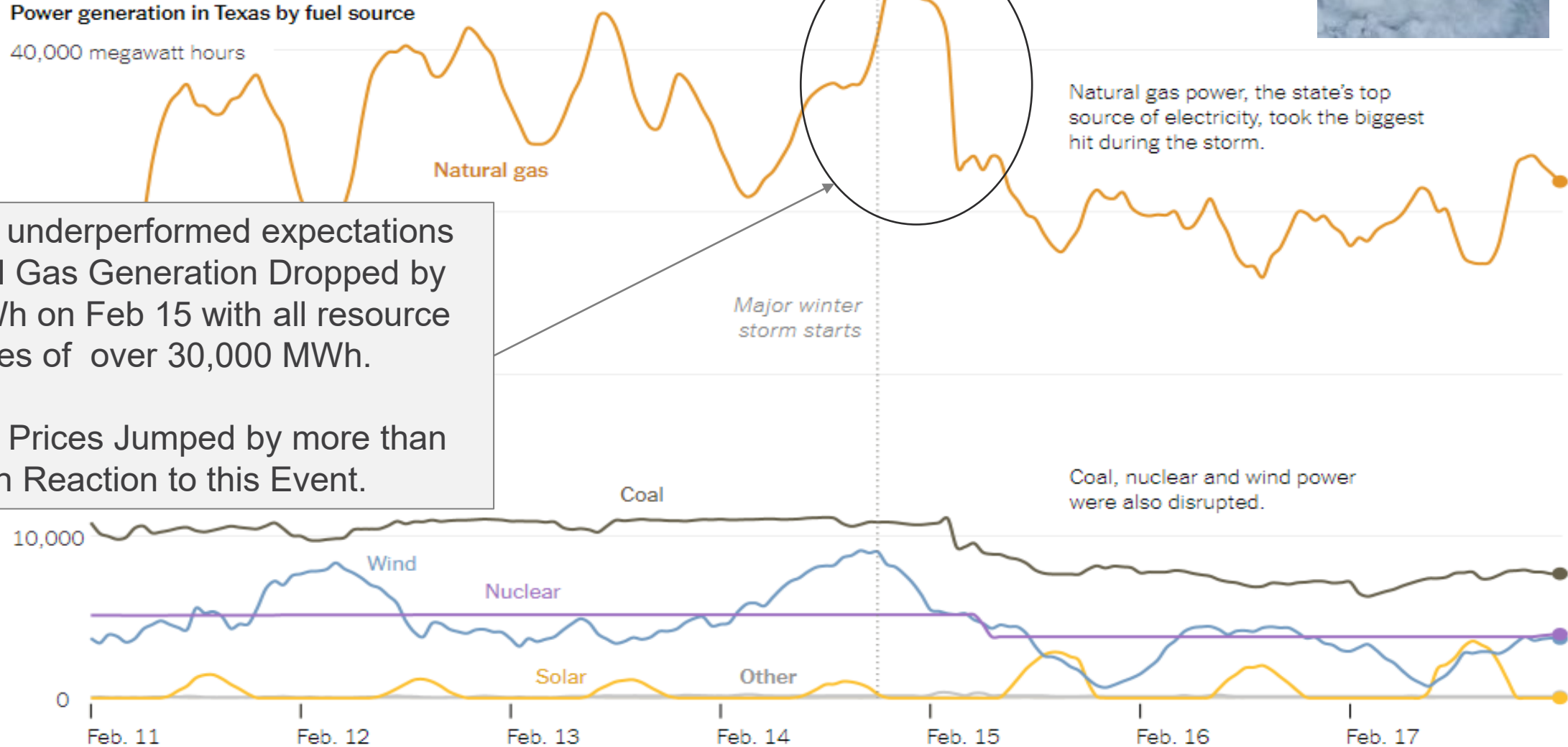


Weather Example: 2021 Texas Freeze



Power generation in Texas by fuel source

40,000 megawatt hours



Natural gas power, the state's top source of electricity, took the biggest hit during the storm.

Major winter storm starts

Coal, nuclear and wind power were also disrupted.

All sources underperformed expectations but Natural Gas Generation Dropped by 13,000 MWh on Feb 15 with all resource outages of over 30,000 MWh.

AZ Energy Prices Jumped by more than 10X in Reaction to this Event.

Weather Example: CA / SW Sept. 2022 Heat Wave 2022

Palo Verde Hourly Prices

	Thu 1-Sep	Fri 2-Sep	Sat 3-Sep	Sun 4-Sep	Mon 5-Sep	Tue 6-Sep	Wed 7-Sep	Thu 8-Sep	Fri 9-Sep	Sat 10-Sep
1	\$149.88	\$134.34	\$113.08	\$124.64	\$128.90	\$142.47	\$119.20	\$118.96	\$118.52	\$104.59
2	\$133.98	\$130.01	\$107.35	\$118.42	\$109.43	\$127.03	\$113.15	\$111.23	\$106.28	\$95.15
3	\$128.05	\$120.25	\$102.80	\$110.73	\$108.66	\$127.54	\$110.55	\$102.82	\$101.18	\$91.90
4	\$125.78	\$113.80	\$101.18	\$106.43	\$108.43	\$121.61	\$106.42	\$101.53	\$95.99	\$90.19
5	\$126.38	\$114.39	\$97.87	\$103.65	\$105.63	\$121.57	\$106.47	\$98.32	\$96.03	\$89.32
6	\$127.06	\$120.94	\$102.12	\$103.36	\$105.66	\$129.98	\$110.01	\$101.93	\$102.23	\$89.13
7	\$154.93	\$141.97	\$101.65	\$96.67	\$100.52	\$139.82	\$114.49	\$117.03	\$107.56	\$80.97
8	\$131.58	\$119.88	\$82.24	\$87.04	\$95.44	\$120.37	\$101.43	\$105.36	\$110.80	\$75.78
9	\$107.16	\$100.03	\$67.21	\$63.96	\$74.89	\$100.33	\$85.73	\$92.47	\$103.42	\$77.17
10	\$118.88	\$110.30	\$70.86	\$66.60	\$78.32	\$105.92	\$88.27	\$93.62	\$103.72	\$76.33
11	\$118.56	\$110.30	\$79.38	\$82.51	\$95.82	\$118.11	\$97.78	\$110.80	\$109.25	\$75.72
12	\$143.98	\$133.39	\$88.98	\$96.19	\$109.49	\$125.94	\$117.50	\$132.04	\$132.85	\$79.97
13	\$173.51	\$135.11	\$105.26	\$108.77	\$133.01	\$154.32	\$140.41	\$148.56	\$132.59	\$80.98
14	\$180.25	\$167.96	\$125.52	\$129.26	\$143.94	\$179.95	\$149.95	\$161.23	\$154.19	\$85.57
15	\$201.43	\$185.31	\$137.22	\$136.63	\$151.01	\$199.58	\$186.42	\$210.18	\$162.43	\$94.08
16	\$252.21	\$202.11	\$151.70	\$148.88	\$185.51	\$308.23	\$264.18	\$402.19	\$198.78	\$102.56
17	\$288.68	\$220.59	\$170.06	\$157.09	\$233.56	\$426.00	\$392.38	\$543.68	\$250.70	\$112.43
18	\$390.22	\$284.10	\$232.50	\$202.05	\$385.68	\$978.58	\$983.28	\$1,004.12	\$357.39	\$119.25
19	\$833.50	\$513.19	\$441.63	\$408.44	\$868.58	\$1,233.07	\$1,340.32	\$1,042.75	\$305.99	\$130.67
20	\$835.94	\$496.63	\$453.80	\$454.37	\$872.02	\$1,126.99	\$1,217.48	\$1,011.66	\$215.75	\$125.85
21	\$439.73	\$270.61	\$231.70	\$240.09	\$368.80	\$782.39	\$853.13	\$734.14	\$175.13	\$116.07
22	\$213.52	\$197.90	\$182.35	\$170.67	\$204.50	\$241.08	\$276.06	\$268.45	\$158.58	\$113.42
23	\$172.99	\$163.16	\$153.83	\$150.63	\$168.66	\$189.70	\$164.65	\$165.11	\$134.74	\$105.03
24	\$150.46	\$147.43	\$138.11	\$140.07	\$150.24	\$160.65	\$142.41	\$135.59	\$121.33	\$95.59

First Week of September:

- Extremely High Temperatures
- Pushes Grid to Near Max Capacity
- Prices Surge to Over \$1,200/MW

How CAP Manages Market Volatility

Avoid:

- Seek to Acquire 50-80% of Yearly Energy Needs Prior to Start of the Year

Be Aware and Adjust (Adaptability):

- Daily / Weekly Monitoring of Energy Market
- Observe Weather Forecasts
- Adjust our Pumping Plans
 - Shift and Sale
 - Shift and Avoid



Key Takeaways

- Weather Events Leading Cause of Market Volatility
- Procuring 50-80% Energy Needs Prior to Start of Year to Hedge Against Market Volatility and Higher Prices
- Plan, Monitor, Adapt and Learn