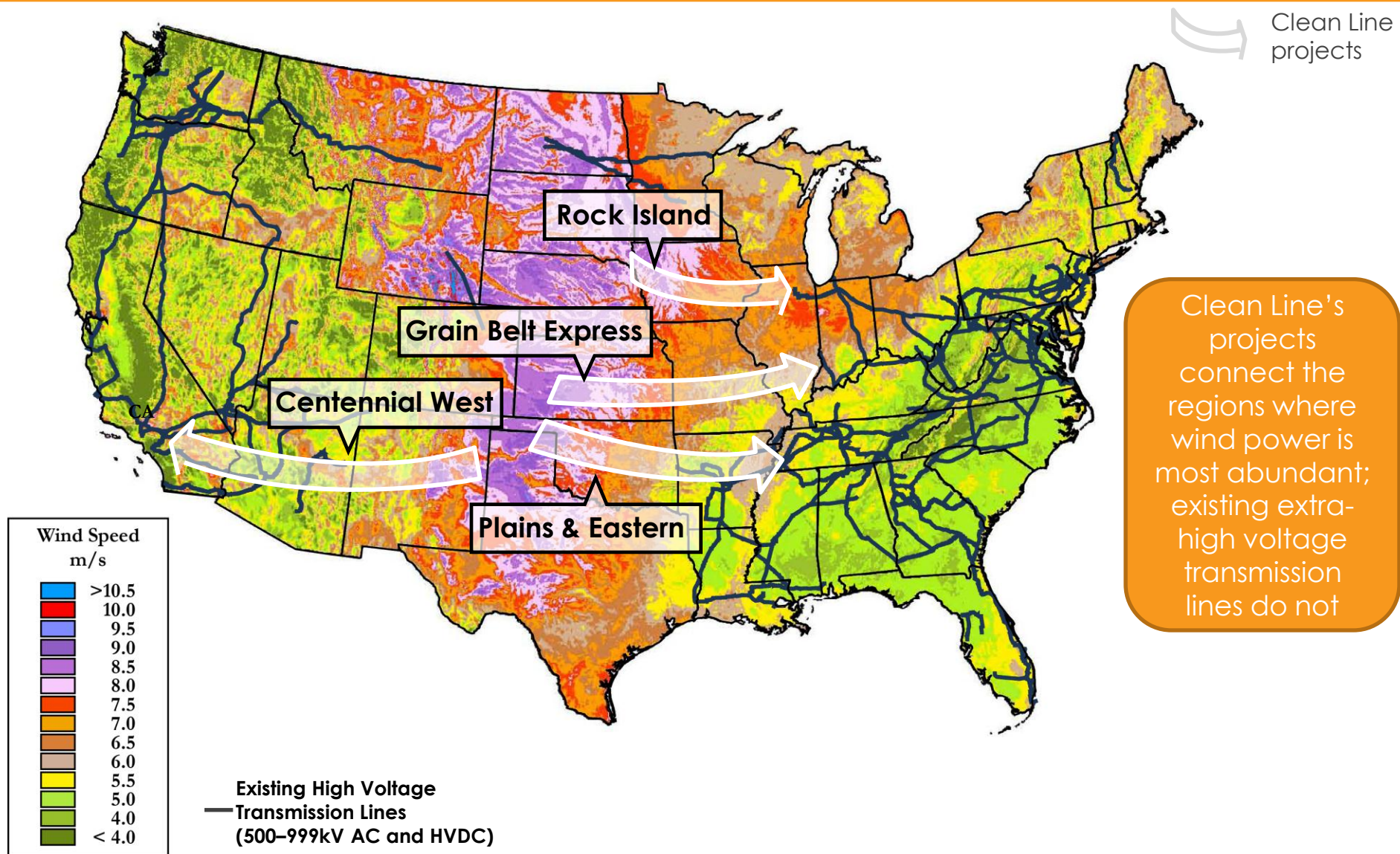


Clean Line Energy Partners

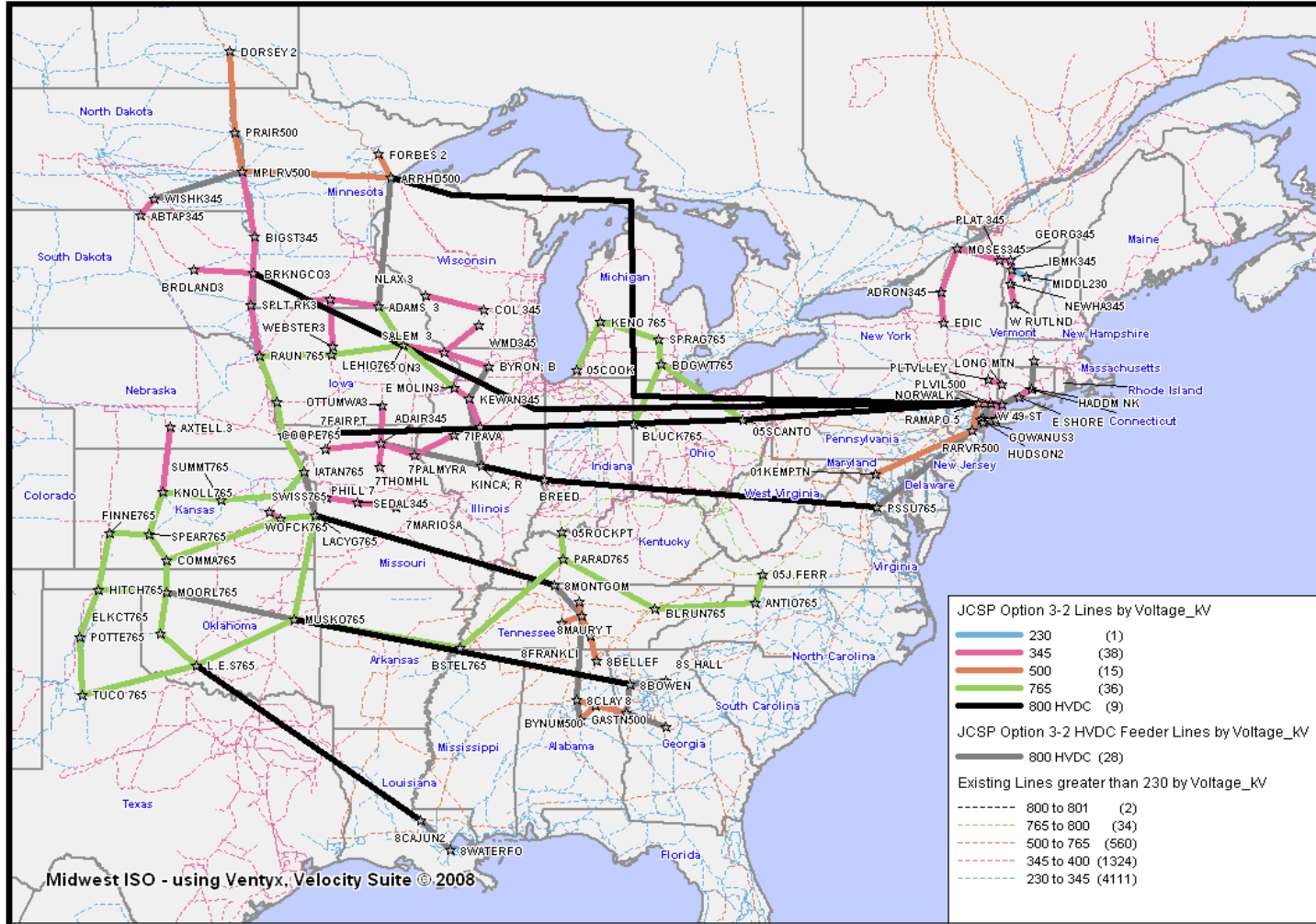
2012



Transmission investment is required to connect the best wind resources to load centers

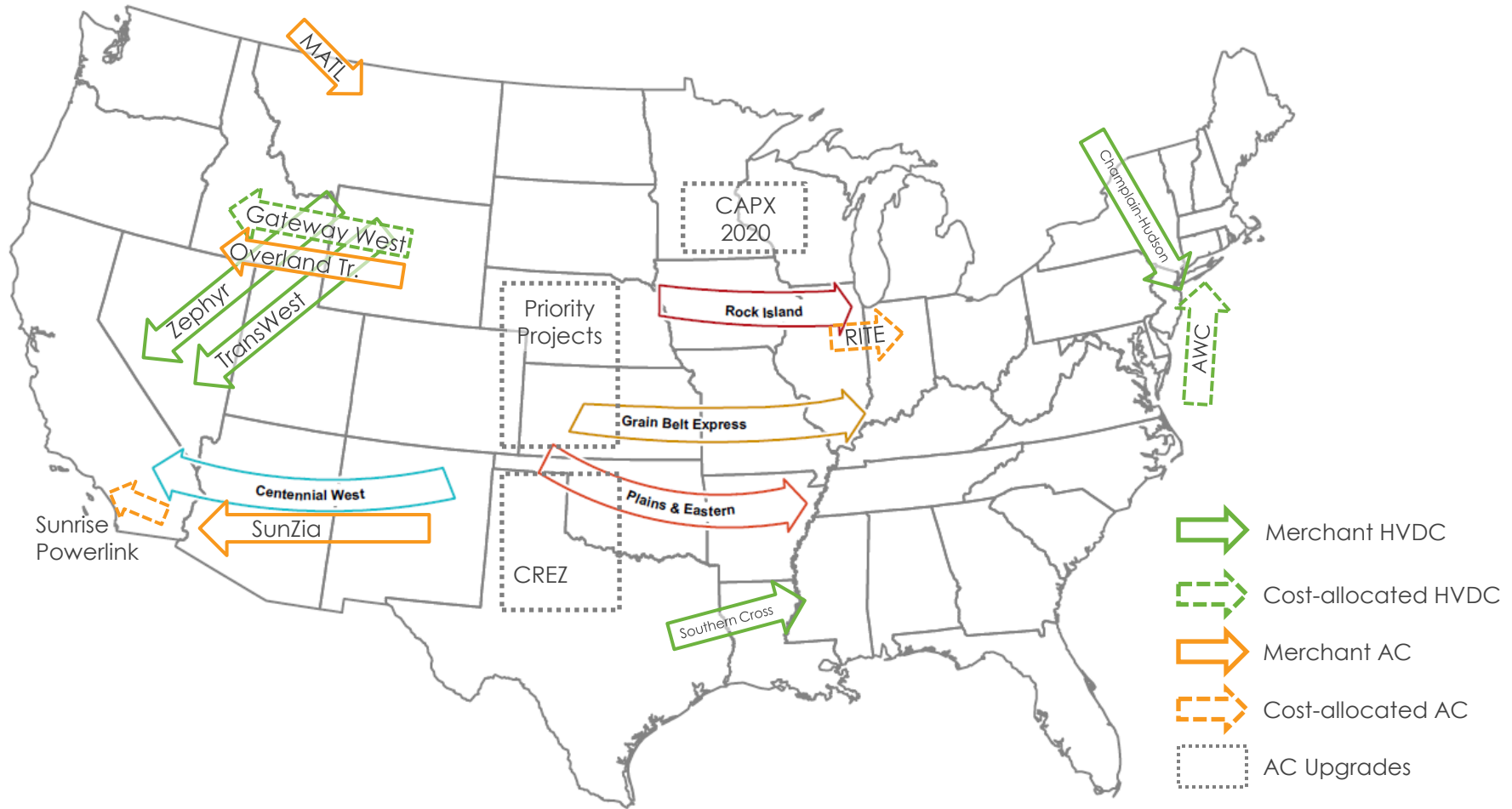


Joint Coordinated System Plan Identified Seven HVDC Lines to Move Wind Energy to Market



Source: Joint Coordinated System Plan 2008

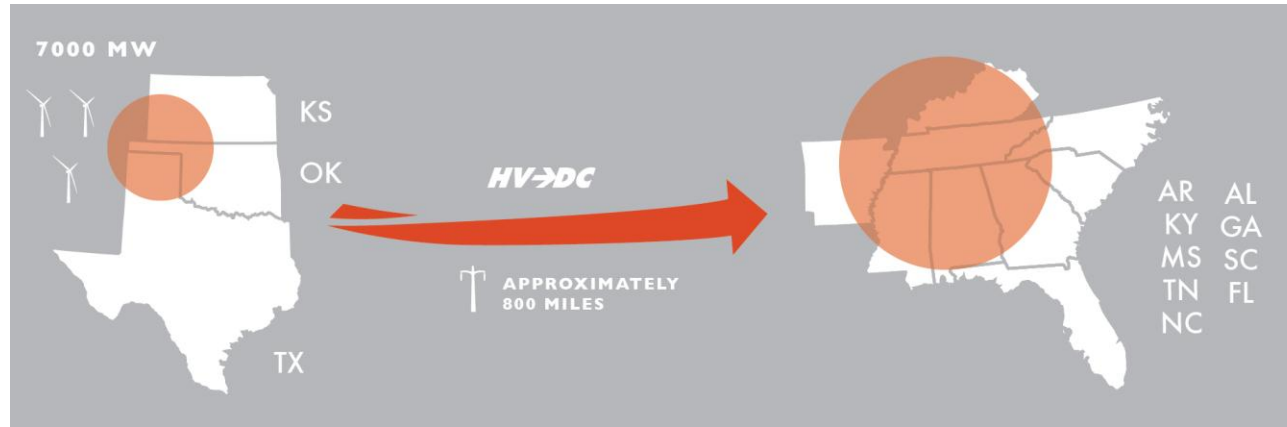
Transmission development across the US for wind integration



Plains & Eastern Clean Line can deliver up to 7,000 MW from western Oklahoma to the Southeast

PLAINS & EASTERN

CLEAN LINE



KEY MILESTONES

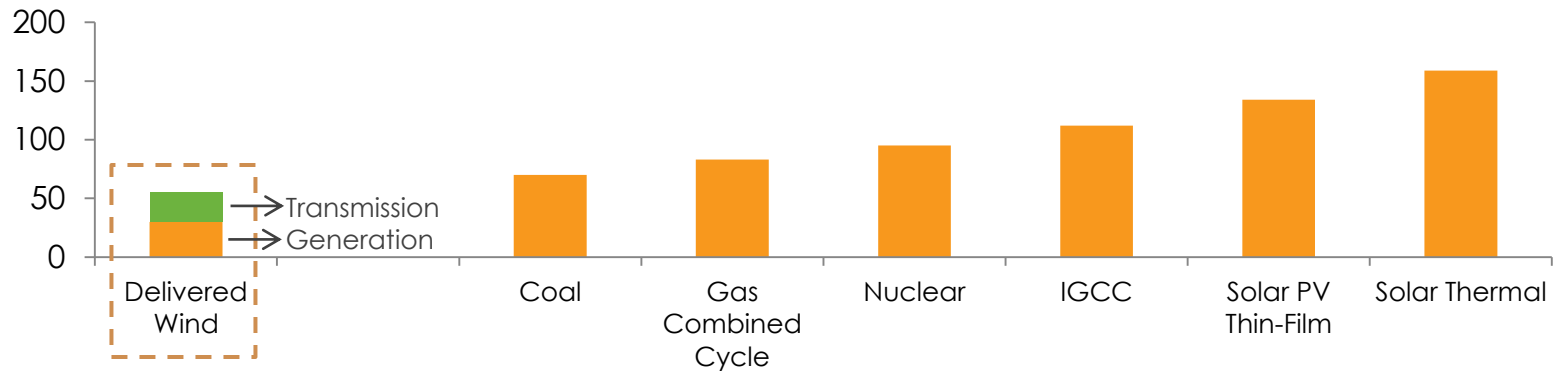
STATUS

Utility Applications	<ul style="list-style-type: none"> Filed utility application in Oklahoma and Arkansas; obtained public utility status in Oklahoma on October 28th 2011
Interconnection	<ul style="list-style-type: none"> Filed interconnection request at 500 kV substations in TVA and Entergy
Converter Options	<ul style="list-style-type: none"> Purchased land option for Oklahoma converter site
Federal Procedure	<ul style="list-style-type: none"> Applied for federal siting authority pursuant to Section 1222
Outreach	<ul style="list-style-type: none"> Held over 550 meetings in more than 30 counties across OK, AR and TN
Environmental & Routing	<ul style="list-style-type: none"> Route alternatives established
Agreements & Partnerships	<ul style="list-style-type: none"> Signed supplier agreements with Pelco Structural (OK) and General Cable (AR) Entered into agreements with The Nature Conservancy of Arkansas and The Nature Conservancy of Oklahoma MOU with TVA MOU with Fluor for EPC development support

Wind energy is less expensive than alternatives and forecasted to continue to increase in capacity

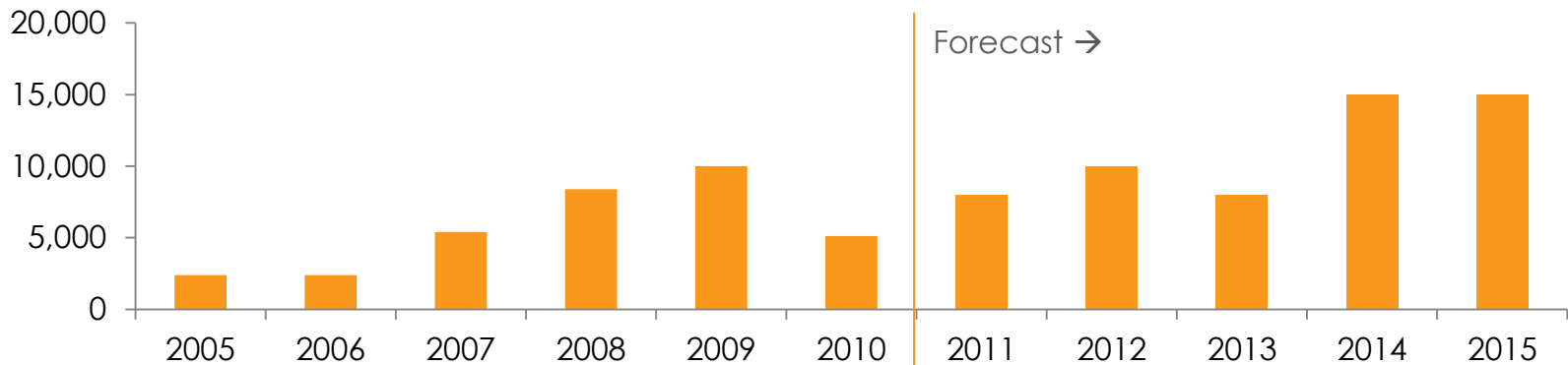
Levelized Cost of Energy¹

\$/ MWh



Annual U.S. Wind Installations

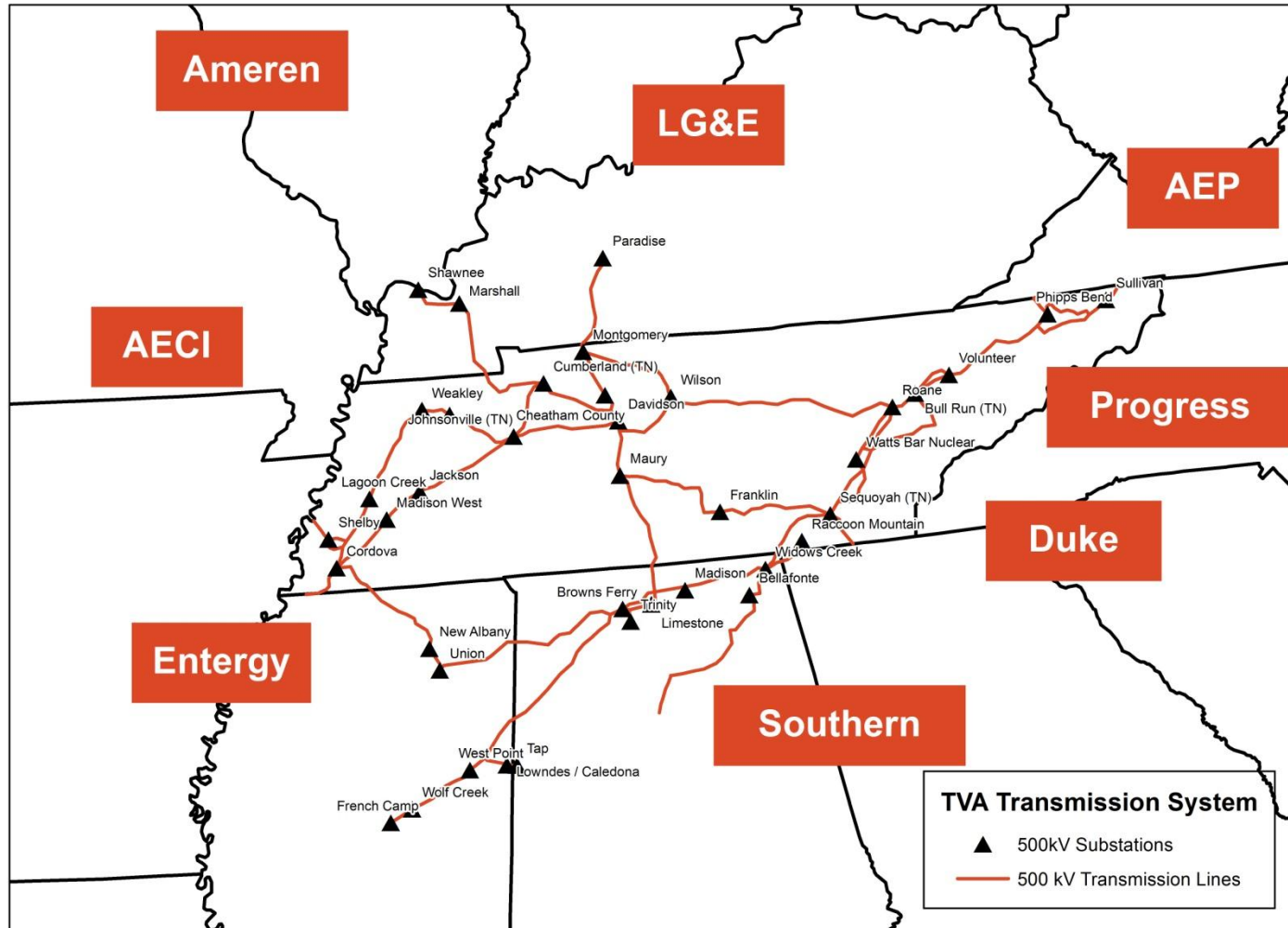
MW



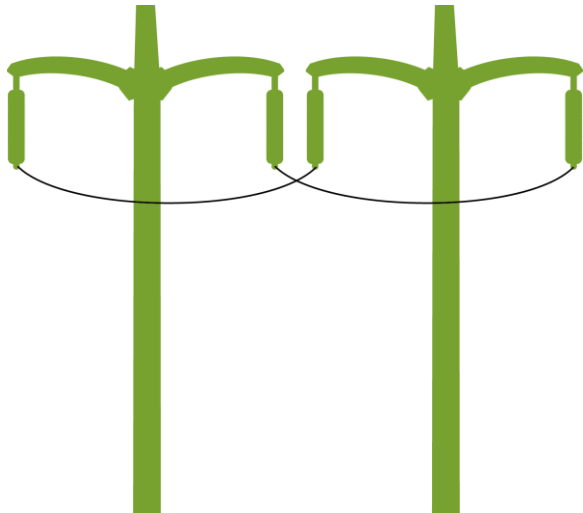
1. Mid-point of Lazard's LCOE estimates, except for lower-end for coal (no carbon capture). Wind includes lower-end LCOE estimate (for best quality wind) + \$25/MWh transmission cost

Source: Lazard; Navigant Consulting presentation at AWEA WindPower 2011 conference

TVA Can Become the Southeast's Renewable Energy Hub because of its Extensive 500 kV Network



Plains & Eastern Clean Line will Open Supply Chain for HVDC Transmission in Southeast



- Approximately **3,470 steel monopole structures** with approximately **25 million feet of conductor** will be used for the Plains & Eastern Clean Line.
 - Around **35,000 – 40,000 pounds of steel** per transmission structure
 - Approximately **40 cubic yards of concrete** per structure
- Plains & Eastern will create opportunity for:
 - **121,450,000 pounds of steel** for the structures
 - **138,000 cubic yards of concrete** for foundations
 - **11.7 million pounds of steel** and **51 million pounds of aluminum** for the conductor

Plains & Eastern Clean Line will Open Supply Chain for Wind Energy in the Southeast



- Approximately **3,500 wind turbines** will be used to generate 7,000 MW of clean energy delivered by Plains & Eastern Clean Line.
 - **28,000,000 wind turbine components**
 - **1,050,000 tons of steel**
 - **10,500 blades**
- In addition to the turbine components, wind farms require:
 - Underground cable
 - Concrete for roads and foundations
 - Gravel for lay down yard
 - Steel for substation

A Typical 2.0 MW Turbine uses 8,000 Individual Components, Roughly 90% Steel and can Weigh Anywhere from 200 to 400 Tons

Tower:

Tower
Ladder
Lift

Rotor:

Hub
Nose Cone
Blades
- Composites
- Blade Core
Pitch Mechanisms
Drives
Brakes
Rotary Union

Nacelle:

Nacelle Cover
Nacelle Base
Heat exchanger
Controllers
Generator Power
Electronics
Lubricants
Filtration
Insulation
Gearbox
Pump
Drivetrain
Ceramics
Shaft

Foundation:

Rebar
Concrete
Castings

Other:

Transformers
Bolts/Fasteners
Wire
Paints and Coatings
Lighting
Steel Working/Machining
Communication Devices
Monitoring Equipment
Electrical Interface
Electrical Connection
Batteries
Bearings

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