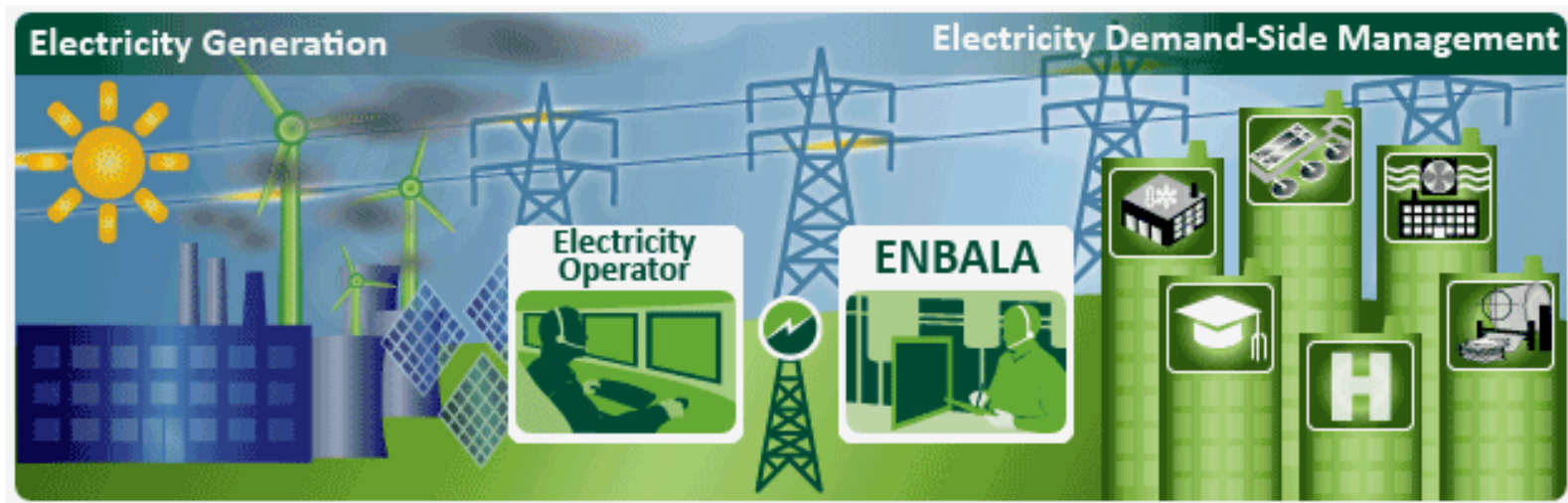


Intelligently Balancing Supply with Demand through Continuously Connected Customers



Future Innovation in Energy Planning

Ron Dizy

Who is ENBALA?

- ENBALA Power Networks® is a Smart Grid technology company that enables utilities and electricity grid operators to **intelligently connect** to commercial and industrial customers to provide **continuous value** back to the power system.
- ENBALA's GOFlex™, **real-time demand-management** platform delivers **operational flexibility** to the electricity grid addressing an increasingly complex management challenge.



Electricity Industry is in Transformation

Stressors



Aging Infrastructure



Changing Generation Mix



Intermittent Renewable Power Sources



Retiring Coal



Electric Vehicles

Challenges

Generator Efficiency



Increased Volatility



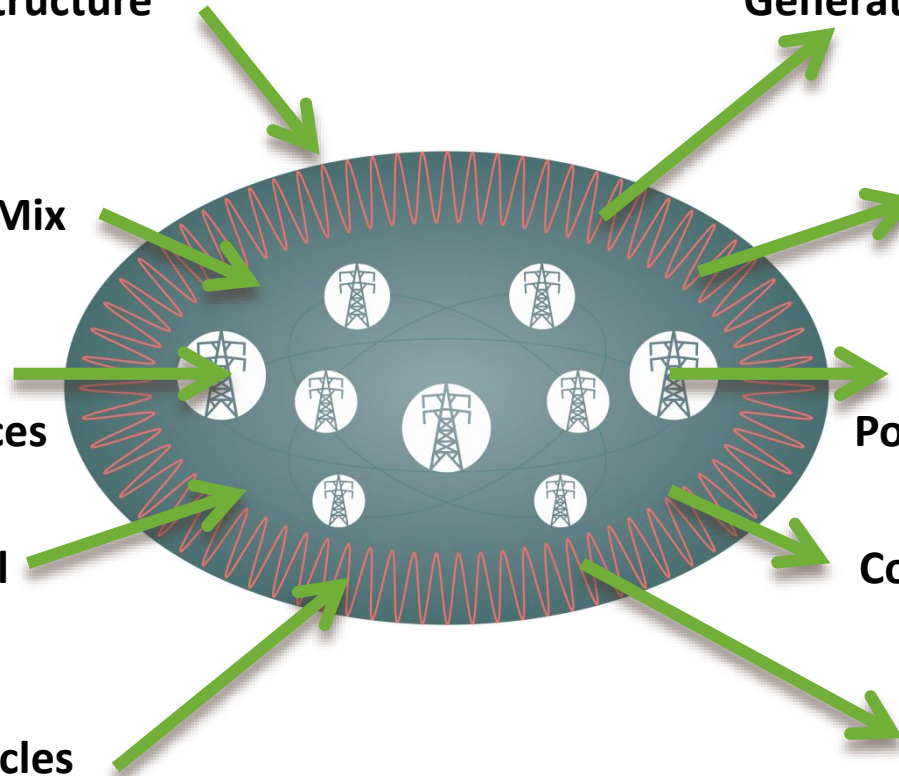
Integrating Renewable Power Sources



Cost Pressures

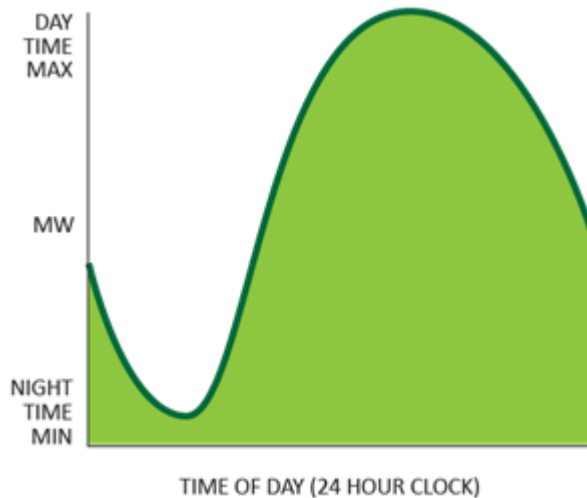


Reliability



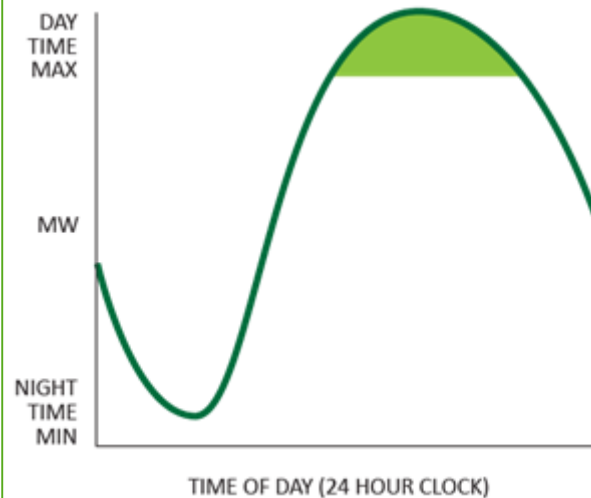
The Power System Needs Real-Time Flexibility

Continuous delivery
of electricity



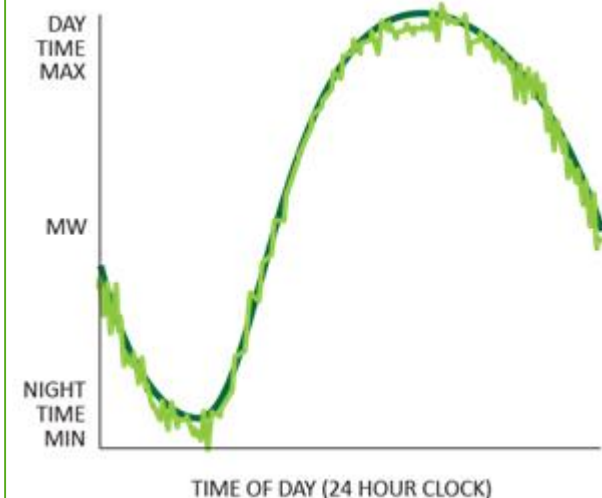
ENERGY

Ability to meet
peak requirement



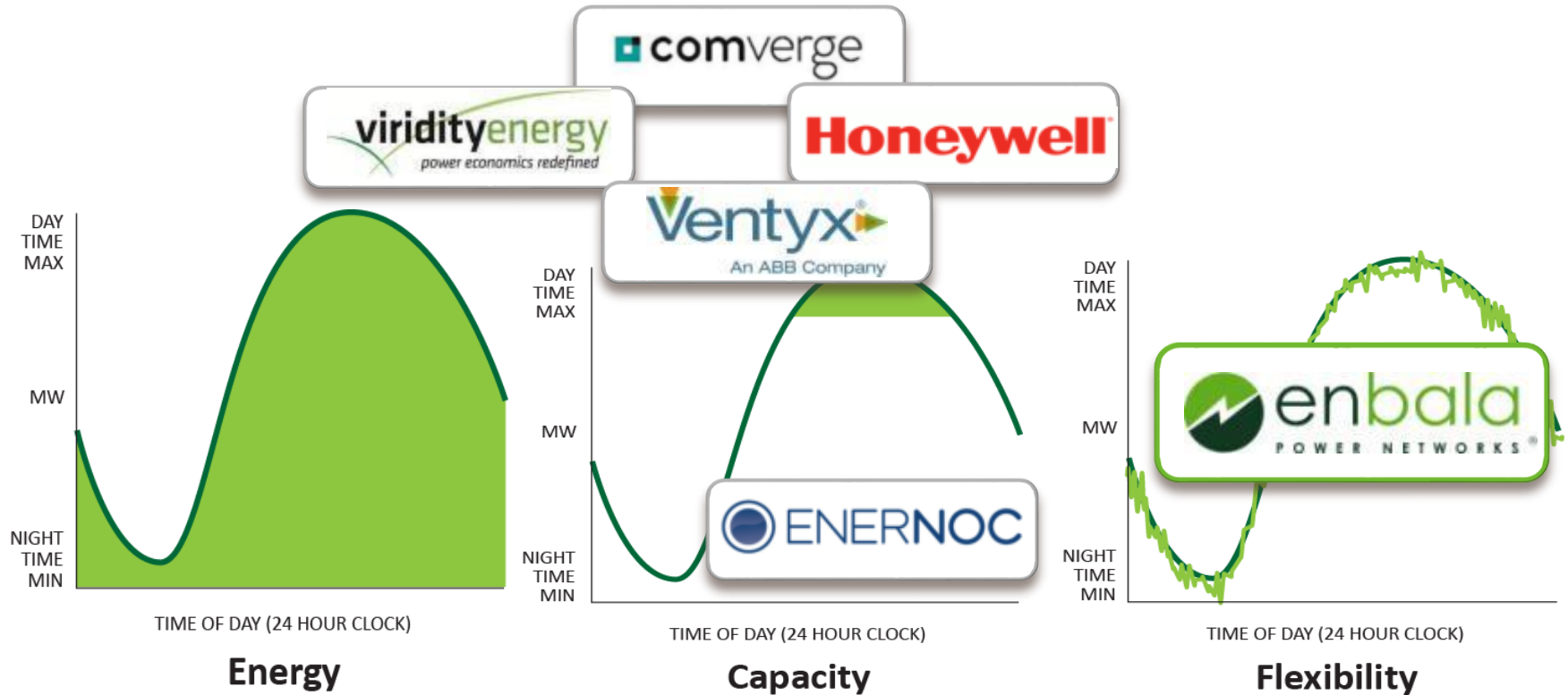
CAPACITY

Ability to continually
match supply & demand
(& manage intermittent
generation)



FLEXIBILITY

Evolution of Demand Management



In a smart grid... demand management provides real-time **operational flexibility** to the power system.

Solutions for the Power System

GOFlex™ Platform



Grid-Scale Solutions



Supply/Demand Optimization

Improving the overall efficiency of dispatched generation and reducing O&M costs.



Wind Integration

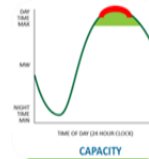
Providing reliable integration of renewable generation.



Frequency Regulation

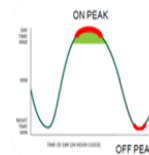
Engaging demand-side loads to provide real-time grid balance.

Distribution-Scale Solutions



Dynamically Optimized DR

Permission based demand response allows load to participate on its terms.



Load Shifting

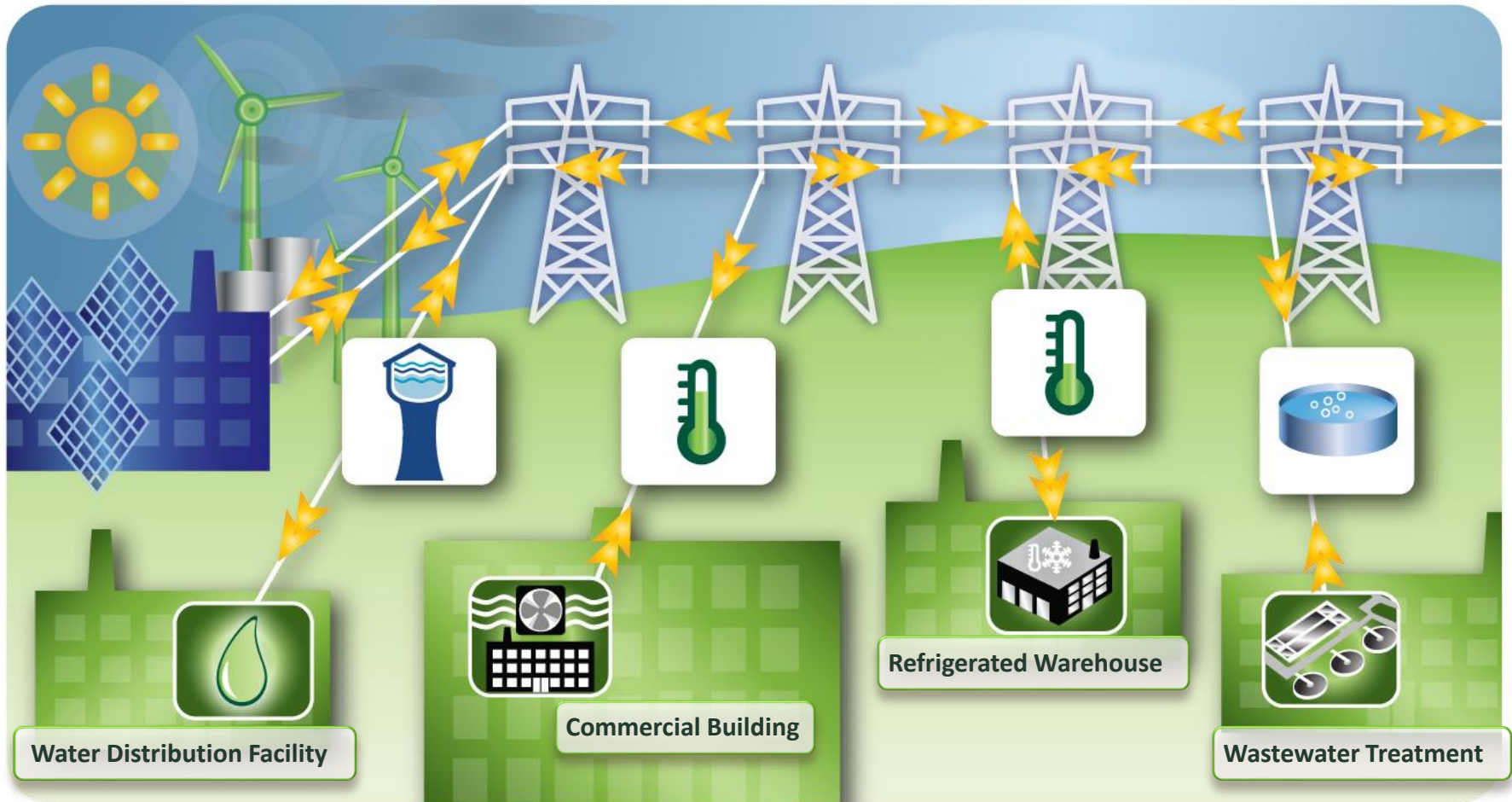
Using inherent process storage to intelligently shift energy consumption that allows load to specify level of impact.



Customer Engagement

Enhanced, bi-directional communication and information exchange that provides deeper understanding and relationship between the customer and their utility.

Inherent Process Storage in Existing Assets



1

Storage already exists in the power system

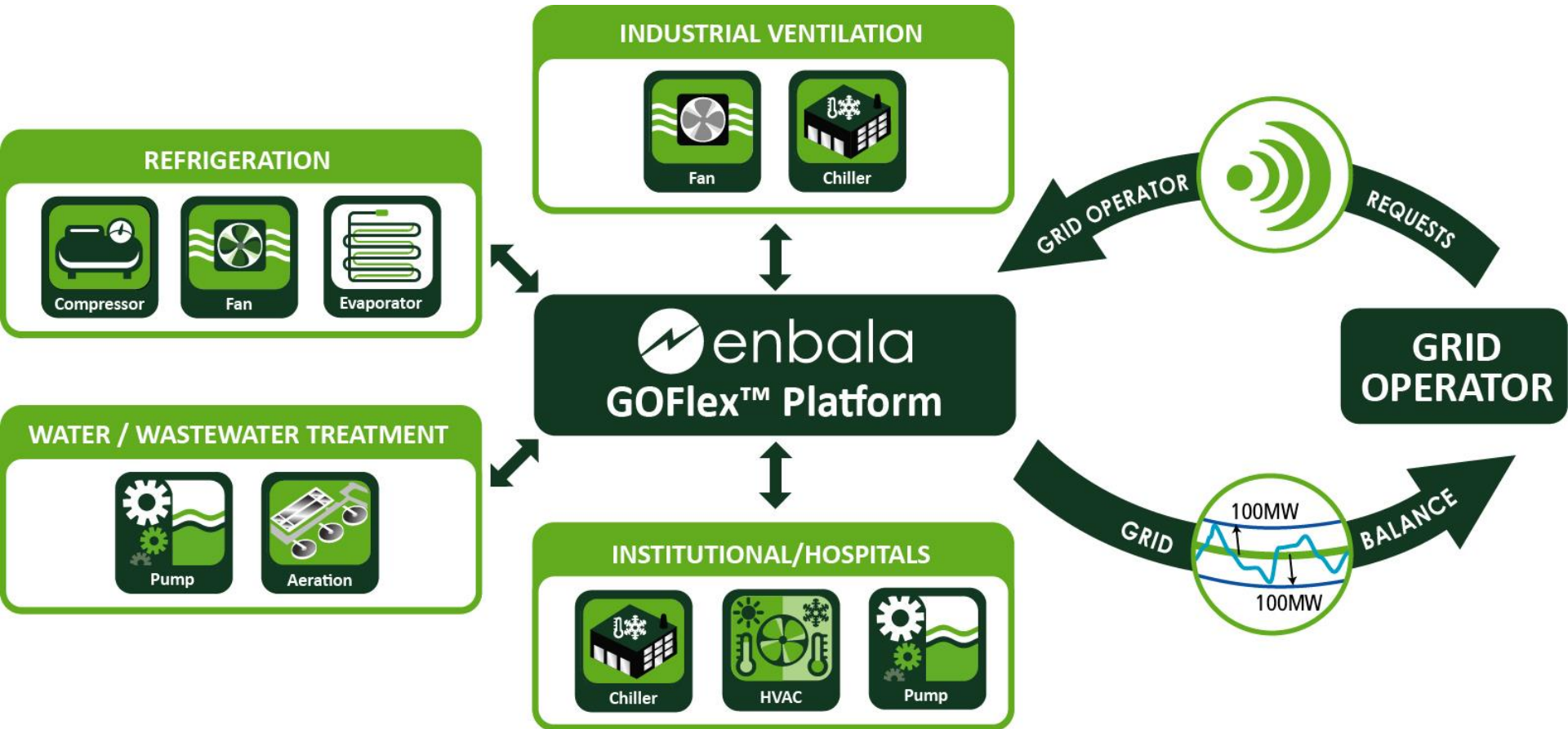
2

Storage in industrial systems and processes provides flexibility in consumption

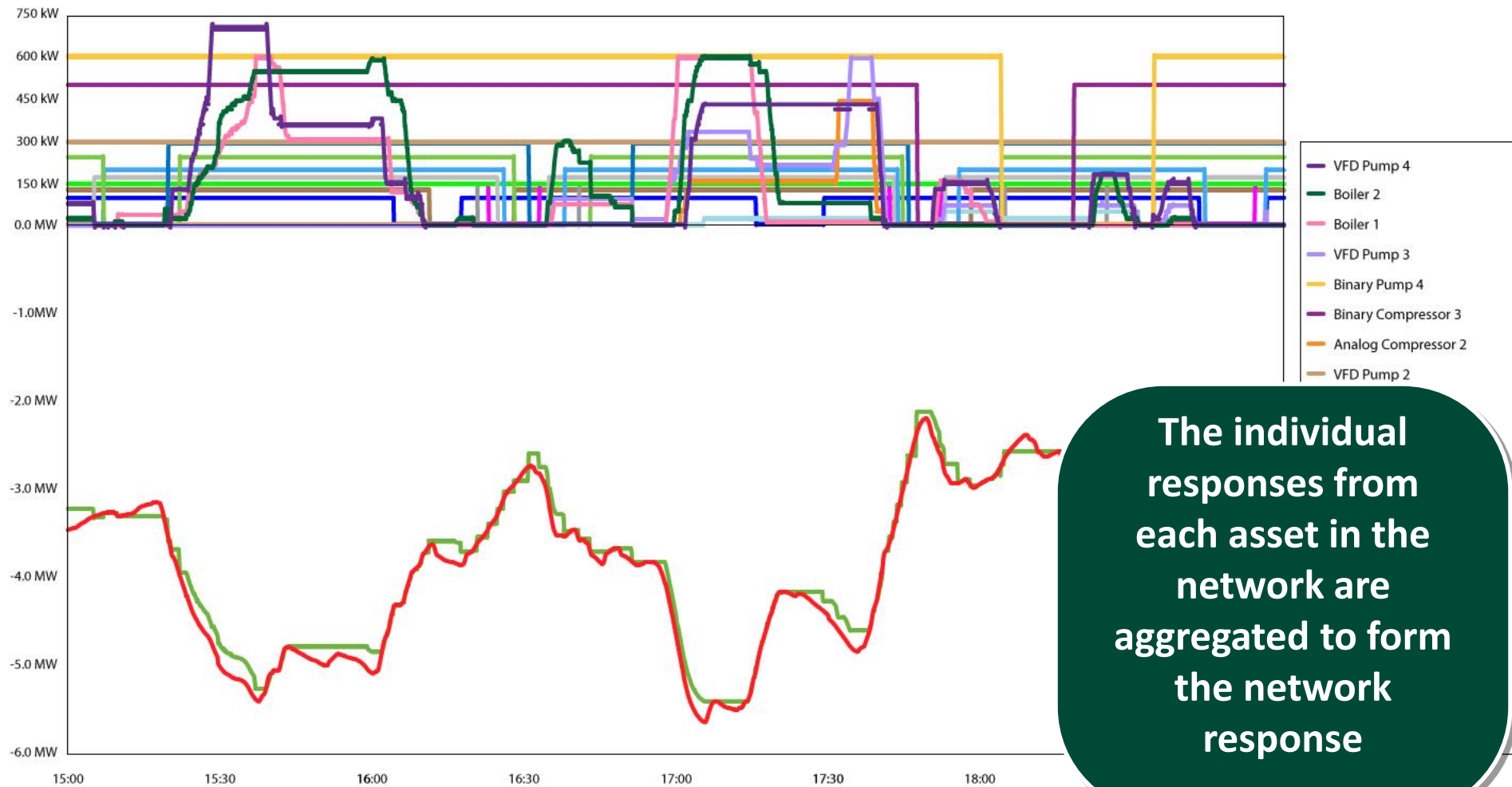
3

We only have to connect and manage this storage

Customers Connecting to the Grid



Power of the Network



ENBALA Sample Clients

Water/Wastewater



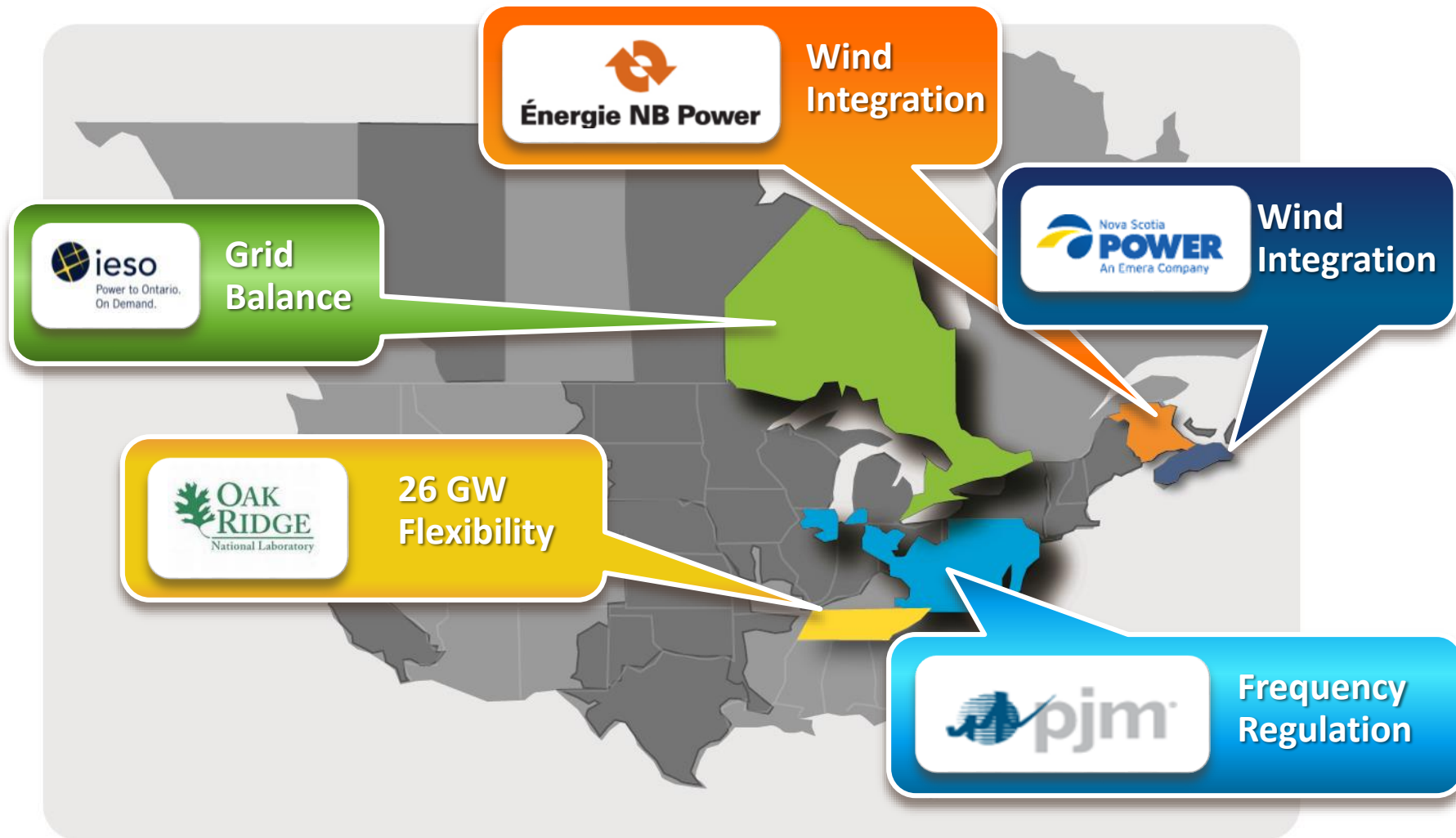
Cold Storage



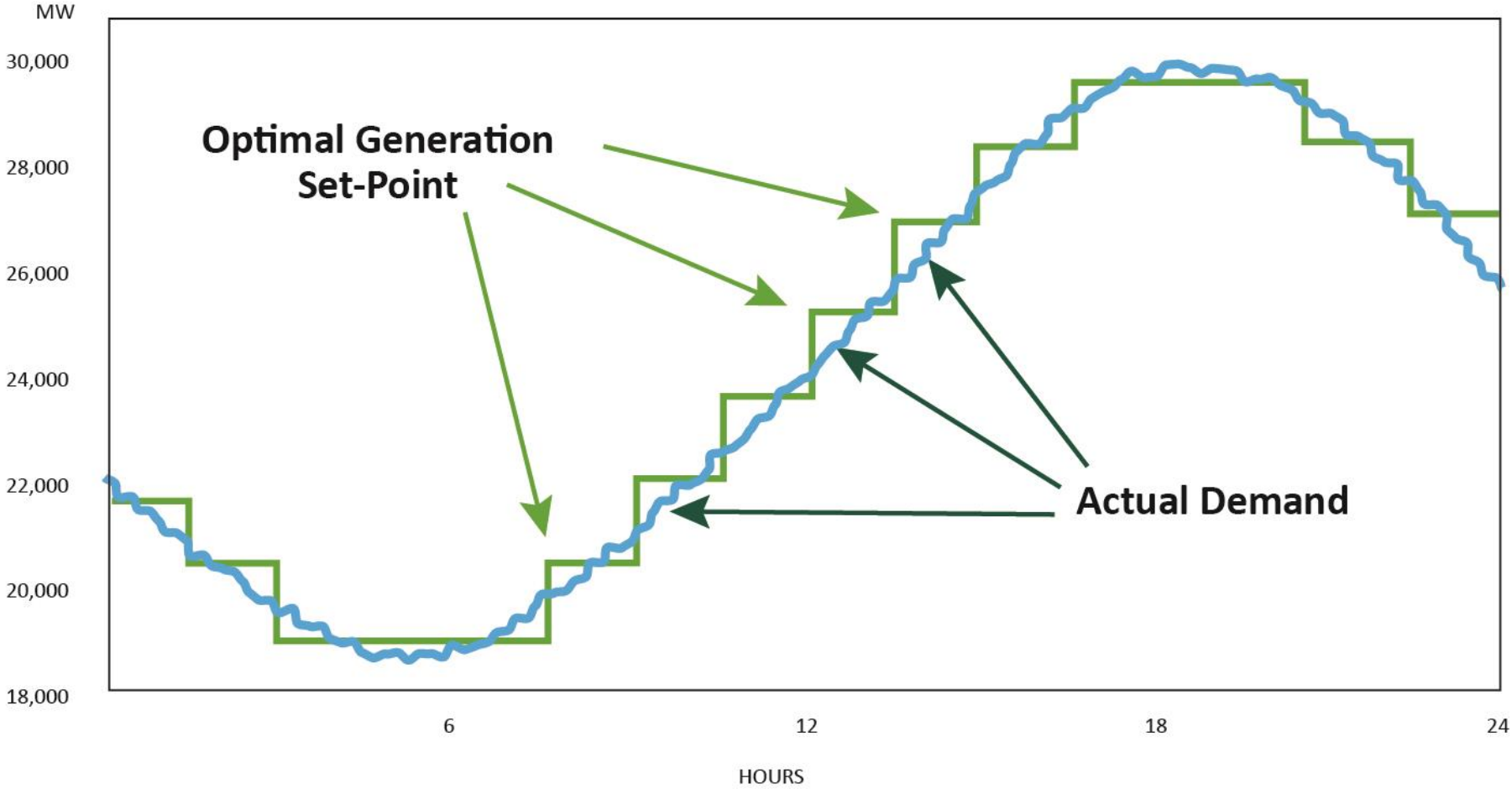
HVAC Applications



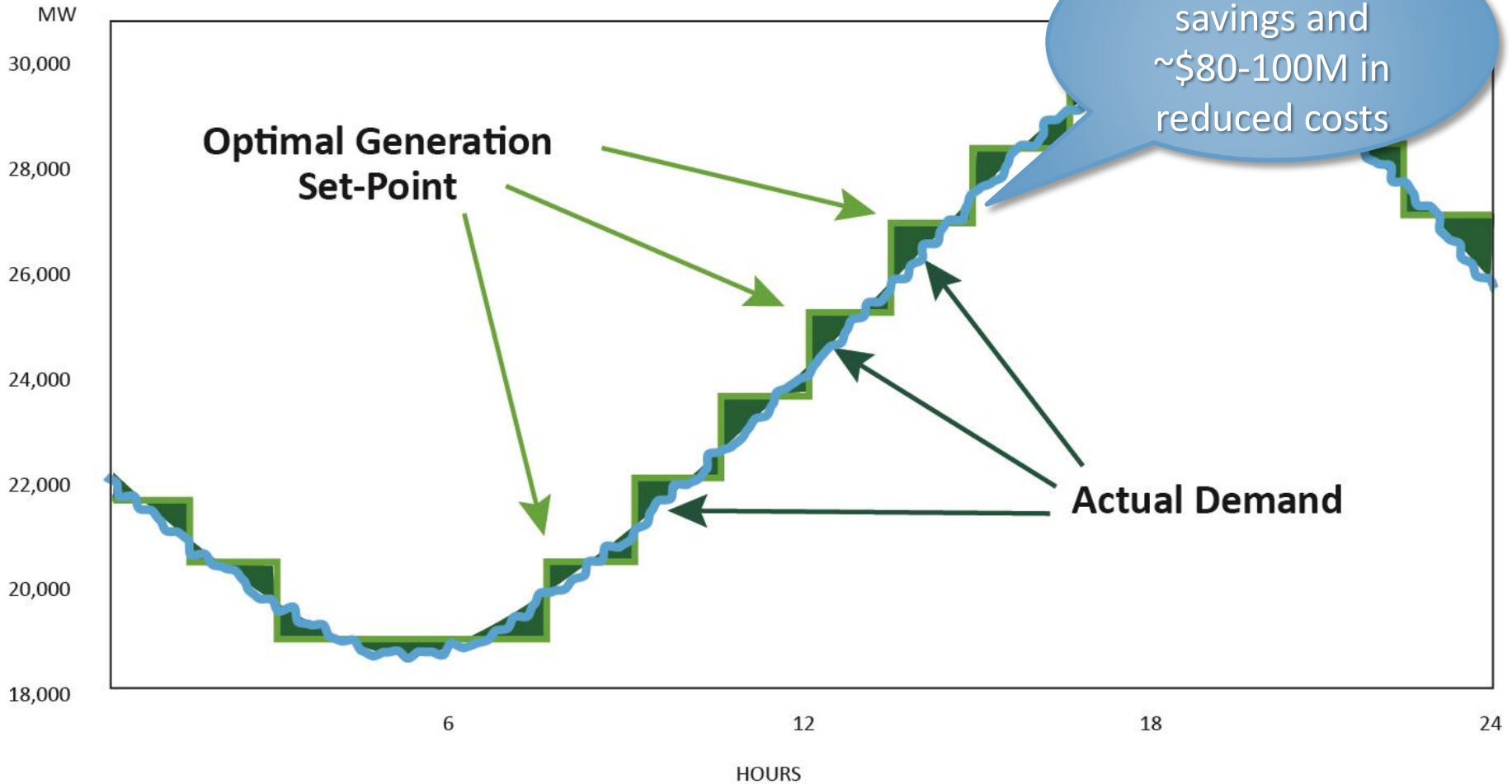
Proven Technology in the Market Now



Generation Fleet Needs To Follow Ramp

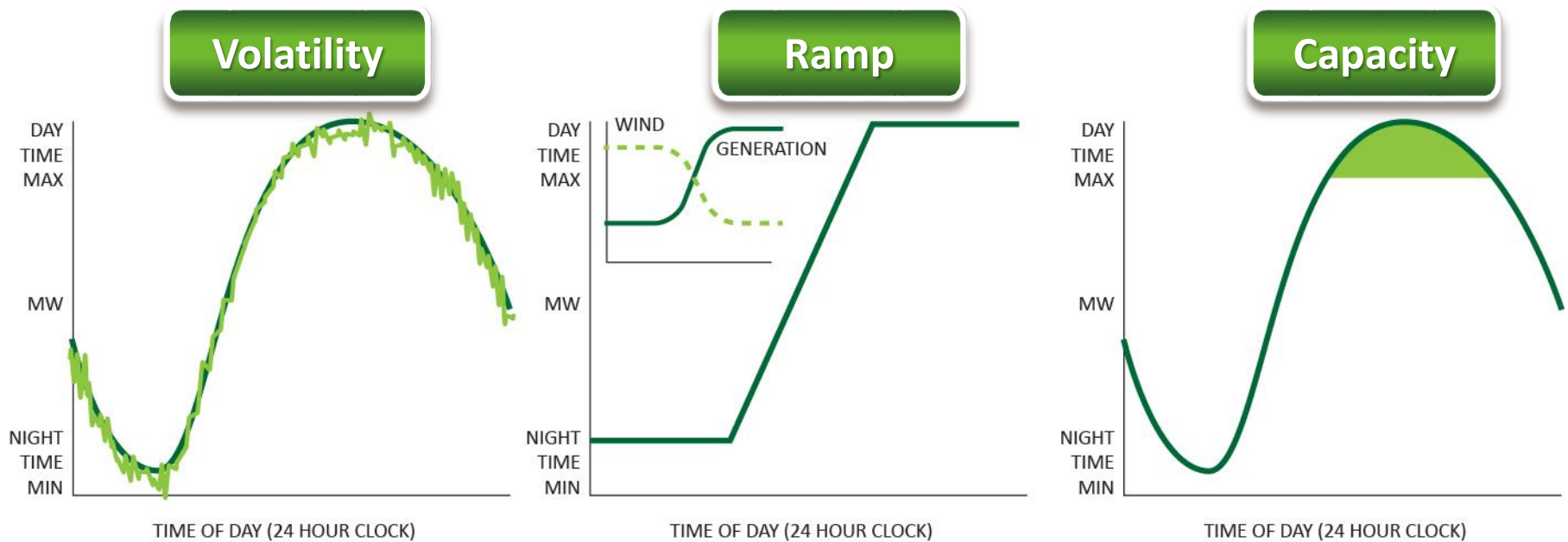


Improving Generator Efficiency



Wind Integration

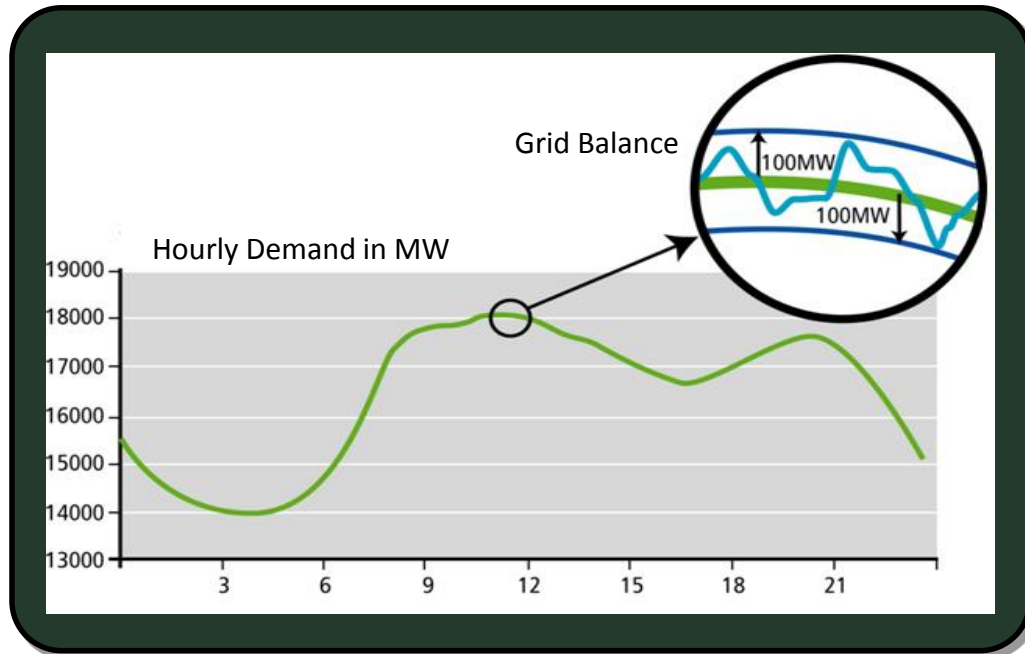
1. Volatility – maintaining system balance
2. Ramp – losing wind at inconvenient times (during ramp)
3. Capacity – different form of generation



Volatility and ramp can be solved using demand-management technologies.

Grid Balance[®]

Grid Balance (also known as Frequency Regulation) is the second-by-second balancing of supply and demand to maintain the grid's frequency balance (near 60 Hertz).



“Think of regulation service as a cruise control for the electric system.” To go a steady 60 mph, your cruise control imperceptibly adjusts gas and brakes to keep your speed constant. “Regulation services do the same thing, adding or reducing power on the grid to keep its frequency in balance”.

Scott Baker, Analyst
PJM Interconnection

Summary

There is nothing more cost effective than IT enabling resources that are already a part of the electricity system.



Thank You

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Market Policy Experience

The role of the Demand Side is not typically considered when policy framework is written. The Demand Side needs a level playing field.



Smart Grid-Enabled Demand Management

“Smart grid-enabled demand management can and must be expanded and improved. As part of our conservation framework, we will ensure that conservation and demand response are the first energy resources considered to address demand, before generation, wherever cost effective.”

Bob Chiarelli

Ontario Minister of Energy

September 10, 2013

Benefits of the ENBALA GOFlex™ Platform



Provides additional benefits to customers



Reduces costs of O&M in the system



Reduces GHG emissions



Helps to optimize generation



Electricity consumer satisfaction rises through participation