Readying Michigan
to Make Good Energy Decisions

Michigan Energy Public Forum – Traverse City

Wind Energy is Beneficial for Michigan

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Wind Energy Can Meet Michigan's Future Needs

WIND ENERGY IS --

- **Affordable**
- **Reliable**
- **Plentiful**

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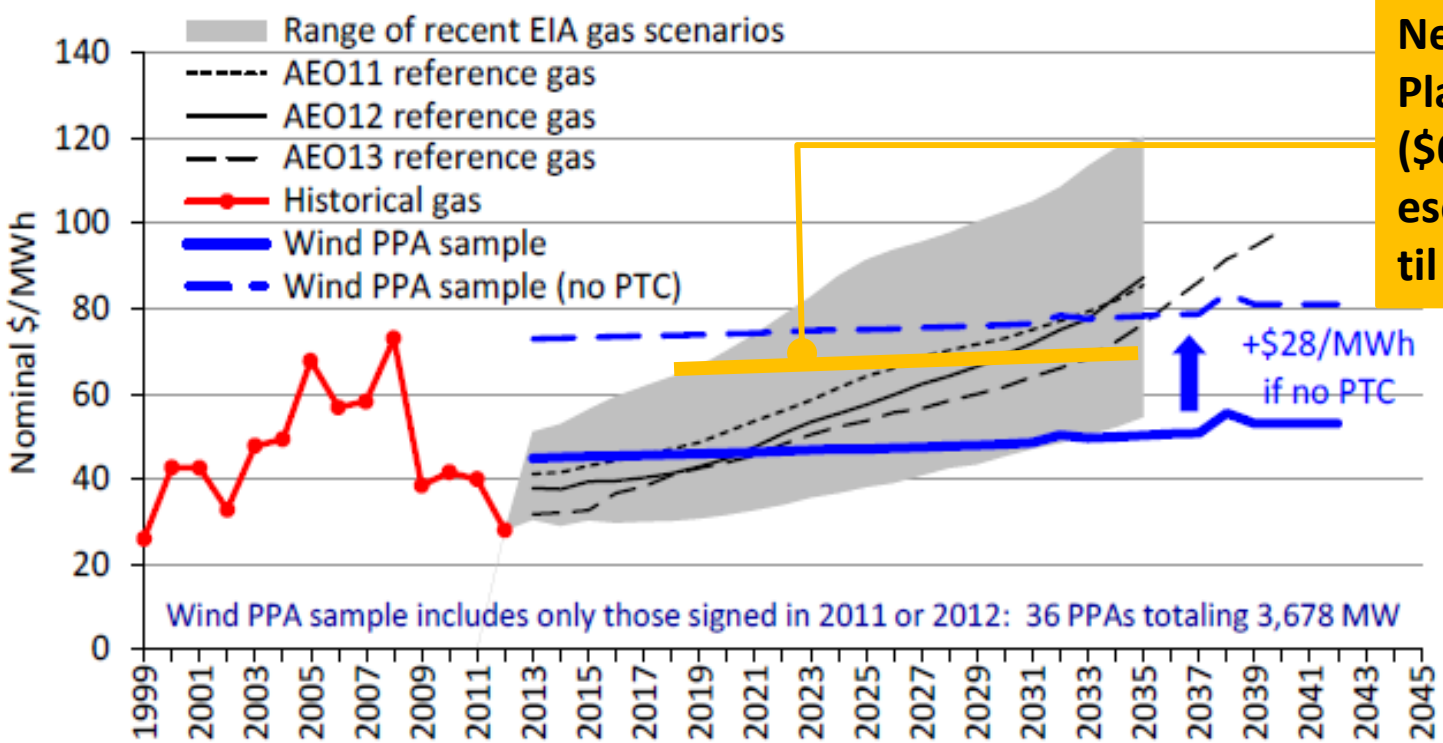
AFFORDABLE: Wind Energy is a Hedge to Natural Gas Price Volatility



Levelized Cost of New Natural Gas Plant in 2018 ($64-$66/MWh) escalating at 1.1% til 2035

Source: LBNL Draft Report : Revisiting the Long-Term Hedge Value of Wind Power in an Era of Low Natural Gas Prices (March 2013); EIA Levelized Cost of New Generation Resources (January 2013)

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RELIABLE: Wind Energy has Increased Rapidly While Curtailments have Decreased

Changes at MISO to Integrate Wind since passage of RES in 2008

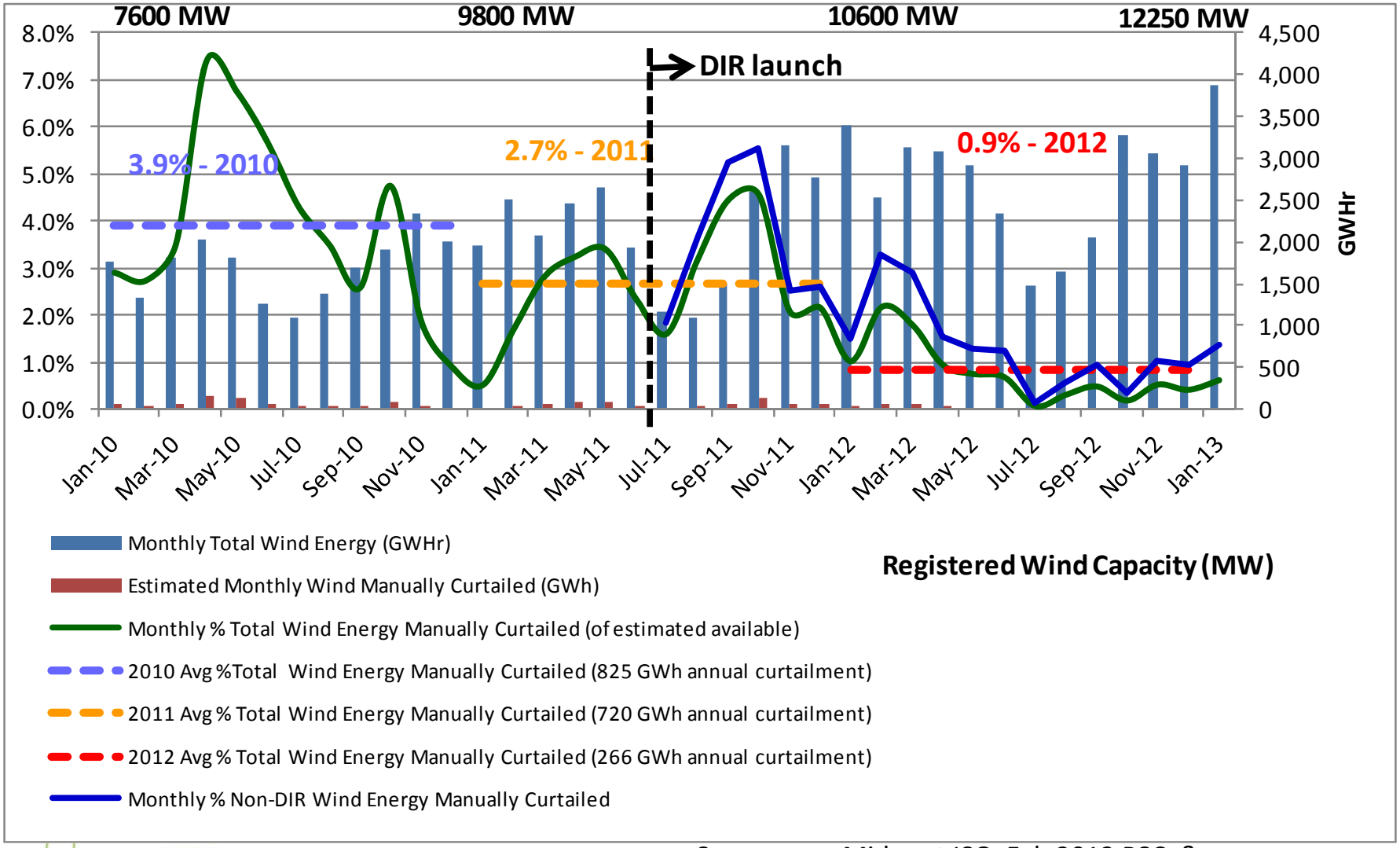
- Wind facility operators are required to submit **day-ahead forecasts**
- Implemented **Dispatchable Intermittent Resources (DIR)**

Wind generation has increased ten-fold in five years in MISO

- **Installed wind capacity in March 2013: 12,270 MW** (78% as DIR)
- **Wind generation: 6.4% of total MISO energy over the last 12 months**

  (Feb12-Jan13; % of MISO RT load)

Drop in Manual Wind Curtailments - MISO



Sources: Midwest ISO, Feb 2013 RSC & monthly Informational Forum presentations

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PLENTIFUL: Wind Energy Can Meet an Increased RES

Total Retail Sales in Michigan (2010): 103,649,219 MWhs

MIDWEST: 0.1 – 0.2% of the potential wind energy in 11 Midwestern states could provide enough energy to meet a 15% to 30% RES requirement in Michigan.

MICHIGAN: The four wind energy zones in Michigan could potentially produce between 9.5% and 17% of Michigan's energy demand.

MI could meet a 30% RES with 12% of the potential wind capacity NREL estimates is in MI.

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Sources: Final Report of the Michigan Wind Energy Resource Zone Board at 5; U.S. E.I.A., state electricity profiles – Michigan; NREL, *Estimates of Windy Land Area and Wind Energy Potential, by State, for areas >= 30% Capacity Factors at 80m* (April 13, 2011)

Why Increase the RES?

- Operation of coal and natural gas plants pose a certain level of harm to environment – therefore, need to reduce their use
- Cost of fossil fuels will increase – therefore, need a diversified energy portfolio to hedge against fuel price volatility
- Generating plants operate 20 - 50 years – therefore, need a long term vision that reflects public interest, and provides electric providers certainty and stability
- Increases demand for new manufacturing work in Michigan
- From wind developers, it brings new tax revenue to multiple local governments and new land payments to landowners over a broad area
- Companies generally do not like change – therefore, need to implement an RES change in a way that provides certainty and stability for the electric service provider

Conclusion

- There is enough wind energy for Michigan to reliably increase the current RES
- The benefits:
  - Reduced fuel price volatility
  - Less harmful effects from generation of electricity
  - More manufacturing jobs in Michigan
  - Additional tax and land lease revenue over a widespread area

Thank you

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