



# Mississippi Wind Energy Opportunities

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# About

- The Southern Wind Energy Association (SWEA) is an industry-led initiative that promotes responsible use and development of wind energy in the South.
- Our vision is for wind energy to become a leading source of energy in the South
- SWEA's geographic region covers eleven Southeastern states

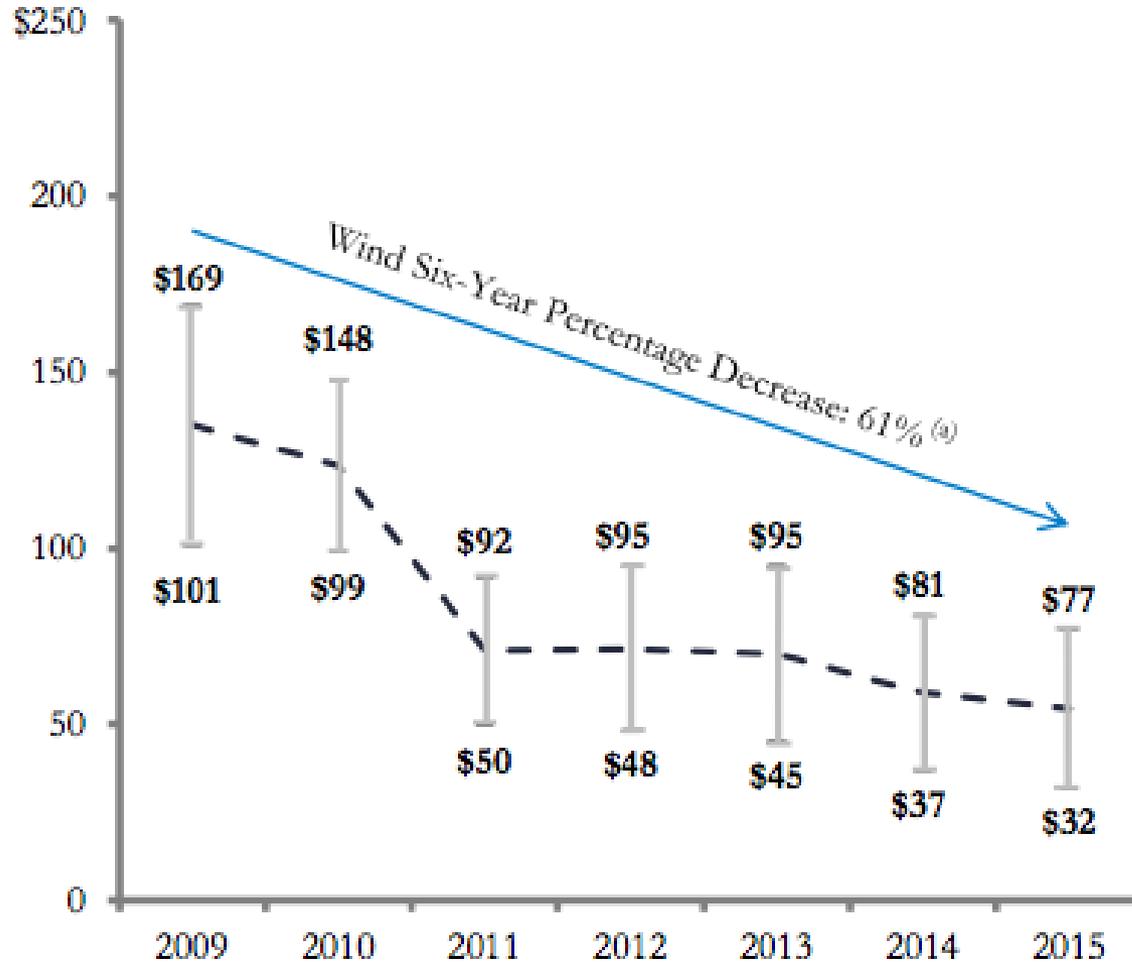


# Overview

- Pricing Trends
- Existing Activity
- Opportunities
- Utility Planning
- Next Steps

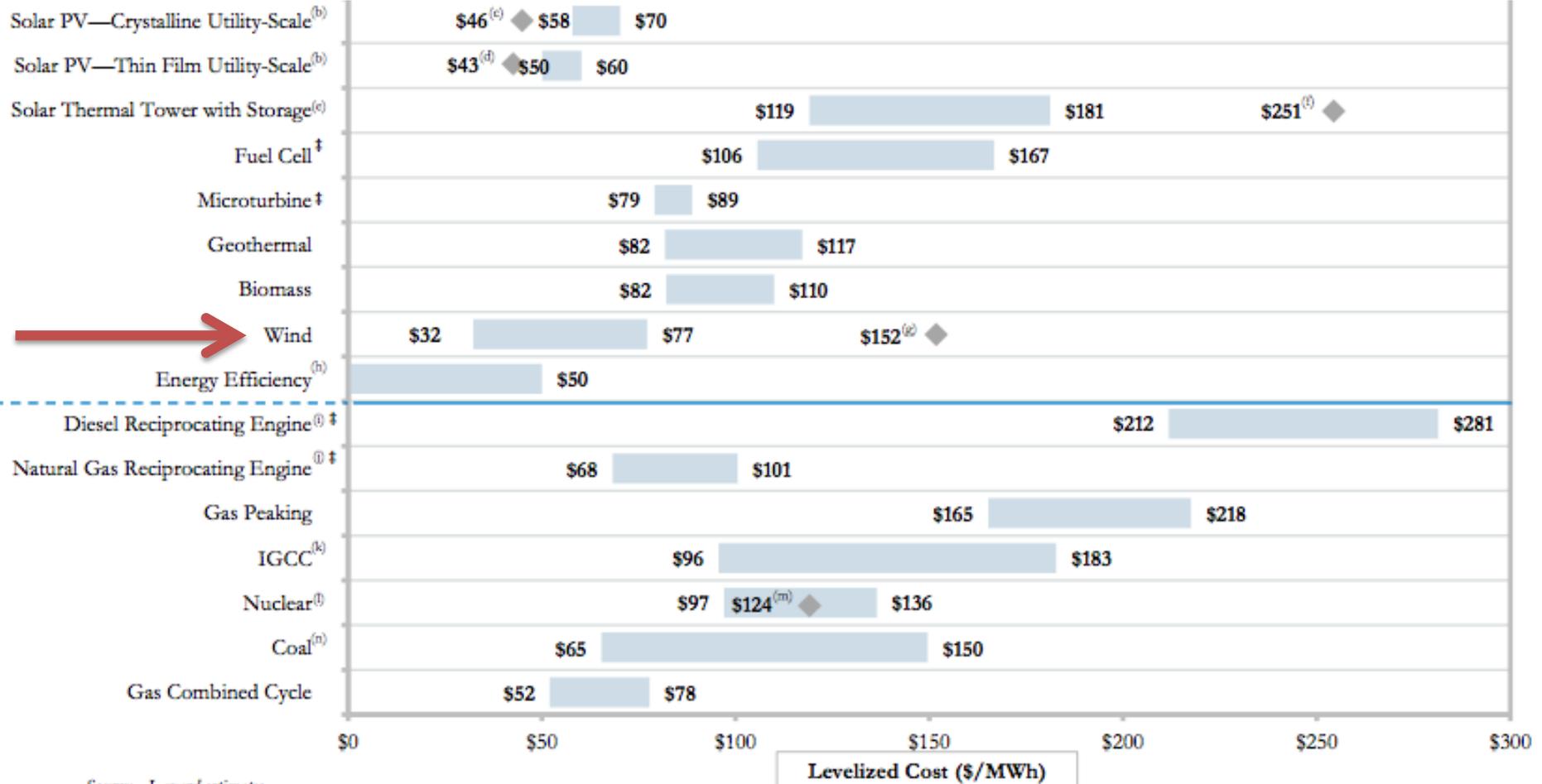


# Wind Prices have Declined



Lazard 2015

# Recent Price Trends



Source: Lazard estimates.

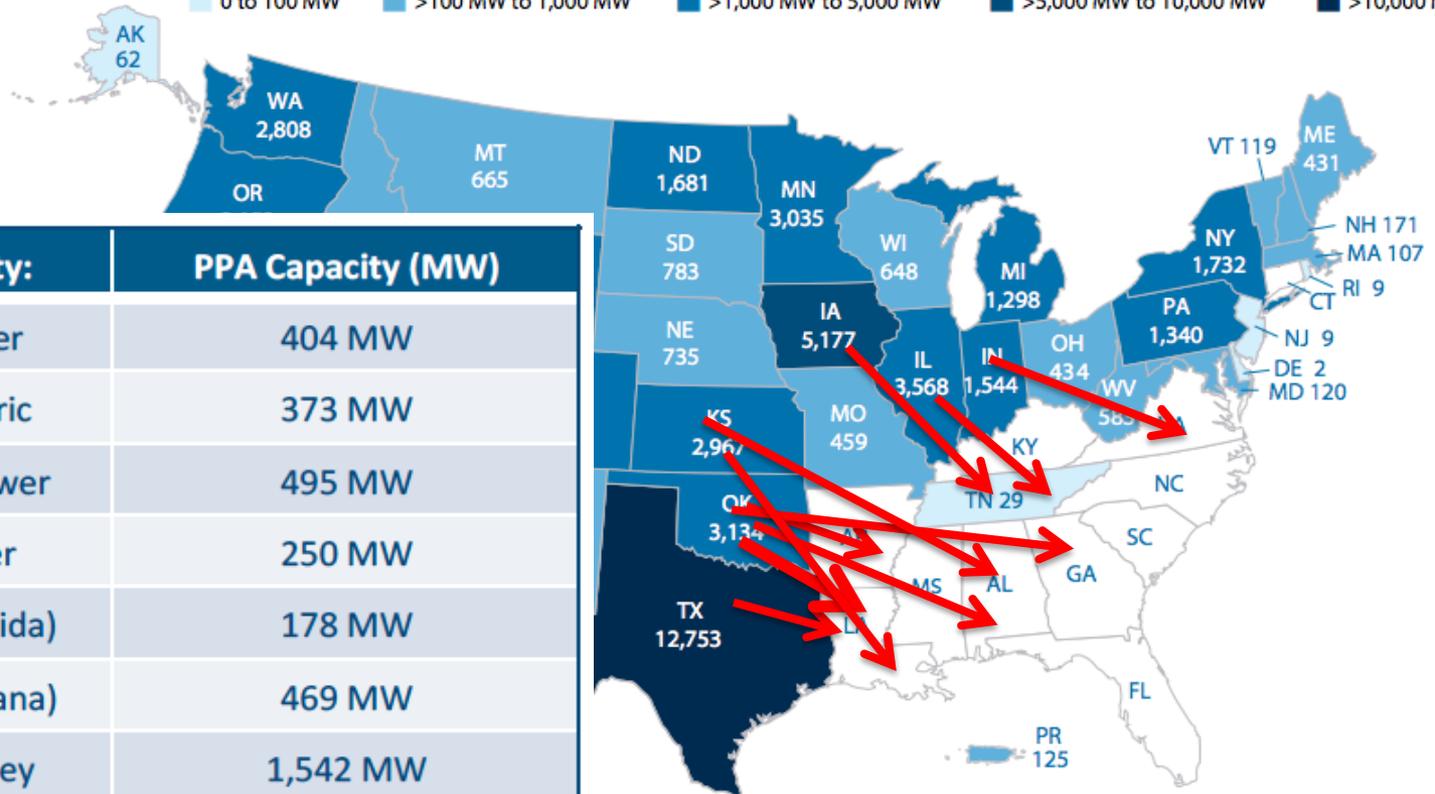
Wind energy is capable of being the lowest cost energy resource, even unsubsidized.

Lazard 2015



# Southern Wind Energy Contracts

0 to 100 MW    >100 MW to 1,000 MW    >1,000 MW to 5,000 MW    >5,000 MW to 10,000 MW    >10,000 MW



**Southern Utility:**      **PPA Capacity (MW)**

Alabama Power      404 MW

Arkansas Electric      373 MW

Appalachian Power      495 MW

Georgia Power      250 MW

Gulf Power (Florida)      178 MW

SWEPCO (Louisiana)      469 MW

Tennessee Valley Authority      1,542 MW

**Total:**      **3,711 MW**



# Utility Perception of Wind Energy



"Wind power is a **clean and limitless source** of energy that directly enhances TVA's mission of environmental stewardship."

"Adding wind energy to our generation mix underscores our commitment to a diverse portfolio that offers **clean, safe, reliable, sustainable and low-cost electricity for years to come.**"



"These agreements are good for our customers for one very basic reason, and that is, **they save our customers money.**"

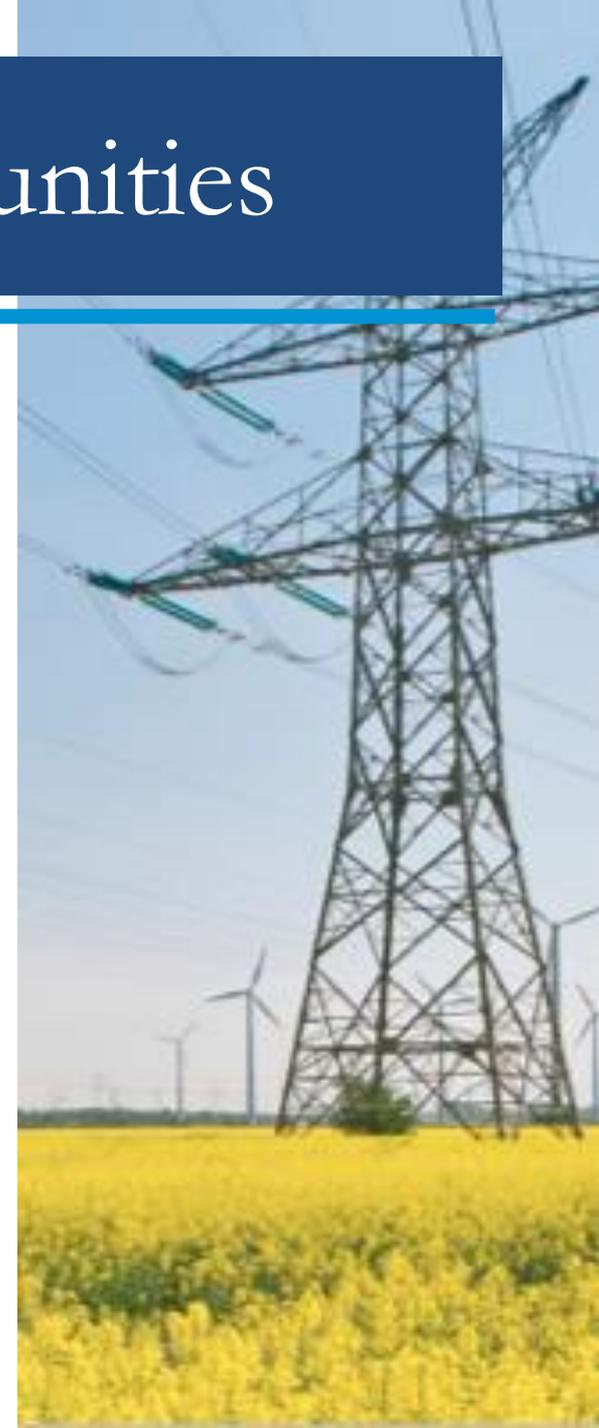
A SOUTHERN COMPANY

"...[W]e were in a good position to pursue additional renewable resources at **a good price for customers.**"



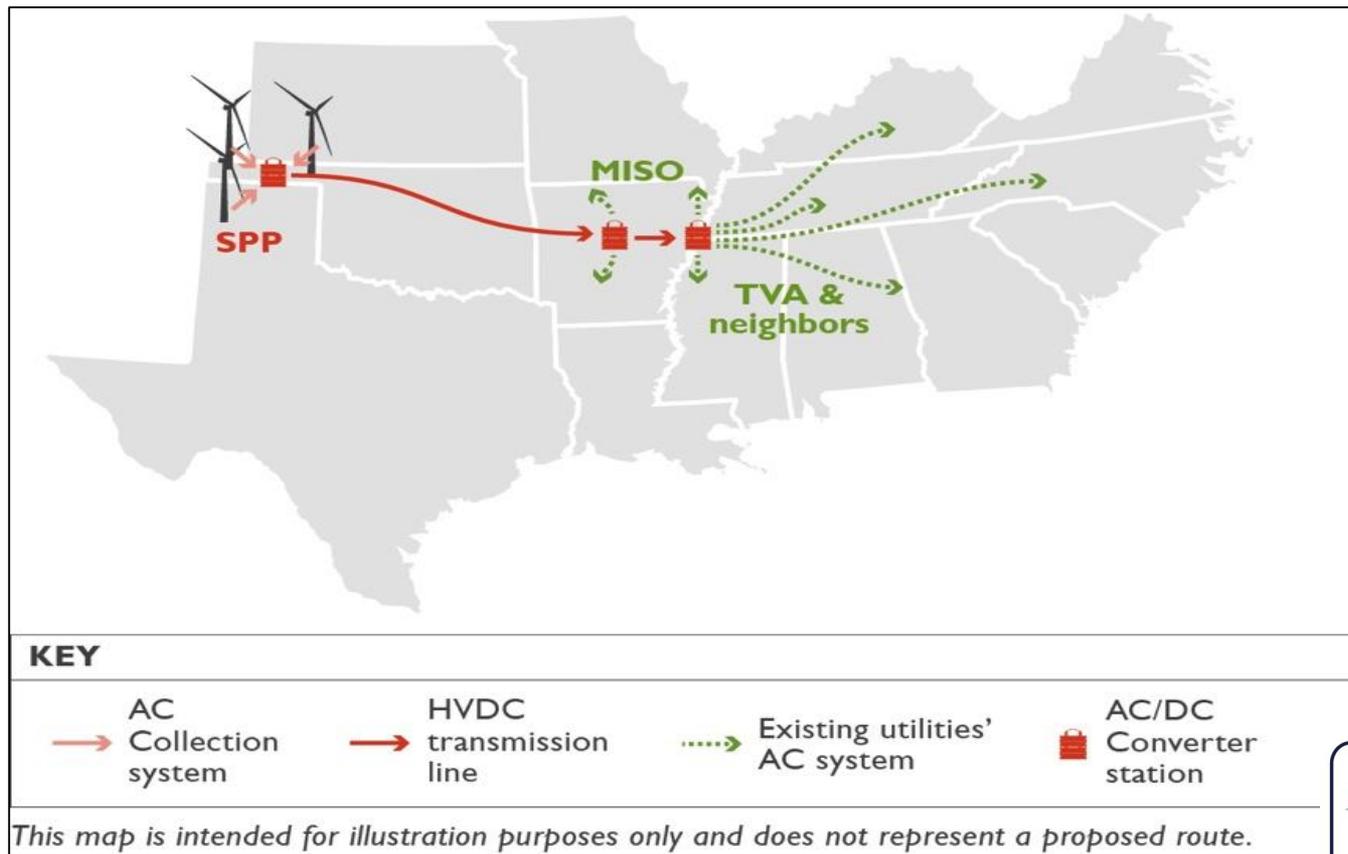
# Wind Energy Opportunities

- **Import via SPP/MISO**
  - High Capacity Factor (45-50%+)
  - Low Cost (\$20s/MWh)
  - Variable Transmission Charges
- **HVDC Transmission**
  - High Capacity Factor (55%+)
  - Low Cost (\$20s/MWh)
  - Improved Capacity (Oversubscription)
  - Fixed Transmission Charge
- **In-State Resources**
  - Lower Capacity Factors (30-40%+)
  - Higher Cost
  - Little/No Transmission
  - In-State Econ. Benefits



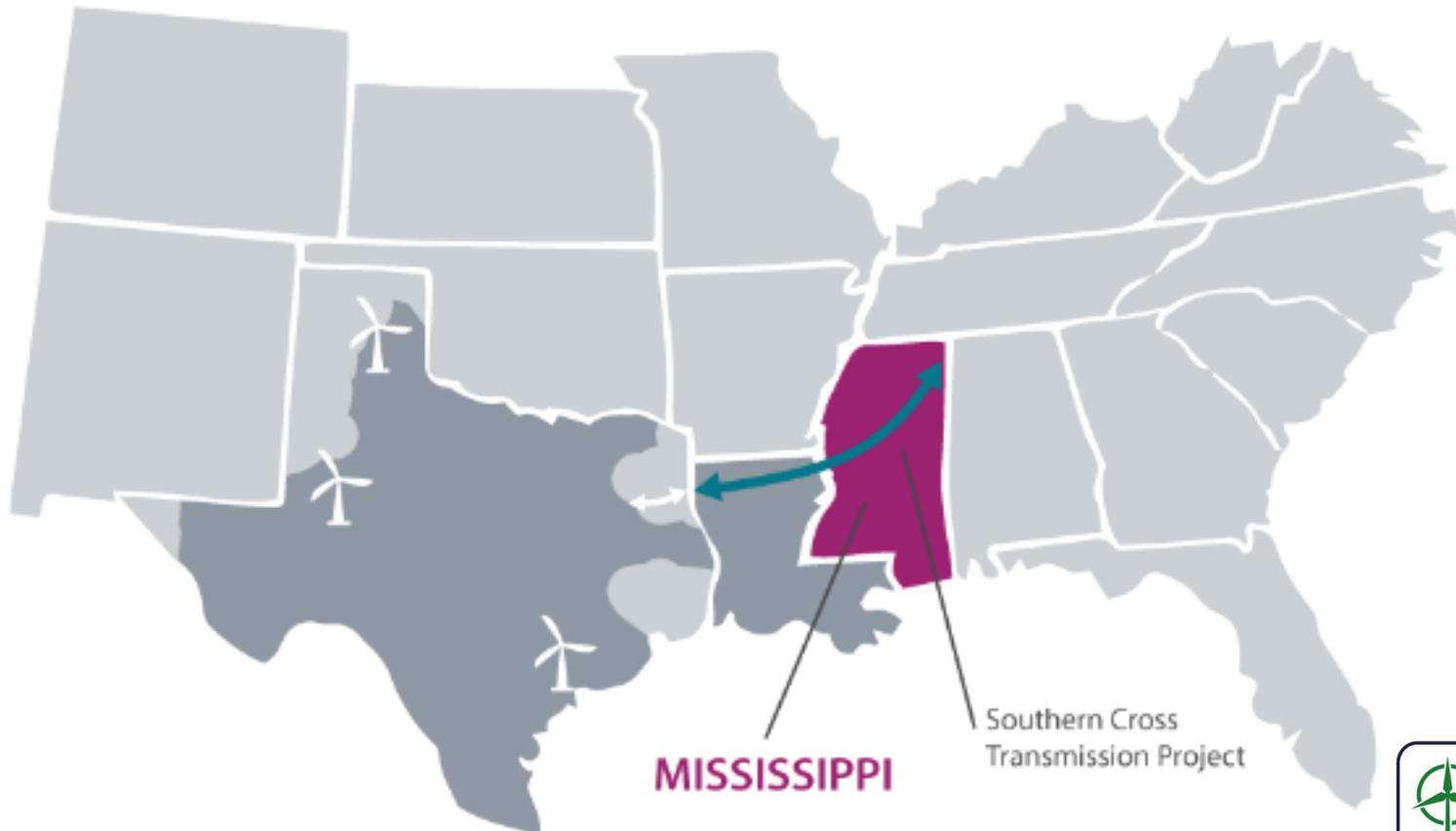
# HVDC Transmission

Plains and Eastern Clean Line – 4,000 MW of wind energy



# HVDC Transmission

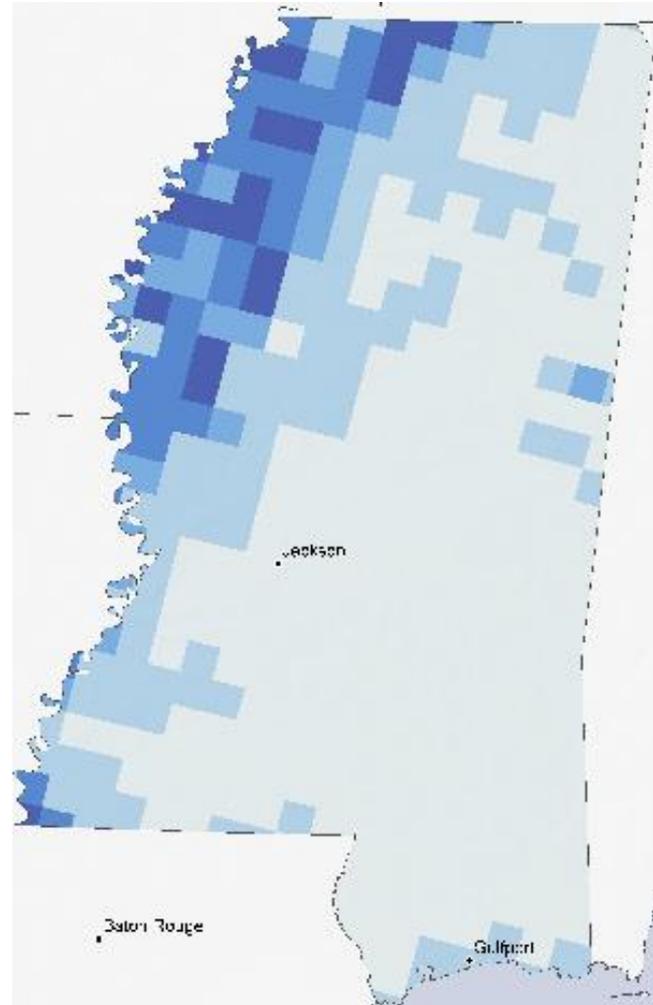
Pattern Energy Southern Cross – 2,000 MW of wind energy



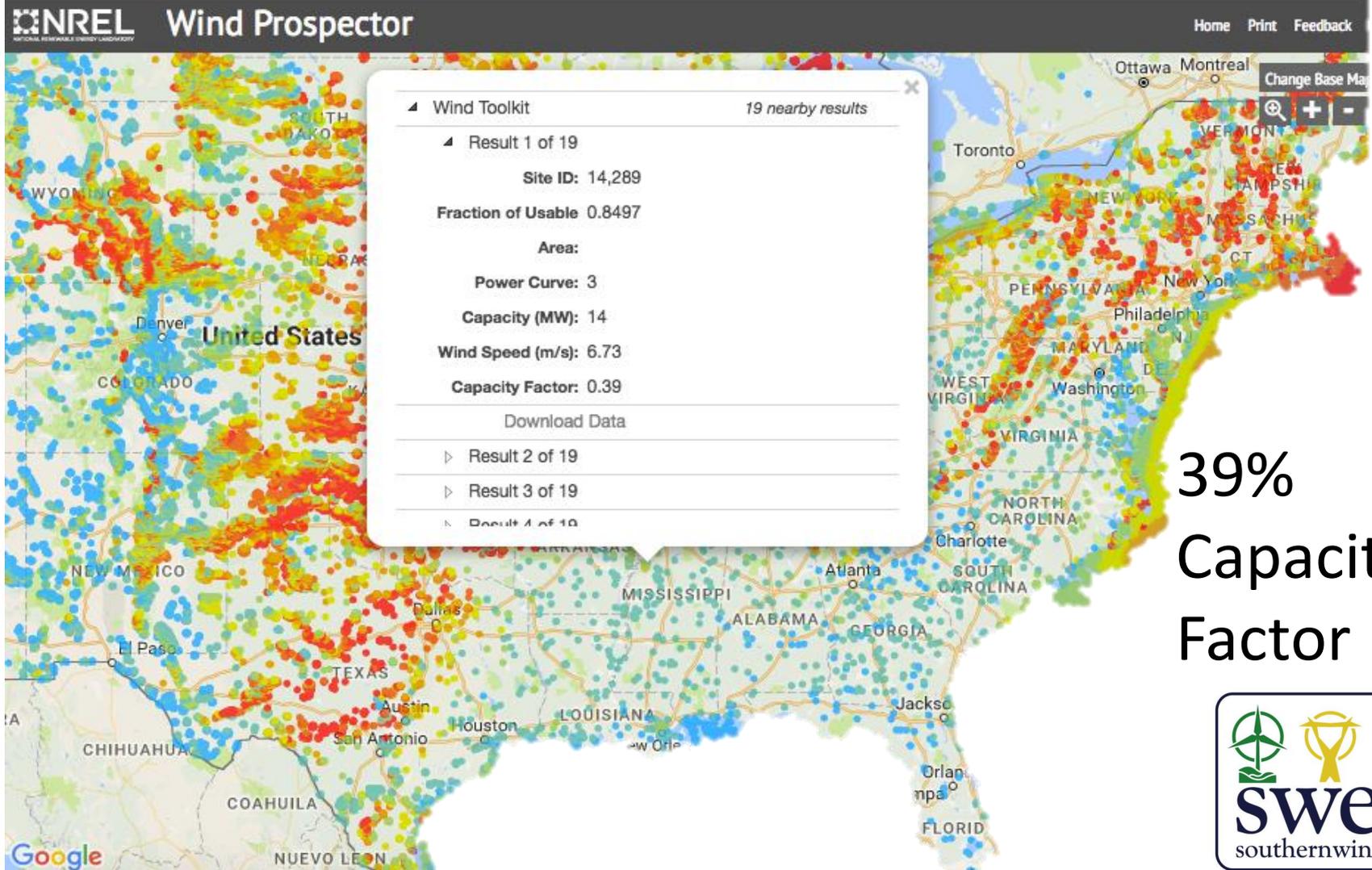
# In-State Resources

2008 Technology: 0 GW  
2014 Technology: 43.5 GW  
Near Future Tech: 188.2 GW

Gross Capacity Factors 35%+  
Area Shaded by Land Area Potential



# In-State Resources

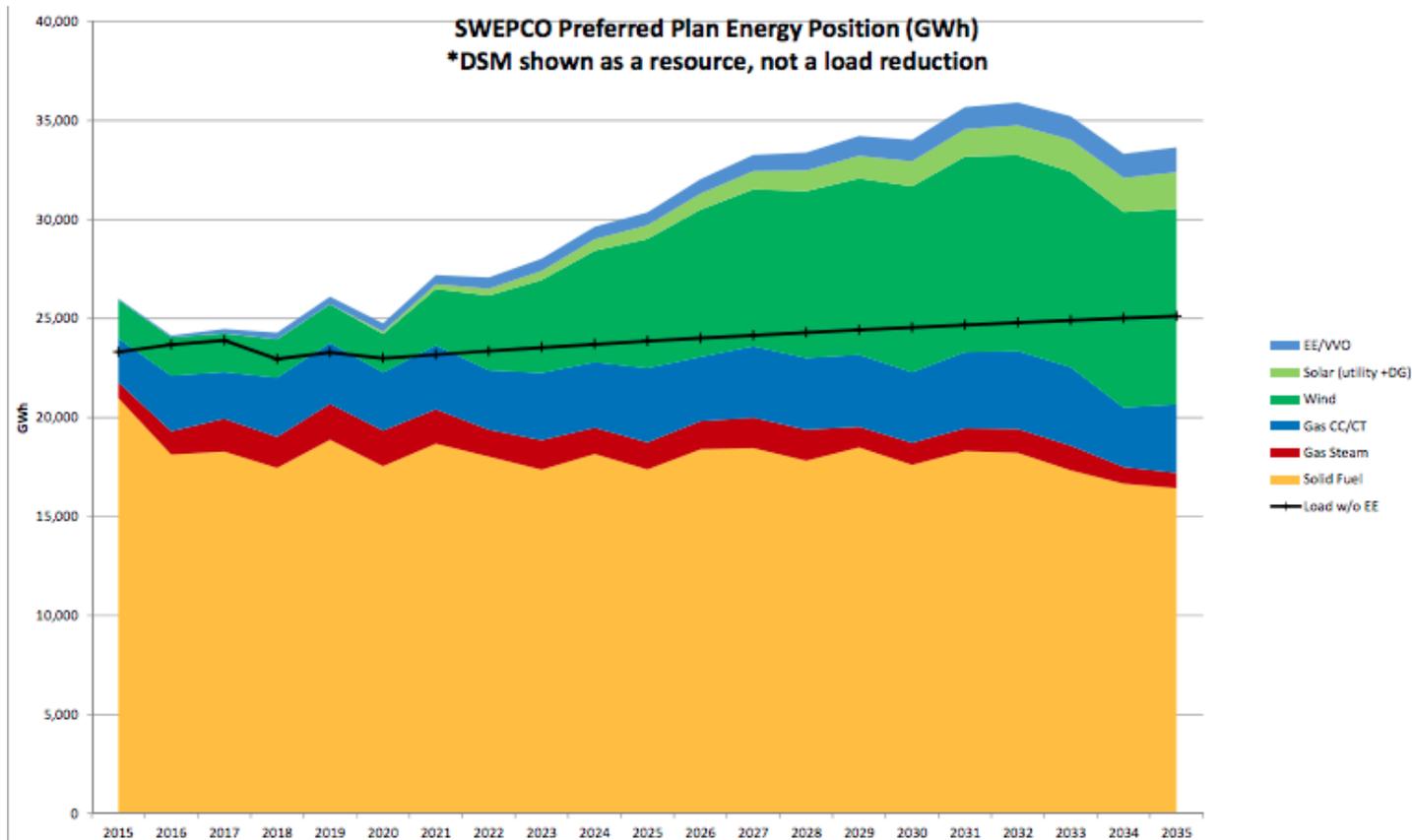


# SWEPCO IRP Inputs

	Tranche 1	Tranche 2	Tranche 3
Capacity Factors	56%	50%	45%
Prices	\$47/MWh	\$55/MWh	\$60/MWh

# SWEPCO IRP Results

Adds  
1,200 MW  
of wind



SWEPCO Final 2015 IRP

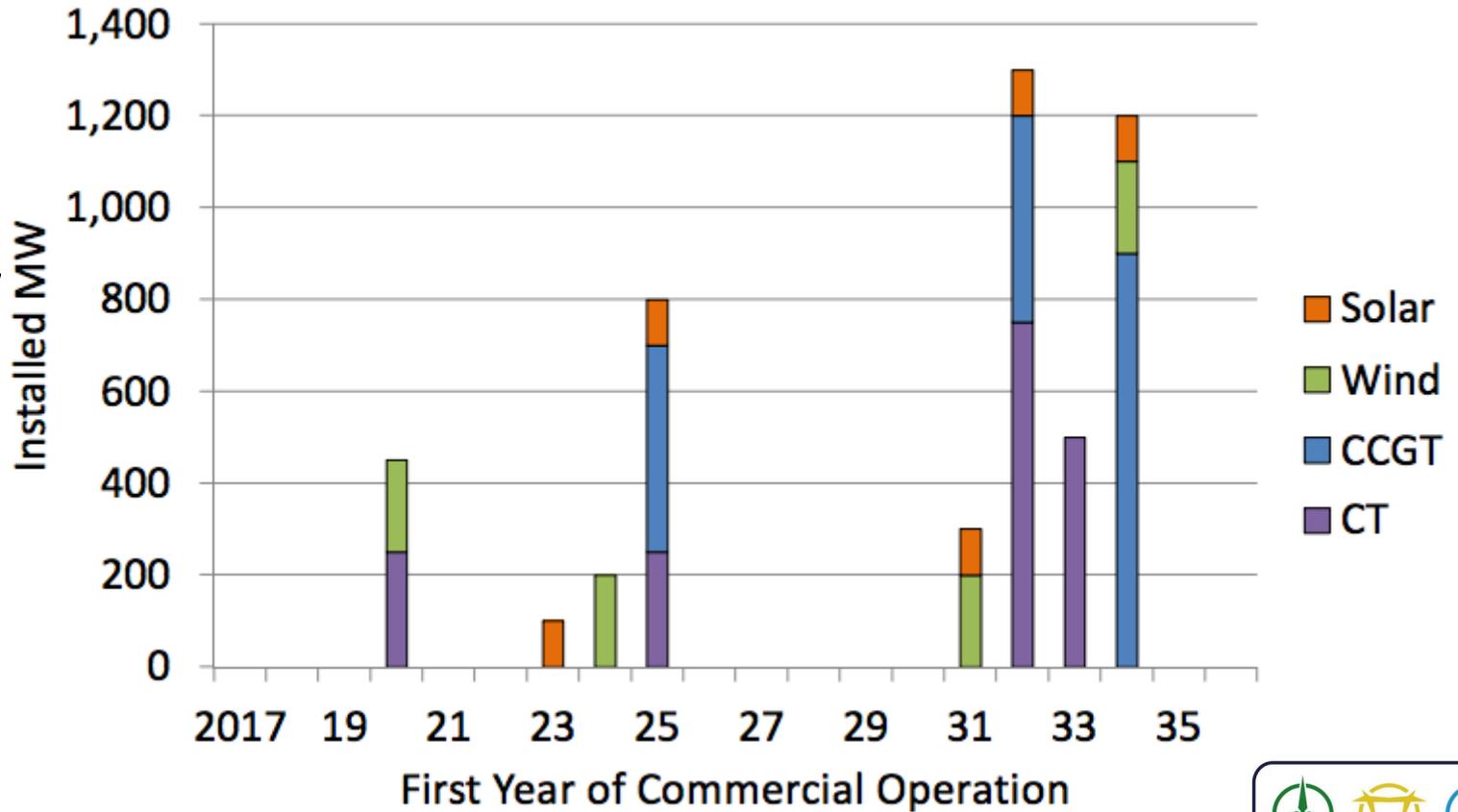


# Entergy Arkansas IRP Inputs

Capacity Factor	Price
48%	\$54/MWh

# Entergy Arkansas IRP Results

Adds  
800 MW  
of wind



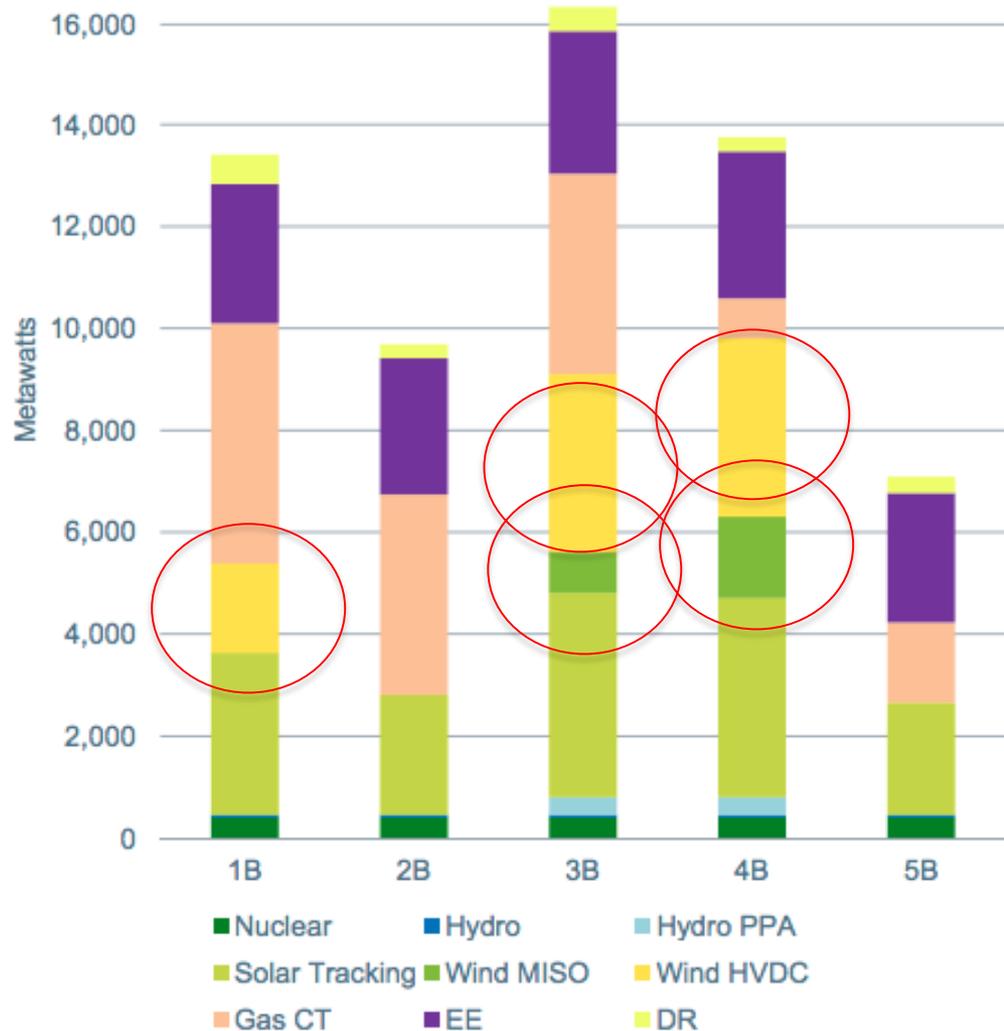
Entergy Arkansas 2015 IRP



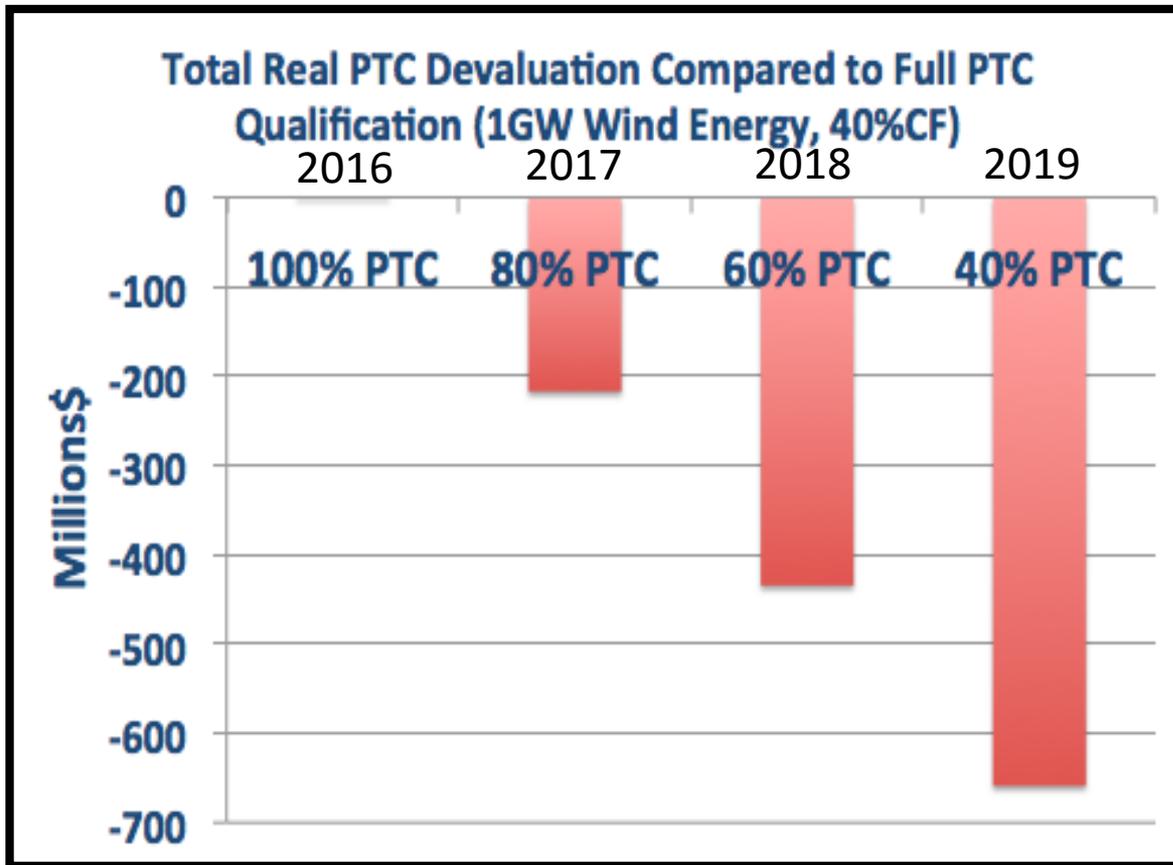
# TVA IRP Results

~1,800-2,800 MW  
HVDC Wind

~800-1,600 MW  
MISO Wind



# Tax Credit Phase-out



Utilities could lose at least **\$217 million** on 1,000 MW of wind energy by waiting a year.

*Adapted from Mark Bolinger, "An Analysis of the Costs, Benefits, and Implications of Different Approaches to Capturing the Value of Renewable Energy Tax Incentives", Lawrence Berkeley National Lab 2014*

# Next Steps

- Conduct Bilateral Negotiations for Unsolicited Proposals
- Issue RFI/RFP for specific and up-to-date wind energy resource information
- Evaluate Integrated Resource Planning options
- Track Clean Energy Incentive Program activities



# Contact

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