GridBeyond™

Surging demand for zero-carbon technologies …

AI, software & zero-carbon technologies to meet the challenges of decarbonization, decentralization and electrification

Your hosts

Presenting to you today...

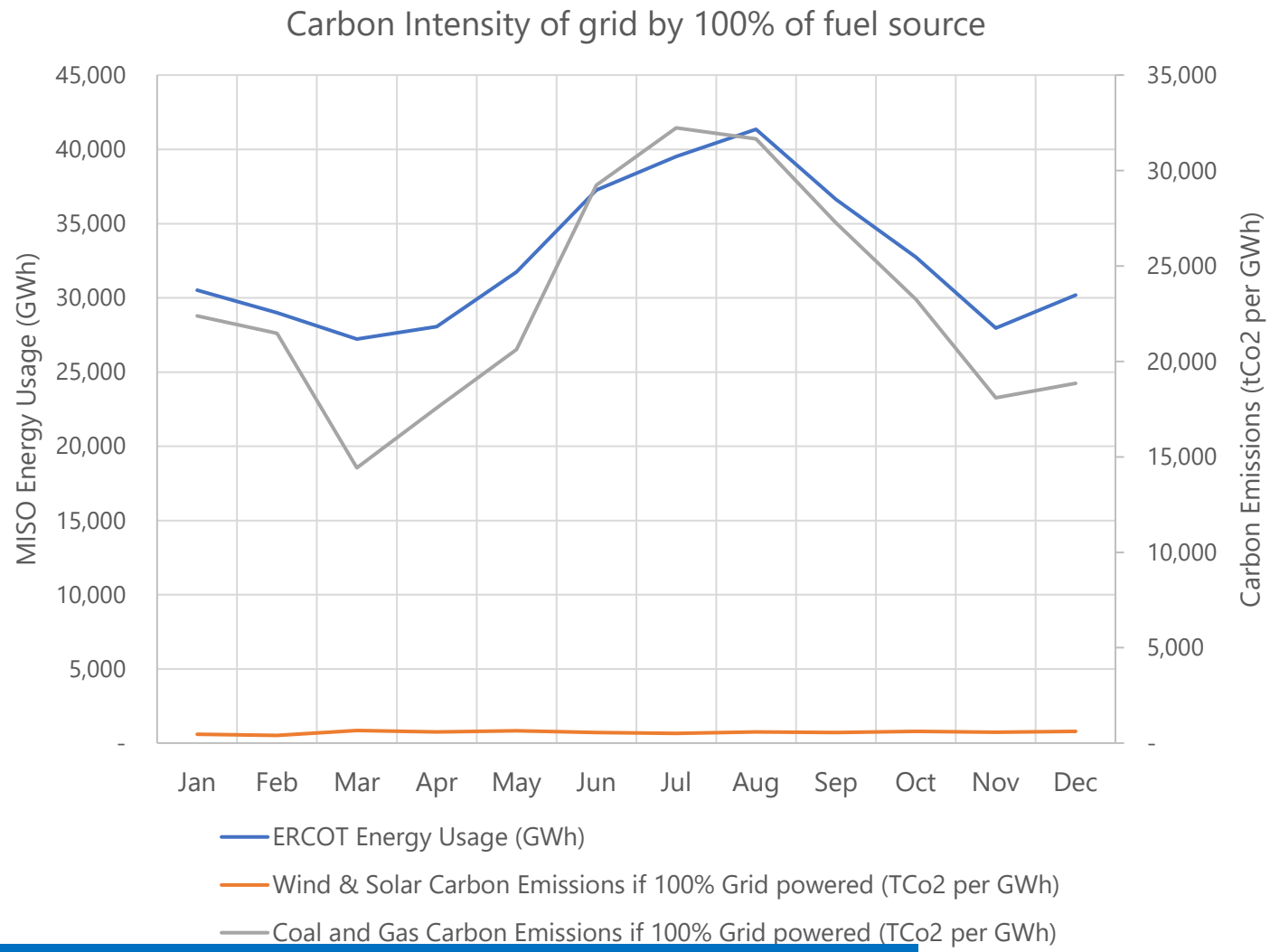
Joe Hayden
VP Revenue - North America

GridBeyond™

The Grid Just 3 years ago was an Afterthought in Reliability

The Carbon Intensity of Fuel Sources

- The Grid powered 100% by solar and wind is not feasible, neither is powering by 100% fossil fuels
- The Carbon Emission finger-prints by asset:
  - Wind 11 kg of Co2 per MWh
  - Solar 44 kg of Co2 per MWh
  - Natural Gas 465 kg of Co2 per MWh
  - Coal 980 kg of Co2 per MWh
- The graph shows the carbon emission if ERCOT grid was powered solar/wind and Coal/gas.
- The damaging effects of carbon emissions in our atmosphere is the leading cause of global warming. Relying on 100% fossil fuels is not sustainable to combat climate change.



But the Carbon Footprint was a Growing Concern

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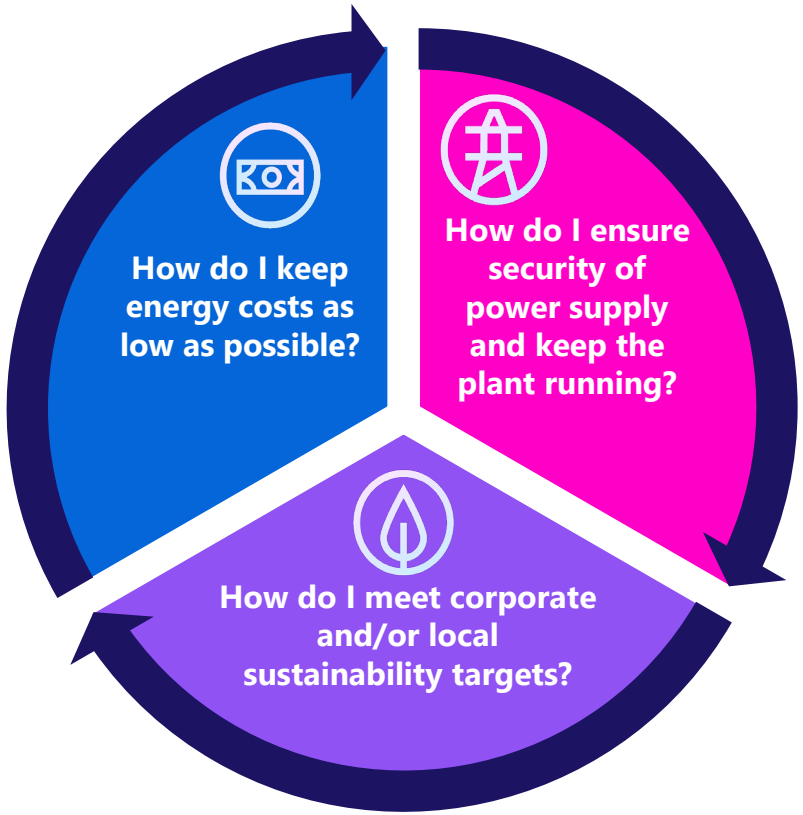
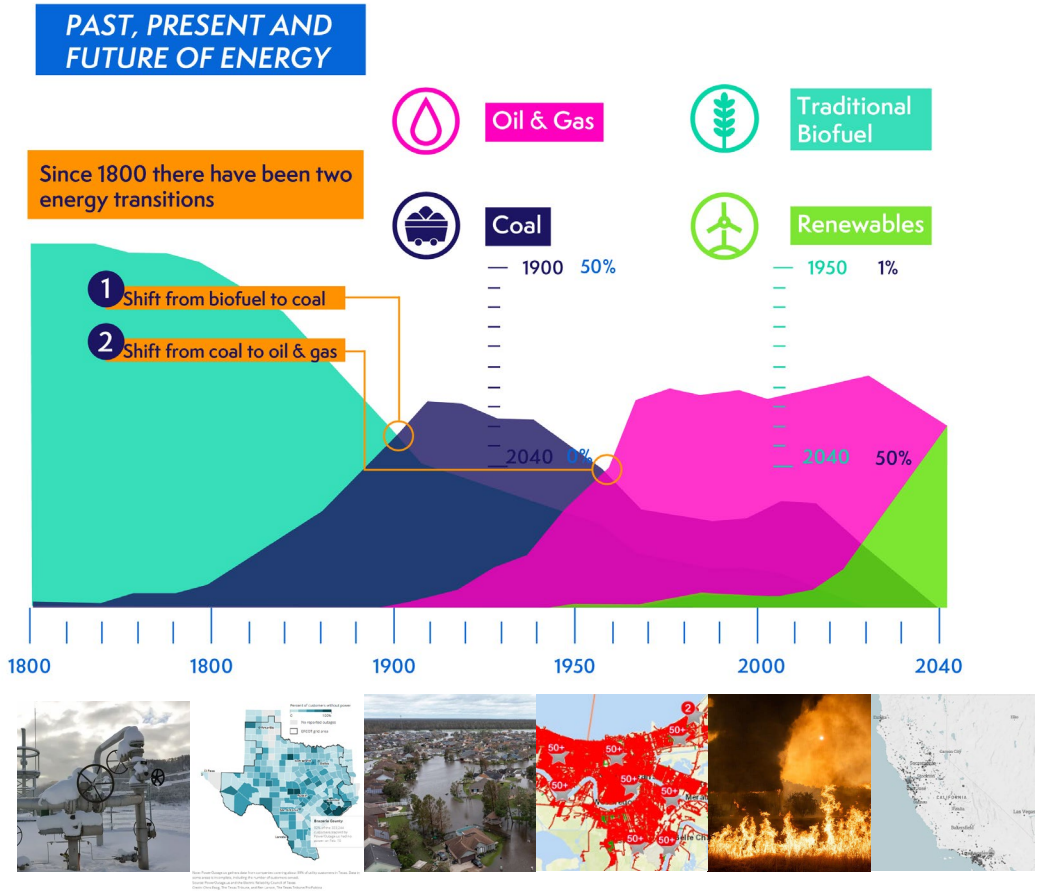
The Energy Markets are Changing

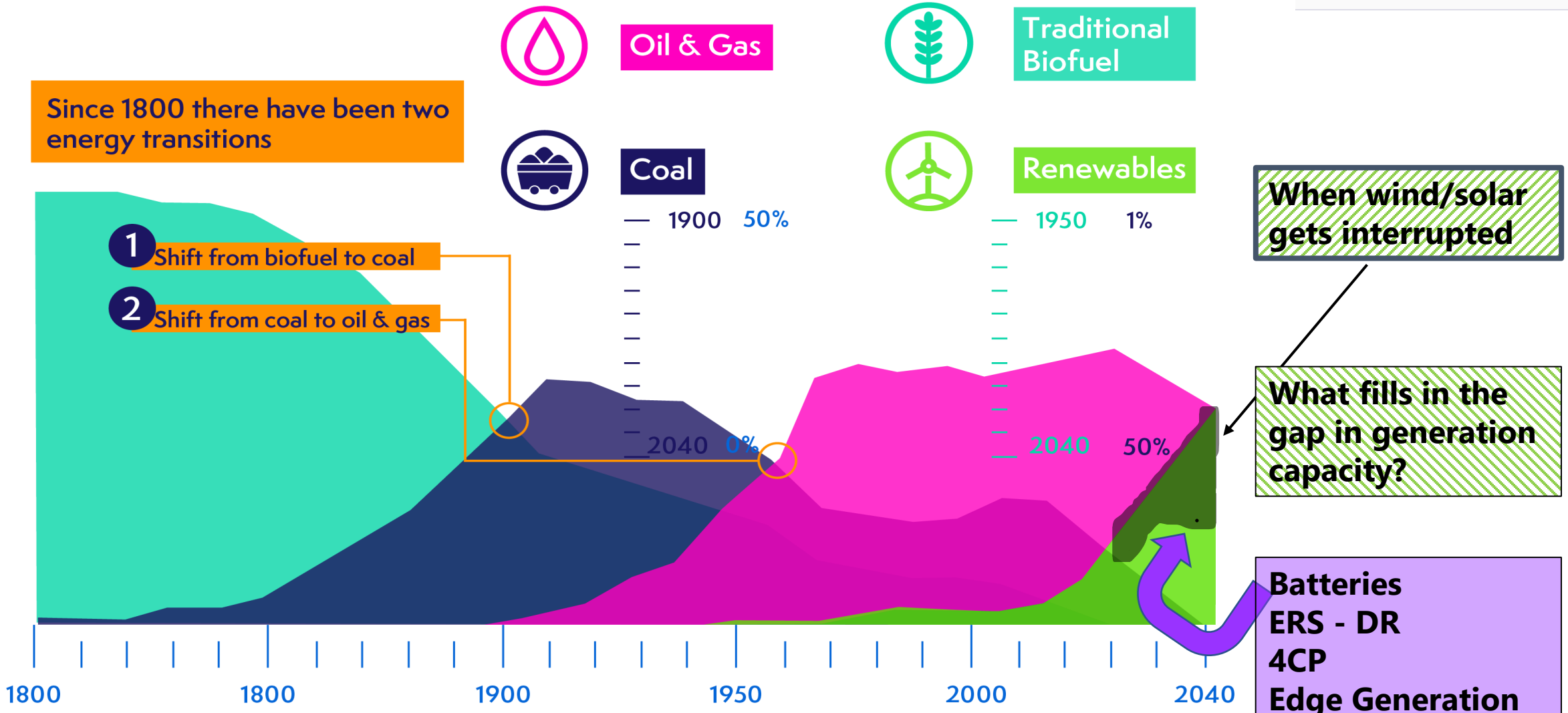
And businesses around the world are feeling the effects

- We are in the middle of the 2nd major transition since the industrial revolution in the early 1900s
- Increased global demand for power and proliferation of renewable power generation are driving change
- Our Customers feel the effects of this transition in 3 main ways:





PAST, PRESENT AND FUTURE OF ENERGY



Very few gas plants, and few MW's have been added in 5 years

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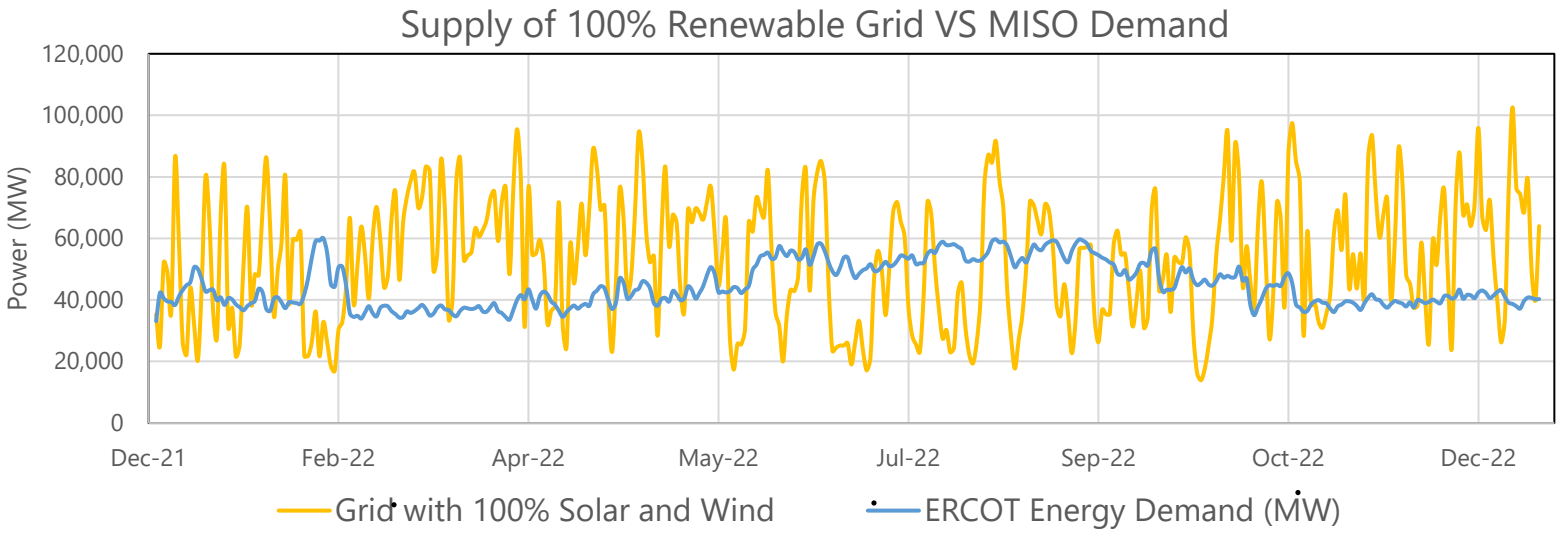
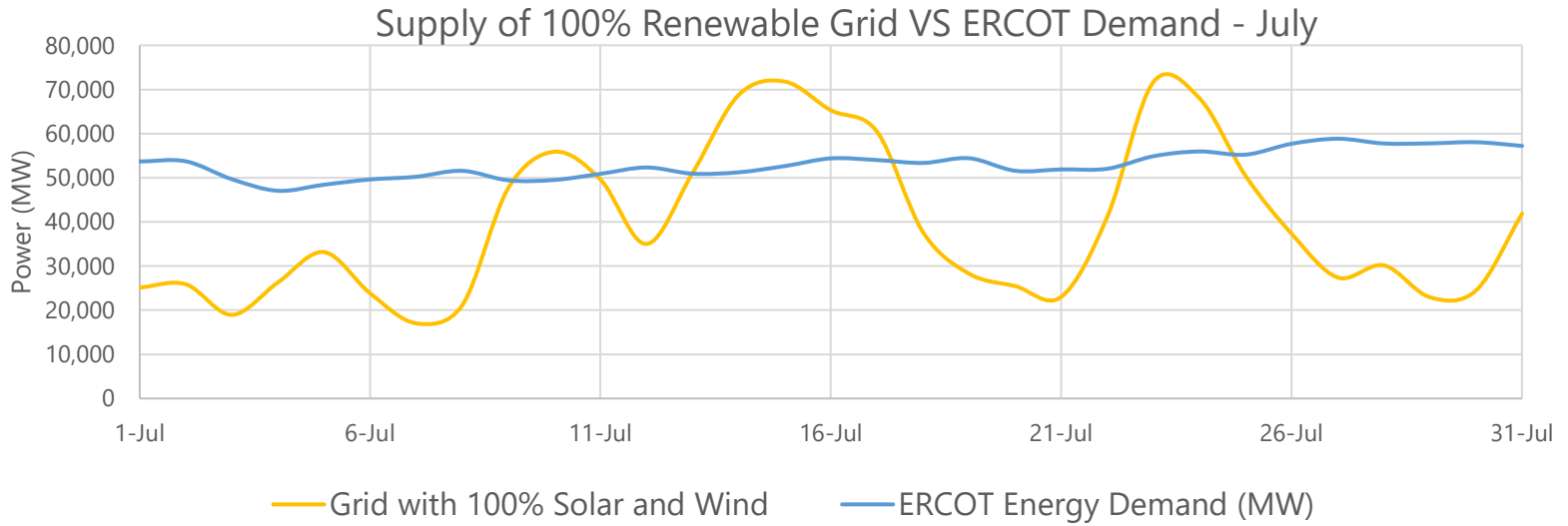
Where we are at…..and where we are heading – 100% Renewable Generation

The Prospect of a 100% Solar and Wind supplied Grid?

- 100% renewable sources on the grid is the most eco-friendly way to reduce emissions.
- Renewable energy fluctuates intermittently by 60%
- The variability of interruption and does not match demand until batteries scale.
- No new gas generation plants have been added to the grid in at least 4 years.
- NO NEW gas generation plants are in the que for buildout on the grid.





The Prospect of 100% Renewable Generation

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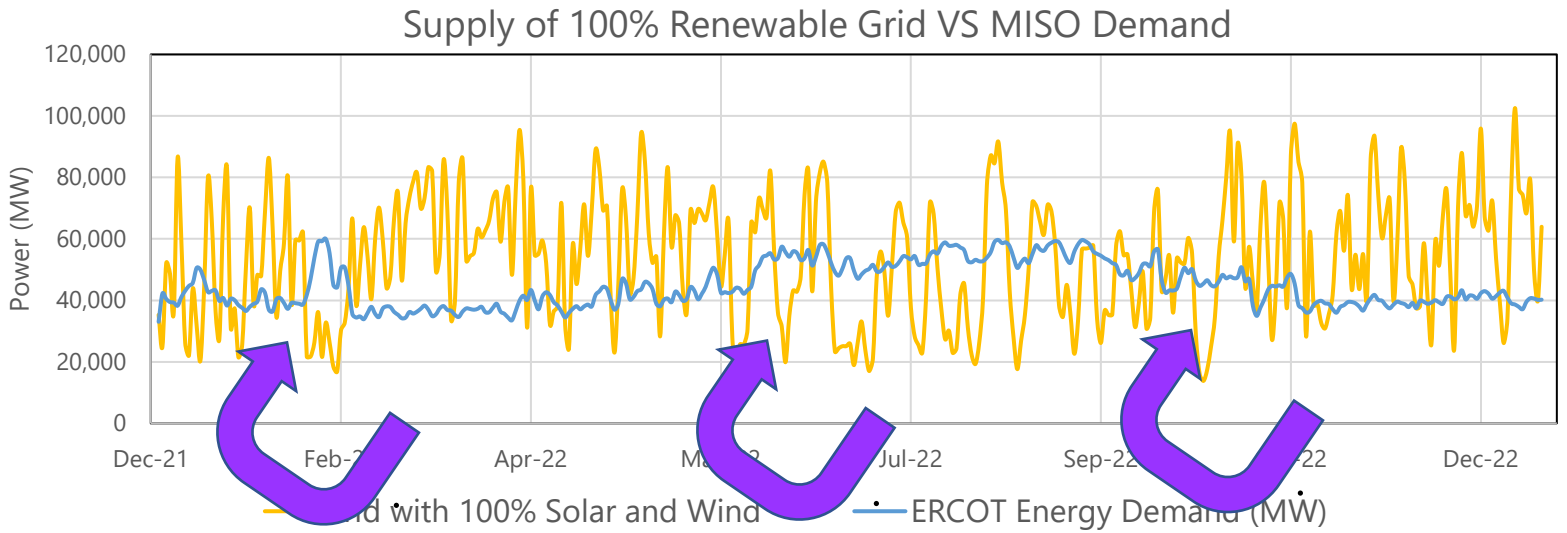

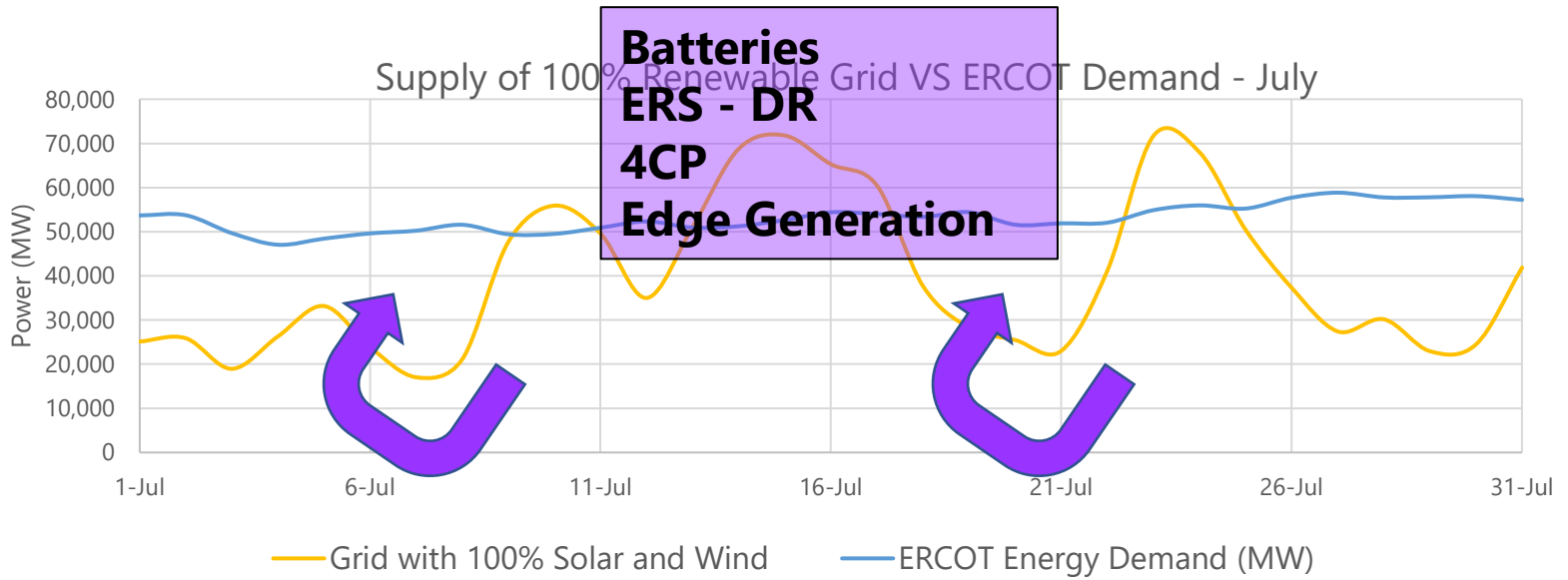

The Prospect of 100% Renewable Generation

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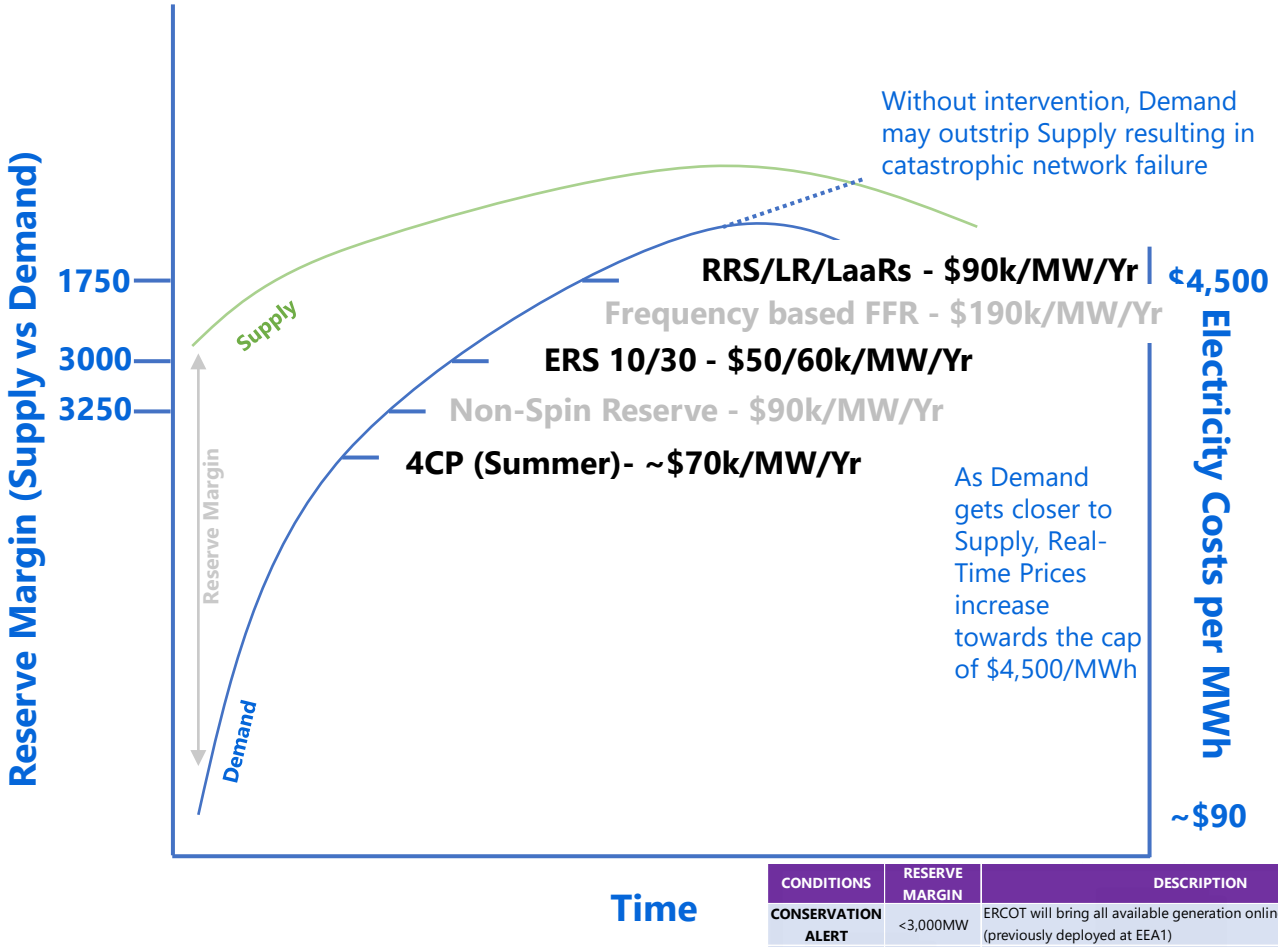
Understanding Winter Storm Uri – A sign of a New Normal?



CONDITIONS	RESERVE MARGIN	DESCRIPTION
CONSERVATION ALERT	<3,000MW	ERCOT will bring all available generation online,and **deploy ERS** (previously deployed at EEA1)
EEA 1	<2,300MW	Any remaining ERS deployed, ERCOT will look to Imports from neighboring Grids if available
EEA 2	<1,750MW	ERCOT will request emergency conservation from public (if not already in effect), **deploy Load Resources (RRS)**
EEA 3	Blackouts implemented	Rolling blackouts across the ERCOT network are implemented, instructed by ERCOT through utilities

ERCOT has initiated controlled outages (EEA3) four times since the grid operator was established:

December 22, 1989: 500MW **February 2, 2011: 4,000MW**

April 17, 2006: 1,000MW **February 15-18, 2021: 20,000MW**

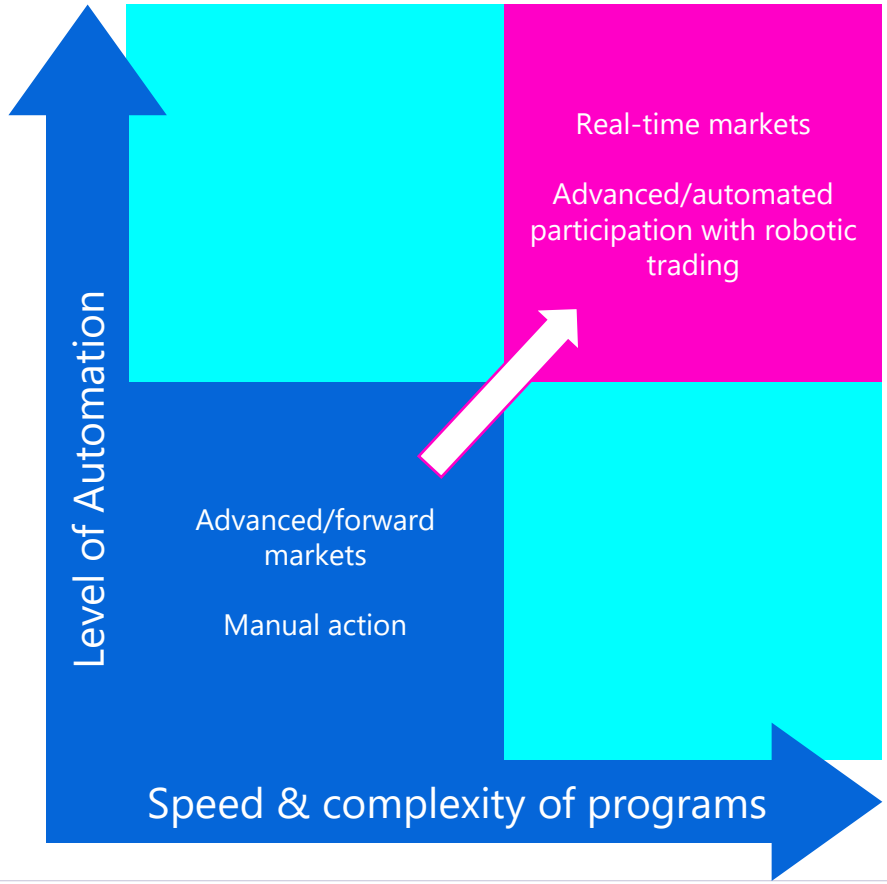
- ERCOT pays businesses like yours to help it manage the network and keep it balanced
- Any events are likely once a year to once every 10 years
- Performance varies from 10 minutes to 30 minutes absent an event
- $90k from ERCOT Programs is equivalent to:
  - $900,000 in annual sales for a business with a 10% Profit Margin
  - $1,800,000 in annual sales for a business with a 5% Profit Margin
  - $9,000,000 in annual sales for a business with a 1% Profit Margin

EVERY YEAR you participate

There are so many ways you can participate in MISO or PJM – We make sure you're in the right Program

Direction of travel

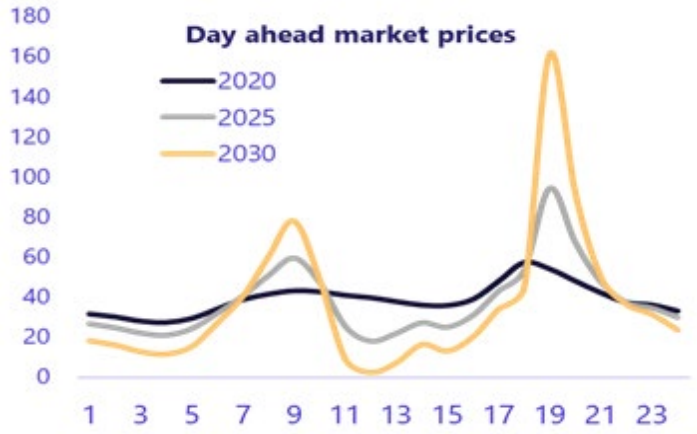
- Markets require more advanced services, with **AI** and **automation** at its heart
  - Advanced metering and monitoring
  - Automated asset control
  - AI, data science and real-time forecasting
  - Pooling of varied assets
  - Matching flexibility to markets and services
  - Management of co-located assets
  - Virtual power plants and microgrids

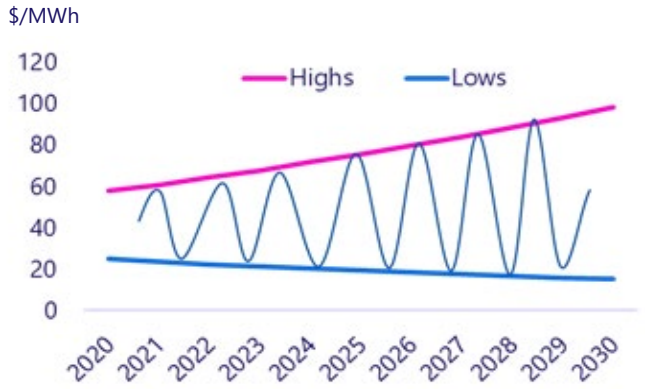


New ways to manage

Key drivers

- Renewables growth
- Power plant retirements
- Market reforms
- Digitalization
- Enabling technologies
- Future technologies





- Markets are being adjusted
  - Markets are becoming more granular
  - Higher value placed on flexibility
  - Grid operators need to demonstrate value for money

  New scheme rules mean:
  - More frequent dispatches
  - More stringent rules
  - Higher bar to get assets into schemes
- This inevitably leads to greater requirement for **automation of flexible energy assets**

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Everyone has energy assets / resources

What's critical is how and when you use them

ENERGY DEMAND (LOAD)

Understand your demand requirements

- Critical vs non-critical loads?
- Inflexible vs flexible?
- Consumption reporting?
- Opportunities for Load Shifting?
- How might my demand change? (EVs, increased electrification etc)

GENERATION

Existing Generation Assets

- What are they?
- How are they used?

New Generation Assets

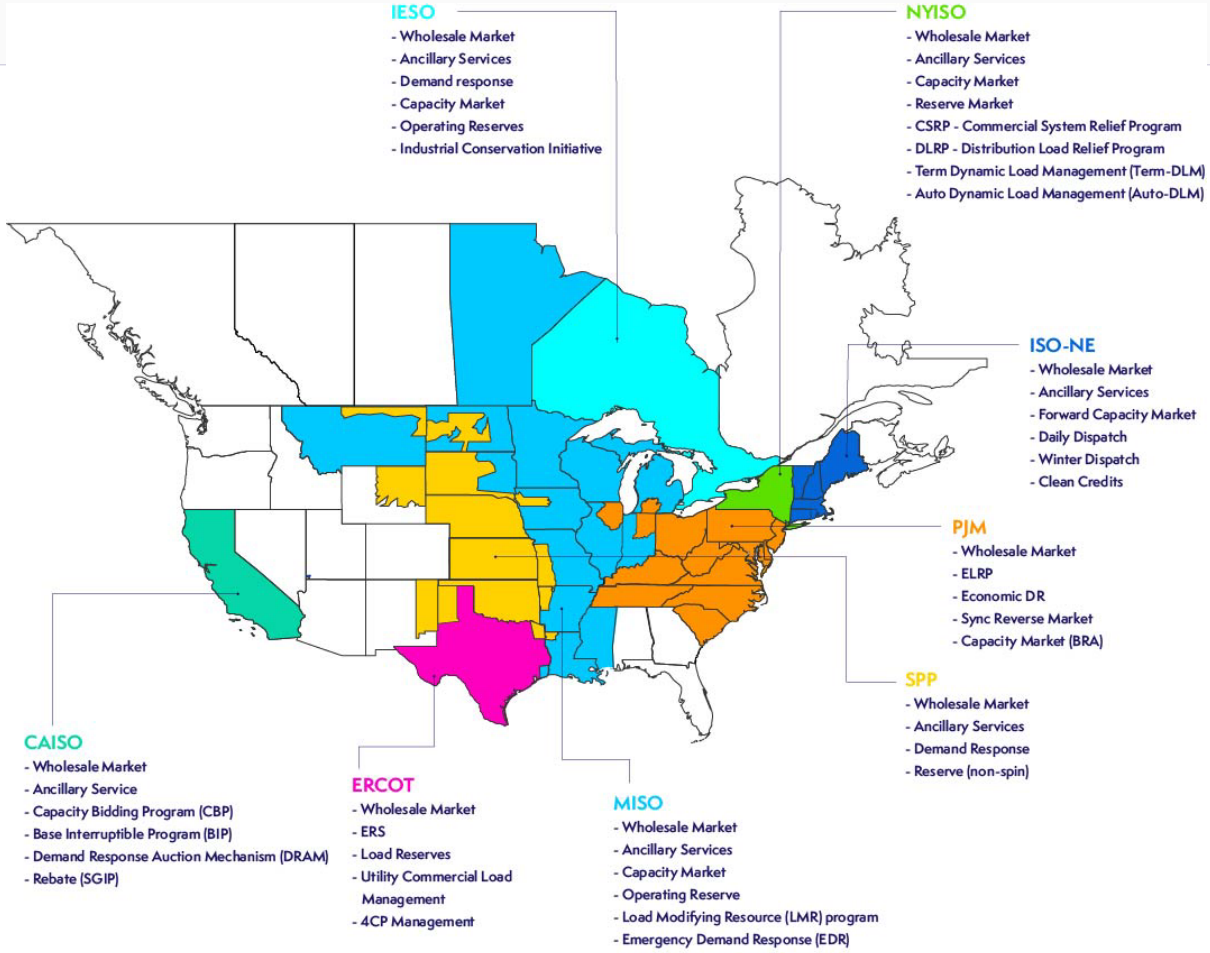
- How could/should I invest in new assets?
- How could I take more ownership of my supply needs?

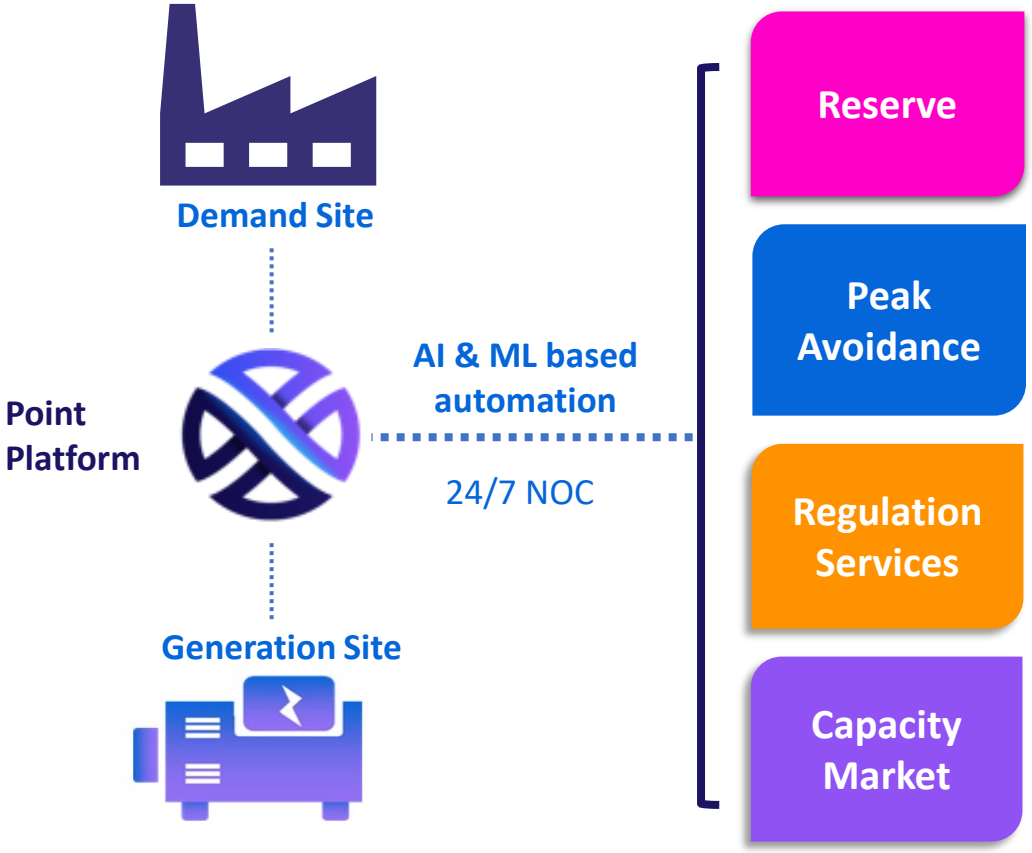
STORAGE

Investing in Storage

- Would battery storage provide benefits?
- How or why would I use a battery?

How grid operators reward you for your flexibility





The role of technology

Assess

- Identification of flexibility potential
- Optimization of customer assets
- Electricity market and industry expertise
- Portfolio balancing across different asset types

Automate

- Technology
- ICT-based management and control systems
- Software-as-a-service
- Metering and monitoring
- Reduced operational effort

Access

- Market access
- Intermediation of multiple services
- Risk and complexity management
- VPP functionality
- Reduced transaction costs

GridBeyond helps companies with **energy management solutions** across a variety of industries

Our experience spans across **programs, markets, and assets**, and our regulatory expertise ensures we **protect your current revenues - and help to create more in the future**

Why do I need intelligent control of flexibility?

- **Our experienced Engineers will perform on-site audits of your site assets and production processes**
- **We understand where to look for un-used flexibility in operations, assets, and production process**
- **We understand what will and will not work in the context of your operations**
- **We have years of experience working with metals companies, helping them maximise revenue from their flexibility**

Traditional Approach

Uncontrolled load shedding

Ignores asset limitations

Leaves money on the table by not using flexibility to fullest extent

Limited to lowest value schemes

Ignores customer production schedule

Indiscriminate interruption of production process

Intelligent control

Targeted & controlled load reduction

Works within asset constraints

Maximize revenue through optimized use of flexibility

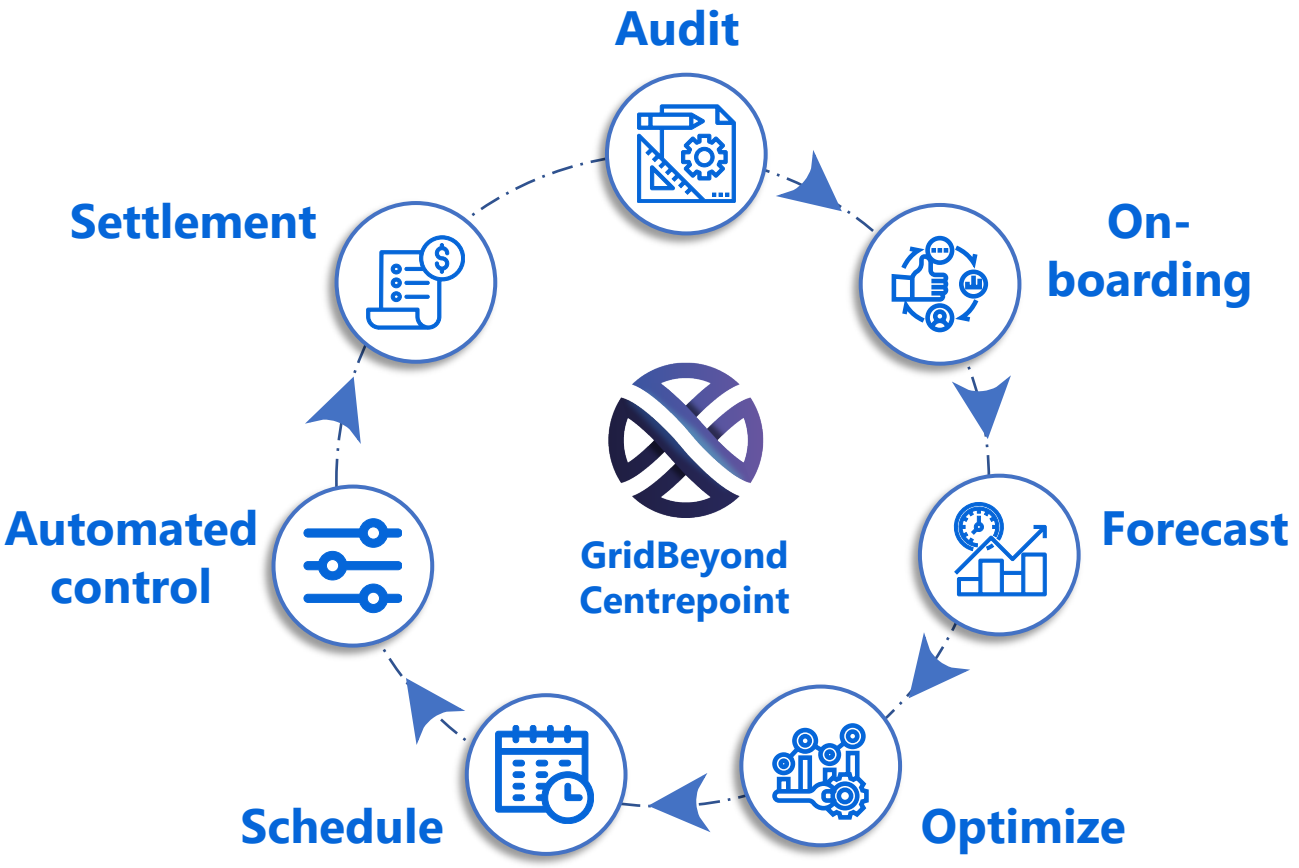
Allows asset to participate in more lucrative schemes

Works within customer production constraints

Minimizes interruption

Advanced optimization platform

- Single, integrated platform with comprehensive support for Primary, Secondary and Tertiary ancillary service markets
- Supports **automated dispatch** and sub-second frequency response
- Network operations with customer onboarding; site and unit management; alarms and customer notifications
- **Access** to data
- **Financial settlement data** available for automated settlement and invoicing of customers
- **Scalable** and **adaptable** to new services in different markets



How does GridBeyond bring value to our customers?

Demand

Generation

Storage

From our Engineering base, through award-winning Platform technology, to full-suite Market access

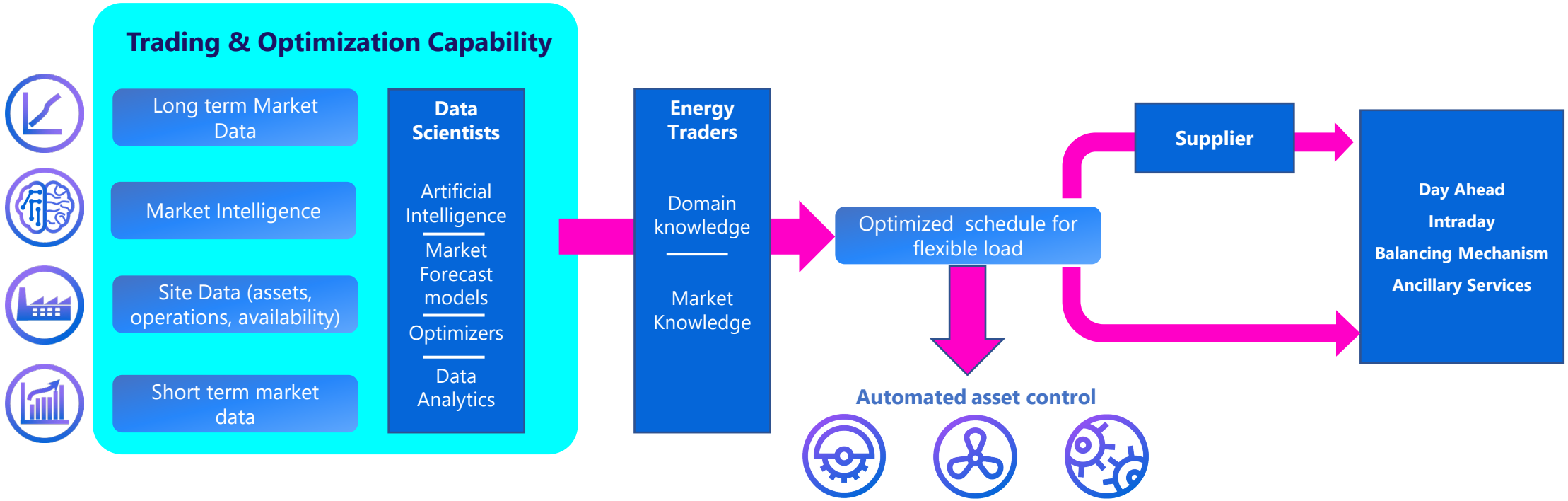
We assess
- Identify flexible load
- Benchmarking and fault finding
- Energy efficiency

We provide access
- Traded markets, balancing services, ancillary services
- Site and asset data in near real-time
- Improve resilience

We automate
- Advanced hardware and software to automate site and asset controls
- Improve resilience and reliability
- Earn revenue

GridBeyond™

GridBeyond - Technology + Expertise



Energy Markets

- The Energy market is becoming more complex, providing more opportunities to both save money and earn revenue. It requires a combination of smart technology and experienced energy traders to identify and take advantage of these opportunities.

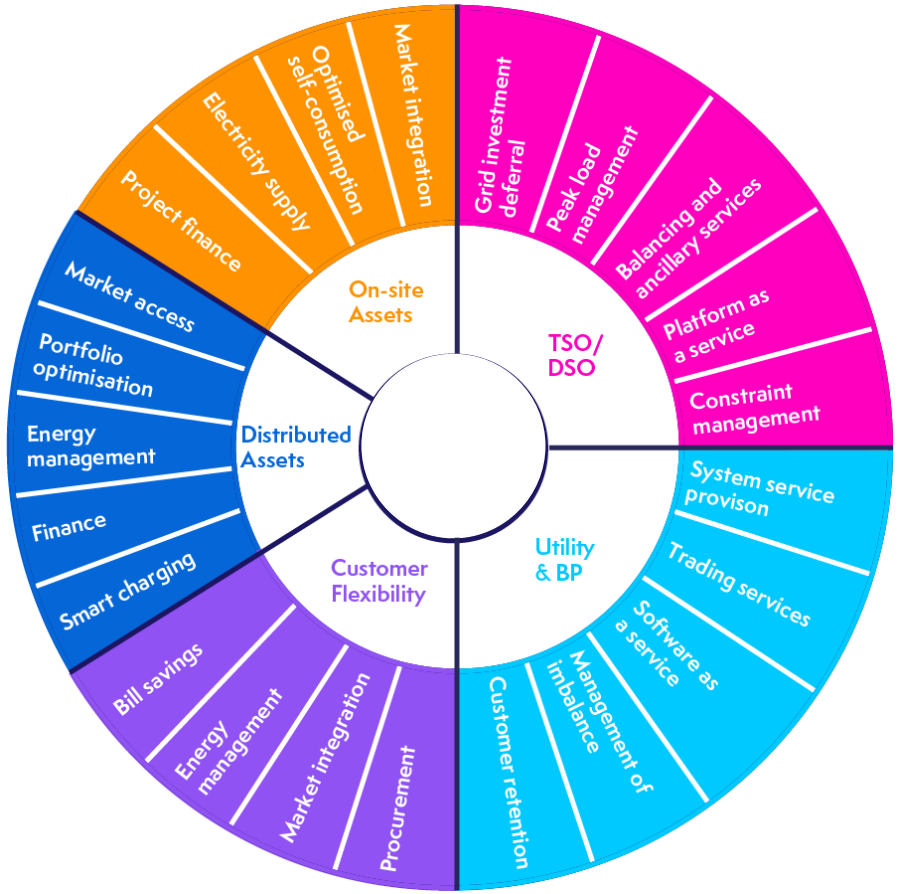
Why GridBeyond?

- GridBeyond have a team of energy traders backed up by data scientists and cloud technology to provide the market insights to ensure your energy goals are met.
- We have an IOT platform that connects to your assets to provide end-to-end capability
- We understand your business and your operations - our engineers work with your site managers to implement technical solutions that work for you
- We also work with Brokers and/or Supplier to arrange a solution that optimises your savings and revenue

GridBeyond™

Technology is enabling a net zero future

- Unlock value across the energy sector
  - Active energy market participation from I&C businesses
  - Enable TSOs to procure balancing services more cost-efficiently
  - Enable DSOs to manage local constraints
  - Provide utilities with VPP solutions
- Reducing the cost of the energy transition



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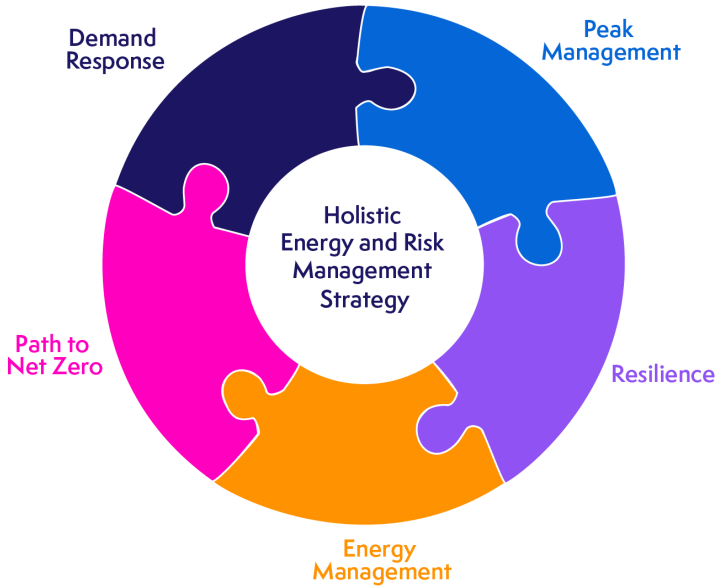
Key takeaways

- Everyone has energy assets / resources, what's critical is **how and when** you use them
- Understand and manage your **flexible vs inflexible demand** and reduce costs with procurement and hedging
- Gain revenue to **offset cost rises** with demand response and ringfence gains for onsite asset investment
- Explore **self-generation and batteries** to ensure security of supply and earn revenues
- Use **technology to manage risk**
- **Future proof for the energy transition**



About GridBeyond

Technology for the energy transition

By bridging the gap between distributed energy resources and electricity markets, GridBeyond enables every connected asset, whether its utility-scale renewables generation, battery storage or industrial load, to be utilised to help balance the grid. The benefit?

By intelligently dispatching flexibility into the right market, at the right time, asset owners and energy consumers unlock new revenues & savings, resilience, manage price volatility, while supporting the transition to a Net Zero future.

Awards & Accolades

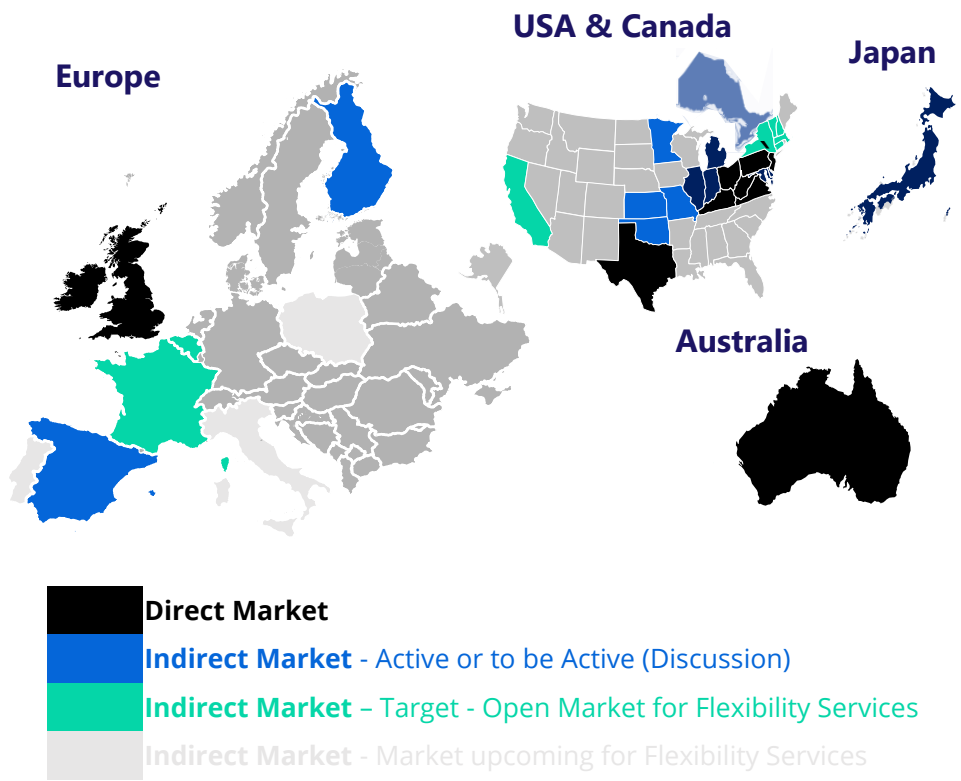
Who we are

QSE/CSP/Aggregator in USA | Ireland | Great Britain | Japan and Australia

~100 team members | 6 Offices Active in 14 Markets

~1,500+ MW portfolio with ~750MW of flexibility under management at any one time.
Over 50MW of battery storage under management

Where We Operate



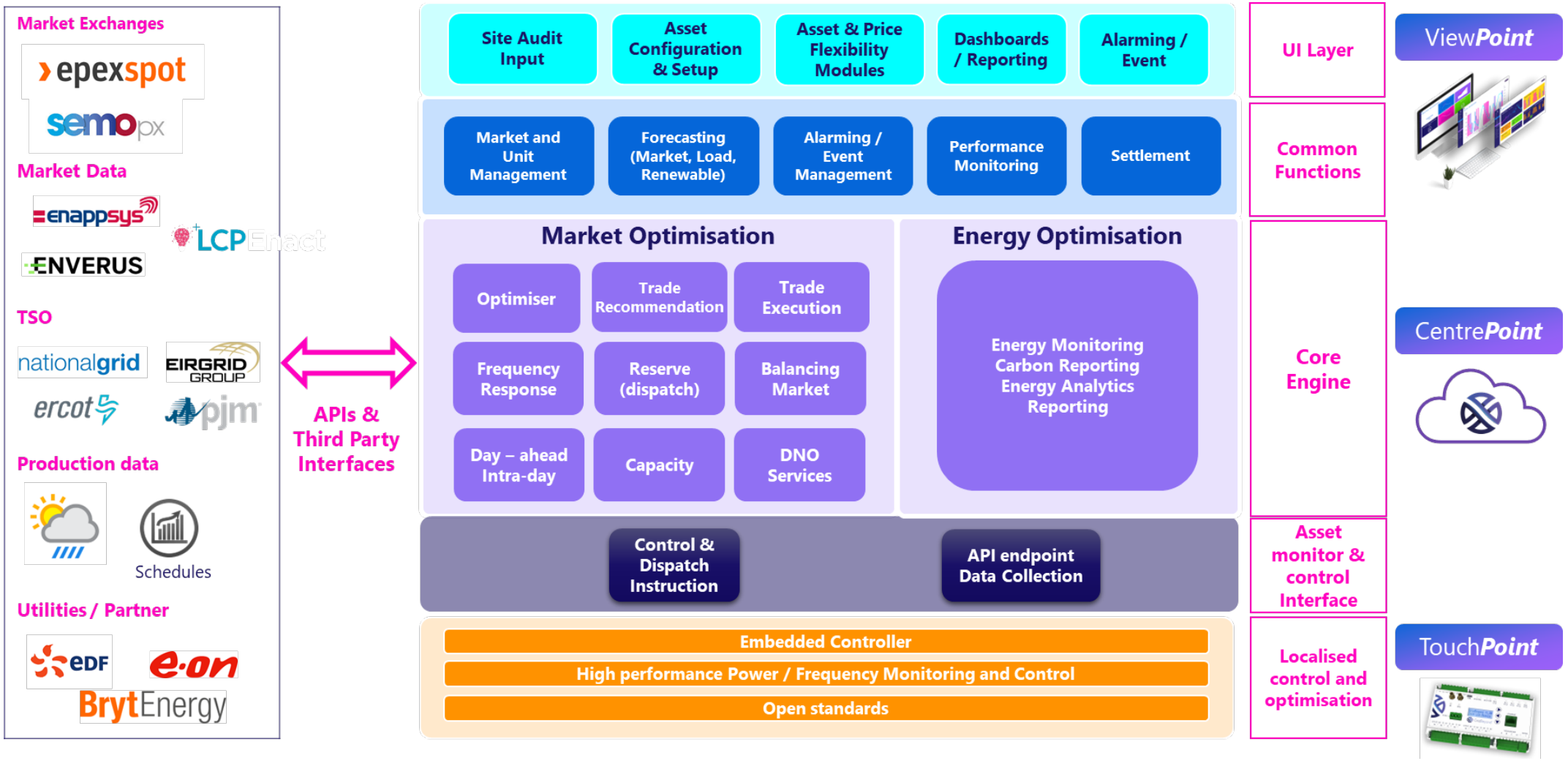
Some of our Partners/Investors

VISTRA ESB TotalEnergies edp GridBeyond

Thank you

Please ask any questions

GridBeyond Point Platform Functional Overview



Biographical Information

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Joe Hayden is the VP of Revenue for North America for Ireland/UK based GridBeyond, and has lead businesses in demand response over the last 5 years during what he terms an industry transformation.

GB is the world's leading technology platform for helping companies manage distributed and flexible energy resources. The transition to a Net Zero economy is driving significant change in the energy sector and GB helps navigate the opportunities resulting from this transformation. From the rise of renewables generation to the ever-increasing need for grid balancing services that go well beyond traditional Demand Response. The result is a significant requirement for scalable and real-time solutions to manage the carbon friendly, energy system of tomorrow through an automated AI controls based grid services solution.

Joe will attempt to explain where we are in the transformation of the grid's generation makeup, how carbon reductions have been made significant strides balanced against reliability and resiliency challenges not seen in quite some time.

Joe has been mesmerized by arguably what is the first, high-tech industry, the electric utility industry, for over 20 years. He resides as a native Texan and is a graduate of Texas Tech University.