



Energy Resiliency in the Supply Chain

7.28.2021

Who is Duke Energy?



<p>\$162.388 billion in assets</p>	<p>Top renewable energy provider</p>	<p>Founded in 1904</p>		
	<p>9.4 million electric and natural gas customers</p>	<p>8,000 MW renewable energy</p>	<p>\$21.72 billion in revenue</p>	<p>Named to the Dow Jones Sustainability Index for North America for 13 years</p>
<p>51,000 MW electric generating capacity</p>		<p>Headquartered in Charlotte, NC</p>	<p>27,500+ employees</p>	
		<p>NYSE: DUK</p>		

Who are we?



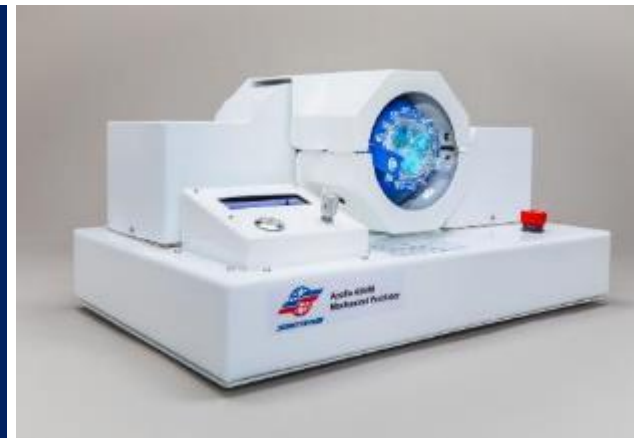
2017

Acquired by Kirby Corporation



1902

Founded in Houston, Texas to provide carriage repair and horse-shoeing services



NYSE: KEX

Share Price	\$ 59.02
Shares Outstanding	60.1 MM
Market Capitalization	\$ 3.55 BN

As of July 13, 2021

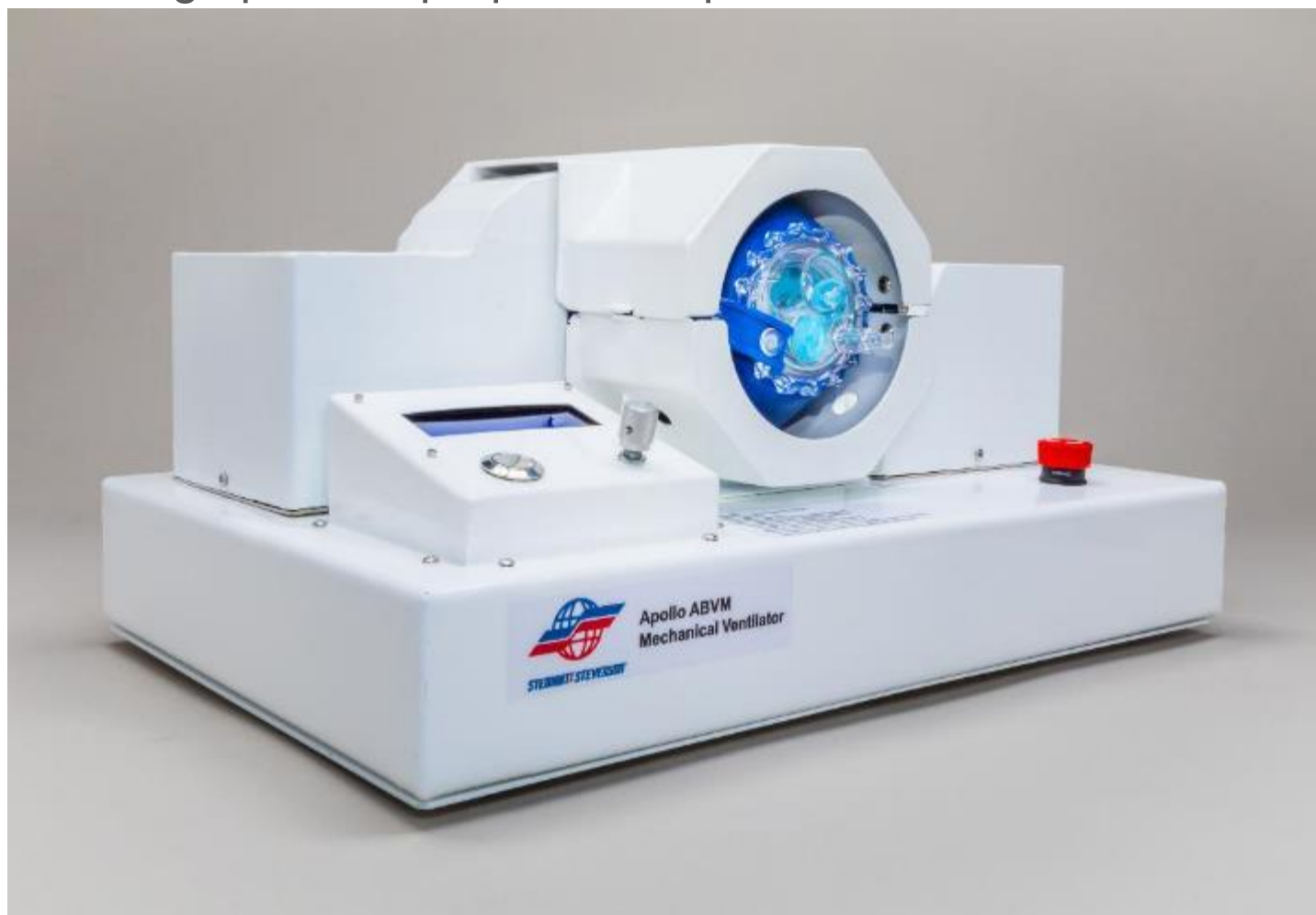


- Industrial manufacturer of equipment for power generation, power distribution, energy storage, rail transportation, and oil & gas
- Aftermarket support provider for Stewart & Stevenson manufactured and distributed products
- Distributor of power generation equipment, industrial engines, and transmissions
- Rental equipment provider for power generation, material handling, and compression

Our Resilience Journey 2020+

Building upon our purpose in a post-COVID environment

- Focusing on the social element of ESG carries even greater importance
- Our organization resilience is critical to our customers, employees, and partners
- Performance and innovation enables our growth



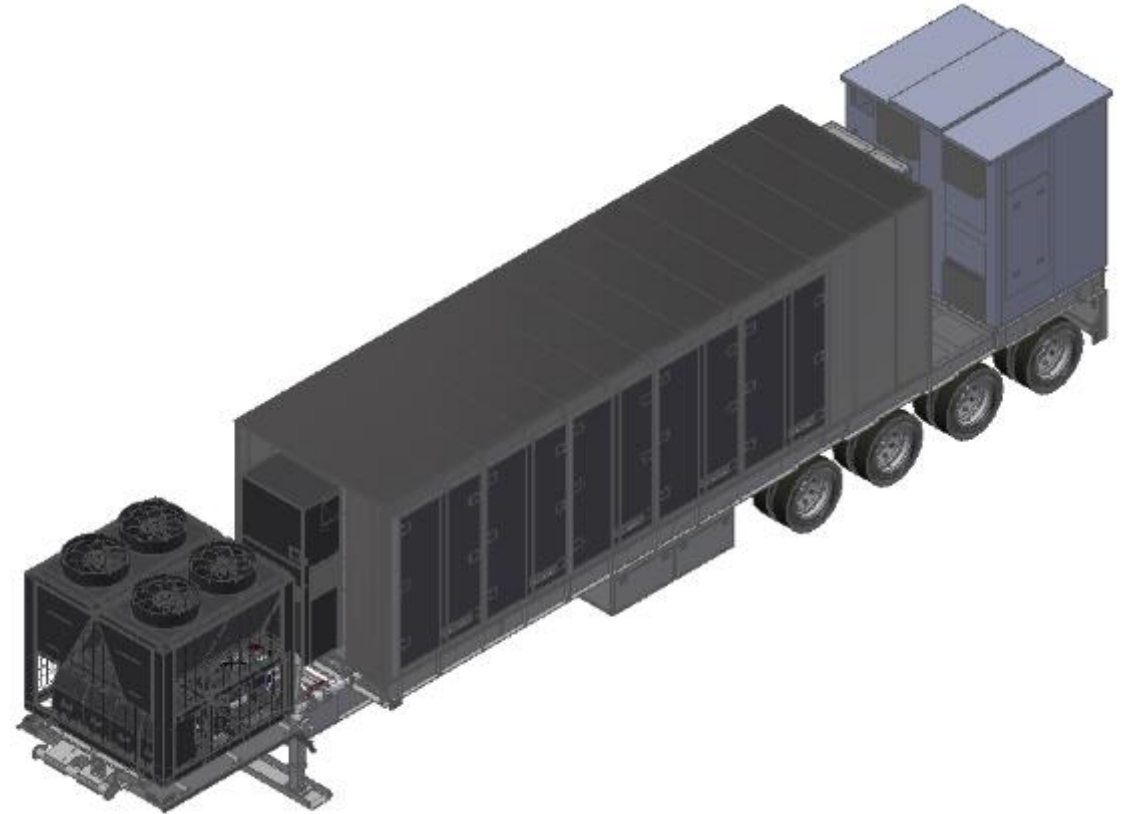
What part of the supply chain are you?

- A. Manufacturing
- B. Distribution
- C. Transportation
- D. Retail
- E. Consultant or other

Energy Storage Systems (ESS)



- Mobile or Stationary
- High Power Density: Up to 3 MWh Storage Capacity
- High Power Output: Up to 3 MW
- High Mobility: 53' x 8.5' x 13.5'
- Self Contained: Drive Up and Plug In (no additional rig-up)
- Output Voltage Flexibility: 13,800 Volt Shown
- Wide Operating Range: Up to 122° F Operation
- Intelligent Operation: Advanced Battery Management System (BMS) and Power Management System (PMS)
- Highly Scalable: Platform Based Design (allows for smaller systems or use of multiple systems to meet different power demands)
- Integrated Turnkey Packages: ESS Compliments Existing S&S Power Generation and Power Distribution Products



Supply Chain Resiliency

When power outages occur, they can quickly bring the flow of business and products to a screeching halt.

Disruptions include:

- Natural disasters and weather events
- Regional or local community power outages
- Transportation failures and delays
- Localized or regional cyber attacks
- Global effects including pandemics & port back up



The Supply Chain



Port

- Raw materials shipped in
- Materials stockpiled and shipped to processors and suppliers



Manufacturing

- Goods and materials arrive at plants
- Full manufacturing processes and final assembly take place



Distribution and Retail

- Goods are shipped, stored and palletized at distribution centers
- Goods shipped to retail and end consumers

How have you been affected by supply chain disruptions?

Select all that apply

- A. Delayed orders
- B. Lost sales
- C. Lost customers
- D. Not sure
- E. Other – share in chat

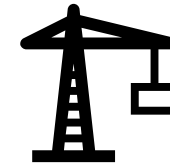
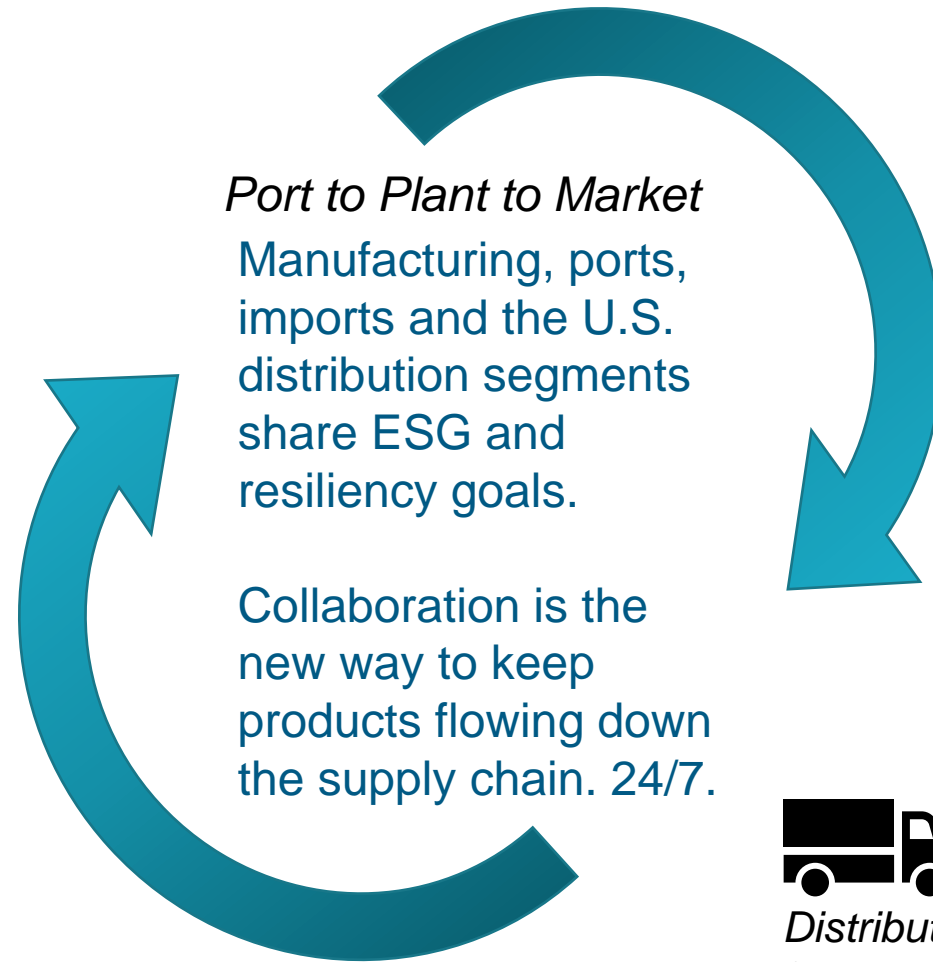
Envision

a continuous,
sustainable and
energy-resilient
supply chain
from port to plant
to point of purchase.

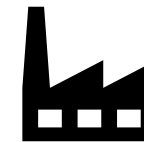


Supply Chain Resiliency Model that Adds ESG and Renewable

- Supply chain relationships are more interactive and digitally connected than ever. If the end-to-end chain is resilient the supply flow can function. Microgrid systems manage solar, battery and generator.
- Microgrid technology is a proven solution in the market. For supply chains, it even adds advantages during normal operation. Resiliency is key.



Ports: We need to reach ESG goals & 24/7 uptime using resiliency and renewables.



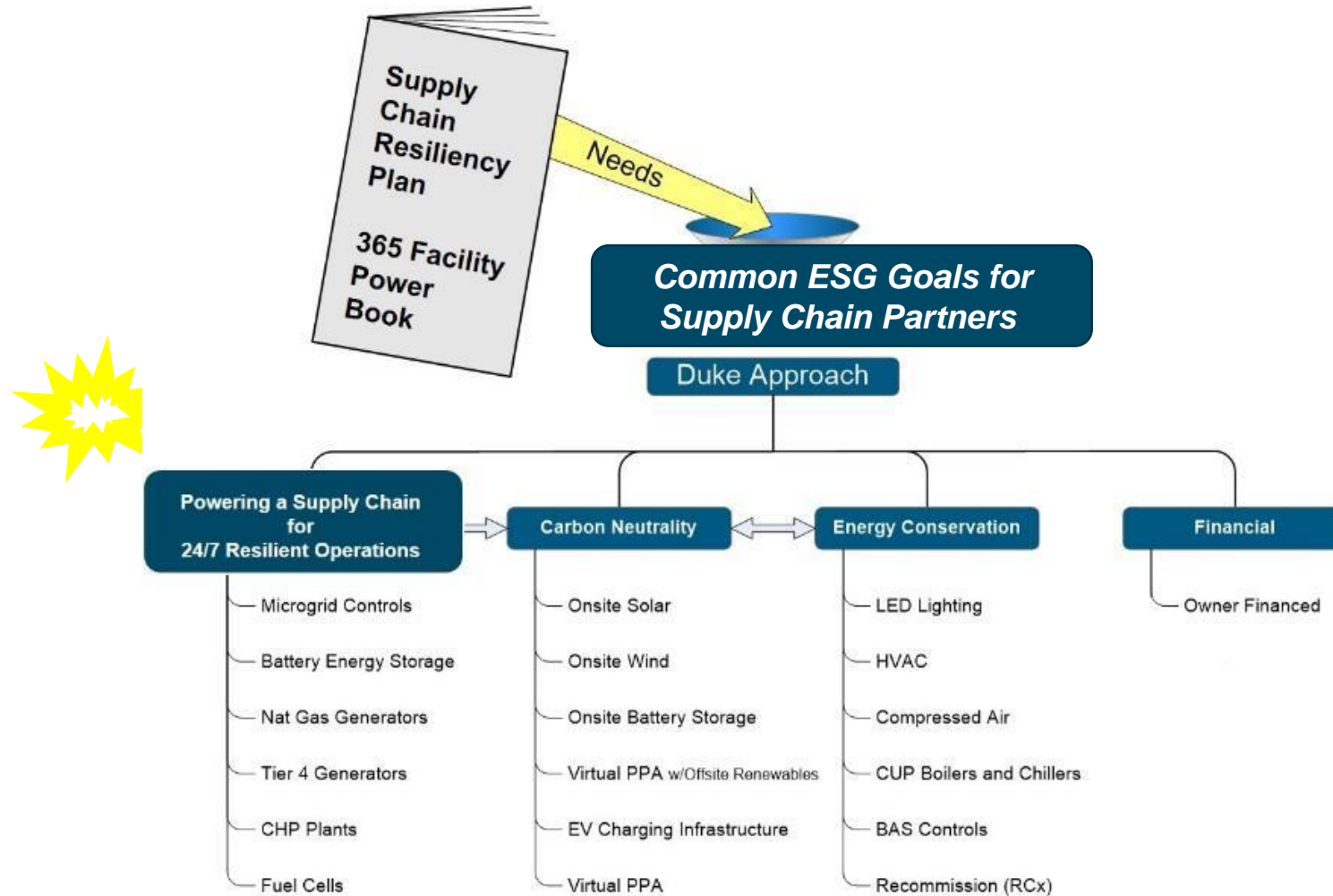
Plants: We need simple but effective controls that manage through every season and weather condition and can enable energy incentive programs.



Distribution : We need to identify funding opportunities for emerging technology, especially around ESG and clean energy plus resiliency.

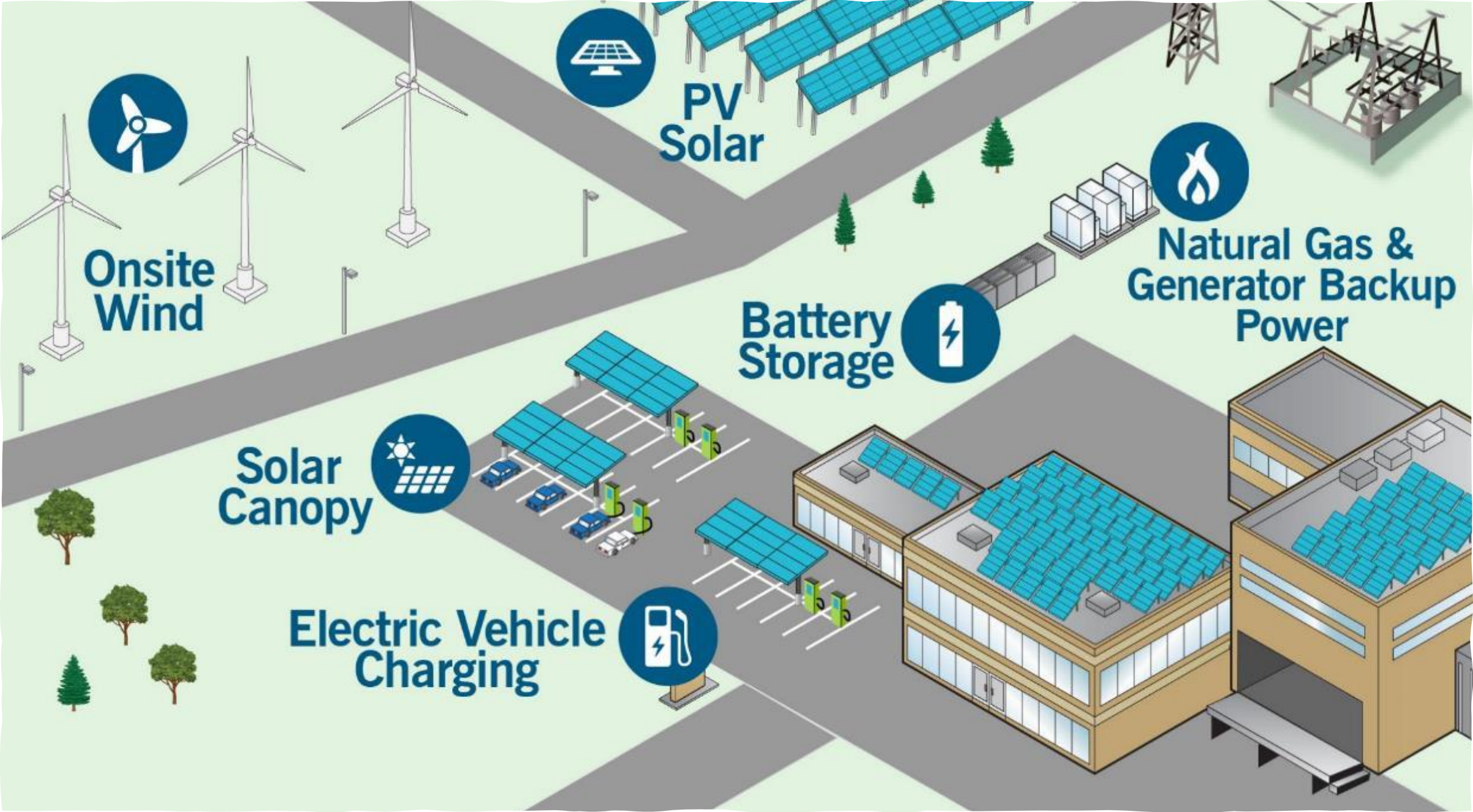
Supply Chain Resiliency – Discussion Framework

Supply chain resiliency is the new goal.
Resilient operations help supply chain partners who depend on one another's ability to function during crises and extreme weather events.





You can't control a power outage.
You CAN control what comes next.



**Onsite
Wind**



**PV
Solar**



**Natural Gas &
Generator Backup
Power**



**Battery
Storage**



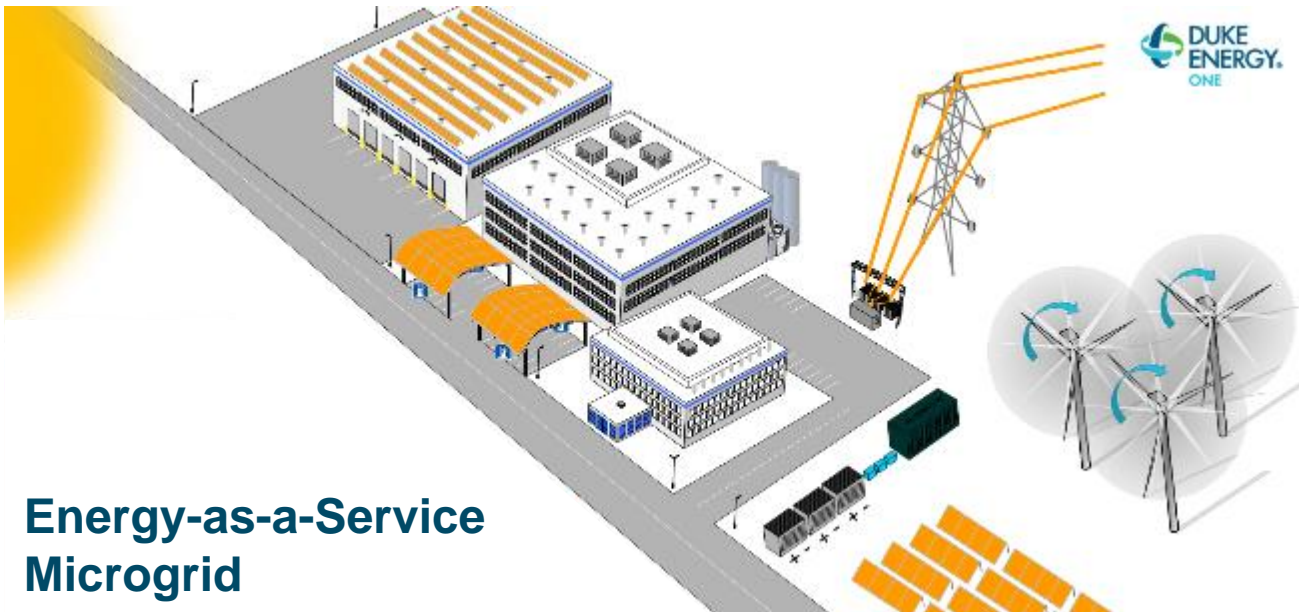
**Solar
Canopy**



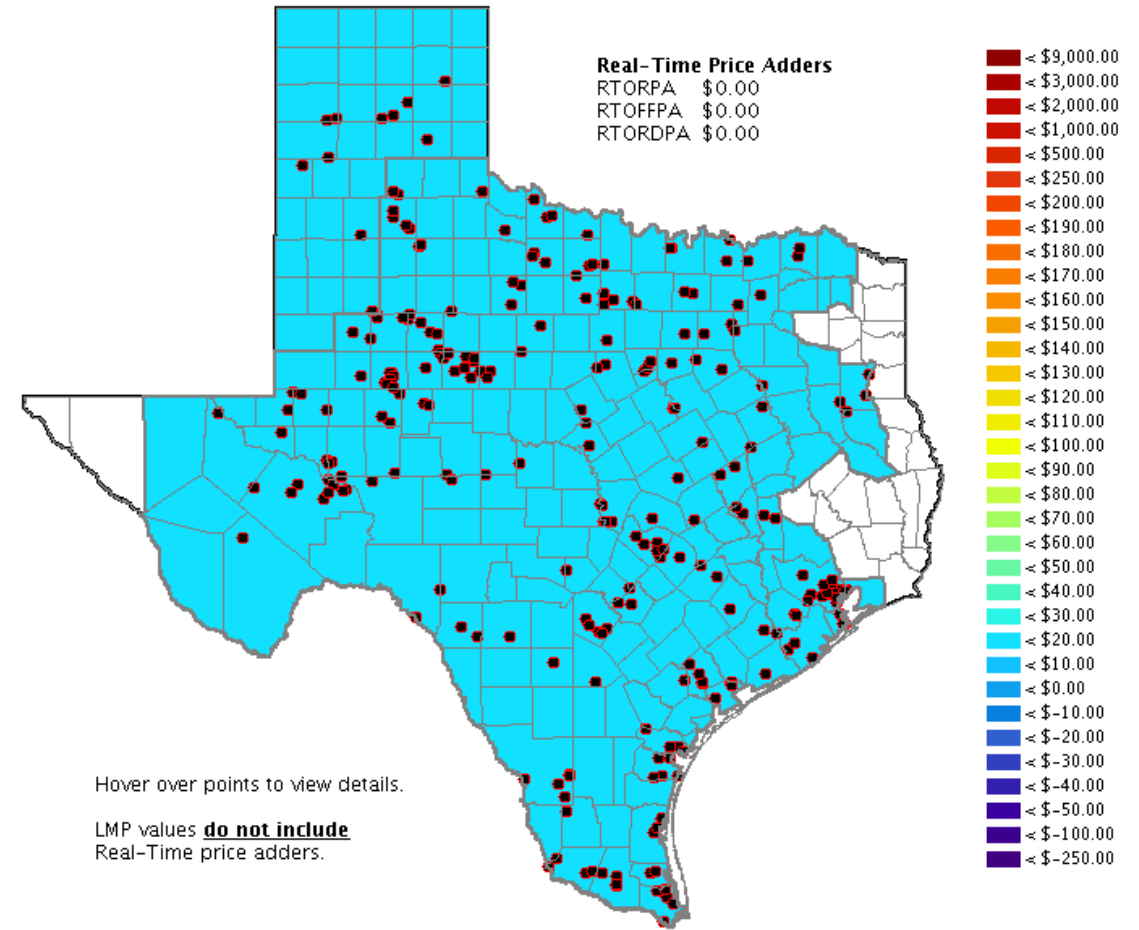
**Electric Vehicle
Charging**

Microgrid approach: ERCOT / TX as model market

Texas microgrid production Solar / NG Gen / BESS / Real time economies	Annual Incentives contribution to Microgrid cost
Retail locations	\$600,000
DC, OFC or Plants	\$400,000
Energy economic price savings	\$500,000
	\$1,500,000



**Energy-as-a-Service
Microgrid**



What role can resiliency play in a clean energy future?

- A. Adding renewables to capture savings and increase resiliency.
- B. Boosting resiliency to contribute toward shared ESG goals year over year into the 2030 targets.
- C. Both A & B.

Put the power back in your hands

A microgrid solution helps
retailers, suppliers,
manufacturing facilities and
ports control their destinies,
maximize uptime and achieve
the resilience they need.





DHX – Dependable Hawaiian Express

- Faced frequent grid outages and loss in productivity and costs
- Seeking to achieve net zero energy
- Installed solar-powered microgrid at 76k sq.ft. distribution center
- Looking to add 2nd microgrid to electrify vehicle fleet

Where are you on your resiliency journey?

- A. Haven't looked at it yet
- B. Beginning to plan
- B. Choosing resiliency projects
- C. Working on taking our plan to the next level
- D. Not sure

What makes a successful resiliency plan?

- Do you have a backup plan for your digital systems?
- Is that plan weatherized?
- Is that plan's deployment automated?
- Can you operate continuously?



Thank you



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