

# 2019 Indiana Renewables Study & 2019 Draft Forecast

Presented by:

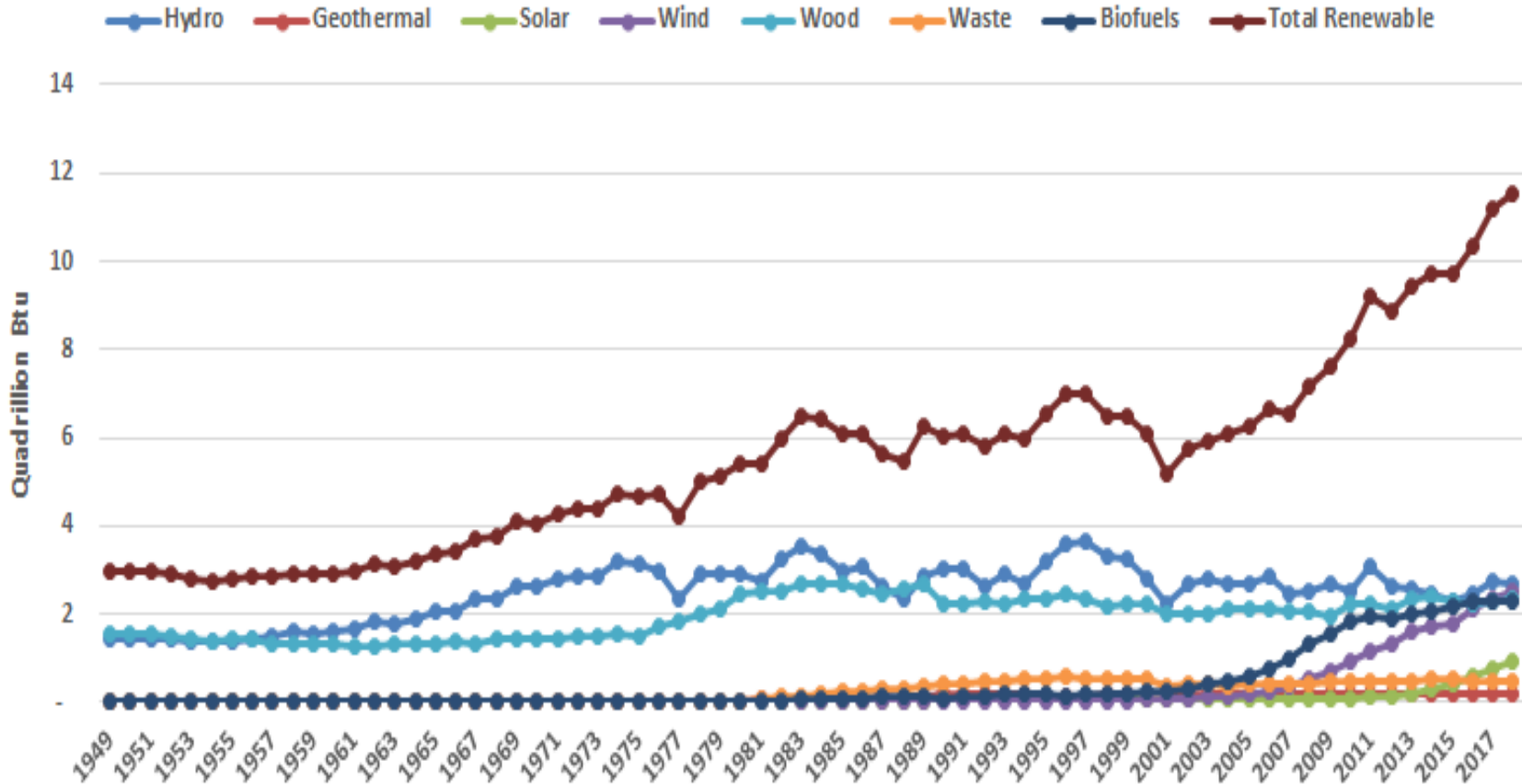
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*Presented to:*

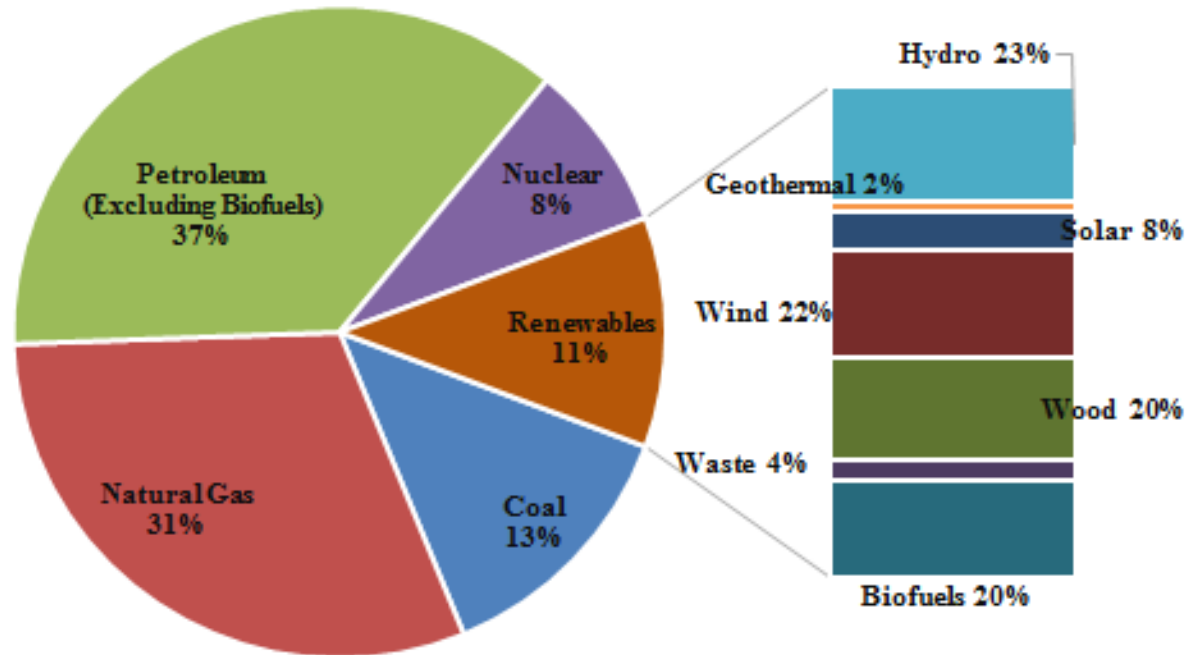
*Interim Study Committee on Energy, Utilities, and  
Telecommunications  
Indiana General Assembly*

September 10, 2019

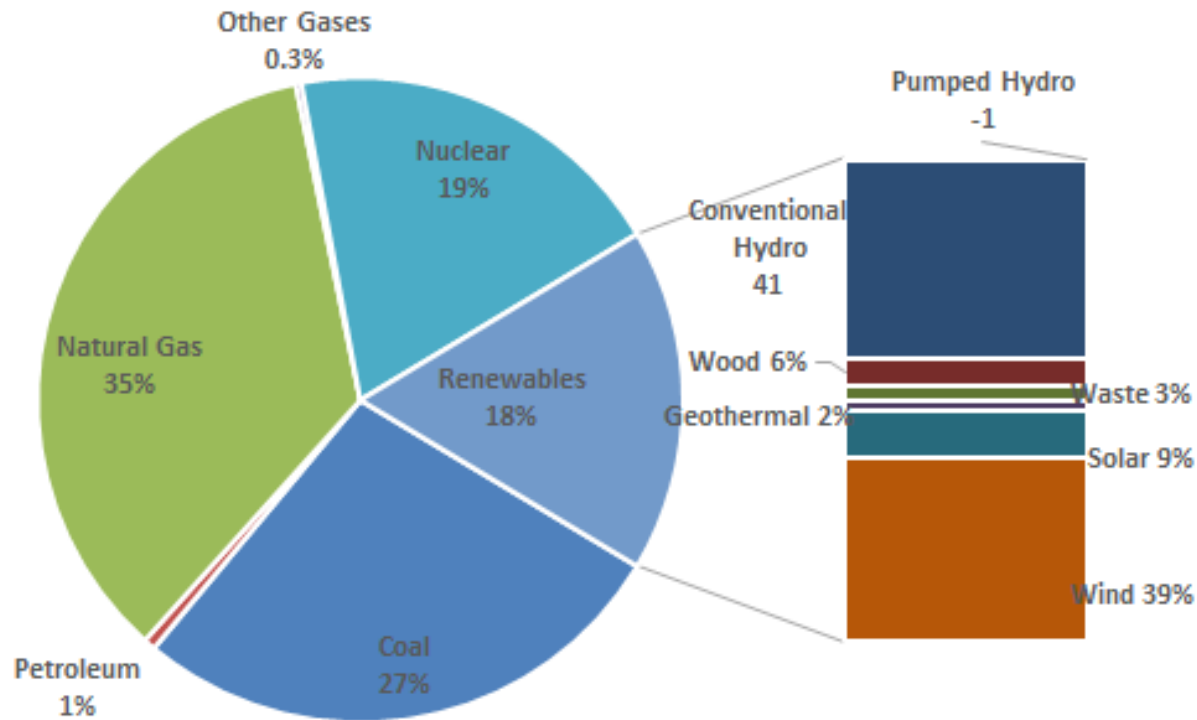
# Historical Renewable Energy in the U.S.



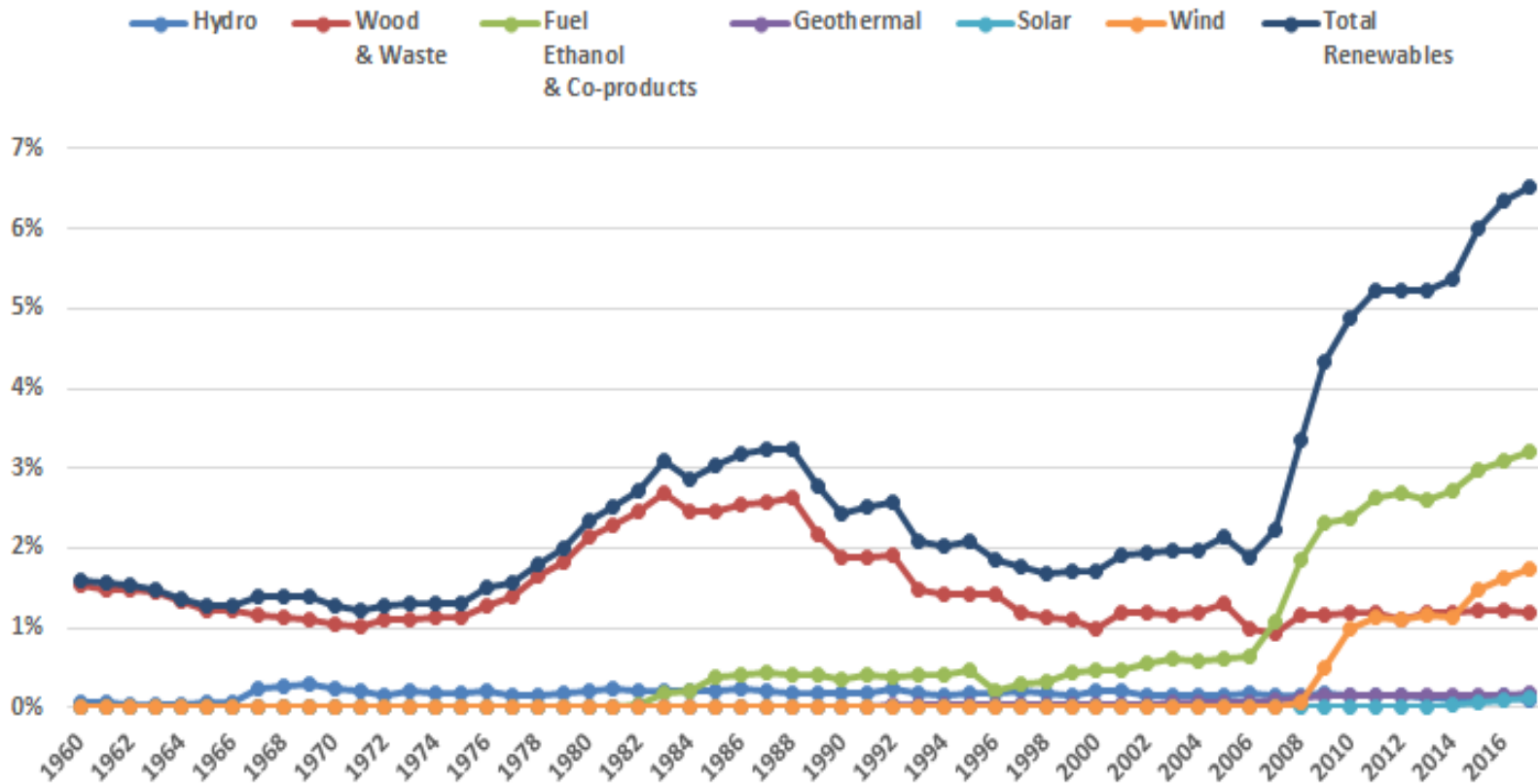
# 2018 U.S. Energy Consumption by Source



# 2018 U.S. Electricity Generation by Energy Source

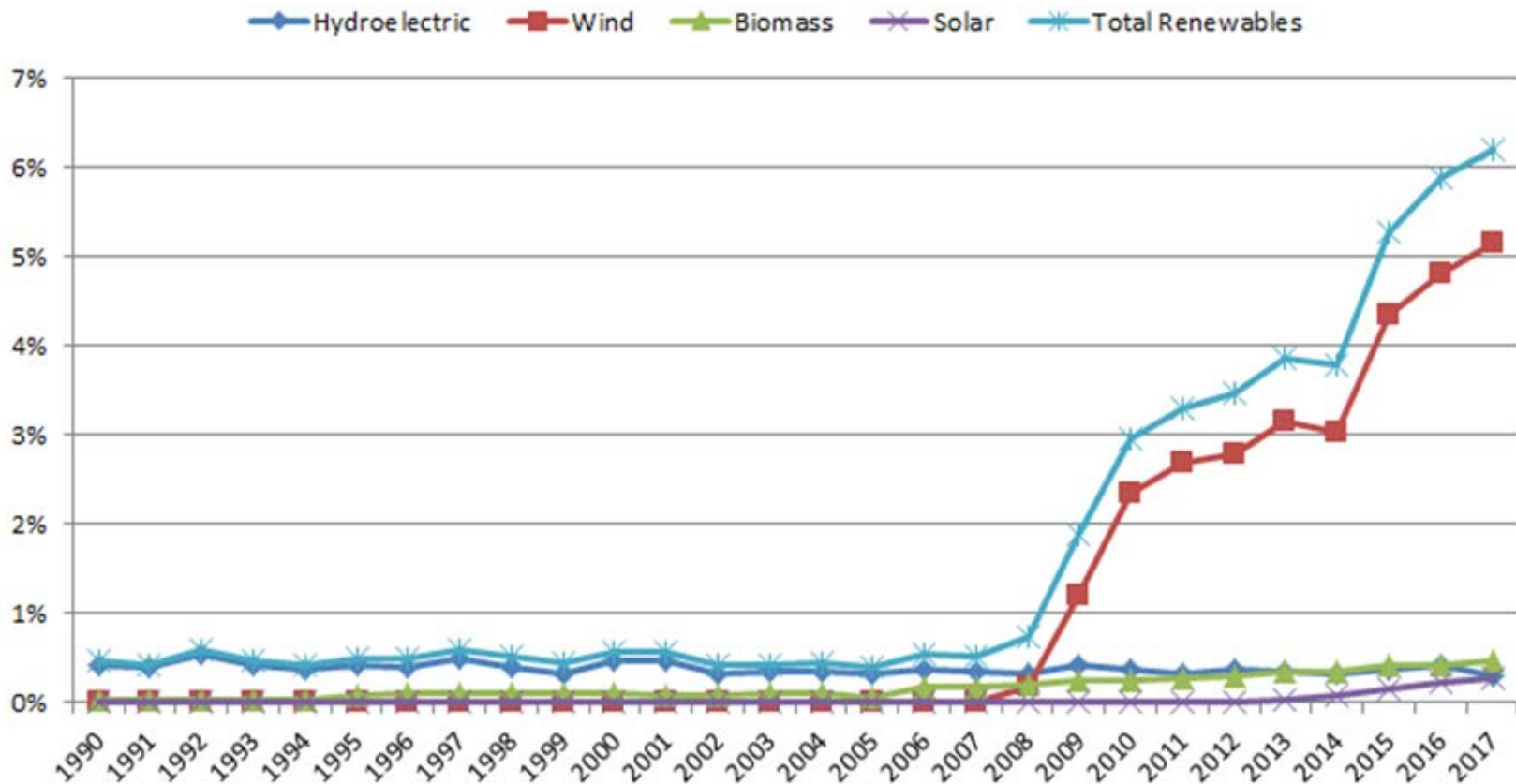


# Renewables Share of Indiana Total Energy Consumption



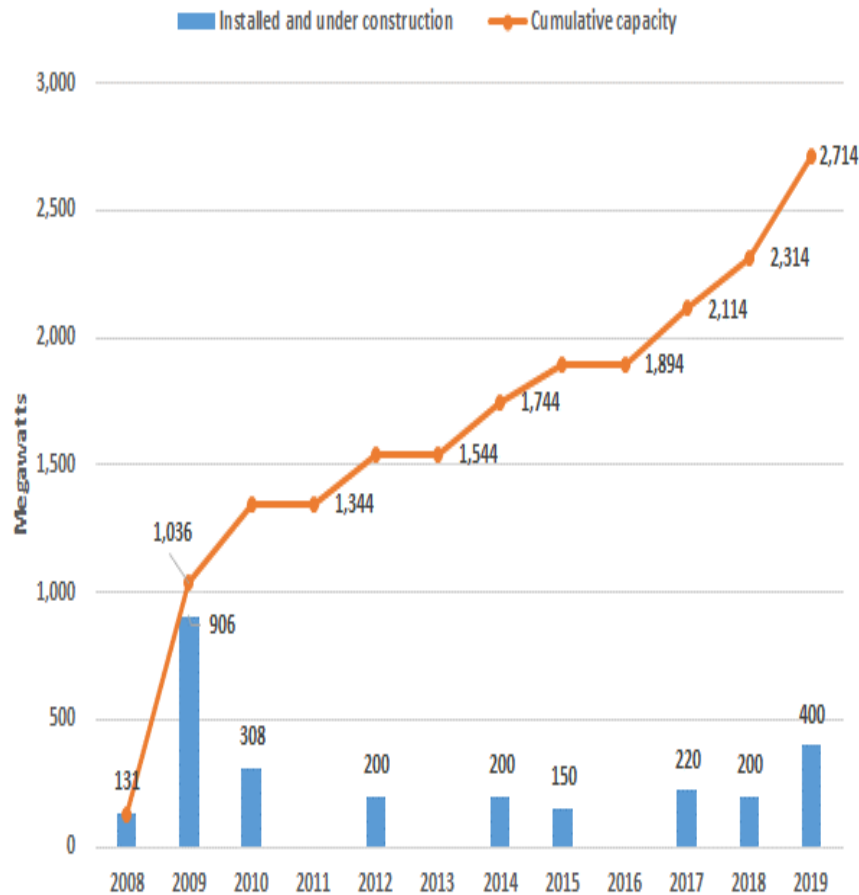
Source: EIA

# 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

# 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 2<sup>nd</sup> largest source of renewable electricity generation in the state
  - Landfill gas (71 MW)
  - Animal waste biogas (20 MW)
  - Wastewater treatment (195 kW)

# Hydroelectric Power

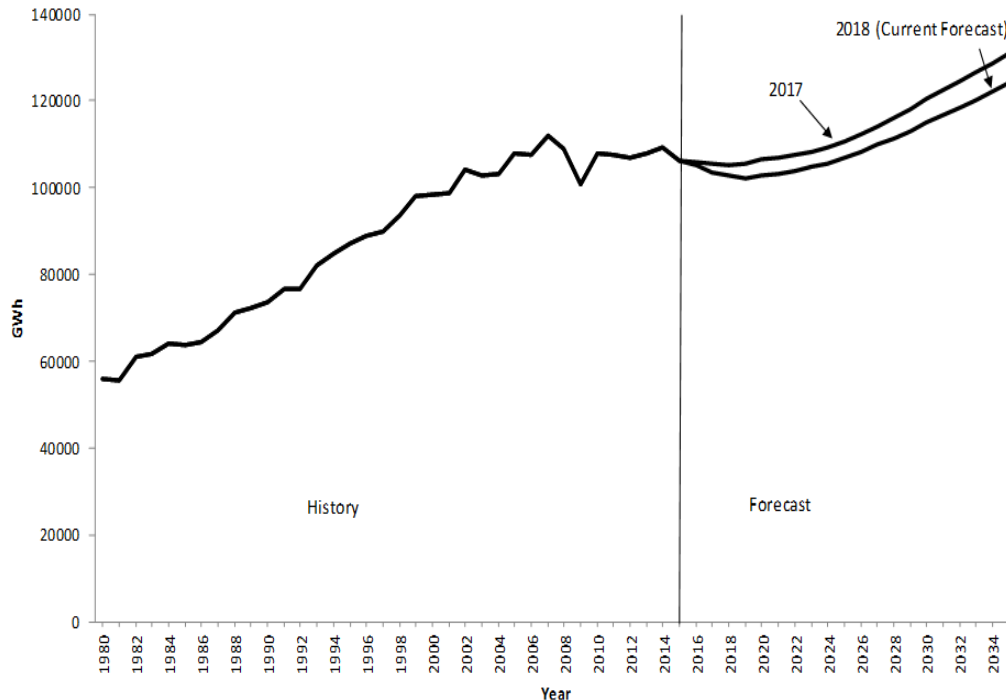
- Until expansion of wind energy beginning in 2008, hydroelectricity was the largest source of renewable electricity in Indiana
  - Now third behind wind and biomass
- The 88 MW project at the Cannelton Locks on the Ohio River was completed in 2016
  - Most of the output goes to utilities outside Indiana

# 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



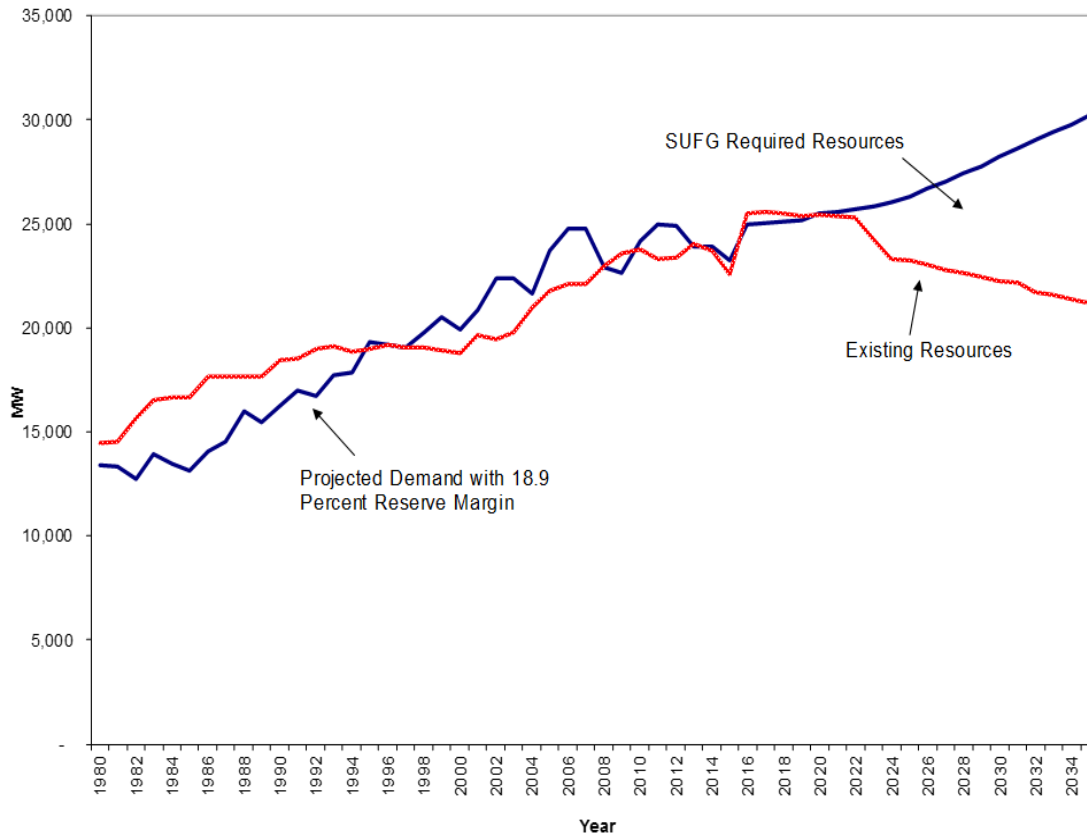
## 2019 Draft

- 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)

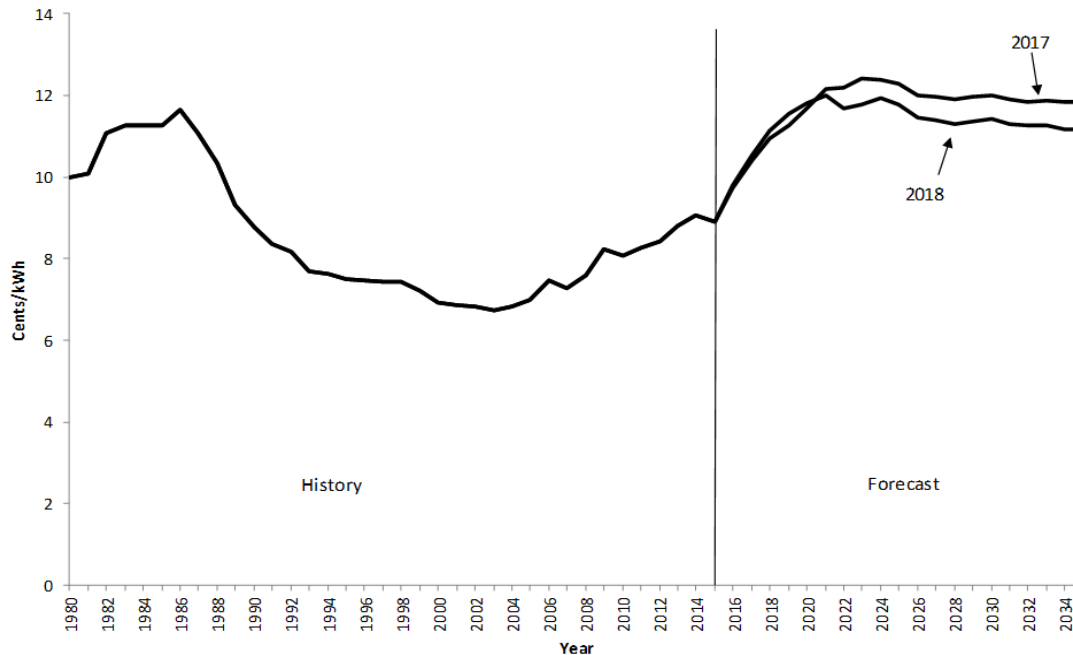
# Future Resource Needs

- 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

## 2019 Draft



- Prices are projected to increase for the first half of the forecast, then level off
- Long-term prices are higher than last year

\* Real prices are adjusted for inflation

# Further Information

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