2019 Indiana Renewables Study & 2019 Draft Forecast

Presented by:
Douglas J. Gotham, Director
State Utility Forecasting Group
Purdue University

Presented to:
Interim Study Committee on Energy, Utilities, and Telecommunications
Indiana General Assembly

September 10, 2019
Historical Renewable Energy in the U.S.

Source: EIA
2018 U.S. Energy Consumption by Source

Source: EIA
2018 U.S. Electricity Generation by Energy Source

Source: EIA
Renewables Share of Indiana Total Energy Consumption

Source: EIA
Renewables Share of Indiana Electricity Generation

Source: EIA
Wind Capacity

• Over 2.7 GW of capacity online by the end of the year
  – over 2.2 GW of wind purchases by Indiana utilities

• IRPs indicate over 5 GW of additional wind in preferred portfolios

Sources: IURC, EIA
Photovoltaics

- There is an estimated 322 MW of PV capacity in Indiana, almost all of it installed in the last six years.
- Continued growth of utility scale PV is indicated:
  - utility IRPs include over 7,000 MW of future PV additions in preferred portfolios.
- PV costs have decreased by over 60% since 2010.
Organic Waste Biomass

- Until the recent increase in ethanol production, this resource was the largest source of renewable energy in Indiana
  - Now third behind biofuels and wind
- It is the 2nd largest source of renewable electricity generation in the state
  - Landfill gas (71 MW)
  - Animal waste biogas (20 MW)
  - Wastewater treatment (195 kW)
Hydroelectric Power

• Until expansion of wind energy beginning in 2008, hydroelectricity was the largest source of renewable electricity in Indiana
  – Now third behind wind and biomass
• The 88 MW project at the Cannelton Locks on the Ohio River was completed in 2016
  – Most of the output goes to utilities outside Indiana
Draft 2019 Forecast

• Our last full forecast report was released in December 2017

• We produced an interim update last year that reflected more recent projections of future economic activity, population and fossil fuel prices

• The 2019 forecast is still being developed – rather than provide numbers and graphs that we know will change, I will provide directional comparisons
Annual Electric Energy

2018 Update

2019 Draft
- Overall growth is lower
- Flat in first half, then some growth in last half
Future Resource Needs

2018 Update

2019 Draft

- Lower load growth drops the demand (blue line)
- Additional retirements drops the existing resources (red line)
Future Resource Needs

• Overall resource needs are higher in the future
• Earliest resource needs is in 2023 (same as in the 2018 Update)
• Resources selected by the model are a mix of natural gas-fired (combustion turbines and combined cycle), wind, and photovoltaics
Future Real Prices*

2018 Update
- Prices are projected to increase for the first half of the forecast, then level off

2019 Draft
- Long-term prices are higher than last year

* Real prices are adjusted for inflation
Further Information

State Utility Forecasting Group
765-494-4223
www.purdue.edu/discoverypark/SUFG/

Douglas Gotham
765-494-0851
gotham@purdue.edu