

Update on the Market and Renewables

September 20, 2022

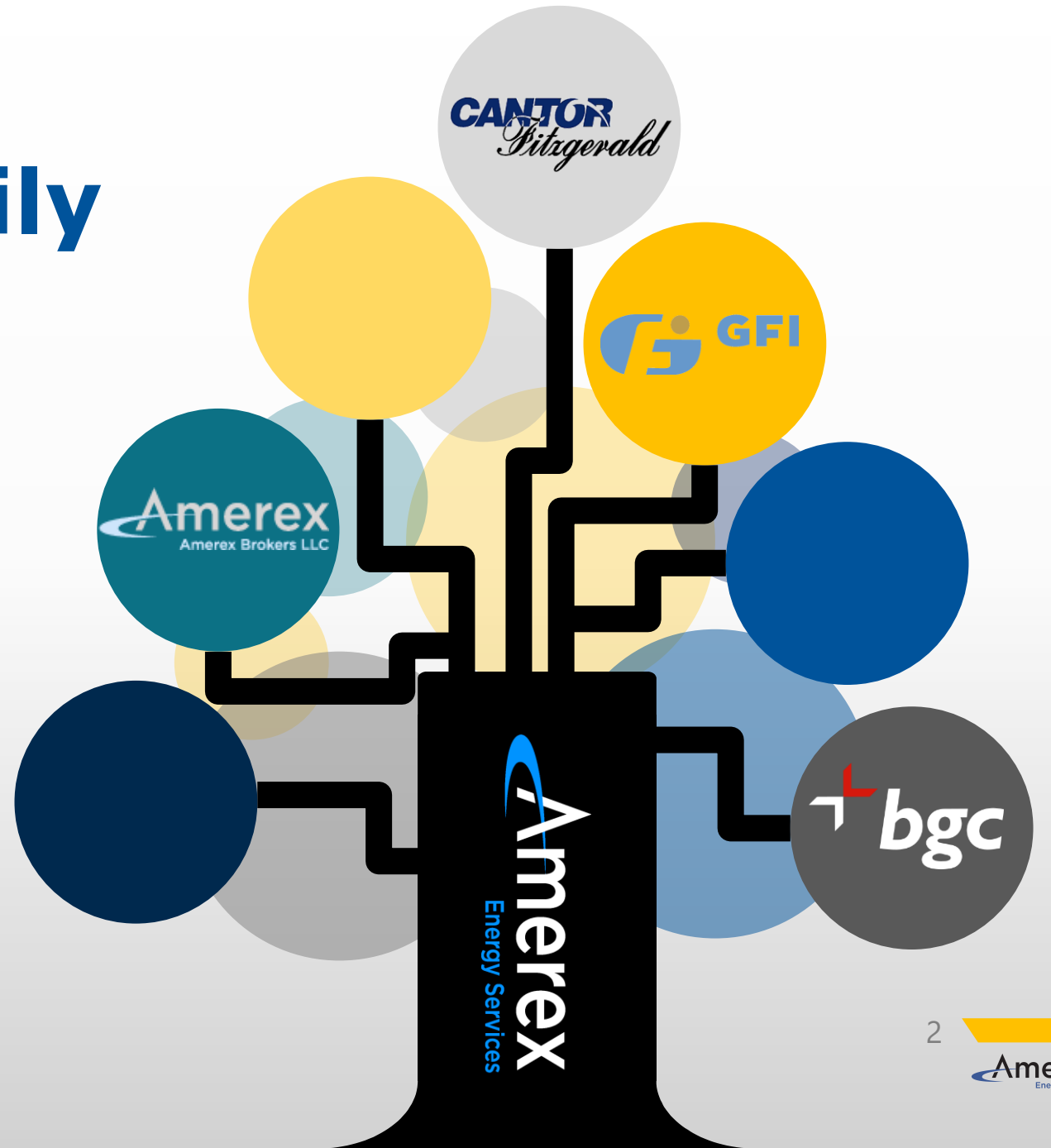
Rob McKim - Senior Vice President

Chris Wiederspahn - Senior Vice President



The Amerex Family

- Amerex Energy Services is the C&I power and gas procurement division of the preeminent OTC wholesale energy brokerage firm in the US.
 - Power
 - Natural Gas
 - Renewable Energy Credits (RECs)
 - Refined Products
- Client Benefits
 - Unparalleled wholesale energy market transparency
 - Superior market intelligence
 - Expert and experienced team
 - Public company and backing resources
 - Unique project opportunities



Differentiators

Wholesale Energy Broker

Real-time access to wholesale energy prices
Insights into past, current & future price direction
Allows deconstruction of retail price components
Creates supplier margin compression
Energy suppliers buy our data to create retail pricing curves.

Boutique Approach

We offer customized solutions.
We are fully transparent with nothing left to chance.
We have intense focus on customized solutions.
We analyze data so that prices are fully disclosed & supplier verified.

Passion for Education

Amerex Energy Services functions solely as the client's advocate in an ever-changing energy marketplace, providing best-in-class strategies and tactical plans to achieve and exceed our clients' business objectives.

Recognition

Energy Risk Commodity Rankings 2018
Winner - Broker Power US

Energy Risk Commodity Rankings 2018
Winner - Broker Natural Gas Eastern US & Canada

Energy Risk Commodity Rankings 2018
Winner - Broker Natural Gas Western US & Canada

Energy Procurement and Price Risk Management

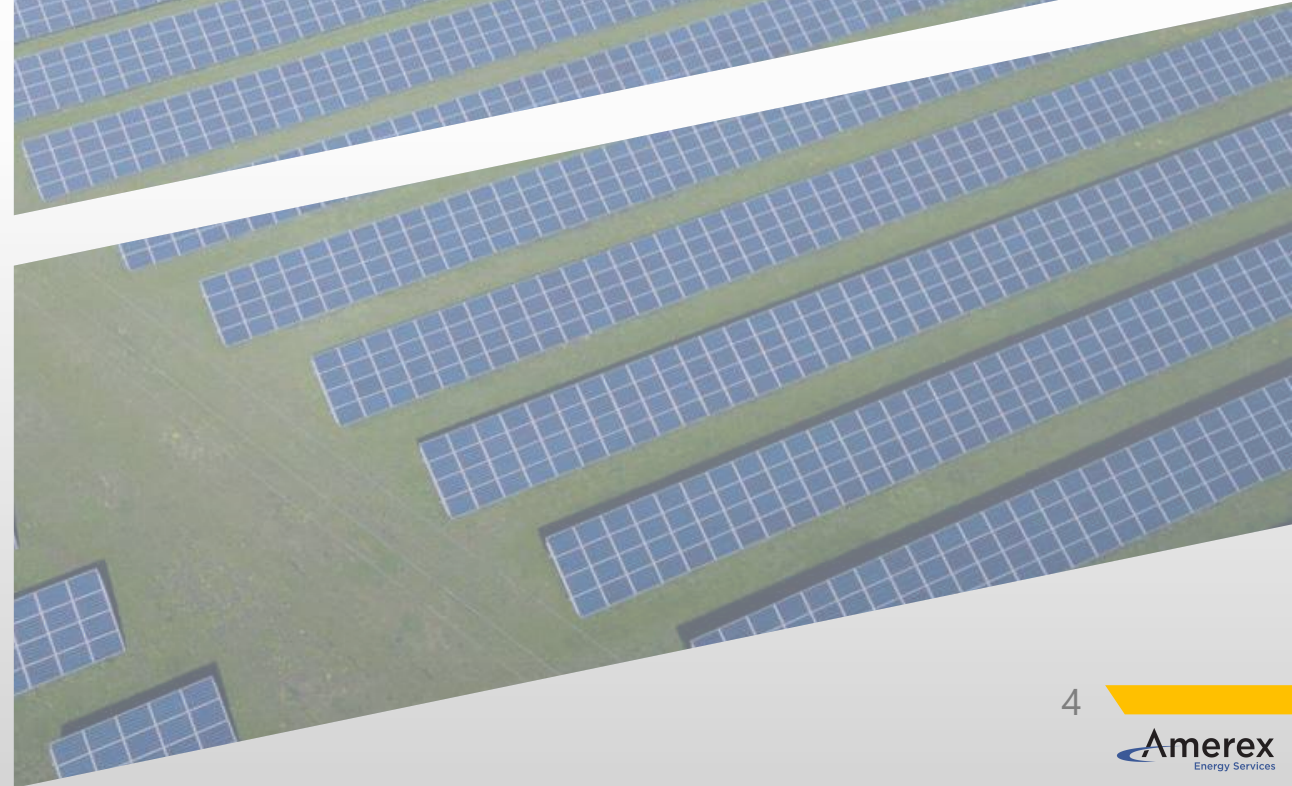
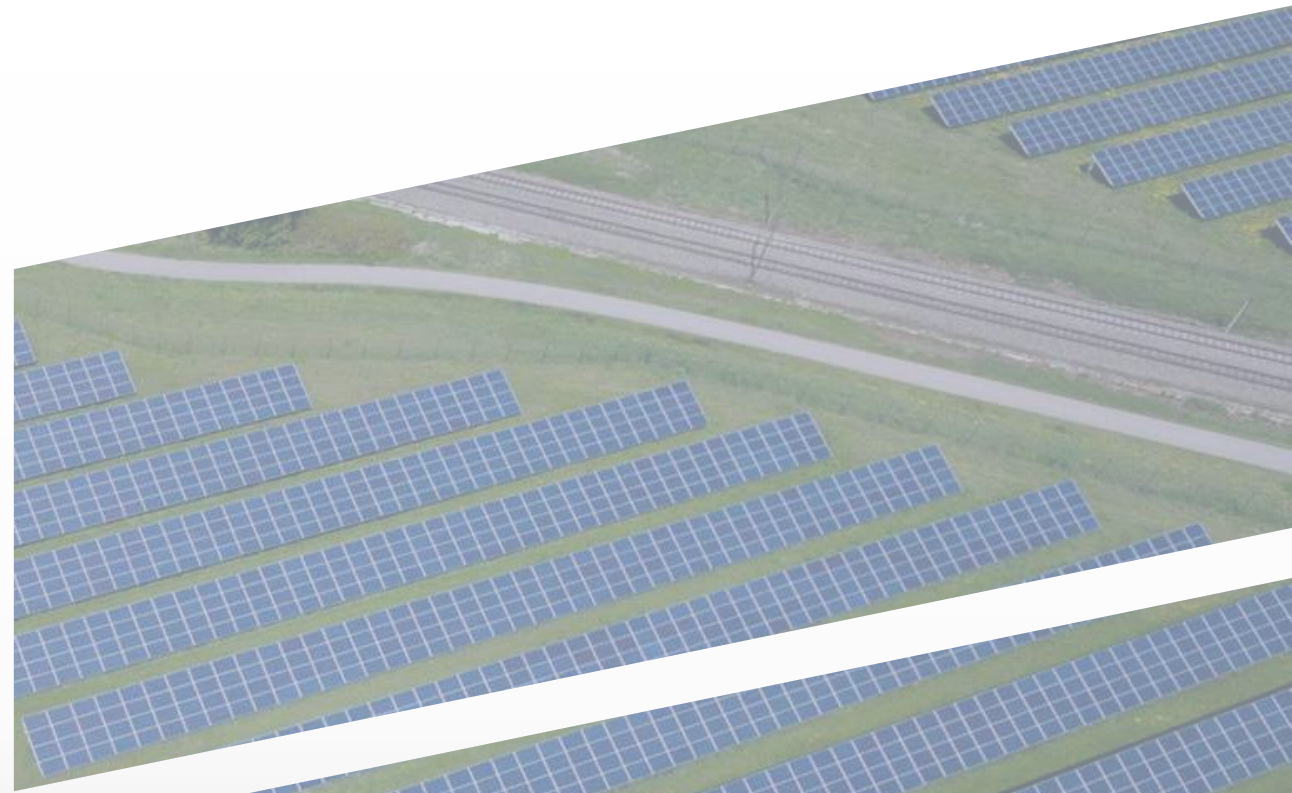
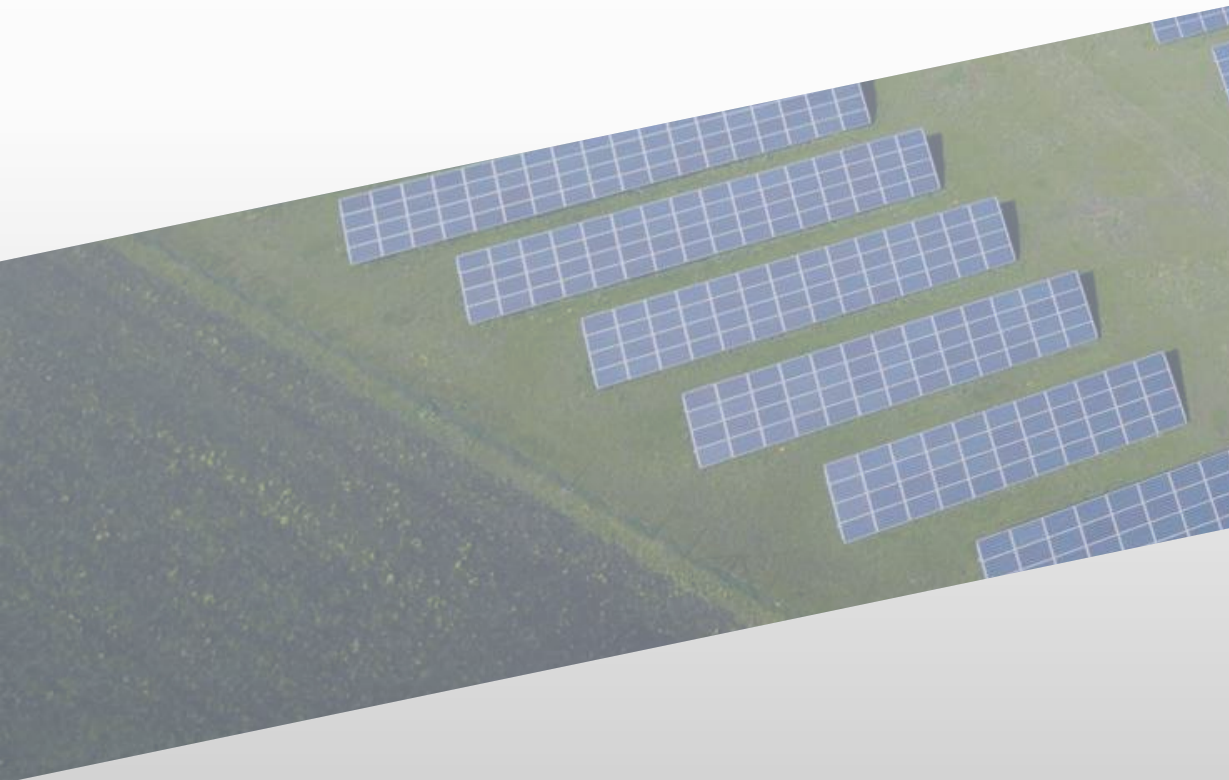
With decades of combined industry experience in energy procurement and risk management – our team has the knowledge and access to educate our clients in a wide array of areas that our competitors cannot.

Experience & Expertise

Team amongst the most tenured and knowledgeable in retail energy markets. Backgrounds include retail energy suppliers, utilities and other consulting firms.

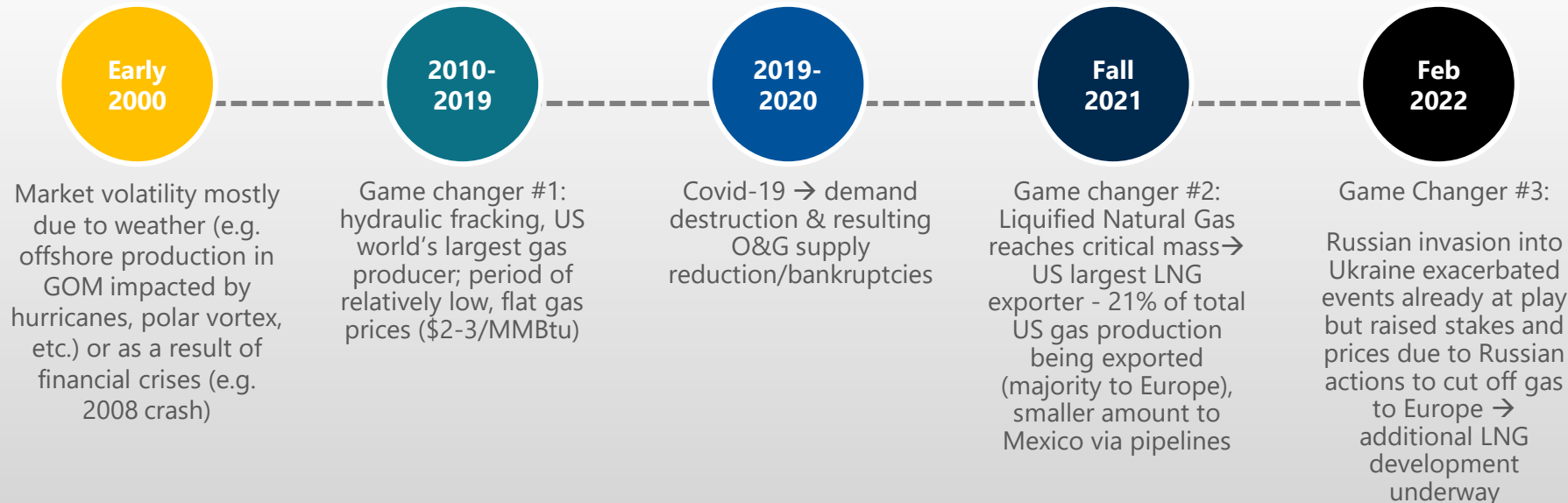


Market Trends



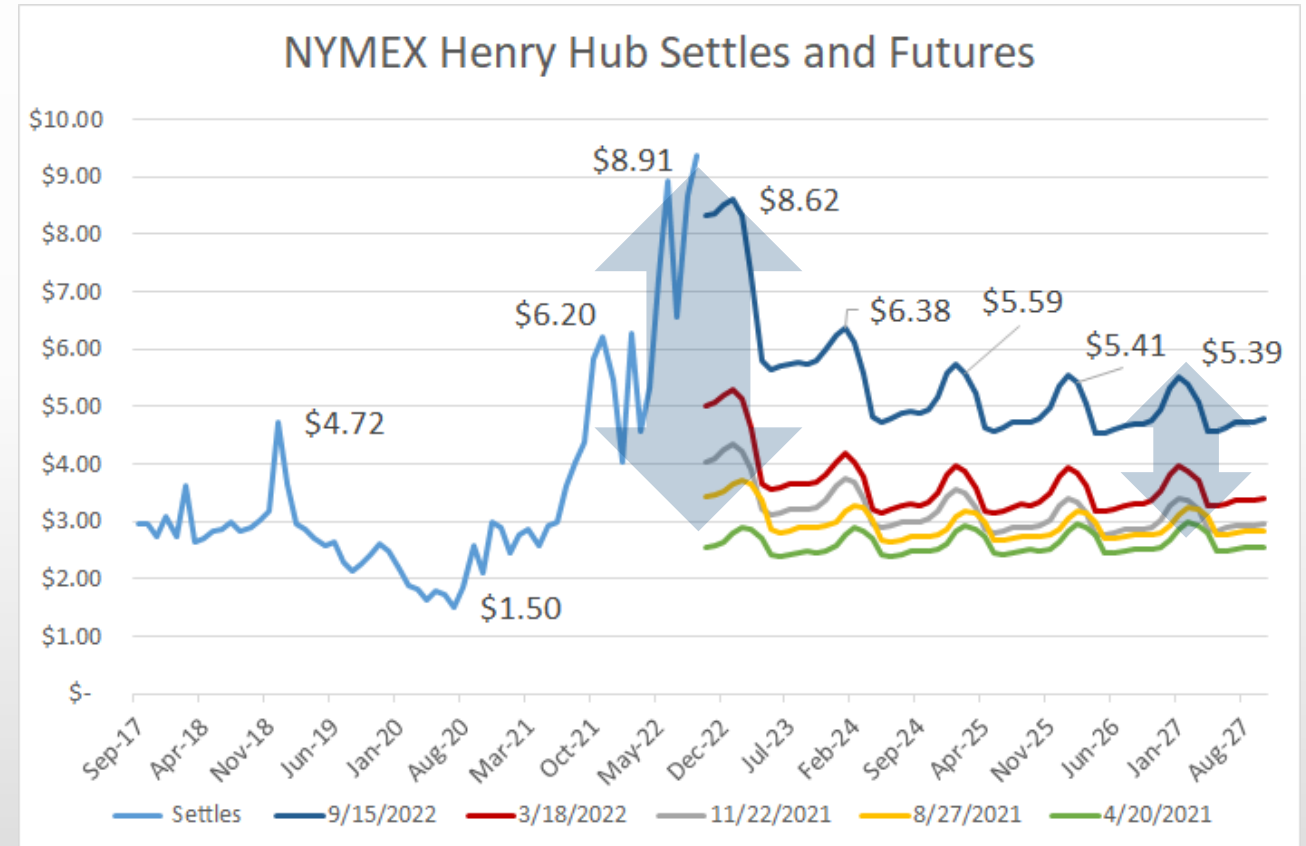
NYMEX Natural Gas - Price Driver

- Natural gas futures are main driver of power prices: higher gas prices = higher power prices
- Depending on ISO Region/utility, wholesale energy cost is 75-95% overall energy-supply cost
- Historically, natural gas was a North American commodity with pricing tied to U.S. / Canadian production/consumption factors, only – fundamental change to market early Fall 2021 as current administration policies and global commoditization of natural gas via LNG took hold.
- Increased exports & reduced relative supply → Supply and Demand in balance, allowing financial traders to move market



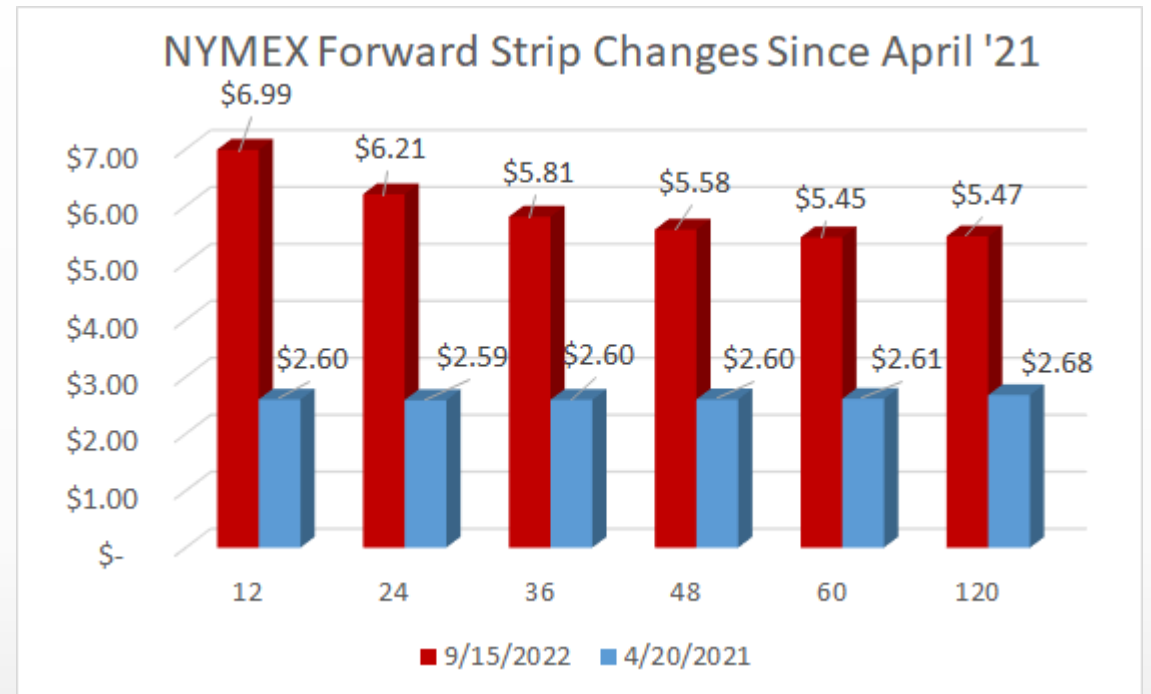
Natural Gas

- Natural Gas and Electricity commodities are highly correlated
- Past 5-yr settles and 5-yr futures) reveals the story
- Record levels and rate of increase
- Extreme backwardation based on high prompt winter but remains very high relative to recent past
- September Gas closed at \$9.35 – highest since July 2008



Natural Gas Trends

- Recent gas price increases have been rapid and historical
- Impact on gas and electricity prices occurring in the 75-100% range **ALL-IN**
- A bad winter could make things much worse
- Some expect gas prices in the \$14-15 range this winter
- Regulated delivery charges also on the rise
- Extremely difficult to build new pipelines even though more supply available in some regions

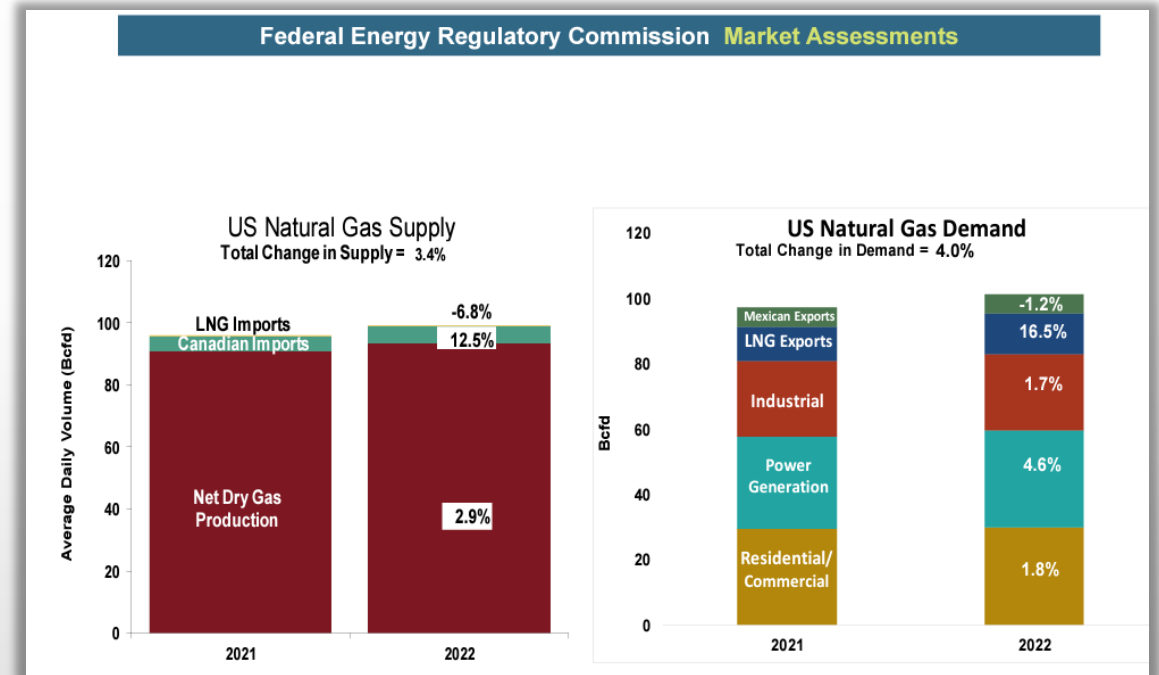


Term	Settles	9/15/2022	3/18/2022	11/22/2021	8/27/2021	4/20/2021	% Diff
12	\$ 6.54	\$ 6.99	\$ 4.34	\$ 3.67	\$ 3.26	\$ 2.60	168.6%
24	\$ 4.79	\$ 6.21	\$ 3.96	\$ 3.45	\$ 3.09	\$ 2.59	139.7%
36	\$ 3.87	\$ 5.81	\$ 3.79	\$ 3.33	\$ 3.01	\$ 2.60	123.9%
48	\$ 3.63	\$ 5.58	\$ 3.71	\$ 3.25	\$ 2.97	\$ 2.60	114.6%
60	\$ 3.49	\$ 5.45	\$ 3.67	\$ 3.21	\$ 2.96	\$ 2.61	108.6%
120	\$ 3.38	\$ 5.47	\$ 3.77	\$ 3.24	\$ 3.06	\$ 2.68	104.1%

Gas Demand Increasingly Inelastic

Gas Supply & Demand

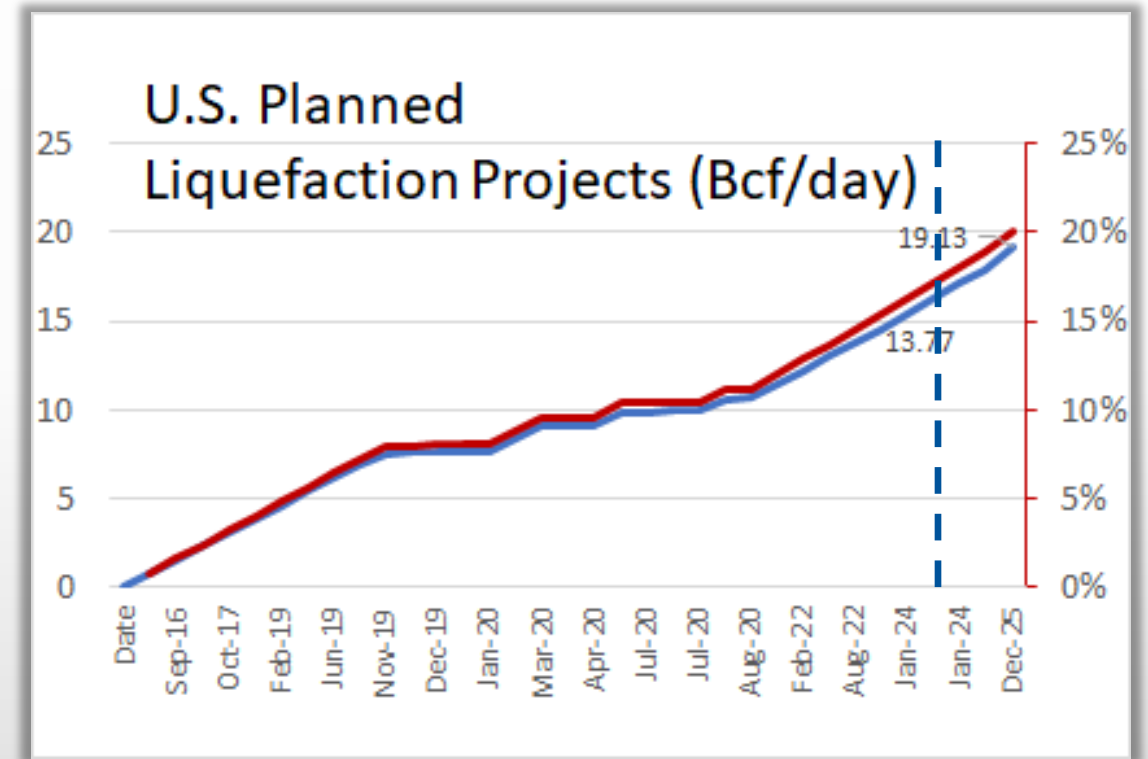
- FERC Market Assessment for year to date through June shows demand outstripping supply by .6%
- LNG Exports were higher even in the face of the shutdown of the Freeport Terminal in Texas.
- Extreme heat and inability to switch to coal has pushed gas used for power generation well up year over
- Expect to see higher LNG exports and increased use for heating toward year end
- A severe winter may severely tax a combination of lagging production and anemic storage



Exports to Mexico and via LNG = 20+% of Domestic Production

LNG Exports

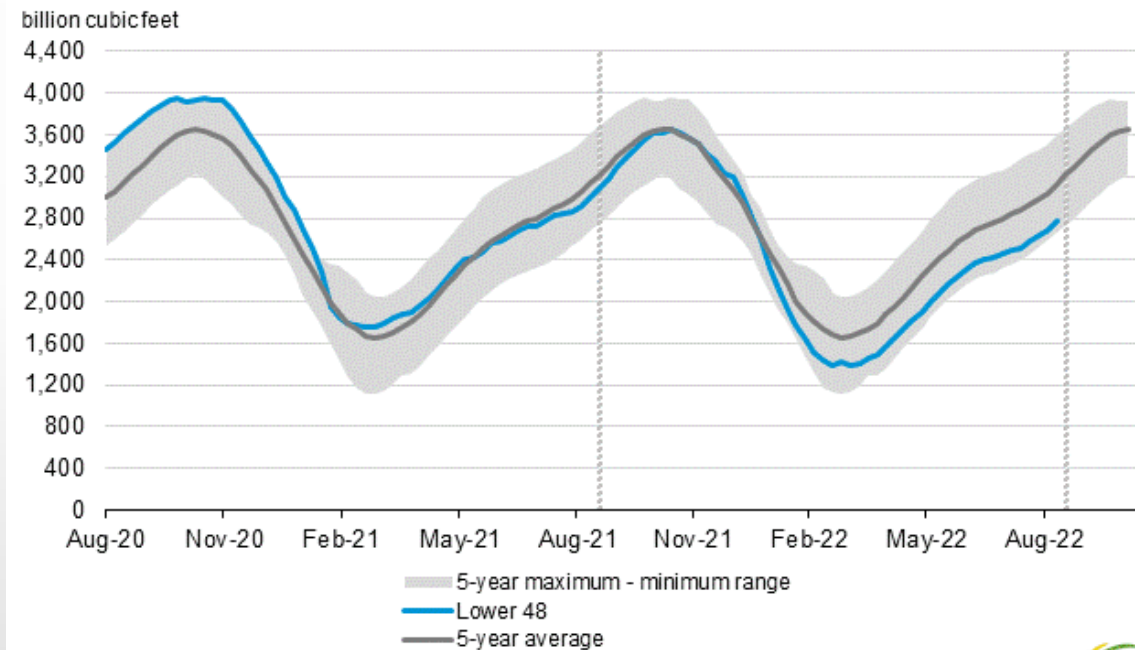
- LNG Exports expanding as fast as new liquefaction plants can be built
- LNG Exports are expected to rise from an average of 12 Bcf/d in 2021 to 20 Bcf/d or ~20% of U.S. current production in late 2025
- Freeport Terminal, closed down for much of the past few months is expected to return to full and even expanded service this November



Natural Gas Storage Lagging

- Natural Gas in storage report last week showed storage levels at 7.4% below last year and 11.3% below the 5-year average
- Little hope of attaining >3.4 Tcf level by the start of winter
- Could produce very high prices and some scarcity if winter stresses prevail
- Additional flowing supply not available due to pipeline constraints

Working gas in underground storage compared with the 5-year maximum and minimum



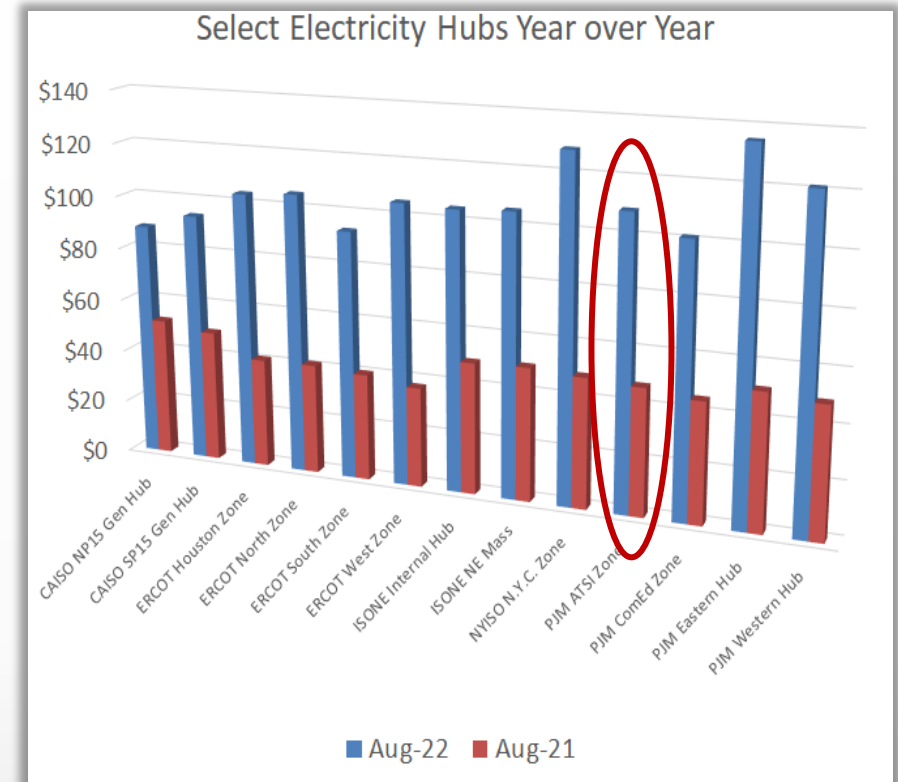
Source: U.S. Energy Information Administration



Note: The shaded area indicates the range between the historical minimum and maximum values for the weekly series from 2017 through 2021. The dashed vertical lines indicate current and year-ago weekly periods.

Wholesale Electricity

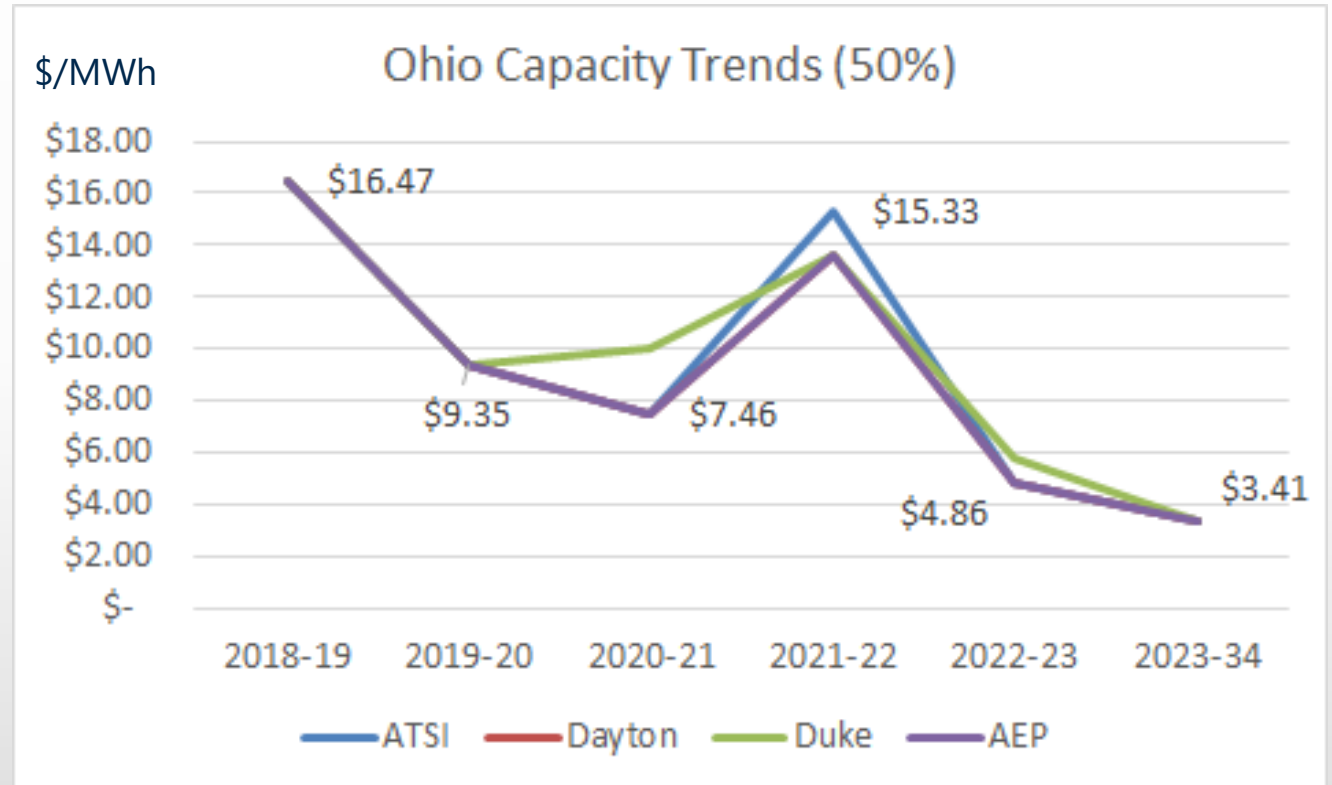
- **Real-Time Peak Wholesale Prices Year Over Year**
- Year to date average LMP up an average of 131% over prior year (Platt's data)
- ATSI (FEOH) up 129%
- Ercot West up 180%
- PJM East up 170%
- Boston area up \$111%
- CAISO up the least at 70%



Location	2022	2021	Increase (\$)	% Incr
CAISO NP15 Gen Hub	\$ 88.17	\$ 51.99	\$ 36.18	70%
CAISO SP15 Gen Hub	\$ 93.80	\$ 49.41	\$ 44.39	90%
ERCOT Houston Zone	\$ 103.73	\$ 41.02	\$ 62.71	153%
ERCOT North Zone	\$ 105.18	\$ 41.36	\$ 63.82	154%
ERCOT South Zone	\$ 93.26	\$ 40.12	\$ 53.14	132%
ERCOT West Zone	\$ 105.31	\$ 37.48	\$ 67.83	181%
ISONE Internal Hub	\$ 104.63	\$ 49.31	\$ 55.32	112%
ISONE NE Mass	\$ 105.55	\$ 49.97	\$ 55.58	111%
NYISO N.Y.C. Zone	\$ 128.42	\$ 48.74	\$ 79.68	163%
PJM ATSI Zone	\$ 108.89	\$ 47.58	\$ 61.31	129%
PJM ComEd Zone	\$ 101.28	\$ 45.22	\$ 56.06	124%
PJM Eastern Hub	\$ 135.25	\$ 51.12	\$ 84.13	165%
PJM Western Hub	\$ 121.21	\$ 49.18	\$ 72.03	146%

OHIO Capacity

- **Good news and bad news:**
- Good news – 2023-34 capacity has come off highs of 2021-22 and is lower for '23-'24
- Bad news – improvement not much of an offset for higher energy prices and increased risk premiums
- 2024-'25 capacity auction scheduled for December 2022



Market Drivers - Supply

- **Natural Gas Supply**
 - LNG exports to Europe and Asia increasing
 - Natural gas storage LAGS past years
 - Ongoing drought in Europe and U.S. mean less hydro power, more gas-fired gen needed
 - Russia using the Nord Stream pipeline used as a retaliation tool forcing EU to contract for US LNG under long term agreements
 - Soaring European energy prices support U.S. energy prices.
 - Coal-switching unavailable or cost-prohibitive. Used to act as shock absorber
 - Production companies uncertain of investing in future projects given capital return requirement and governmental policy

Complex geopolitical, regulatory, financial and social issues have combined to drive up prices and no clear end or path to mitigation is apparent at the moment short of a potential catastrophe

Increased Production or Export Restriction Only Means to Meet Demand and Stabilize Prices

Market Drivers – Supply, cont.

- Congestion (basis) costs rising – electricity and gas
 - Impacting many parts of the country
 - Expansion or extension projects put on hold
 - Materials cost increases/availability
 - Physical offers often well above financial prices
- Increase in renewables
 - Puts gas at a premium for peak hours
- Financial Pressure
 - Money flowing from securities into commodities
 - Program Trading (fundamentals mean less)
 - Inflation




Complex geopolitical, regulatory, financial and social issues have combined to drive up prices and no clear end or path to mitigation is apparent at the moment short of a potential catastrophe

Supply / Demand in Balance Increases Volatility

Market Drivers - Delivery


- Regulated Utilities Under Pressure
 - Equipment shortages
 - Materials increases
 - Labor tightness
 - Aging infrastructure
- Renewables/Carbon Initiatives
 - RPS increases y-o-y to 100%
 - Patchwork of goals/plans
 - Carveouts for solar/offshore/local projects
 - Carbon Taxes (NY)
- Disaster Mitigation/Resilience
 - Wildfire mitigation
 - Additional capacity charges (ERCOT, CA)
 - Fuel storage, reserve capacity (New England)
 - Subsidies for nuclear/renewables



Regulated Rate Increases started in earnest during periods of very low-priced commodities but will remain in place during periods of high prices

Energy Business Implications

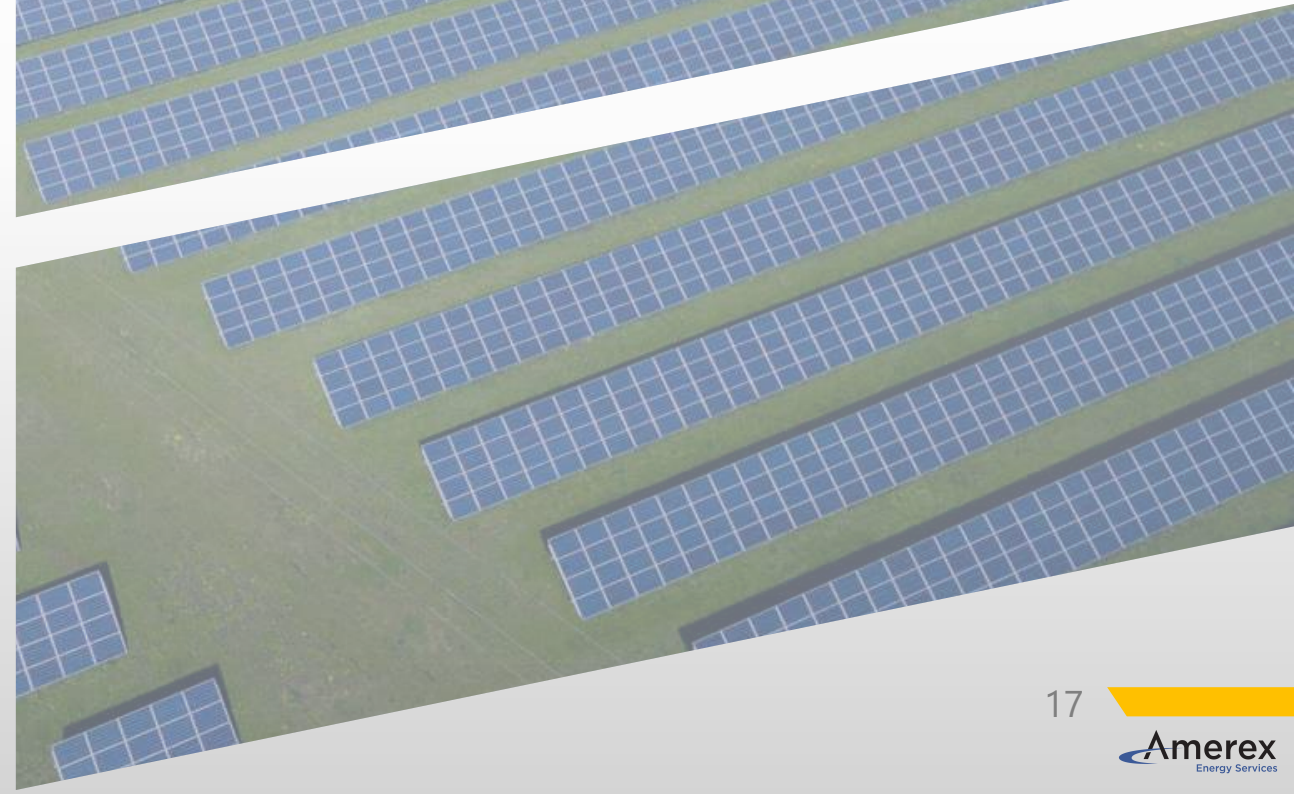
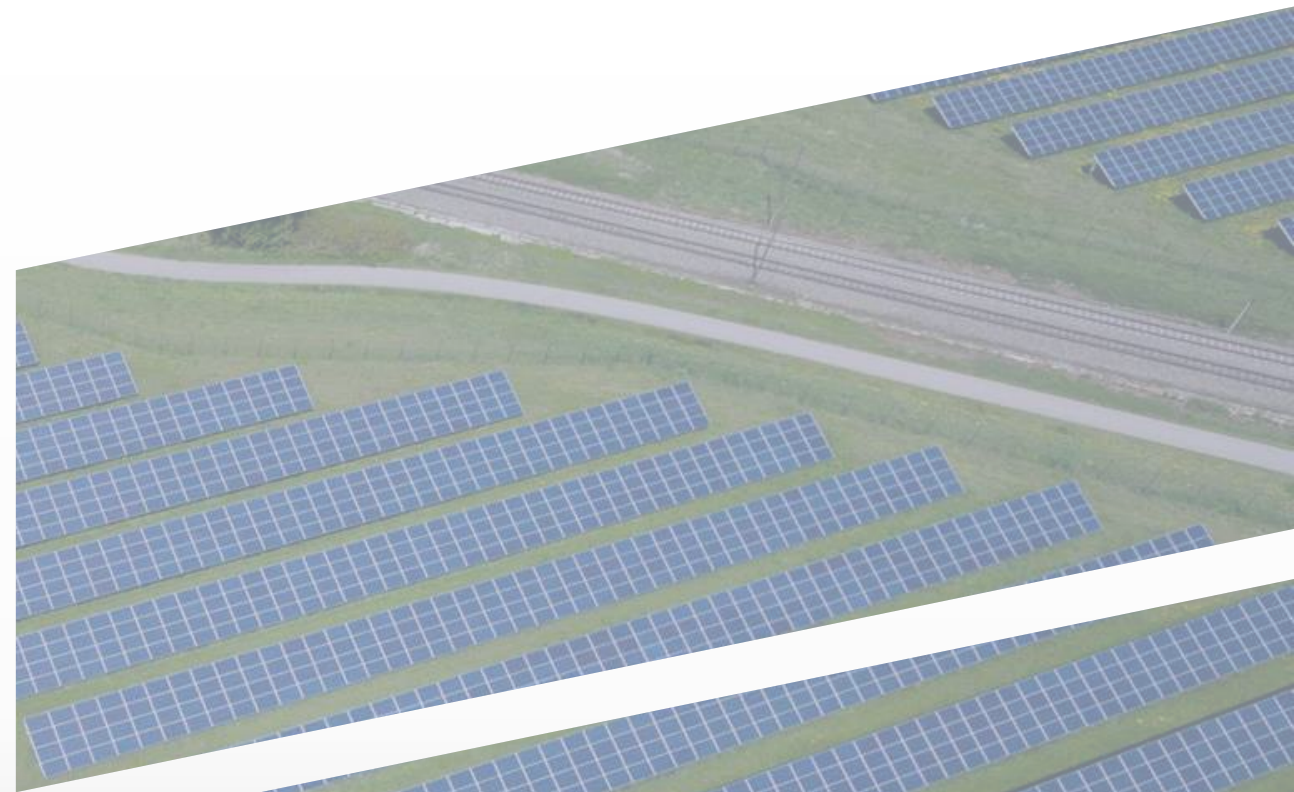
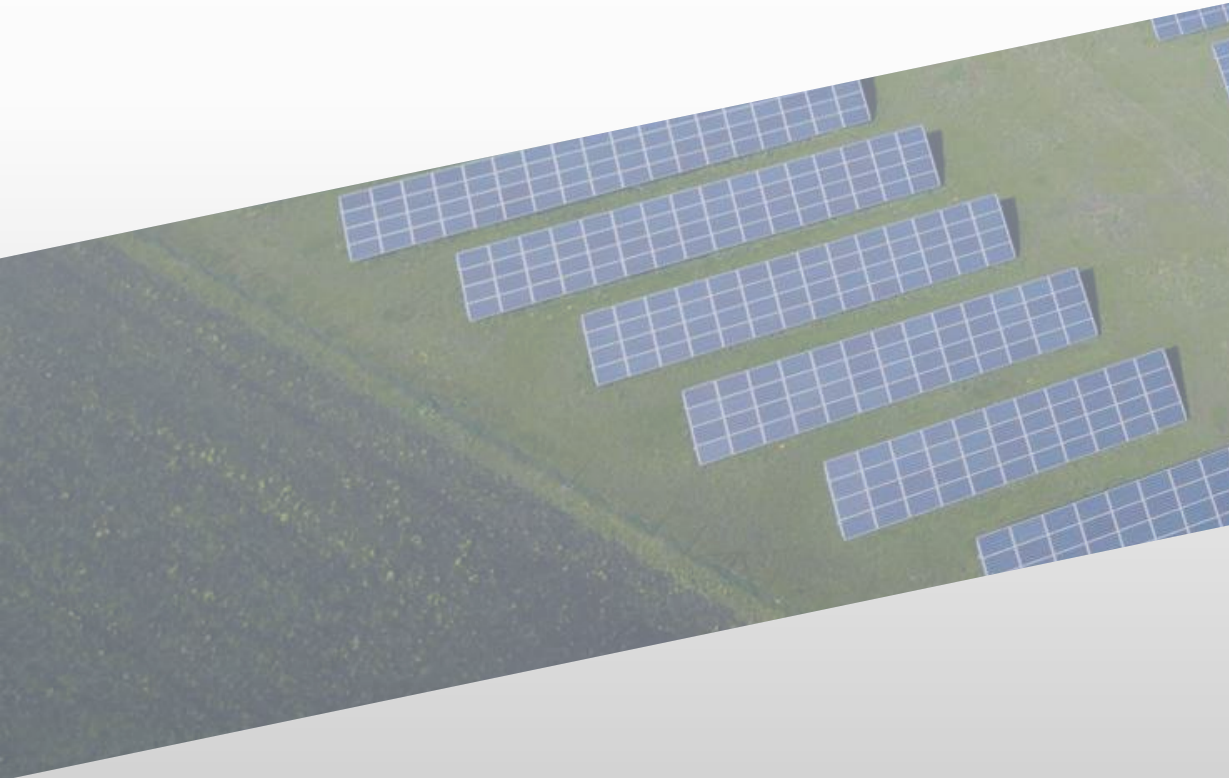
- Suppliers are shedding risk wherever possible
 - Adding new contract language
 - Changing product elements
 - Adding significant premiums for credit, volume, volatility risks
 - Will not hold prices for any length of time
 - Some dropping certain markets/customer types
- Customer Behavior Impacted
 - Unused to seeing such increases (not in 14 years)
 - Feeling of denial
 - Unwillingness to commit
 - Customers unable to contract quickly during brief downturns
 - Critical to assess risk tolerance and financial requirements
 - Need to get buy-in from senior management on strategy/priorities (risk/certainty)



Most of today's energy managers and many suppliers have never seen this type of significant and sustained increases in the cost of energy

Including Outside Consulting Expertise Can Help Drive Internal Policy Changes

Risks & Opportunities in Renewables



Ways to Get Green



1

Renewable Energy Credits

- Add-on to brown pricing
- Supports new renewable development
- Widely available and transparent
- Recent large spike in cost (2021)

2

VPPA

- Financial hedge product & complex contracts
- Suitable for corporations in markets not flush with renewables
- Settle on interval basis against pre-determined hub
- No way to cover all risk

3

Physical Green

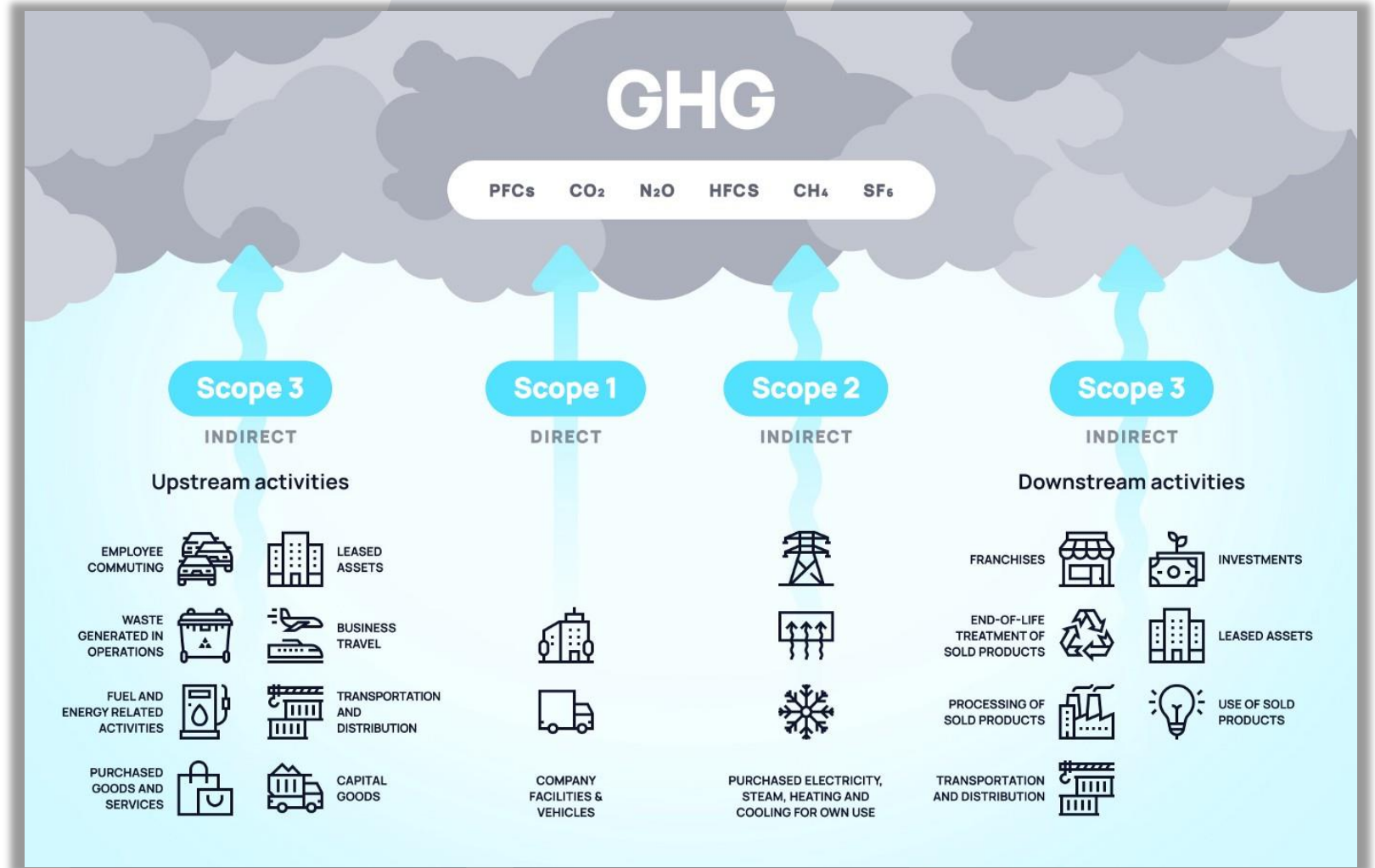
- Feels just like current contract
- Not necessary to settle LMP
- Just a purchase; not a hedge
- Easier transaction with less risk

4

Amerex Renewable Choice

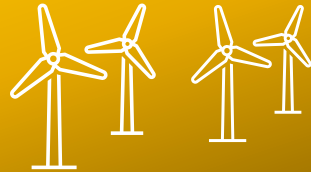
- 100% Physical Renewable Power
- Full Swing or Structured
- All Attributes
- Similar to Current Contract

GHG Carbon Emission Scope 1 – 3



Renewable Energy Clients

Mandated



Renewable Mandate

- RE 100 types – mandate for portion of or all power to be renewable
- Require additionality or RECs
- Targeted goals

Interested



- Desire renewable power
- Are interested in RE for a variety of reasons: Social/global consciousness, supply chain
- PR value
- Soft mandate – but price conscious
- RECs/additionality are “a nice to have”

Competitive



- Price only
- RECs/additionality are irrelevant
- Frequently face tough competitive environment
- Often unable to enter into long term contract due to more uncertain future business climate

Renewables Update

- **Situation**

- Extremely High Demand for Solar; Prices Much Higher
- Tech Buyers Using VPPAs as a Financial Hedge & to Acquire RECs
- Industrials Finding it Difficult to Commit Due to Unknowns
- Developers Uncertain as to:
 - Completion Date
 - Price
 - Potential Equipment Delays
 - Utility Interconnection Queue
- Force Majeure Clauses Expanded Greatly
- Terms Available from 7 to 15 Years
- On-line Dates in 2024+
- Panel Delays, Supply Chain, And Labor Contribute to Uncertainty
- On-site Solar a 3-year Proposition
- Grids Struggling to Balance Dispatchable Thermal with Growing Intermittent Renewables



**Renewables Used to be Priced off ROI Requirements;
Now, Most Looking at Forward Curve with Energy Price Escalation**

VPPA Contracting Risks

- *"It is not an exaggeration to state that, at the most fundamental level, a VPPA is a long-term fixed-for-floating swap in one of the most volatile financial markets in the world on real-time or day-ahead settlement of a stream of energy the buyer cannot control."* - J.P. Morgan Center for Commodities at the University of Colorado Denver Business School

- **Basis Risk** - The difference in value between project bus (node) vs. Hub vs. Zone
- **Availability** – The ability of the project to generate a minimum amount of energy
- **Covariance** – The likelihood that each additional MW of renewable energy contributes to a reduction in the index price on the grid by which the CFD is set
- **Tenor** – The risk that the value of the hedge decays over time.

Amerex Renewable Choice



Bulls 'n' Bears

Bulls

- Tightness in supply and demand
- LNG/pipeline export expansion
- Uncertainty leading to lower investment in production resources - producers paying down debt
- Power Burn increases due to plant shutdowns, cost of coal
- Forced transition to renewables
- Pipeline/transmission congestion
- Cost, availability of infrastructure equipment, raw materials
- War in the Ukraine and promises to support Europe
- Inflation forcing money to flow from securities to commodities

Bulls, cont.

- Program trading increasing volatility
- Infrastructure projects on hold
- Double-digit increases in **regulated rates** due to RPS, renewable and nuclear subsidies, infrastructure upgrade and catch-up to market perturbations (URI and Covid primarily)

Bears

- Reversal in regulatory restraints and domestic production policies
- Allow select infrastructure projects to ease basis costs
- Severe recession or global conflict
- Immediate expansion of nuclear fleet
- Change of leadership in Russia
- Breakthrough technology for renewables
- New pandemic

The Question

**The Question on everyone's mind is,
"When will it end?"**

**Most experts believe we are in a new paradigm
and that prices seen in the past few years are not
likely to return soon, so...**

What to do?

- Discuss the current pattern of rising prices with senior management and get buy-in for an informed strategy
- Consider ability to physically manage risk and develop potential changes in operations or procedures
- Inventory all contracts and get pricing for terms beginning at their ends as a baseline
- Set reasonable targets for action and monitor markets for opportunities
- For near-term expirations look at long-term contracts capturing low prices in the out years or partial hedges
- For expirations further out, take out contracts now that present lower prices or institute a "dollar-cost-averaging" approach
- Consider tariff alternatives in select markets where they represent a meaningful discount for various terms
- Strive to reduce usage (and peak demand) where possible and take advantage of rebates and incentives
- Engage outside assistance to assist in determining path



THANK YOU!

Rob McKim

Phone

936.522.7316

E-Mail

rmckim@amerexenergy.com

Chris Wiederspahn

Phone

610.334.8889

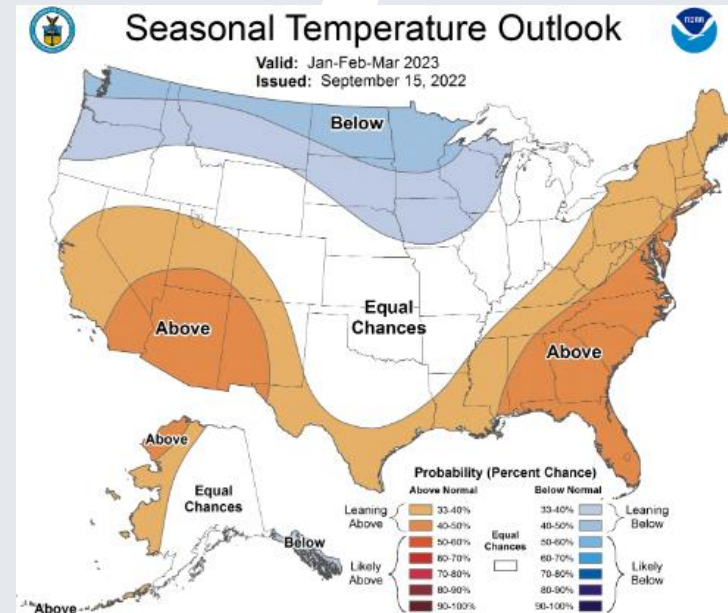
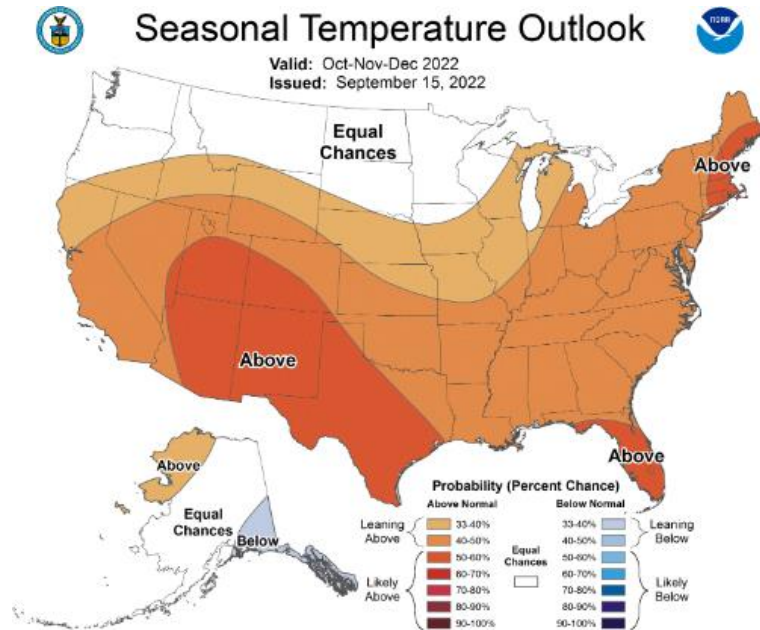
E-Mail

cwiederspahn@amerexenergy.com

NOAA Seasonal Outlooks

- Current outlook for autumn calls for above average temperatures throughout most of the lower 48

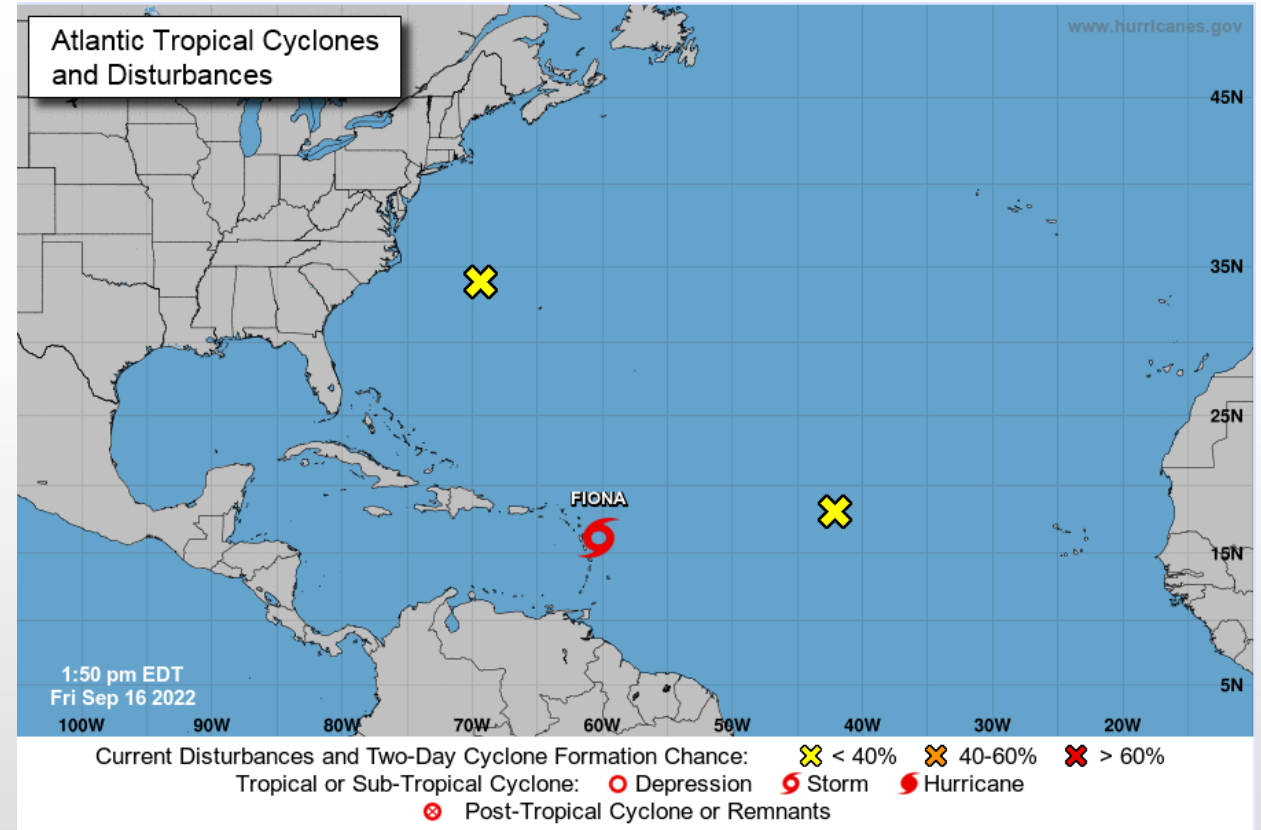
- The winter outlook calls for normal to higher temps for Jan-Mar with the exception of the Pacific Northwest and sections of the upper midwest



CRITICAL ISSUE: Rainfall predictions for the period of October-March are very low in CA and sections of the south and southeast

Hurricane Season

- So far so good – but NOAA is forecasting an above-average Atlantic Storm Season, forecasting
 - Forecast is for 14-20 named storms
 - 6-10 hurricanes
 - 3-5 Major Hurricanes
- Even though little production remains in the Gulf, storms often have a strong effect on wholesale prices



Energy Markets



- Regulated
- Electricity Only
- Gas Only
- Electricity & Gas

