The background of the slide is a photograph of an offshore wind farm. Several large, white, three-bladed wind turbines are visible, extending from the foreground into the distance over a calm blue sea. The sky is a clear, light blue. The text is overlaid on the upper portion of this image.

# Sweet Virginia Breeze

## The Opportunities and Challenges of Offshore Wind in Virginia

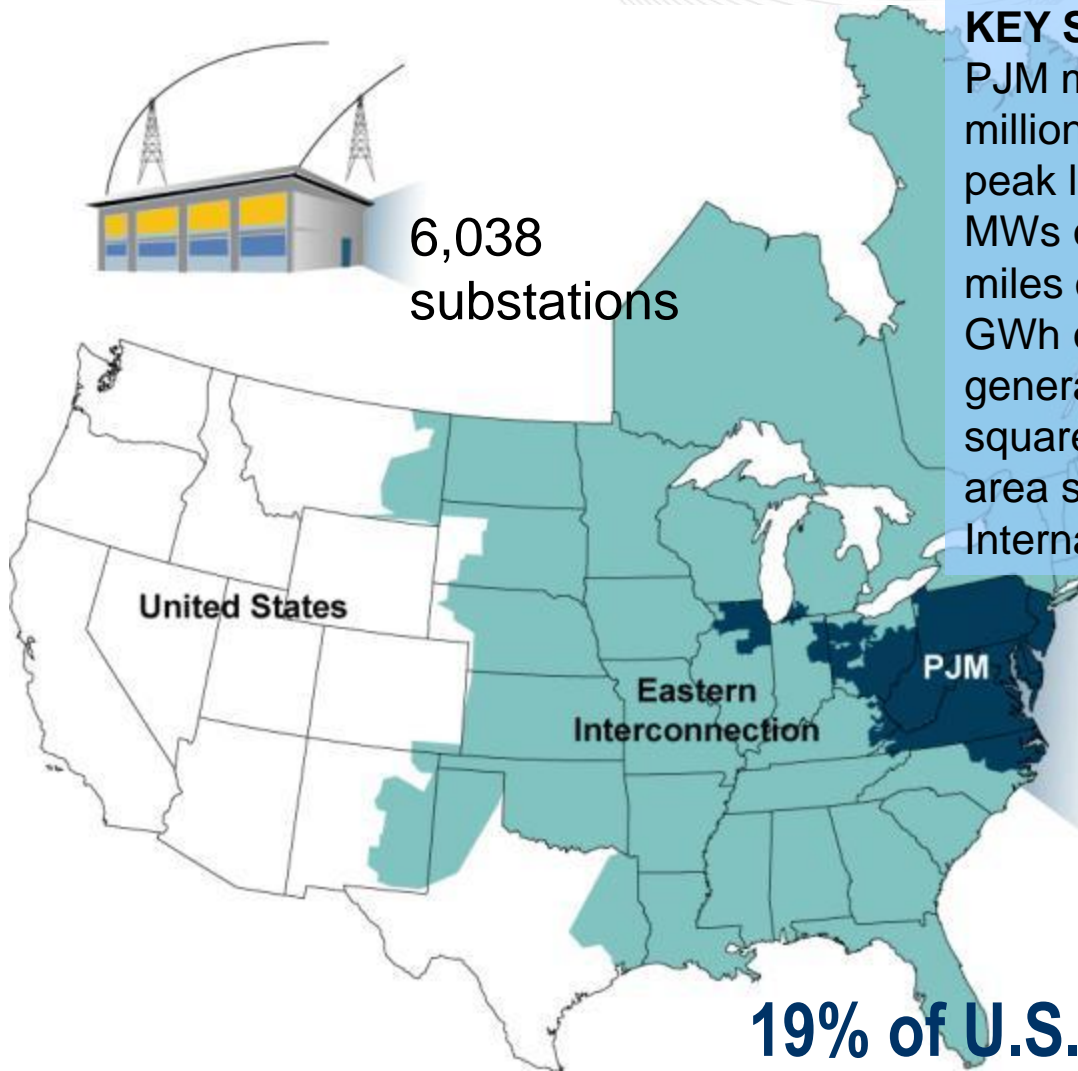
Paul McGlynn  
General Manager  
PJM System Planning



6,038  
substations

## KEY STATISTICS

PJM member companies	600
millions of people served	51
peak load in megawatts	144,644
MWs of generating capacity	164,905
miles of transmission lines	56,250
GWh of annual energy generation sources	729,000
1,310	
square miles of territory	164,260
area served	13 states + DC
Internal/external tie lines	250



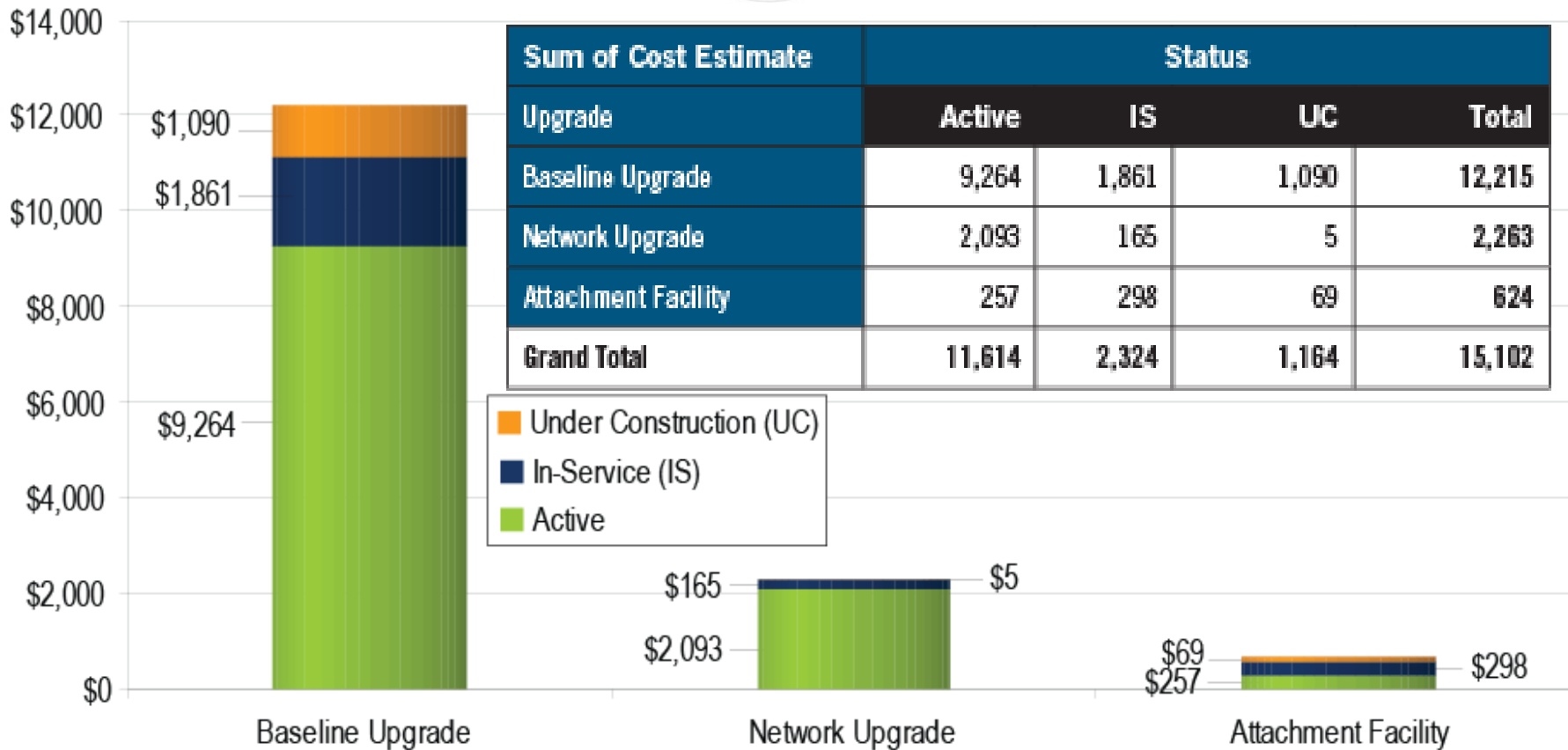
26% of generation in Eastern Interconnection

23% of load in Eastern Interconnection

19% of transmission assets in Eastern Interconnection

**19% of U.S. GDP produced in PJM**

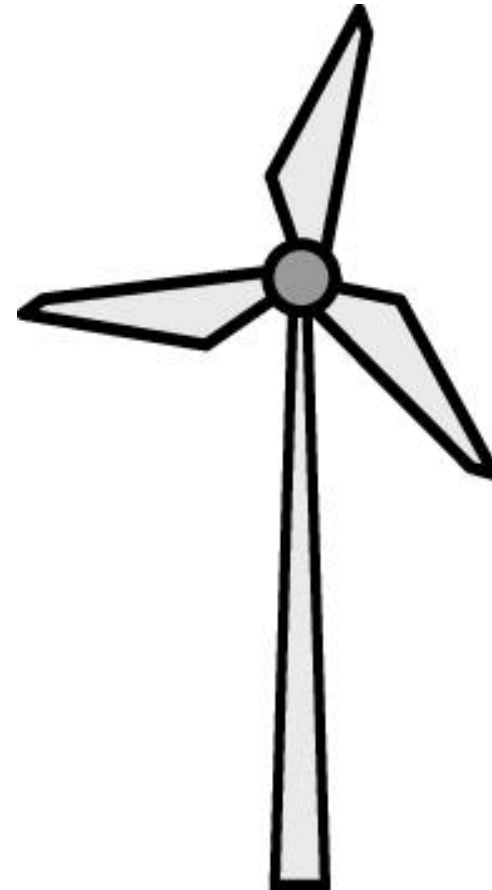
# Total Regional Transmission Expansion Plan



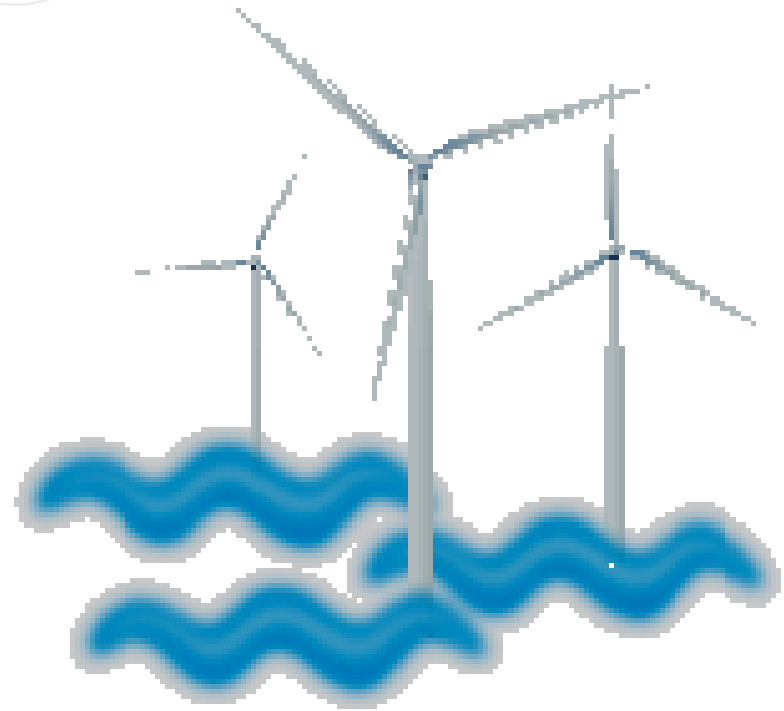
- Evaluate the reliability and market efficiency impact of offshore wind
  - Reliability - Generator deliverability analysis
  - Market Efficiency - production cost simulation



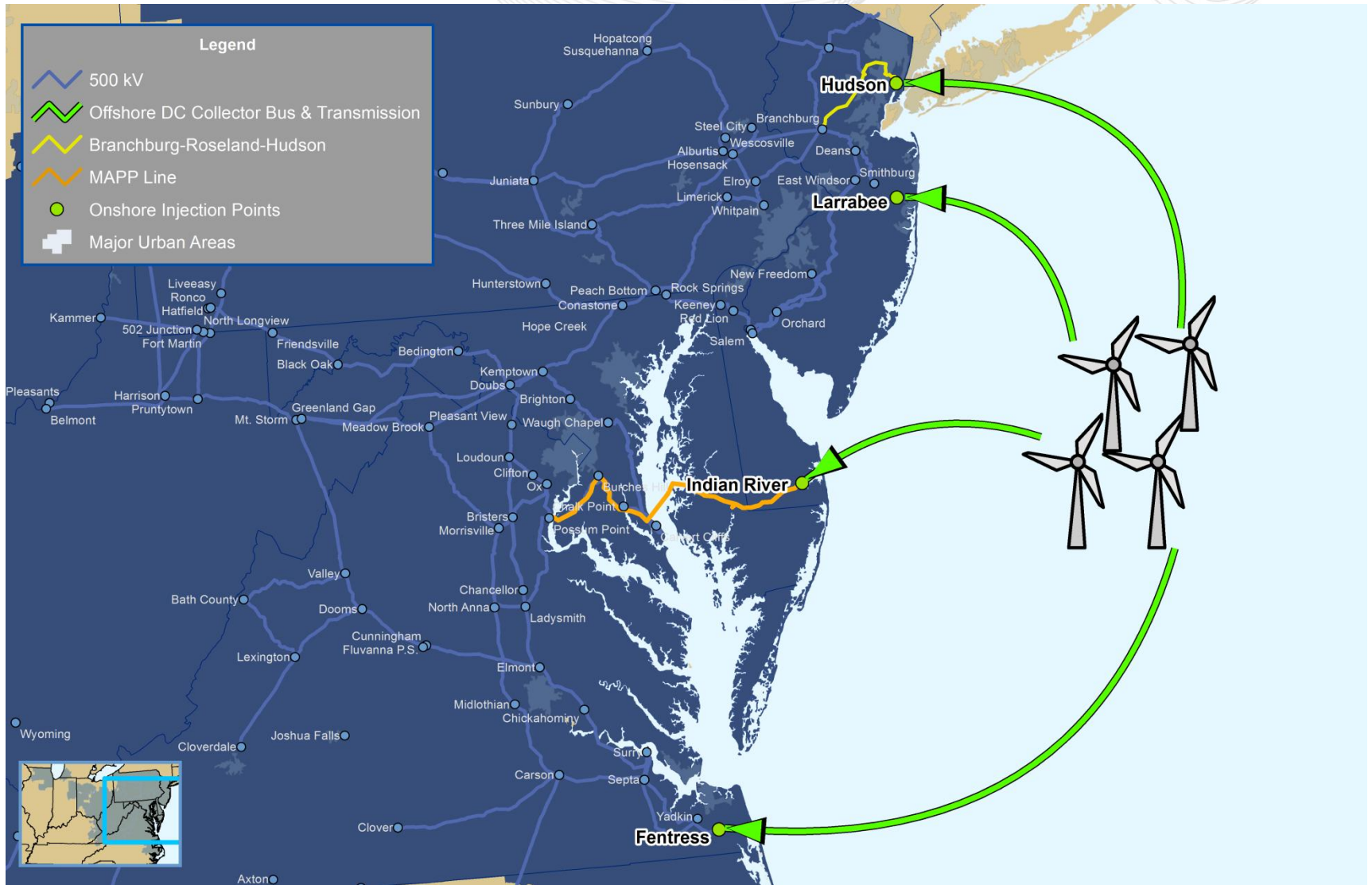
- Identify injection points to be studied where the offshore wind will interconnect with the existing transmission system.
- Perform reliability screening of single contingencies to identify potential constrained facilities.
- Utilize production cost simulation tools to evaluate the impact of the offshore wind



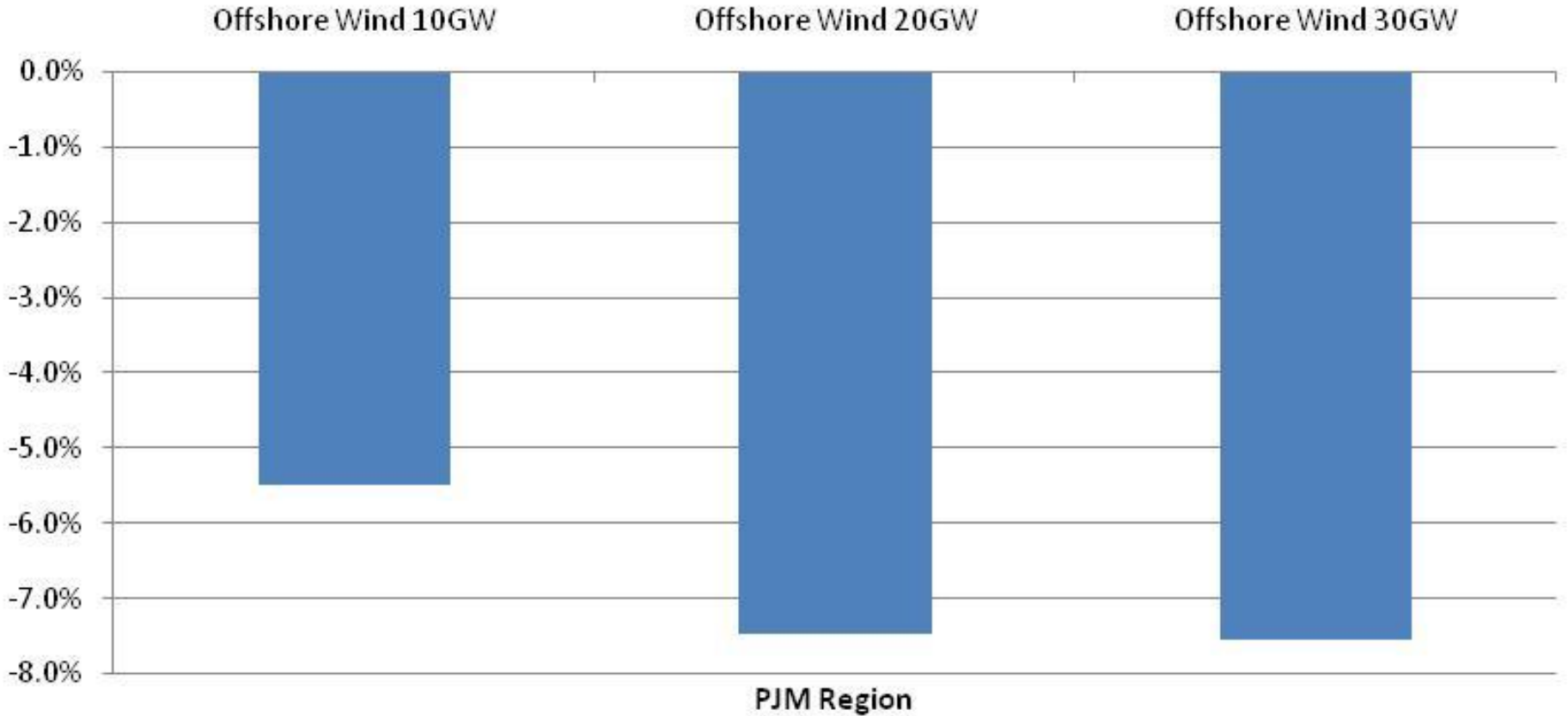
- Four scenarios tested
  - No wind (base system)
  - 10 GW
  - 20 GW
  - 30 GW
- Assumed four independent injection points







## Load Payments Savings (% from the Base Case)





## Offshore Wind Output (MWh)

