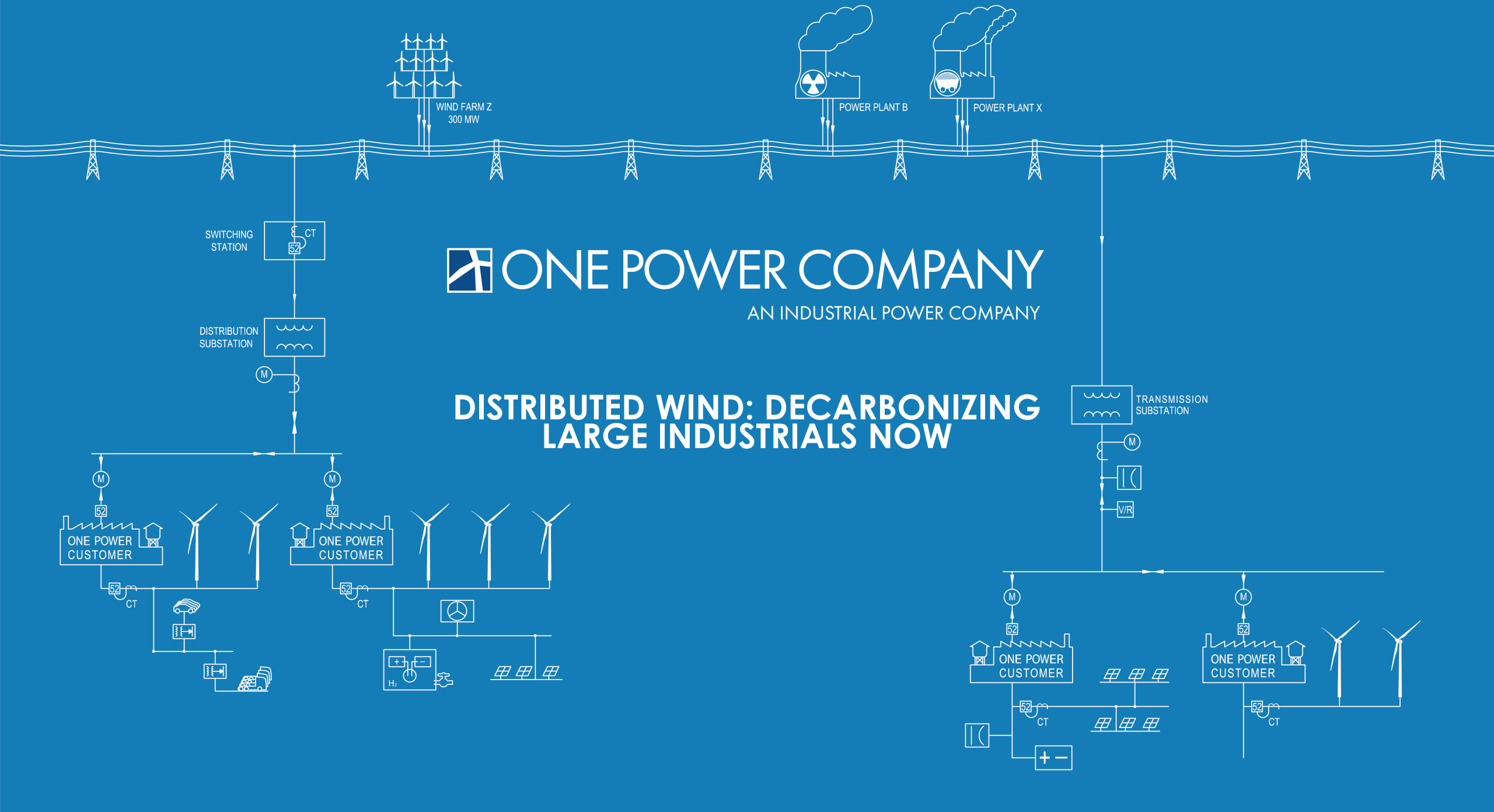

WIND FARM Z
300 MW
POWER PLANT B
POWER PLANT X
SWITCHING STATION
CT
52
DISTRIBUTION SUBSTATION
M
ONE POWER COMPANY
AN INDUSTRIAL POWER COMPANY
DISTRIBUTED WIND: DECARBONIZING LARGE INDUSTRIALS NOW
TRANSMISSION SUBSTATION
V/R
ONE POWER CUSTOMER
ONE POWER CUSTOMER
ONE POWER CUSTOMER
ONE POWER CUSTOMER
H₂

WHO IS ONE POWER?

One Power helps large industrials take control of their energy future.

Everyday items – from dishwashers, sliced turkey products, and soda cans, to cement and renewable diesel - are produced cleaner and more sustainably thanks to One Power's *Wind for Industry*® projects.

A *Wind for Industry*® project consists of the installation of one or more utility-scale wind turbines on-site at an end-user's commercial or industrial facility, on the customer's side of the meter, to directly provide power to that customer.

One Power is the largest installer of on-site wind energy in North America.

40.5 MW installed behind-the-meter wind

27 turbines in operation in Ohio

Established in 2009	Headquartered in Findlay, Ohio	100+ turbine-years of operating history	70+ employees

KEY CUSTOMERS

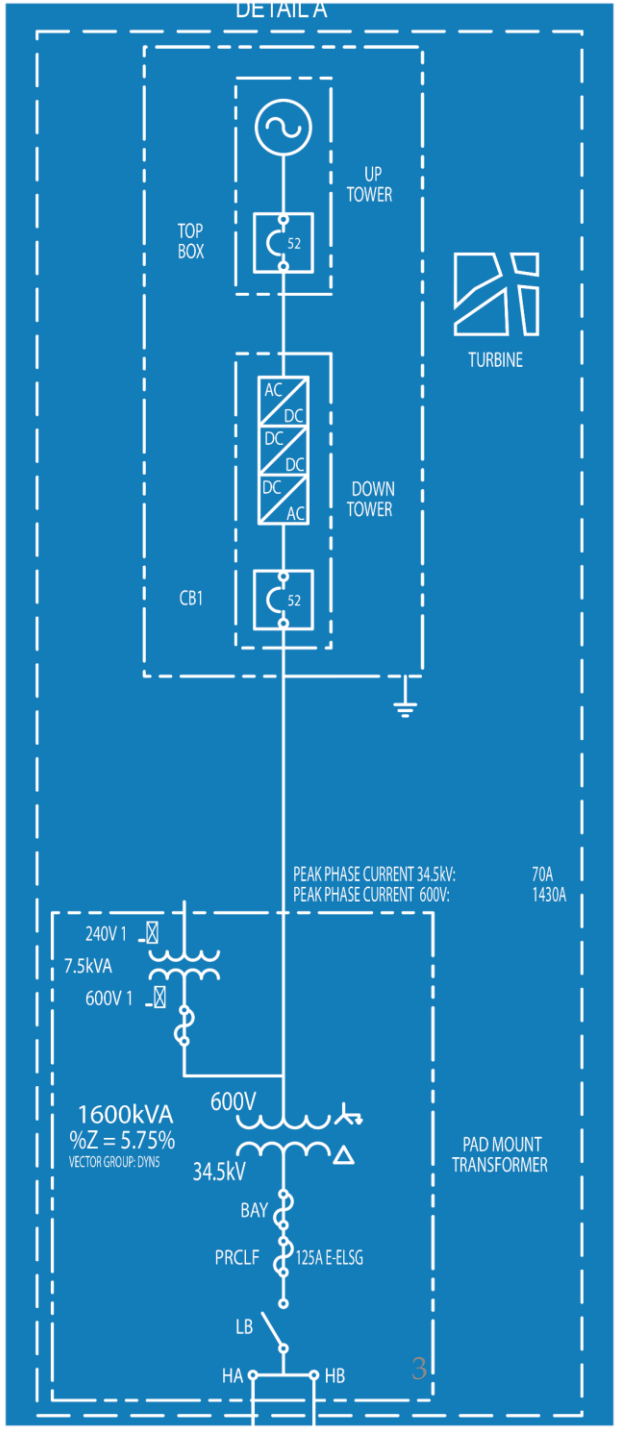
Ball

MARATHON®

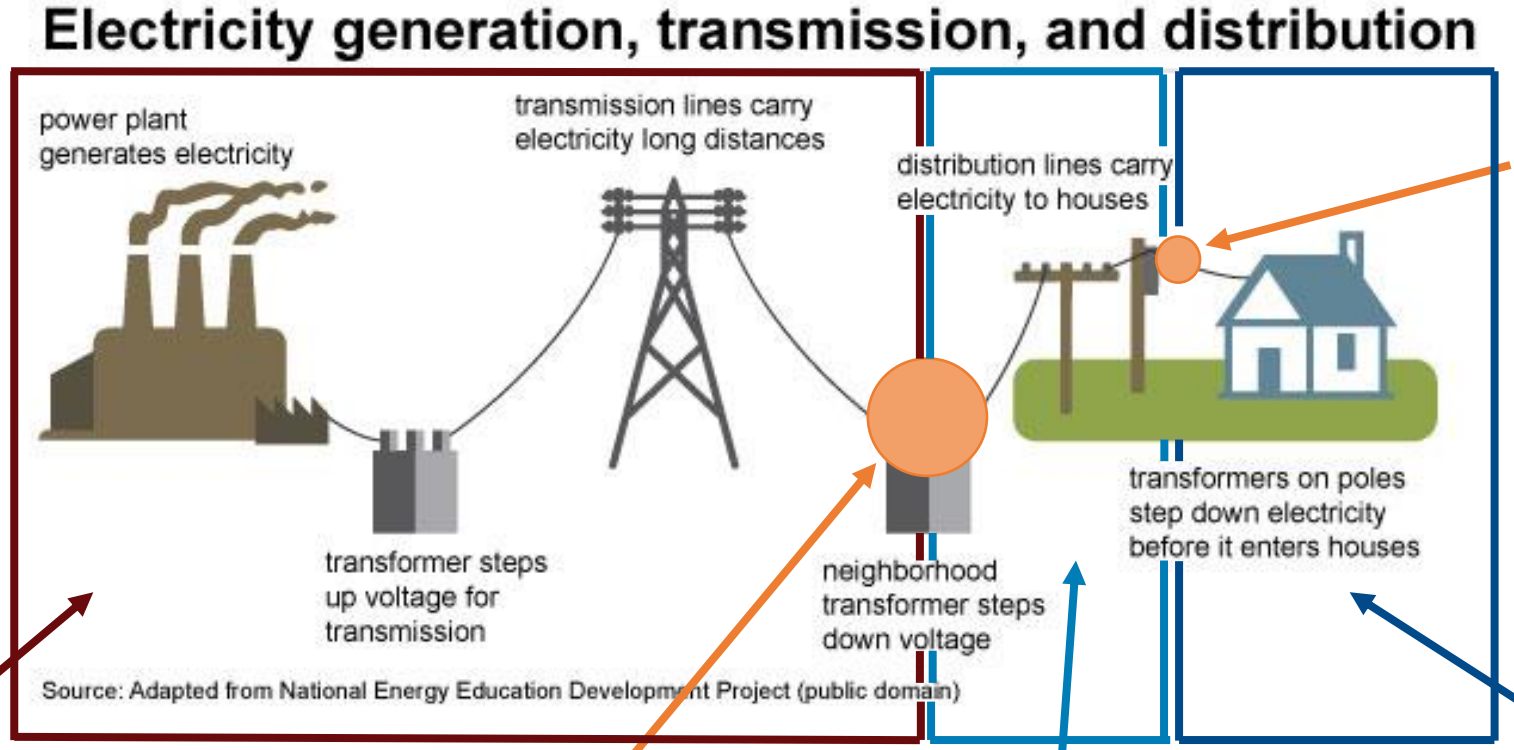
Whirlpool CORPORATION

LafargeHolcim

The Power Grid 101



FROM THE POWER PLANT TO THE END USER



End-Users' Meter

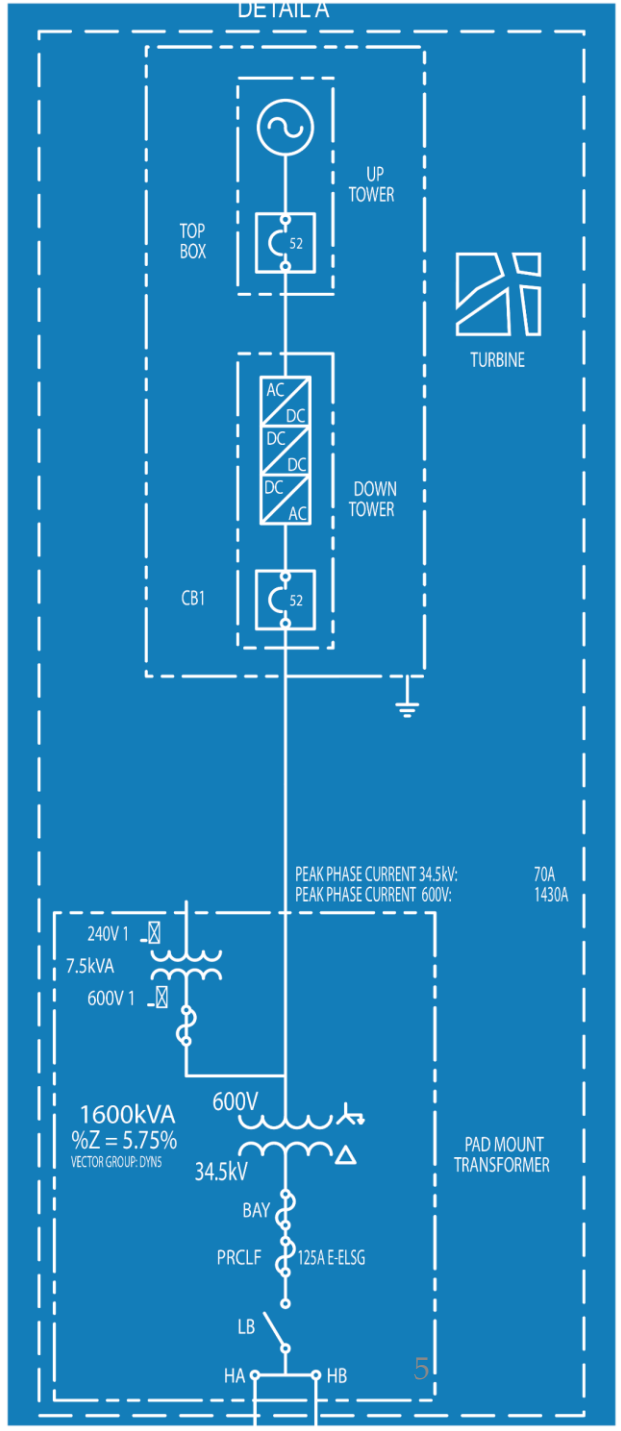
Independent System Operator (ISO) / Regional Transmission Organization (RTO)

Pricing Node (PNode)

Electricity Distribution Utility (EDU)

End-User

Types of Wind Energy Projects



SCALES OF WIND PROJECTS

Utility-Scale Wind

- "Big Wind"
- In front of the meter
- Interconnected into the transmission system
- 1 - 5 MW per turbine
- 10 – 100+ turbines
- Designed to power the grid

Distributed Wind

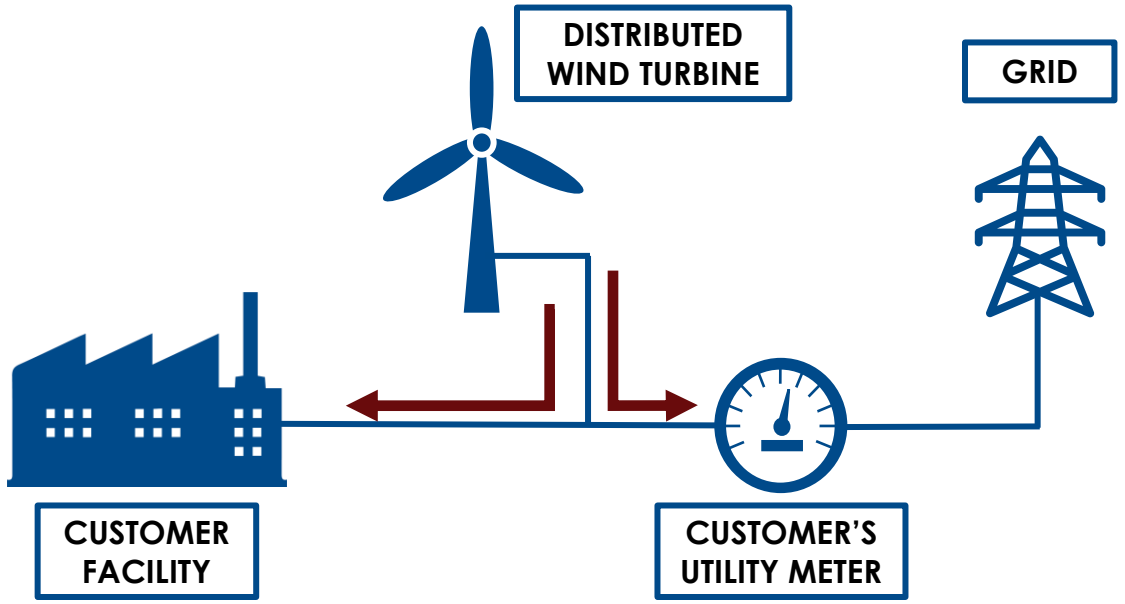
- "Small Wind"
- Behind the meter
- Serves farms, residences, or commercial operations
- 10 kW – 1000 kW per turbine
- < 5 turbines
- $20-$500K per turbine
- Designed to serve one end user

- "Industrial Wind"/*Wind for Industry®*
- Behind the meter
- Serves large energy consumers, typically industrial facilities
- 1 – 5 MW per turbine
- 1 – 10+ turbines
- Designed to serve one large end user

According to the Department of Energy:

"Distributed wind turbines are installed at or near the point of end use for the purposes of meeting onsite load or supporting the operation of the local grid. Distributed wind turbines are connected on the customer side of the electric meter."

DISTRIBUTED WIND INTERCONNECTION



Distributed on-site wind turbines are interconnected on the customer's side of the utility meter.

The energy generated from the wind turbine directly powers the customer facility.

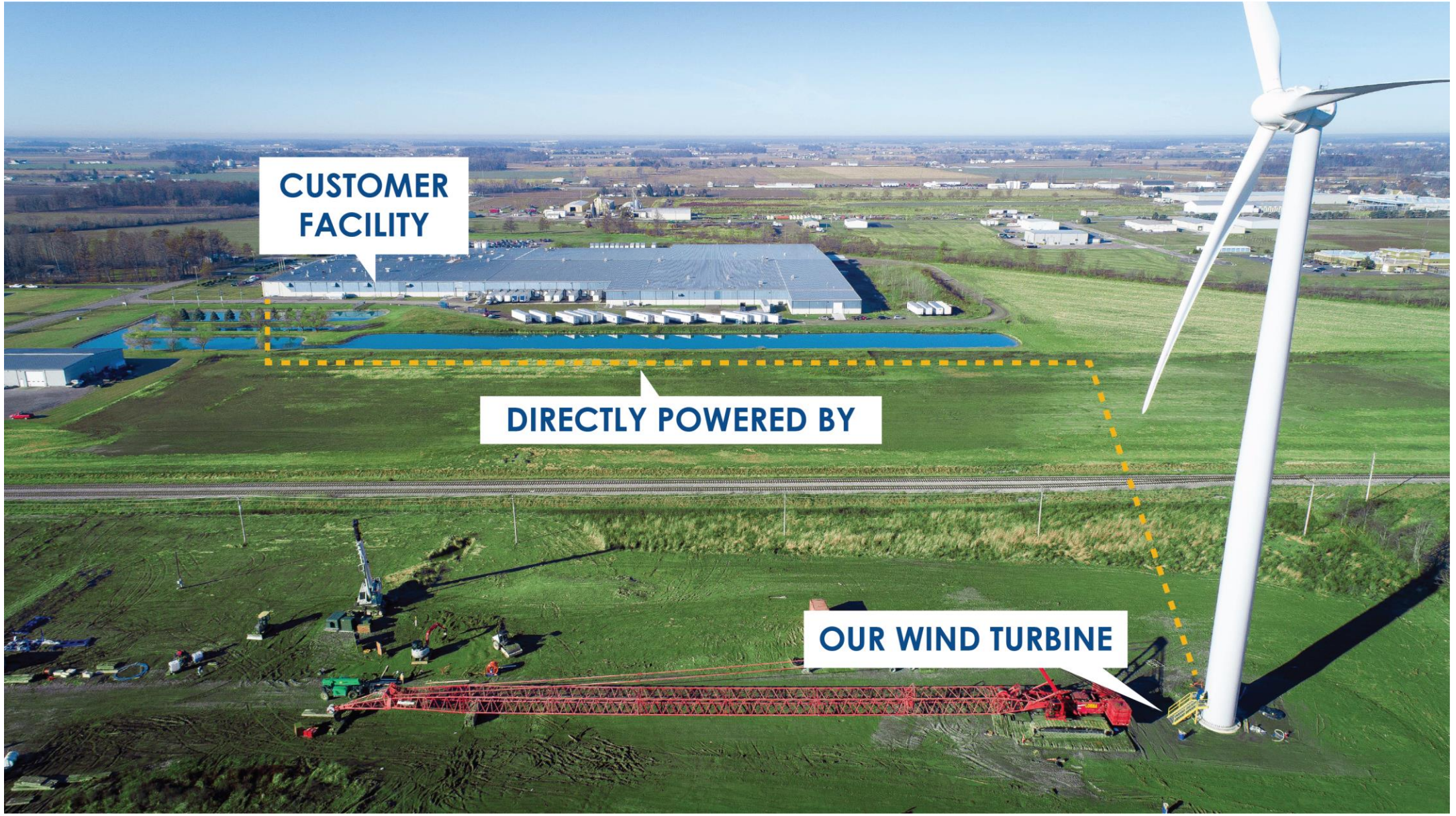
If the facility doesn't need the power generated from the wind turbine, the excess generation is sent back to the local distribution grid.

The customer's facility still receives a bill from the local utility, but minus the generation from the wind turbine.

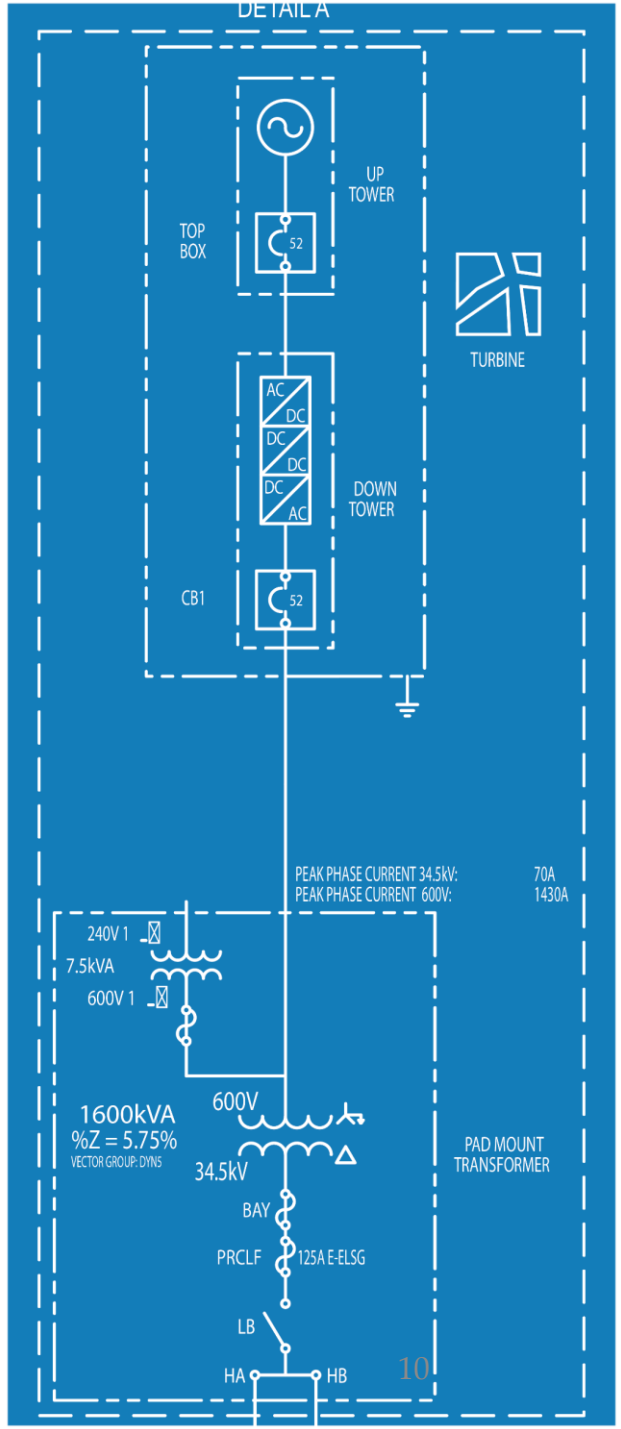
UTILITY-SCALE TURBINES

	TURBINES ONE POWER HAS INSTALLED TO DATE
RATED POWER	>1500 kW (400 HOMES)
CUT-IN WIND SPEED	3 M/S (6.7 MPH)
RATED WIND SPEED	9.9 M/S (22 MPH)
CUT-OUT WIND SPEED	22 M/S (49 MPH)
ROTOR SWEPT AREA	5890 M^2 (1.5 ACRES)
GENERATOR TYPE	DIRECT DRIVE
RATED ROTATION ANGULAR VELOCITY	16 RPM
RATED OUTPUT VOLTAGE	600 V
INSTALLED COST	$3 MILLION EACH

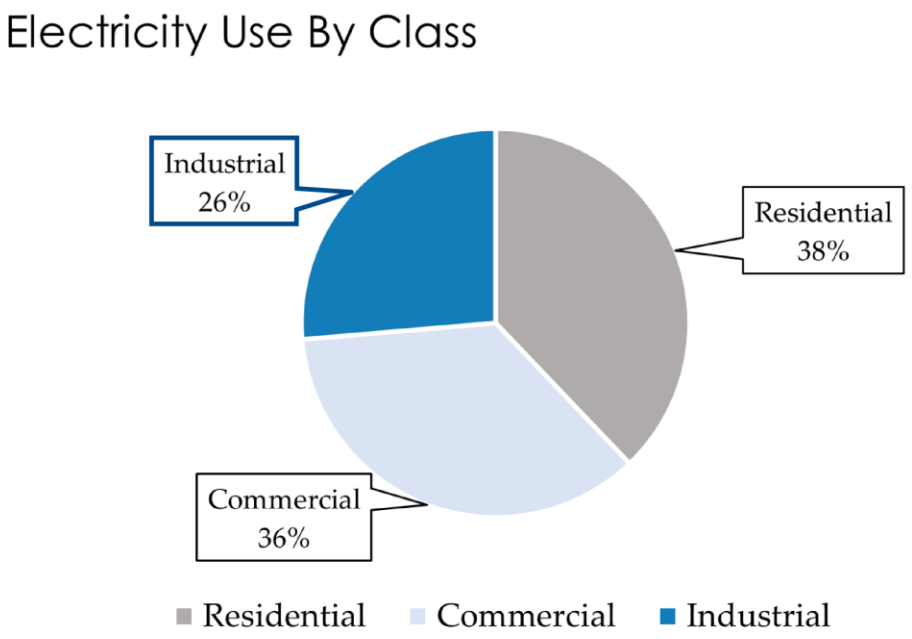
ON-SITE WIND ENERGY

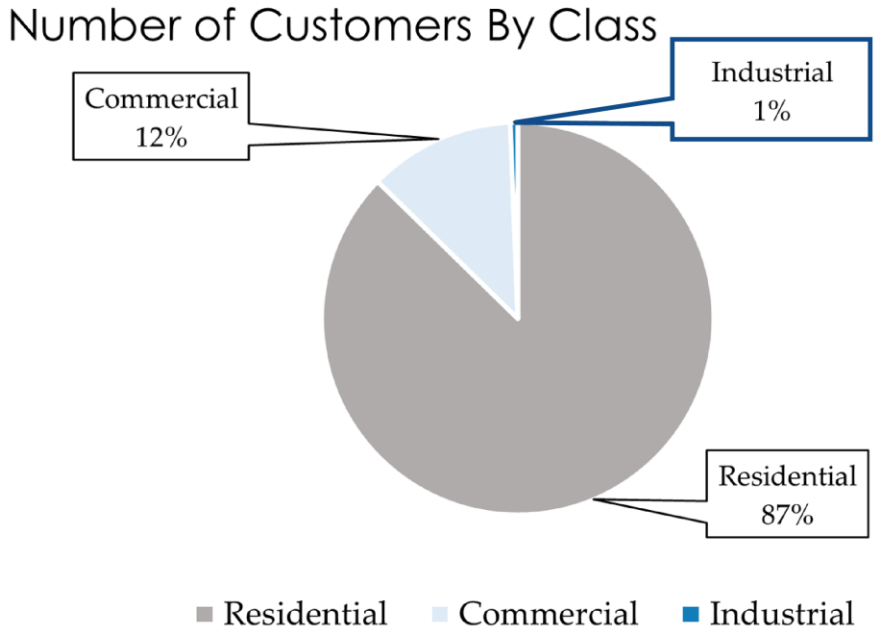


Helping Industrials



WHY INDUSTRIALS?





THE 53,000 INDUSTRIAL FACILITIES IN THE U.S. REPRESENT:

0.6% of the total users

26% of the consumption

1,000 terawatt hours/year

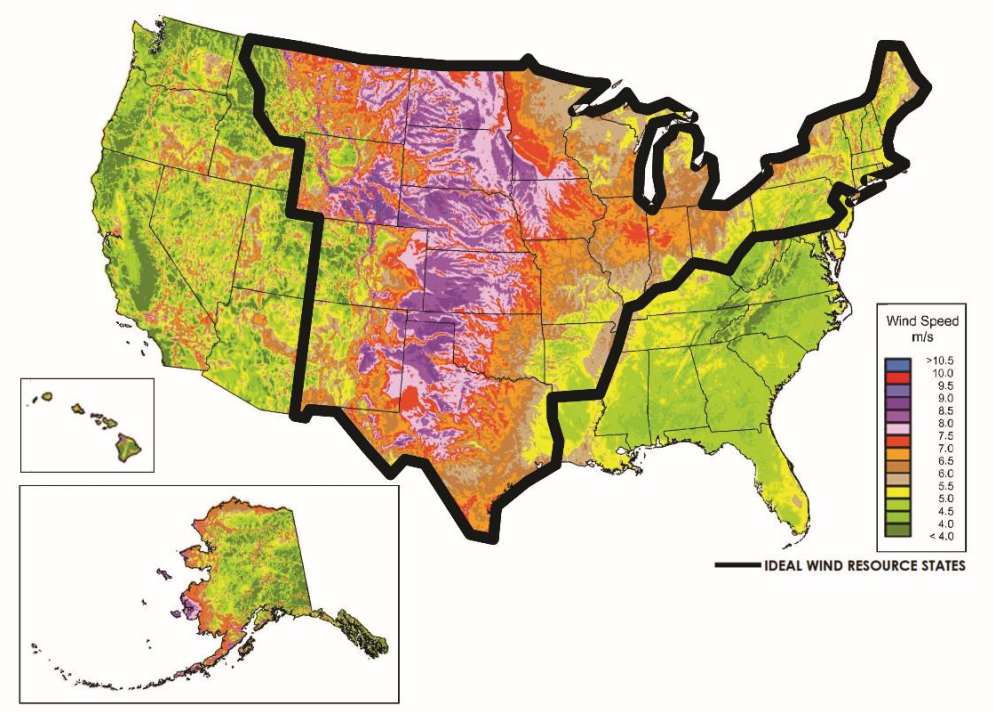
~94 million average homes

$58 billion in electricity sales annually

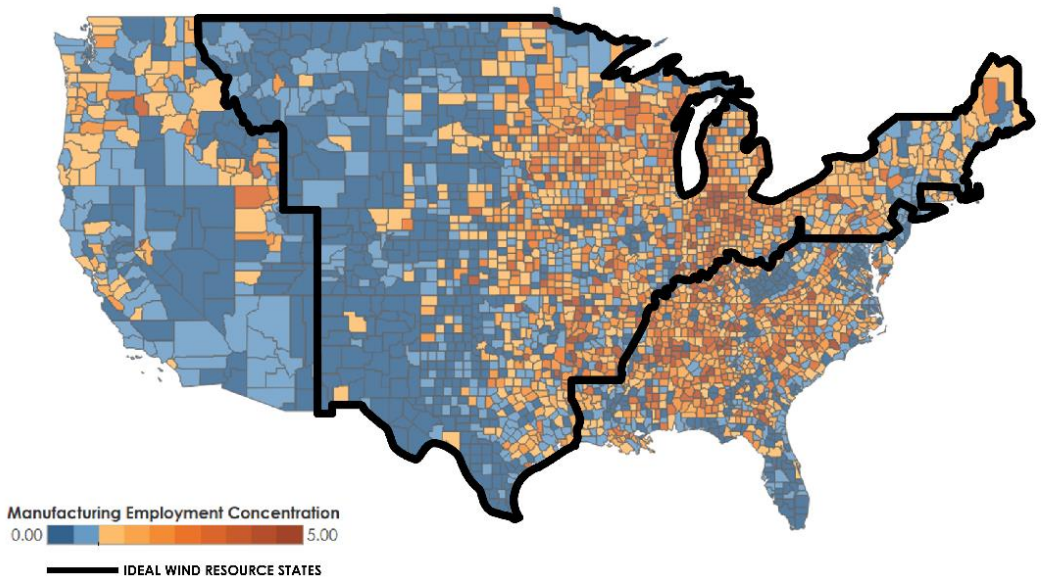
Industrial decarbonization represents the fastest path to lasting change.

WHY INDUSTRIALS?

WIND RESOURCE



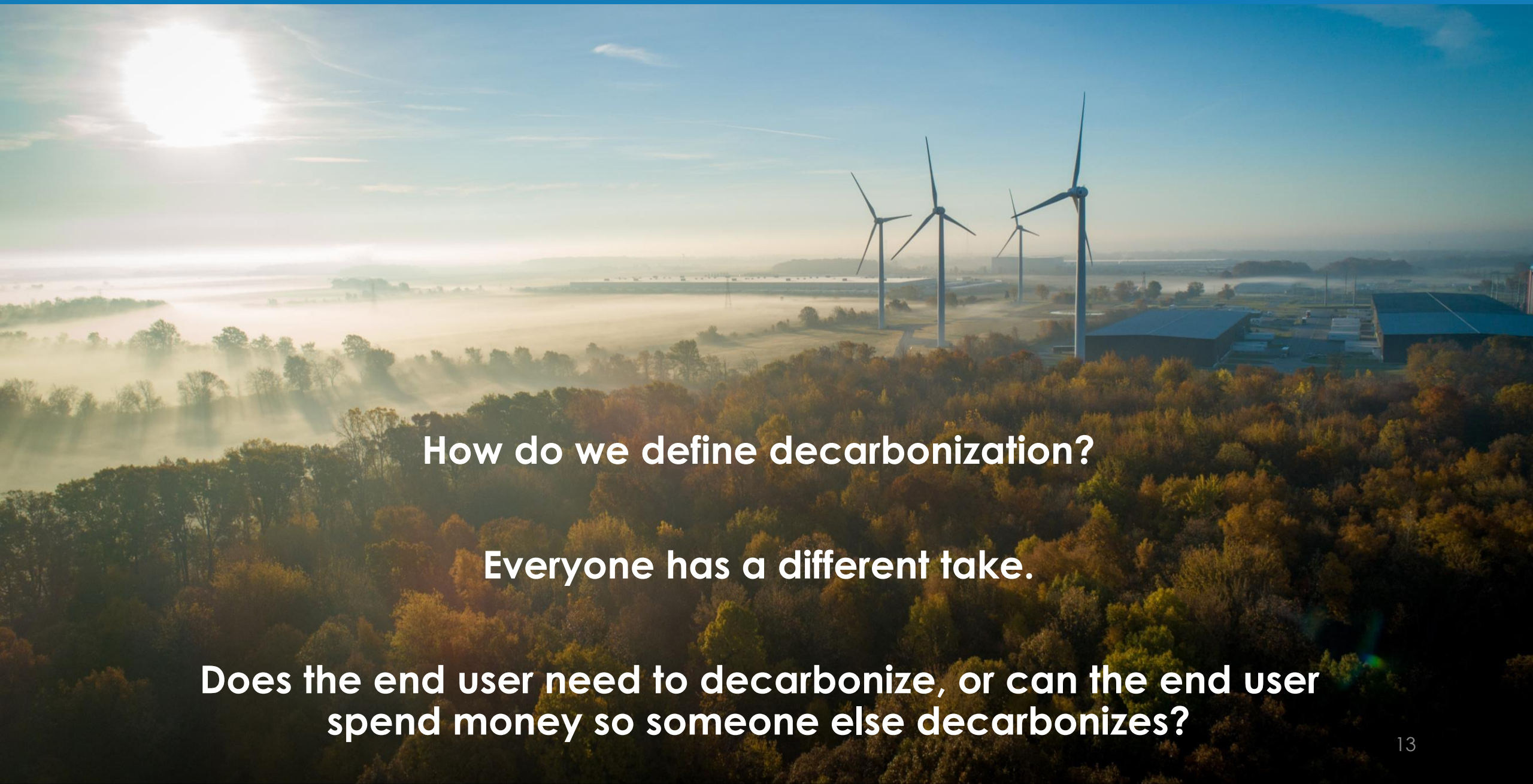
MANUFACTURING CONCENTRATION



Decarbonization needs to occur in the Midwest, where industrials are located.

Highest concentration of industrial facilities overlaps with good wind resource.

WHAT DOES DECARBONIZATION MEAN?

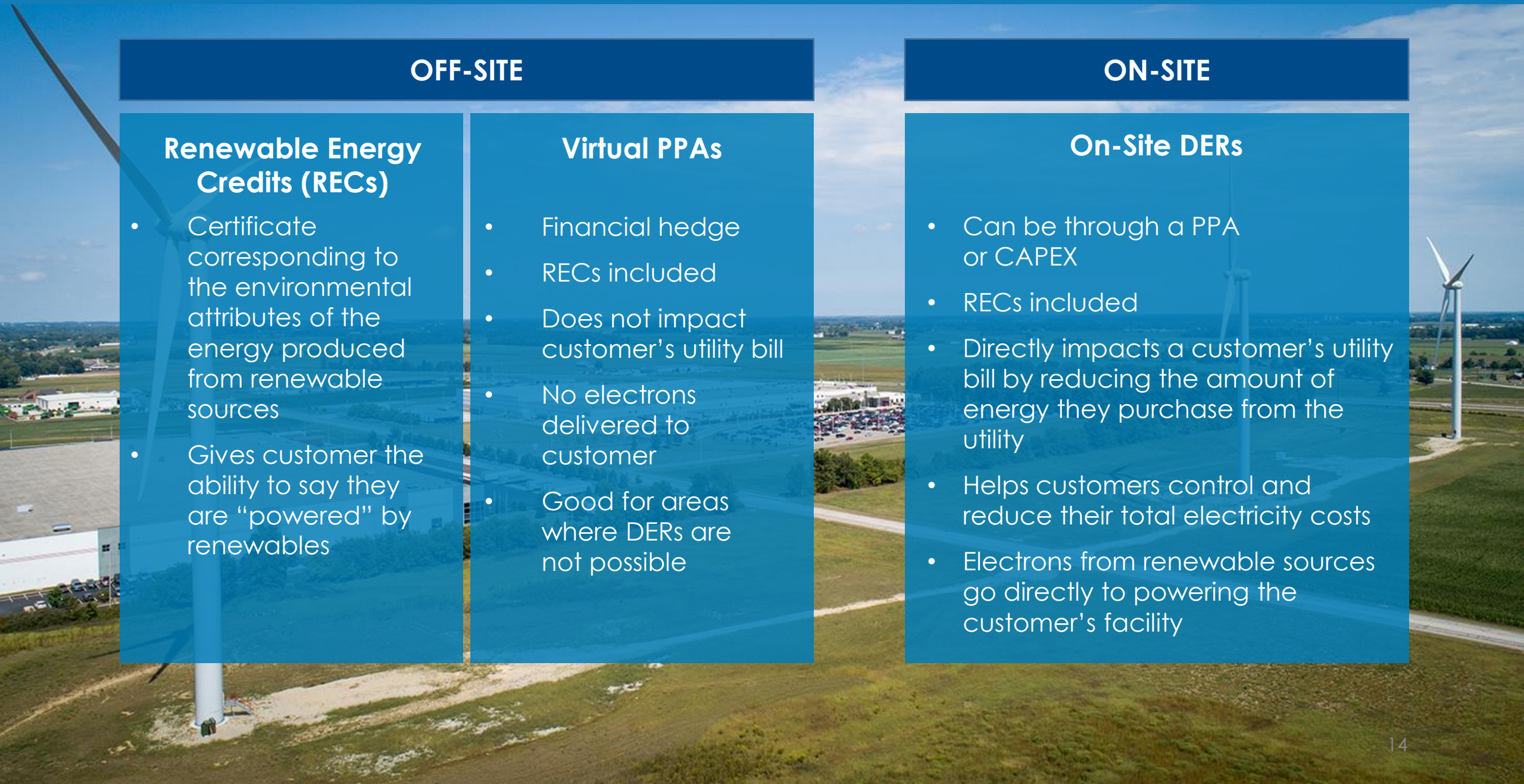


How do we define decarbonization?

Everyone has a different take.

Does the end user need to decarbonize, or can the end user spend money so someone else decarbonizes?

DECARBONIZATION OPTIONS



OFF-SITE

Renewable Energy Credits (RECs)

- Certificate corresponding to the environmental attributes of the energy produced from renewable sources
- Gives customer the ability to say they are "powered" by renewables

Virtual PPAs

- Financial hedge
- RECs included
- Does not impact customer's utility bill
- No electrons delivered to customer
- Good for areas where DERs are not possible

ON-SITE

On-Site DERs

- Can be through a PPA or CAPEX
- RECs included
- Directly impacts a customer's utility bill by reducing the amount of energy they purchase from the utility
- Helps customers control and reduce their total electricity costs
- Electrons from renewable sources go directly to powering the customer's facility

WHY WOULD INDUSTRIALS CHOOSE DISTRIBUTED WIND?

Offsetting Grid Consumption
- On-site wind can generate **25-90%** of an industrial facility's electricity needs

Rate Certainty
- On-site PPAs lock in an industrial's energy price ($/kWh) for 20 years

<u>Not</u> Green at a Premium
- Often, the energy price from wind is **less** than the industrial's current energy price from the grid

Zero Up-Front Cost
- On-site PPAs require **zero up-front capital** from the industrial off-taker

Sustainability Goals
- On-site wind helps companies meet sustainability goals and reduce Scope II emissions

BIG IMPACT ON ENERGY

Average Home
12,000 kWh/year

Factory
4 Million – 100 Million kWh/year

Oil Refinery
500 Million kWh/year +

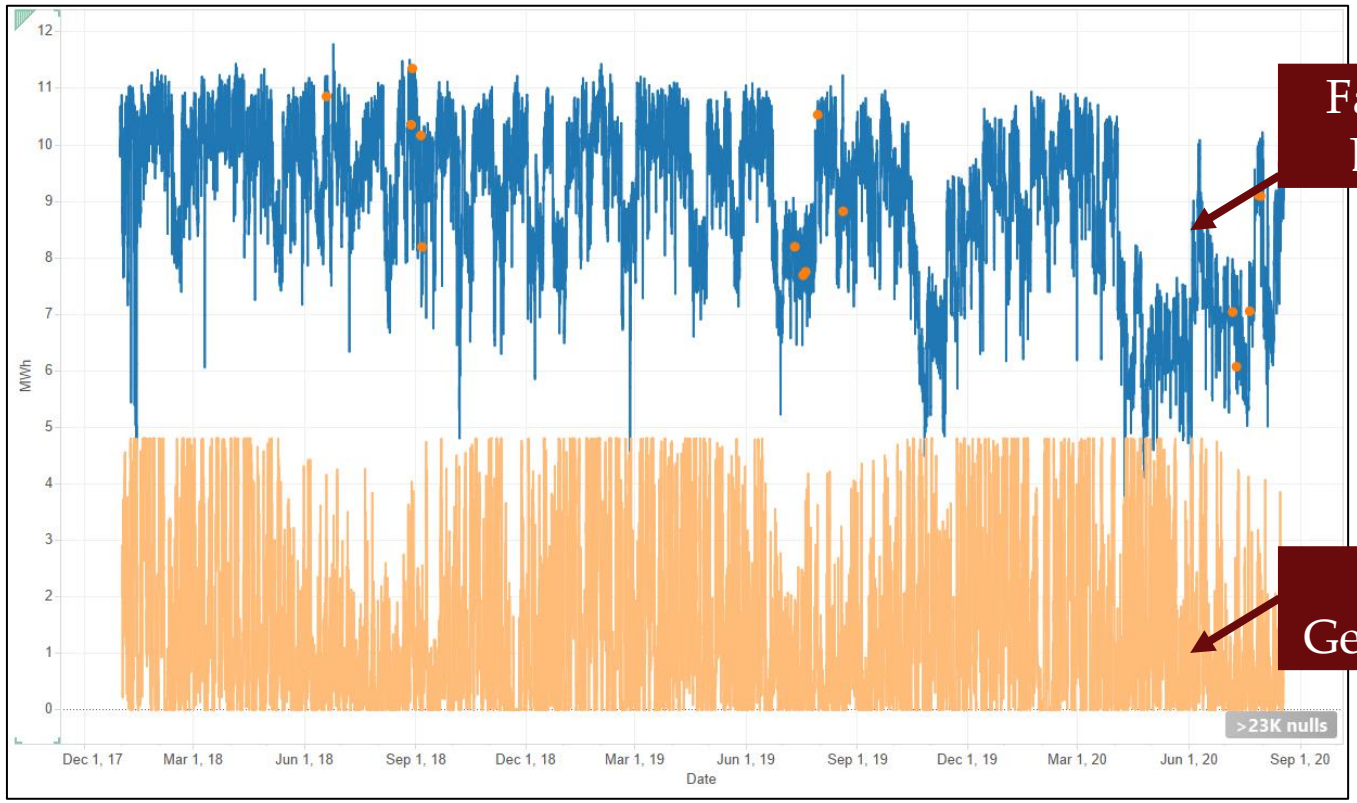
Turbine Energy Production
3,000,000 – 15,000,000*
kWh/turbine/year
(In the Midwest)

*Turbine model dependent

MAKING A BIG IMPACT

Distributed Wind provides the best bang for your buck in the Midwest.

One wind turbine can be a large percentage of a facility's total energy usage.

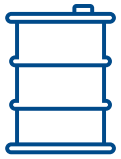


One 4.8 MW wind turbine that produces 14,000,000 kWh annually can offset 9,780 MT of CO2.

This is equivalent to the emissions from:

1,200 average homes' worth of energy use per year

2,000 passenger vehicles driven per year



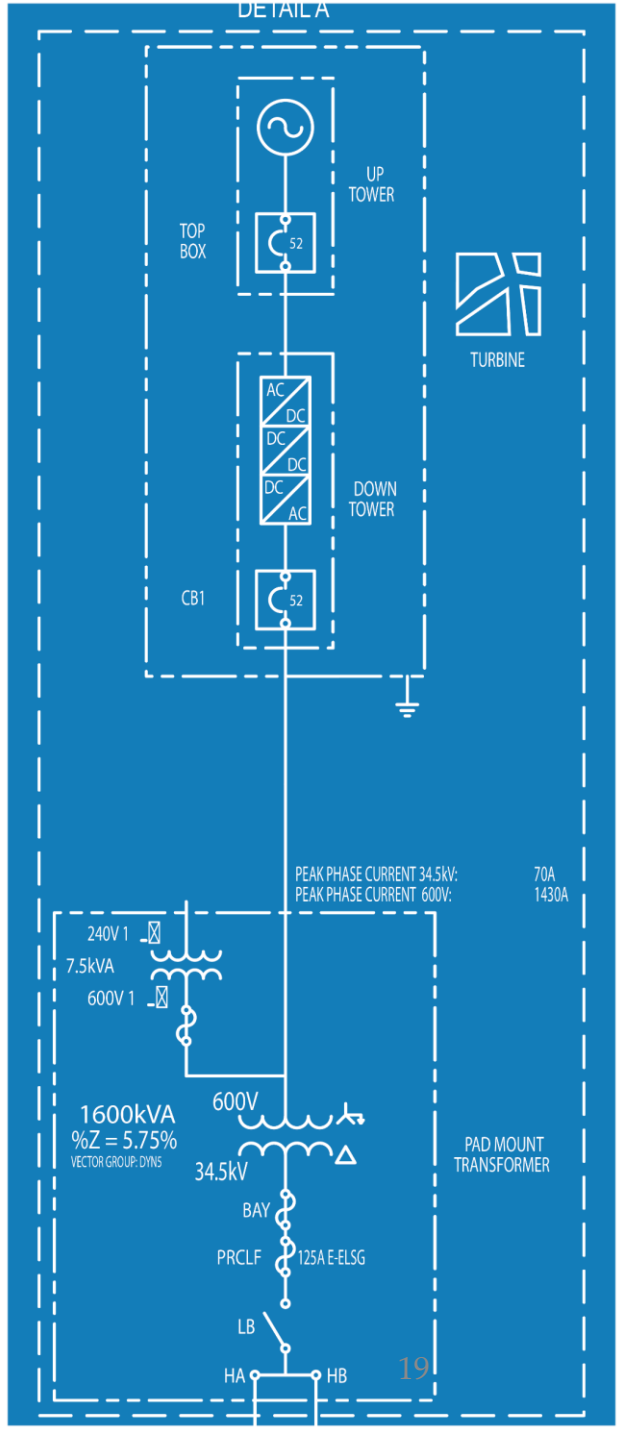
22,000 barrels of oil

10,700,000 pounds of coal burned

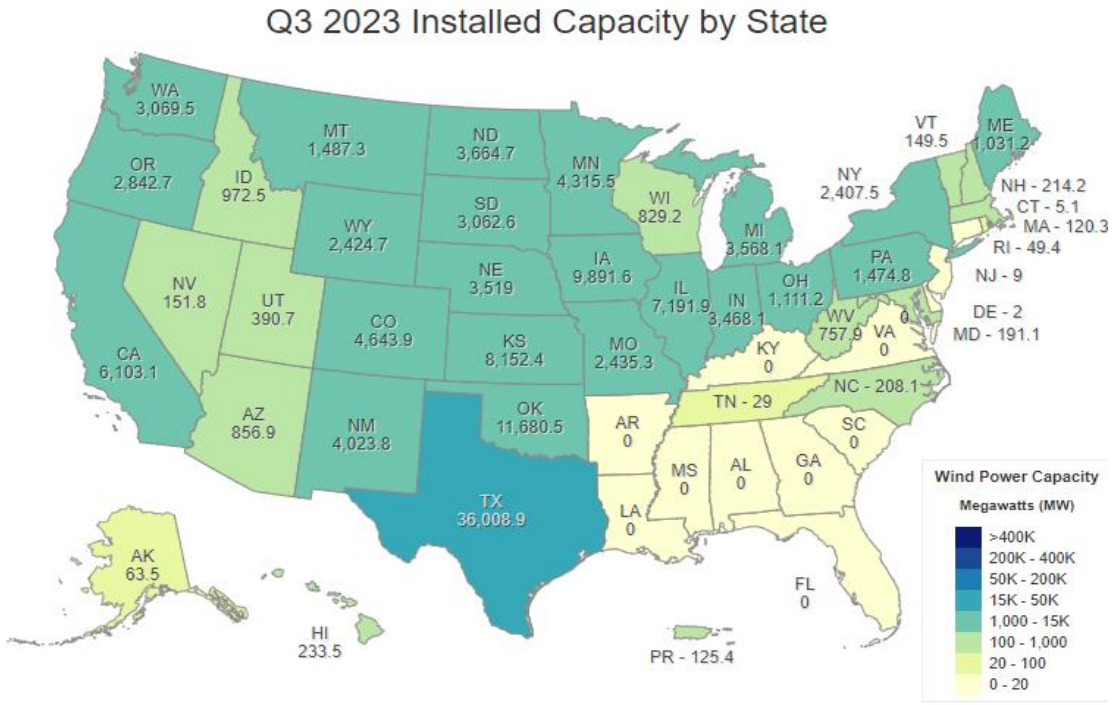
On-site wind impacts Scope II emissions.

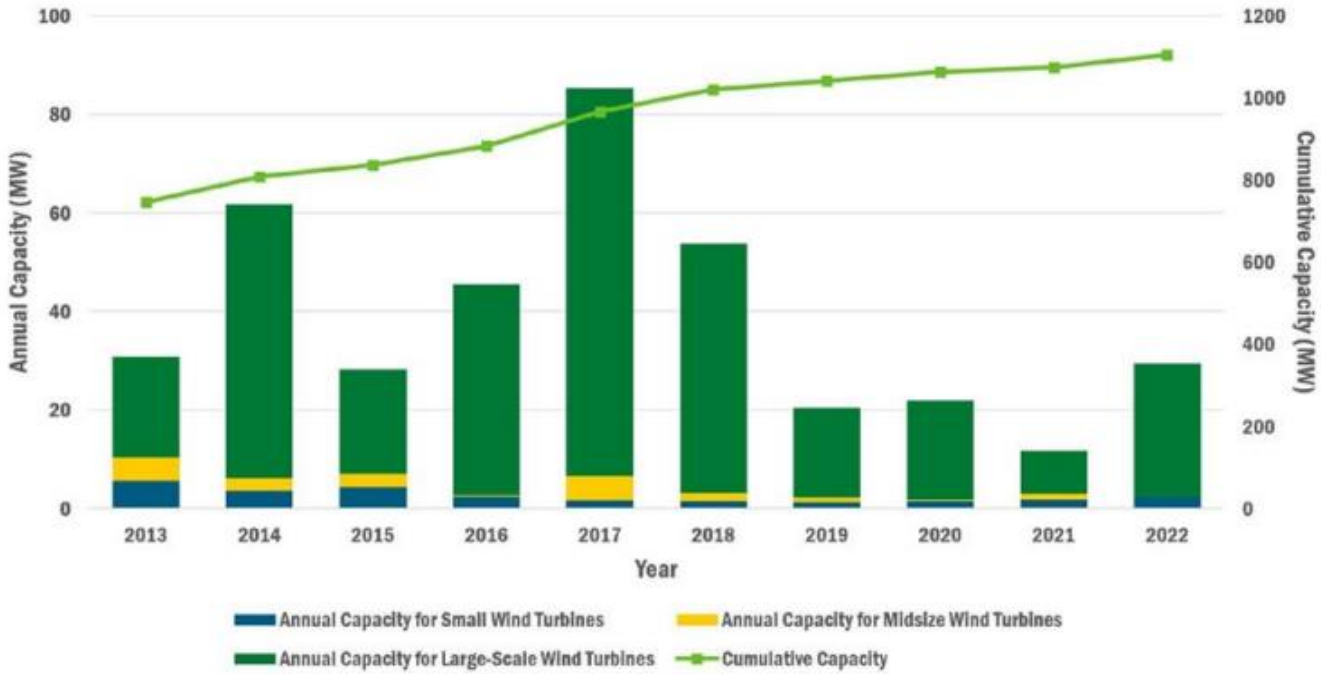
Puts a large dent in a company's sustainability goals, or even helps them meet their goals with a single project.

The Future of Distributed Wind



CURRENT WIND CAPACITY IN THE US

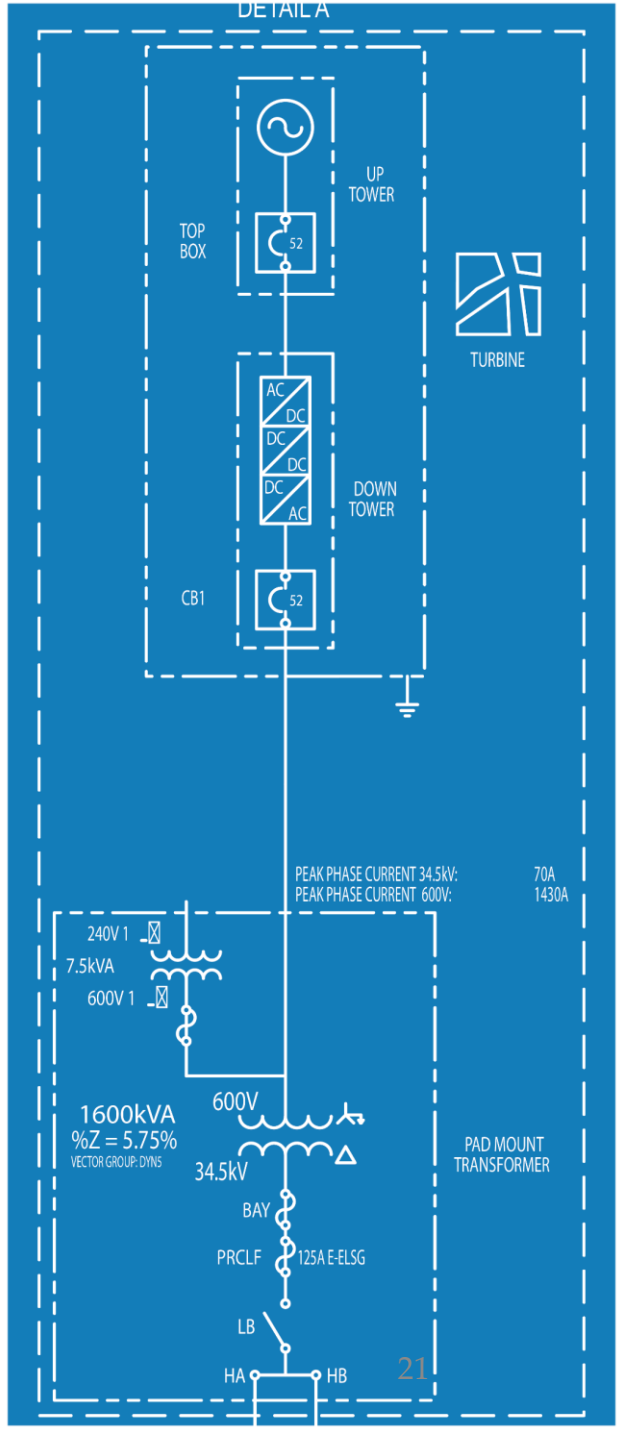




All Wind: 132,938 MW

Distributed Wind: 1,104 MW

Distributed Wind Challenges



COMPONENTS TO AN INDUSTRIAL WIND PROJECT

Distributed Wind projects that use utility-scale turbines require the same major components as Big Wind.

…But less time, budget, resources, and access to capital to do it.

DEVELOPMENT

ENGINEERING

PROCUREMENT

CONSTRUCTION

OPERATIONS

FINANCE

ANALYTICS

GOVERNMENT AFFAIRS

BASIC REQUIREMENTS TO DEVELOP INDUSTRIAL WIND

Basic Requirements to install utility-scale wind turbines on-site:

FAA Clearance
> 4 miles to closest airport

Available Land
Must follow local setback requirements

Energy Consumption
User must consume >4,000,000 kWh annually

Wind Resource
>5 m/s annual average wind speed

*These are approximations and vary based on project.

The development process is often the same as Big Wind.

PROJECT SETBACKS	ZONING	PIPELINES	FLOODPLAINS
WETLANDS	WILDLIFE & AVIAN STUDIES	MICROWAVE	FAA
TOPOGRAPHIC ANALYSIS	TURBINE ICING	SHADOW	SOUND
TRANSPORTATION	CONSTRUCTION FEASIBILITY	FINANCIAL ANALYSIS	WIND RESOURCE ASSESSMENT

PROJECT DEVELOPMENT TIMELINE

Customers want to take advantage of the **cost and sustainability benefits as soon as possible**. This requires a faster timeline than Big Wind projects.

Big Wind: 1-3 years

Distributed Wind: 3-9 months

PROCUREMENT & ENGINEERING

ECONOMIES OF SCALE

Due to the **fewer number of wind turbines**, Distributed Wind projects cannot take advantage of economies of scale in the same way Big Wind can.

CONSTRUCTION

Expertise required to build utility-scale wind turbines.

Impeccable safety standard and record required.

PERMITTING CHALLENGES

EVERY STATE REGULATES DISTRIBUTED WIND PROJECTS DIFFERENTLY.

Some states regulate on a local level, some at a state level, some at both.

LOCAL

- Inconsistency in local zoning ordinances
- Zoning ordinances don't contemplate projects like this, making permitting subjective
- Setback requirements are arbitrary and not in line with industry standards
- At risk of NIMBY-ism

STATE

- Put these projects in the same category as utility scale wind projects
- Unnecessary requirements can make project timelines and budgets unattainable
- Don't involve local communities which can sour the relationship

FEDERAL

- Additional regulatory oversight thresholds (20 MW and 30 MW)

Financers will try to use the "Big Wind Playbook" to finance Distributed Wind projects that use utility-scale turbines.

The "Big Wind Playbook" is too expensive

- 1-2 years of on-site wind data
- 3rd party studies for certain development items
- Legal fees
- Independent Engineer reviews required for every detail

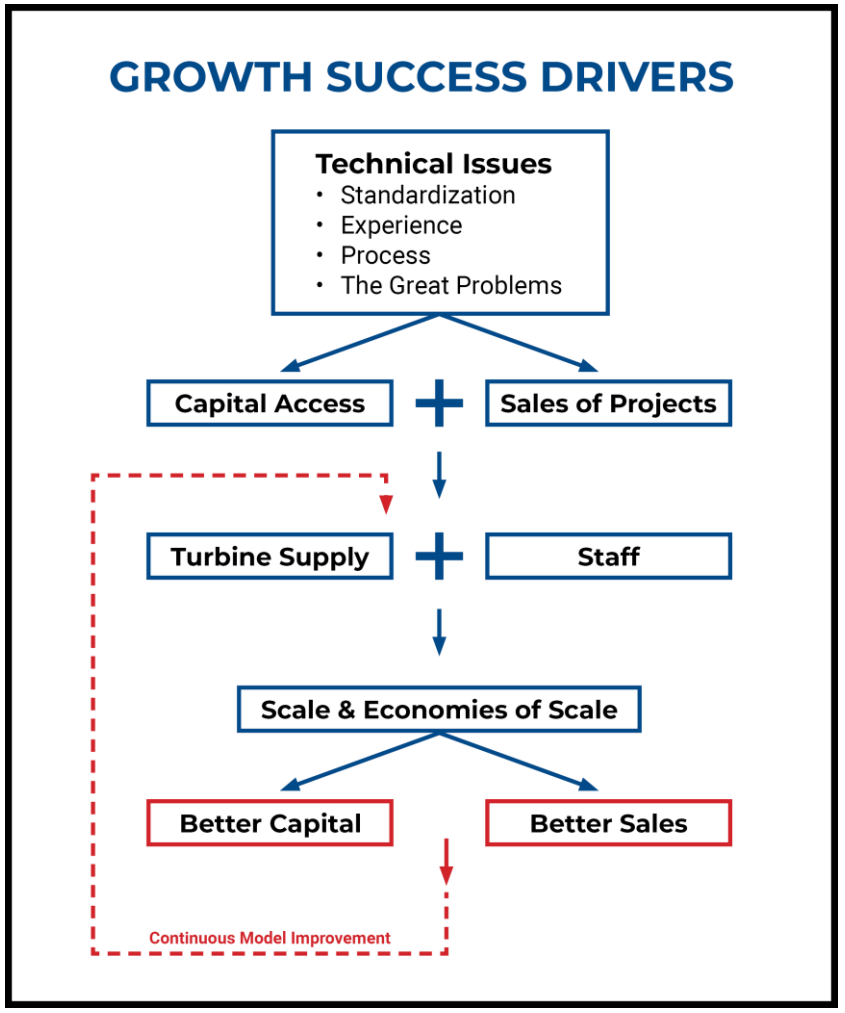
This would drive the cost up by **$1 MM/MW**

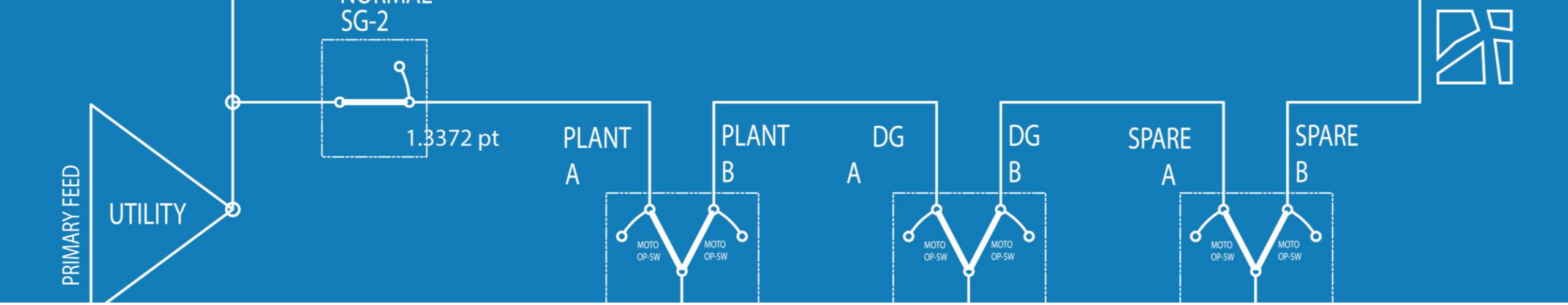
… significantly reducing the market potential of Distributed Wind and significantly reducing the decarbonization potential of industrial America.

Navigating all these challenges creates a very large **barrier to entry** for Distributed Wind.

One Power figured it out by becoming a **vertically integrated** company.

For others to get into this space and for the market to reach its full potential, things will have to change to make Distributed Wind more attainable.





Questions?

www.onepower.com

ONE POWER COMPANY