

# The Future of Renewable Energy

## A View from Missouri



**Robert S. Kenney, Commissioner**  
**Missouri Public Service Commission**

P.O. Box 360

Jefferson City, MO 65102

(573) 751-4132

[robert.kenney@psc.mo.gov](mailto:robert.kenney@psc.mo.gov)

[www.psc.mo.gov](http://www.psc.mo.gov)

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# Overview

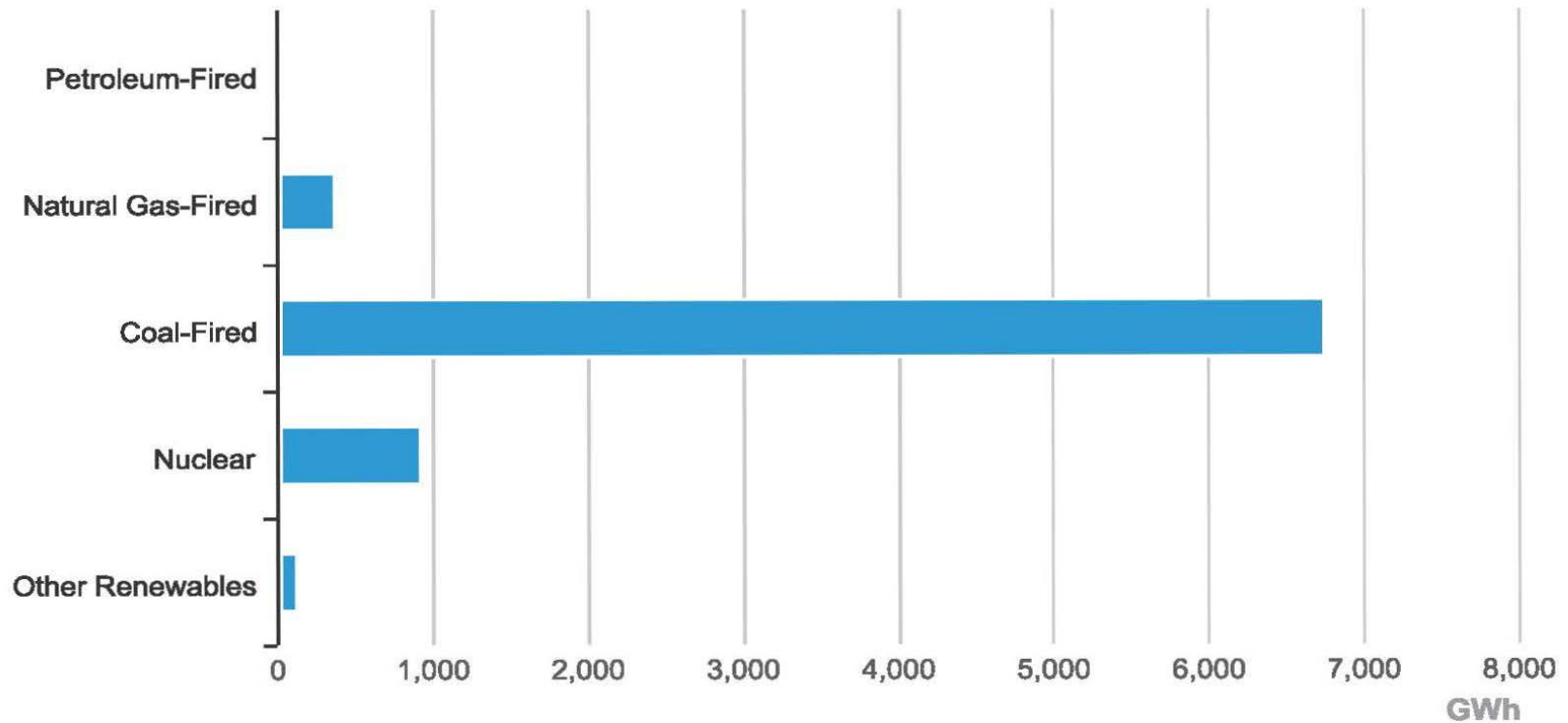
- Introduction
  - Why Renewable Energy
  - Missouri's Fuel Mix
  - Missouri's Renewable Energy Resources
- Legislative Pathways to Renewable Energy
  - Green Power Initiative
  - Renewable Energy Standard
- Public Service Commission Rulemaking
- Challenges to Implementation

# Renewable Energy: Why

- Environmental Benefits
- Economic Development Benefits
- Reduce Dependence on Foreign Sources of Fossil Fuels

# MISSOURI FUEL TYPES

Missouri Net Electricity Generation by Source, Jan. 2013



Source: Energy Information Administration, Electric Power Monthly

# Missouri Renewable Resources

- Capacity (4.7%)
  - 459 MW of Wind (2.1%)
  - 564 MW of Conventional Hydro (2.6%)
- Generation (2.7%)
  - 925 GWh of Wind (1.0%)
  - 1,539 GWh of Conventional Hydro (1.7%)



# Legislative Paths to Renewable Energy

- In 2007, the Missouri General Assembly passed and the Governor signed into law, Missouri's Green Power Initiative.
- The Green Power Initiative provided that every electric corporation shall make a *good faith effort* to generate or procure electricity generated from renewable energy resources to meet the following:
  - 2012 = 4%
  - 2015 = 8%
  - 2020 = 11%

# Legislative Paths to Renewable Energy

- In 2008, the citizens of the State of Missouri adopted by initiative petition, commonly referred to as Proposition C, an amendment that established Missouri's Renewable Energy Standard.
- Renewable Energy requirements to be generated or purchased:
  - 2011 to 2013 = No less than 2%
  - 2014 to 2017 = No less than 5%
  - 2018 to 2020 = No less than 10%
  - 2021 and beyond = No less than 15%



# Missouri's Renewable Energy Standard

- What is a renewable energy resource?
  - Wind
  - Solar thermal
  - Photovoltaic cells/panels
  - Dedicated Crops
  - Cellulosic agricultural residues
  - Plant residues
  - Methane from landfills, from agricultural operations, or from wastewater treatment
  - Thermal depolymerization or pyrolysis for converting waste material to energy
  - Clean and untreated wood
  - Hydropower (not including pumped storage) less than 10 MW
  - Hydrogen fuel cells
  - Other resources not including nuclear that become available at a later date and that are approved by the Department of Natural Resources

# Missouri's Renewable Energy Standard

- Two percent of the RES requirements must come from solar energy.
- Each electric utility (with, maybe, one exception) must make available to its customers a rebate of at least two dollars for each installed watt for solar electric systems sited on the customer's premises.
- Compliance with RES requirements can be accomplished through the purchasing of Renewable Energy Credits (RECs). A REC is a tradeable certificate of proof that one MWh of electricity has been generated from renewable energy sources.
- The use of RECs gives rise to other complicated issues: Where is the renewable energy generated? Does the energy have to be sold to Missouri consumers? Is the REC divisible from the energy associated with it?
- Hydropower (not including pumped storage) less than 10MW. What Facilities Count?

# Missouri's Renewable Energy Standard

- The Commission is required to promulgate rules setting forth the various requirements for all electric utilities to generate or purchase electricity generated from renewable resources.
- The rulemaking process lead to legal challenges and to difficult decision making around important public policy considerations.

# Missouri's Renewable Energy Standard

- “Geographic Sourcing”
  - Renewable Energy Credits may be used to comply with the RES so long as the energy associated with those RECs is “sold to” Missouri consumers.
- Retail Rate Impact
  - The cost of compliance may not increase retail rates by more than one percent.
- Hydropower Less than 10 MW: What Facilities Qualify?

# Litigation

- Geographic Sourcing
- One Percent Rate Cap Language
- Constitutional Challenges
  - United States Constitution
    - Commerce Clause
  - Missouri Constitution
    - Takings Clause
    - Due Process

# Conclusion

- Good Public Policy ...(?)
- Obstacles to Good Public Policy
- Where Do We Go From Here?

# Questions?



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