

ROCK ISLAND CLEAN LINE

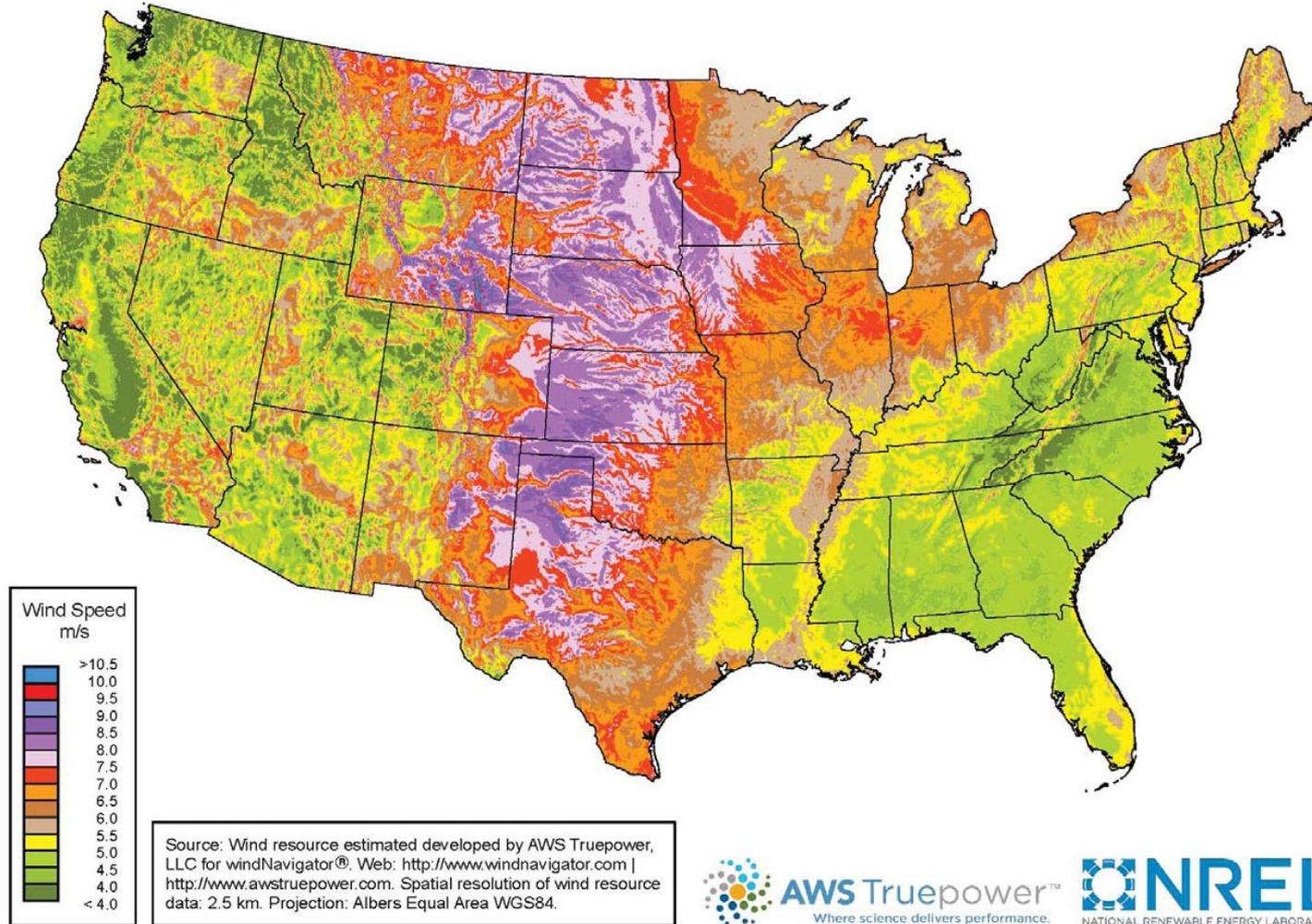
Clean Energy. Delivered.

CLEAN LINE
ENERGY PARTNERS



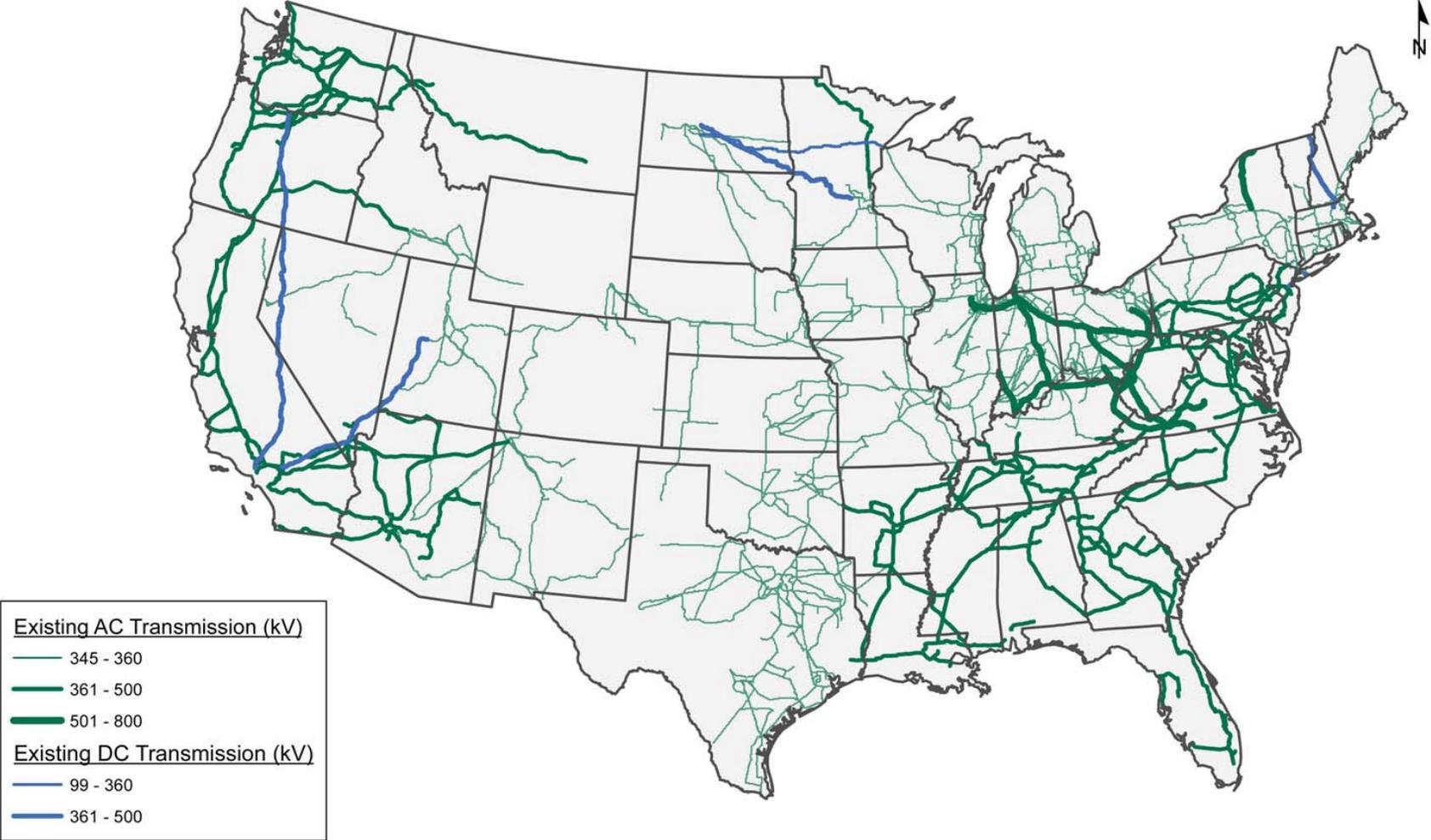
U.S. Onshore Wind Resources

United States - Annual Average Onshore Wind Speed at 80 m

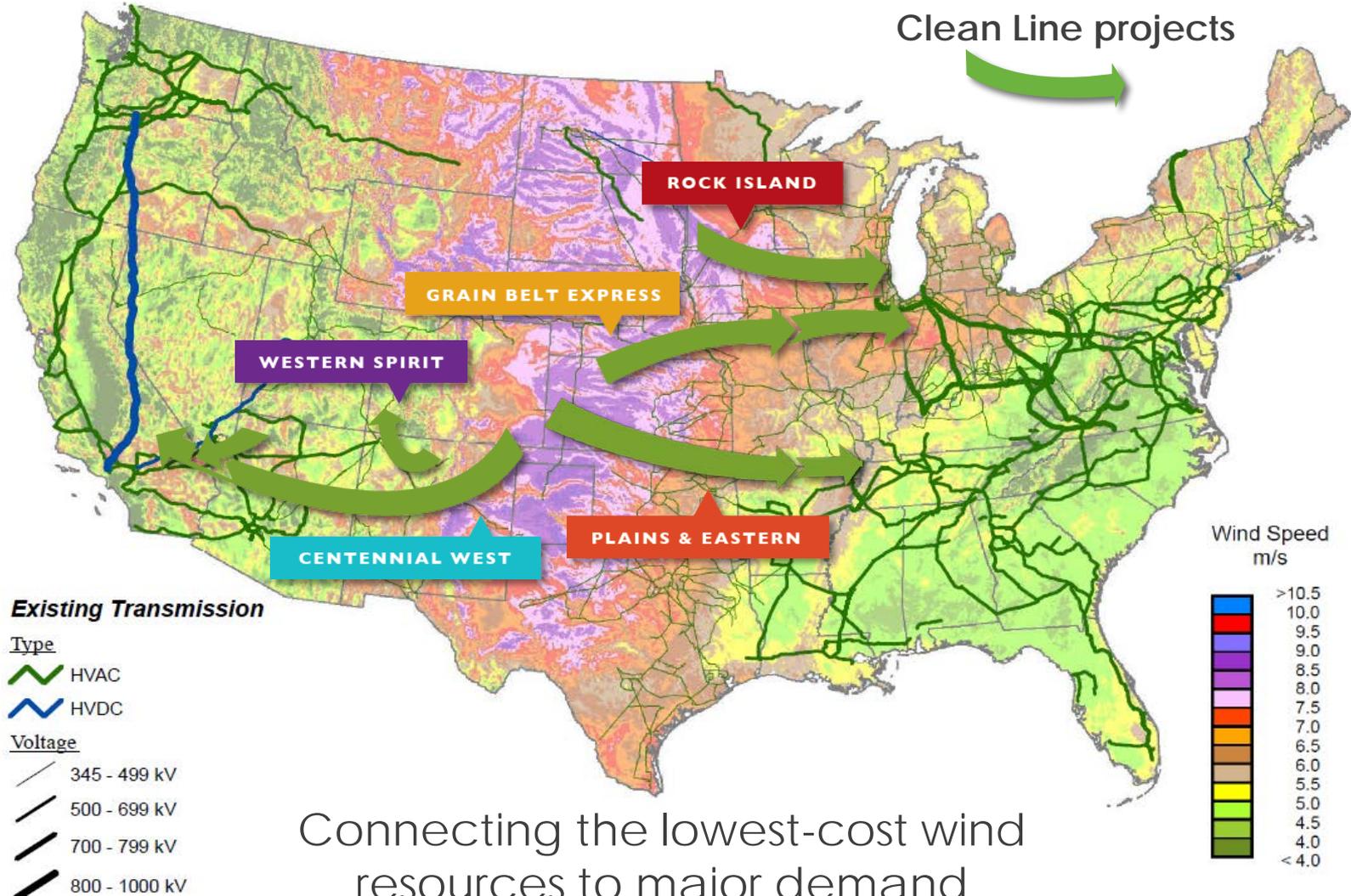


Existing Transmission Lines

U.S. High Voltage Transmission Grid

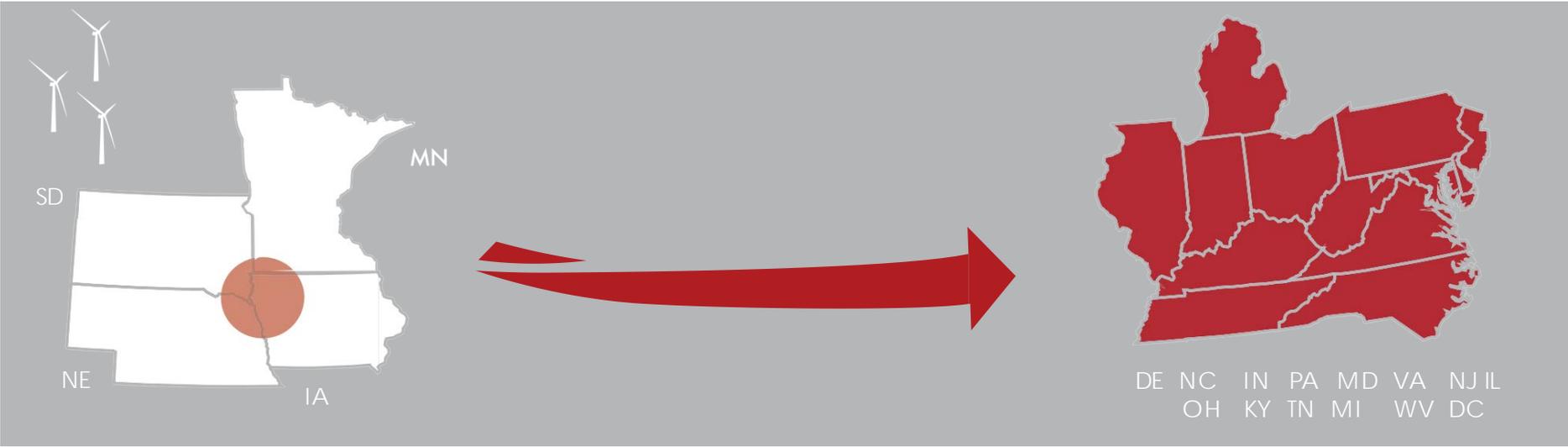


Clean Line Energy Partners



Connecting the lowest-cost wind resources to major demand centers

Rock Island Clean Line



Delivers 3,500 MW of wind power



500-mile direct current transmission line



Approximate project cost: \$2 billion

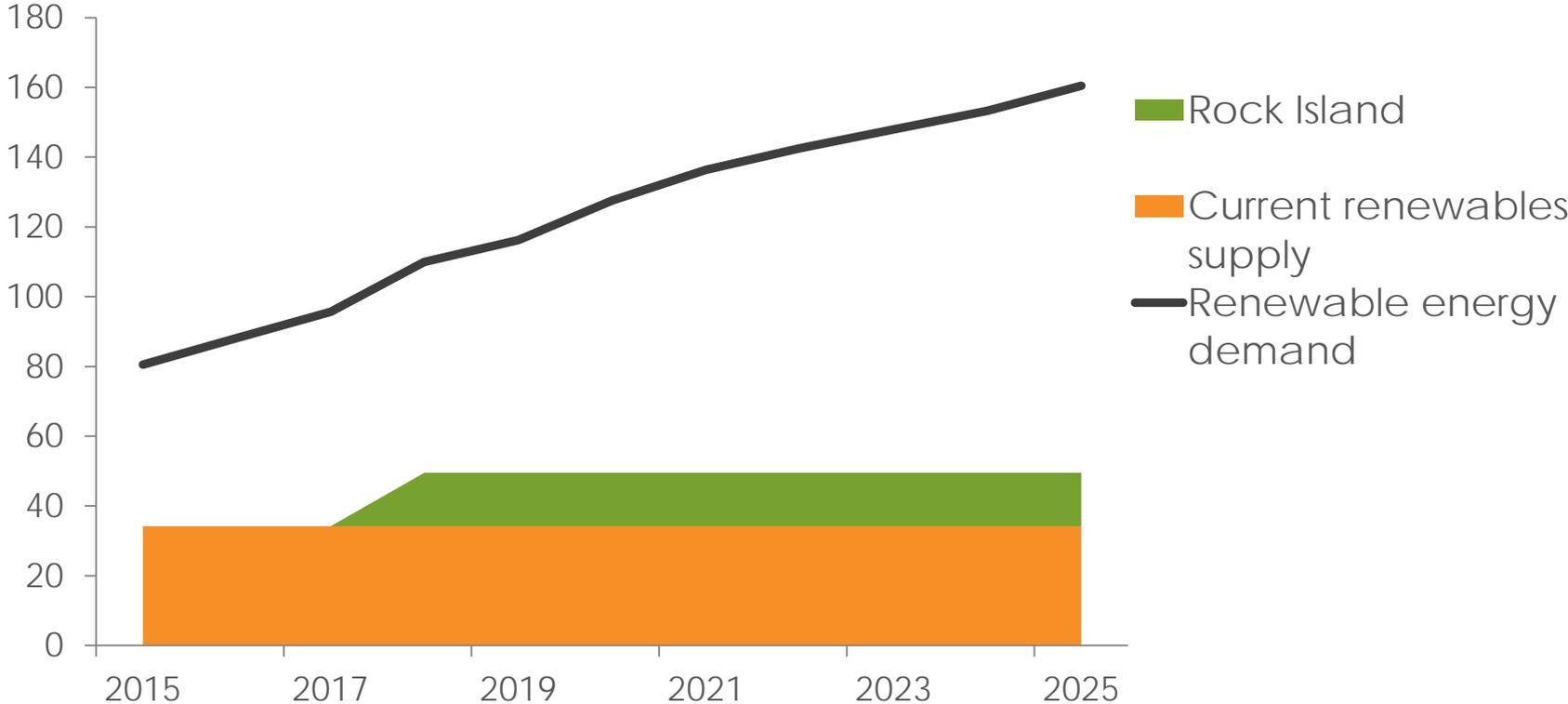


1.4 million homes powered per year

Growing Demand For Renewables

Renewable energy supply and demand in PJM states

Thousand GWh



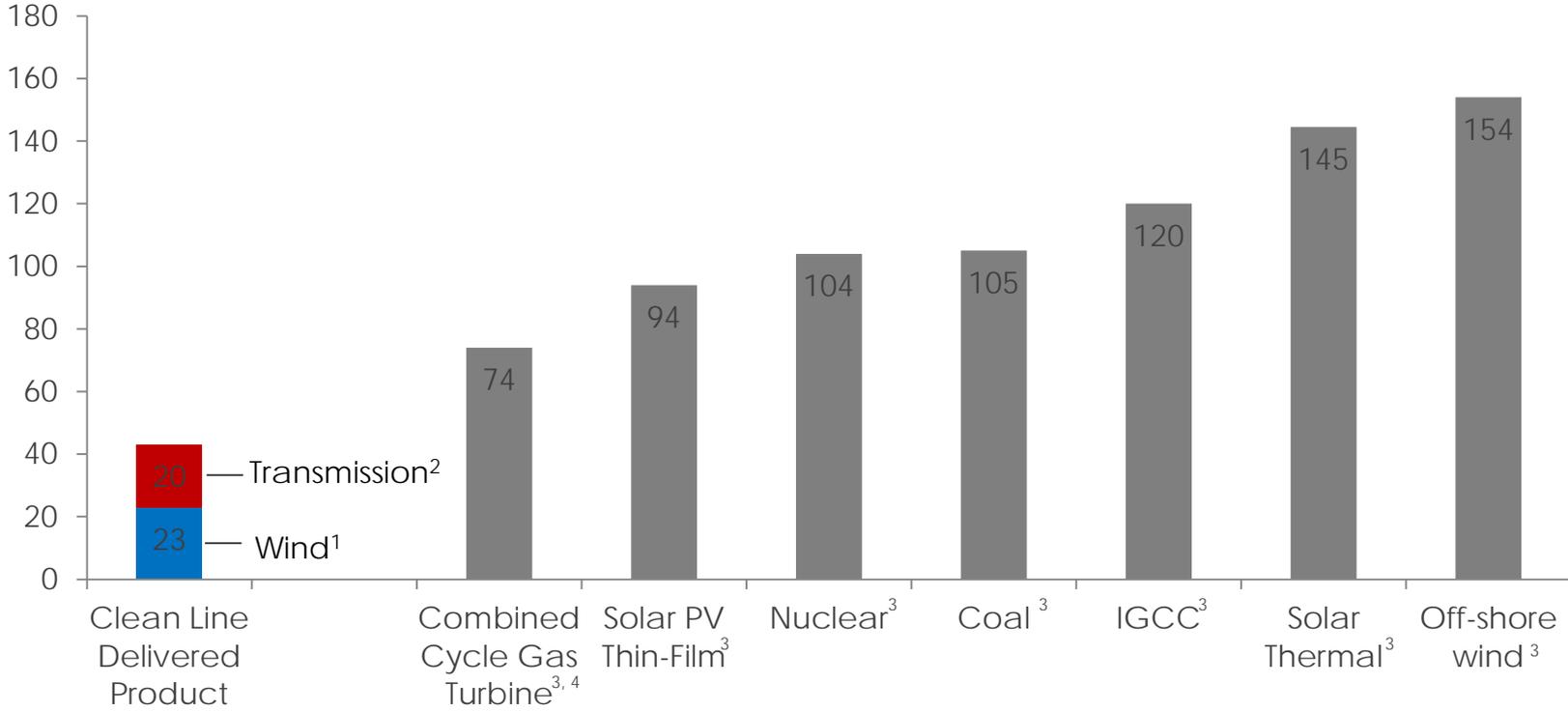
- 1. Energy from existing wind, biomass, and solar projects within the PJM states
- 2. Demand for renewable energy credits within PJM. States with voluntary goals are not included in the demand calculations.

Sources: EIA; DSIRE; AWEA; PJM Transmission Expansion Advisory Committee

Clean Line Competes

Levelized Cost of Energy

\$ / MWh

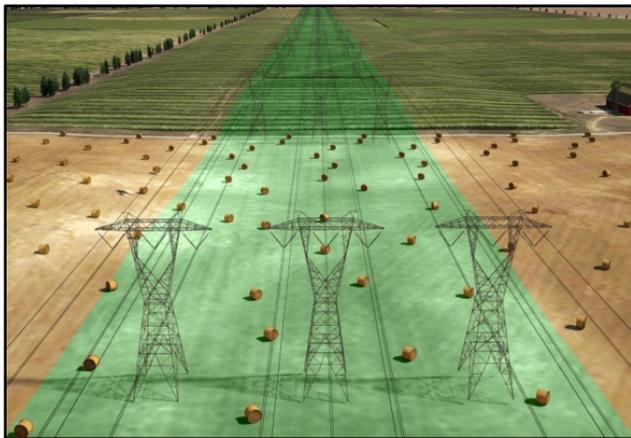


- 1. Based on the Lazard estimate for high-capacity factor wind, includes Production Tax Credit
- 2. Assumes ~725 miles of transmission at \$2 mm per mile, end-point converter costs of \$250 mm each, mid-point converter at \$100 mm and development cost of ~\$100 mm, price is flat for 25 years
- 3. Cost of generation based on mid-point of Lazard's Levelized Cost of Energy estimate
- 4. Assumes \$4.50/MMBtu gas price.

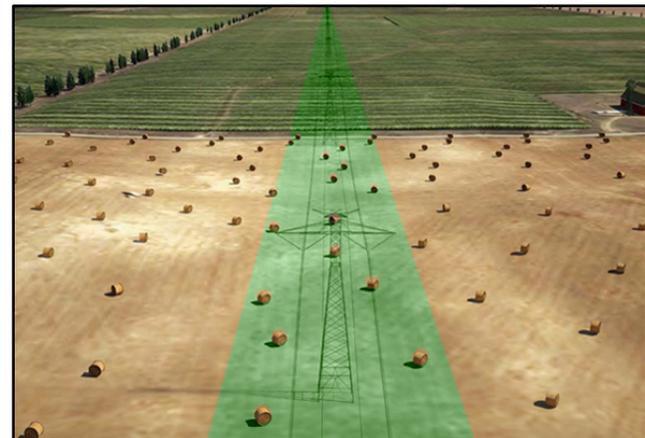
Source: Clean Line, Lazard's 2013 Levelized Cost of Energy Analysis

Direct Current Technology

- **More efficient** — Lower line losses
- **Lower cost** — Requires less infrastructure, results in lower costs and lower prices for delivered renewable energy
- **Improved reliability** — Control of power flow enhances system stability and lowers cost of integrating wind
- **Smaller footprint** — Uses a narrower right-of-way than equivalent Alternating Current (AC)

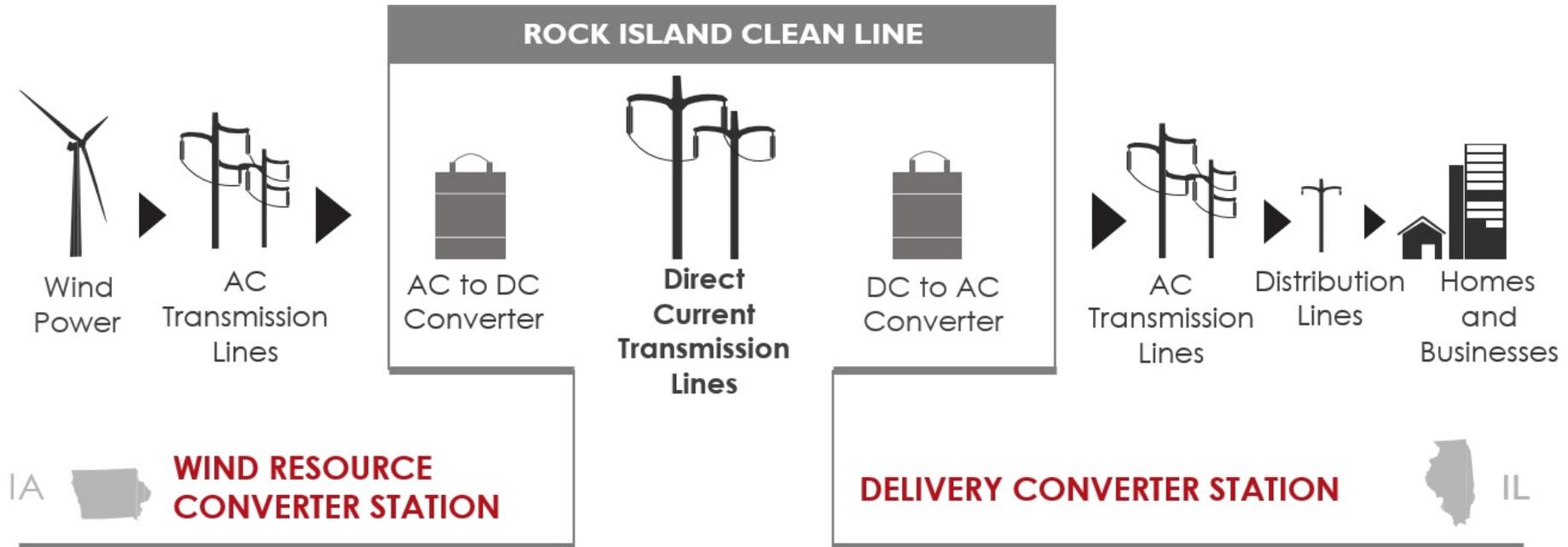


AC footprint



DC footprint

Delivering Renewable Energy



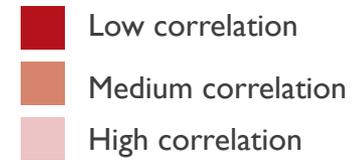
- In O'Brien County, Iowa
- Collects wind energy
- Converts energy from AC to DC
- Transmits energy on the Rock Island Clean Line

- In Grundy County, Illinois
- Receives energy from the Rock Island Clean Line
- Converts energy from DC to AC
- Connects with existing transmission system

Wind Power Curve Correlations

Correlation of 10-Minute Wind Energy Generated

	KS	IA	IL	IN	PA
KS		0.37	0.09	0.03	.00
IA	0.37		0.19	0.07	.02
IL	0.09	0.19		0.75	.15
IN	0.03	0.07	0.75		.19
PA	.00	.02	.15	.19	



1. "Low correlation": between 0.0 and 0.25; "Medium correlation": between 0.25 and 0.5; "High correlation": between 0.5 and 1.0

Source: EWITS; Clean Line analysis

Economic Benefits



\$7 billion in new wind farm investments



\$2 billion investment in transmission line project



5,000+ construction jobs



500+ operations jobs



Millions per year in tax payments



Provides electricity to 1.4 million homes per year



Increased market competition benefits consumers



Significant pollution reduction



"Expanding transmission is very important to the U.S. wind industry and to Iowa. The Rock Island Clean Line enables a market for 4,000 MW of new wind, supporting hundreds of jobs at facilities like our wind blade factory in Newton, Iowa."

— Steve Lockard,
President & CEO, TPI Composites
Inc

Local Business Opportunities

Engineering

- Geotechnical engineering
- Utility potholing
- Surveying (Lidar, staking)

Equipment Rentals

- Vehicles, excavators, dozers, cranes
- Equipment Fueling

Trucking and Hauling Service

Environmental

- Silt fence
- Dewatering
- Environmental controls ST&S

Local Services

- Title searches and abstracting
- Housing / apartments / hotels
- Restaurants
- Office and event space

Converter/substation equipment

- Transformers
- Converter stations

Access

- Clearing of right away
- Stone purchasing
- Geo fabric material
- Culvert material and installation

Foundations

- Drilled pier contractors
- Concrete suppliers
- Rebar suppliers and installers
- Foundation casings

Structures

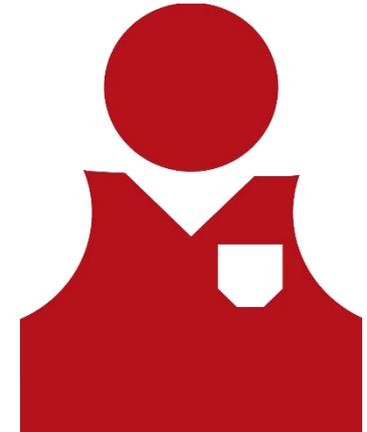
- Steel fabricators
- Lattice and monopole structure manufacturers
- Rigging materials

Conductor

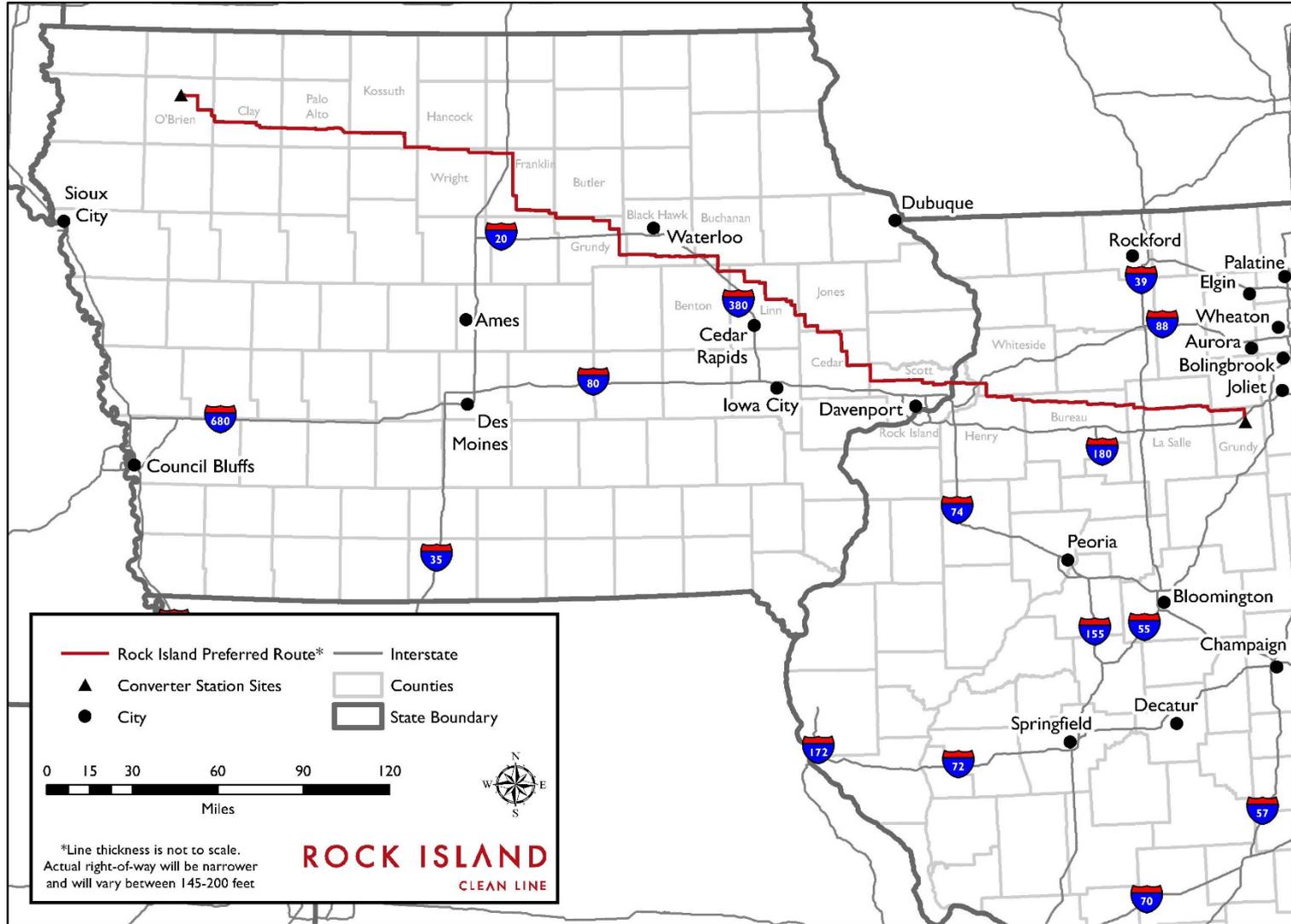
- Conductor manufacturers, aluminum producers
- Conductor hardware and insulators

Restoration

- Site grading
- Hydro or broadcast seeding
- Grass matting



Preferred Route



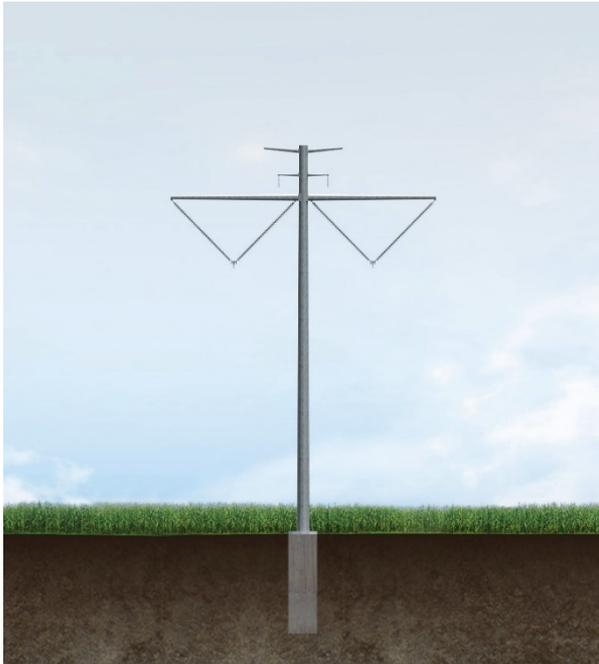
ROCK ISLAND

CLEAN LINE

www.rockislandcleanline.com

Typical Structure Types

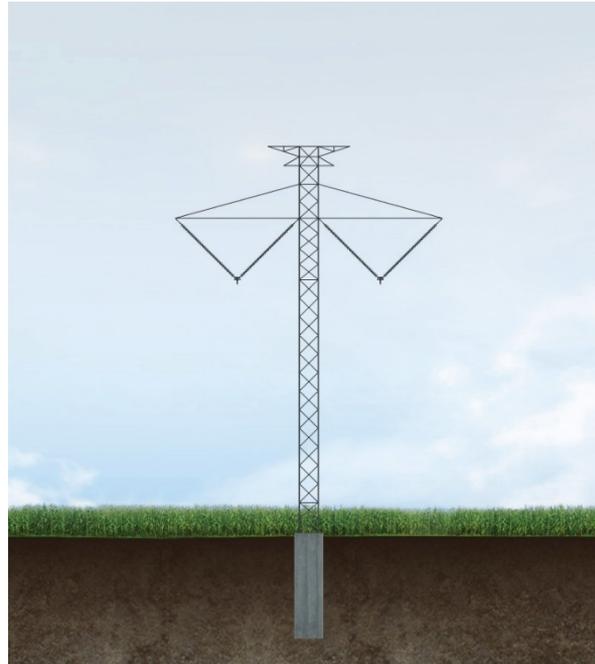
Monopole Structure



Typically 4 - 6 structures per mile

Typically 1,000 - 1,300-foot spans between structures

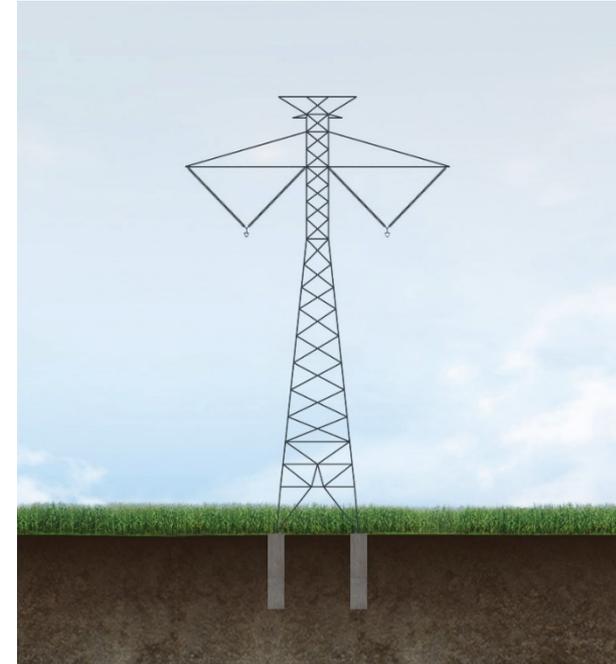
Lattice Mast Structure



Typically 4 - 6 structures per mile

Typically 1,000 - 1,300-foot spans between structures

Lattice Structure



Typically 3 - 5 structures per mile

Typically 1,100 - 1,600-foot spans between structures

Structure sizes and span lengths vary due to soil conditions, topography and other routing considerations.

Key Partnerships



Kiewit

Kiewit will provide development support and construction management services for the Rock Island Clean Line



Sabre Tubular Structures is the preferred supplier of transmission structures for the Rock Island Clean Line

SIEMENS

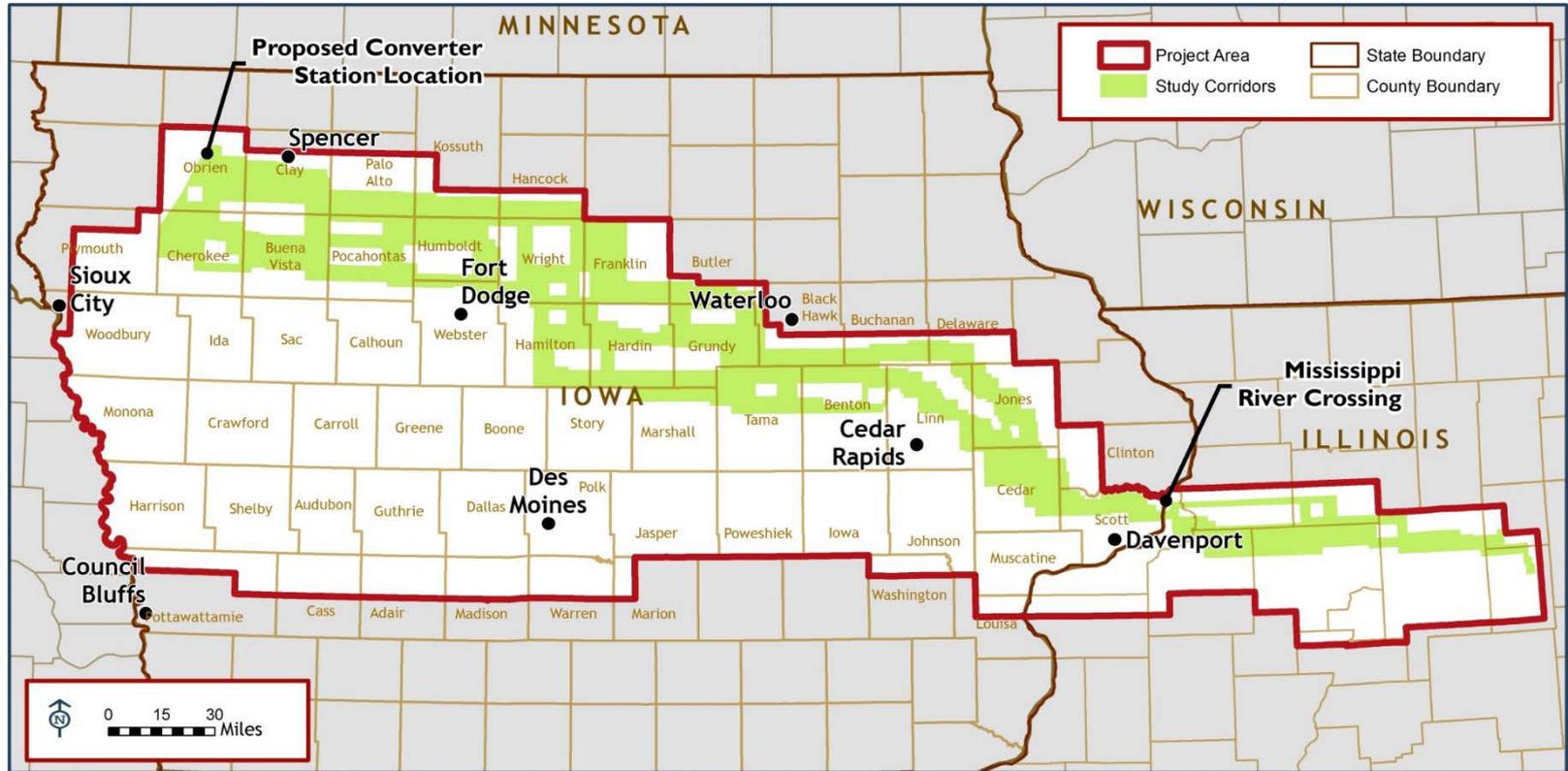
Siemens will provide the high voltage direct current technology solutions for the Rock Island Clean Line



Southwire®

Southwire is the preferred supplier for the overhead transmission cable for the Rock Island Clean Line

Study Corridors



3 to 10-mile-wide study corridors within which Clean Line has worked with communities and other stakeholders to determine the preferred route for the line

Environmental Benefits



9 MILLION TONS
(equal to taking 1.7
million cars off the
road each year)



16,100 TONS PER
YEAR
(sulfur dioxide is a
precursor to acid rain)



8,300 TONS
PER YEAR
(nitrogen oxide
contributes to smog)



OVER 3.5
BILLION
GALLONS OF
WATER PER
YEAR



140 POUNDS
OF MERCURY
PER YEAR