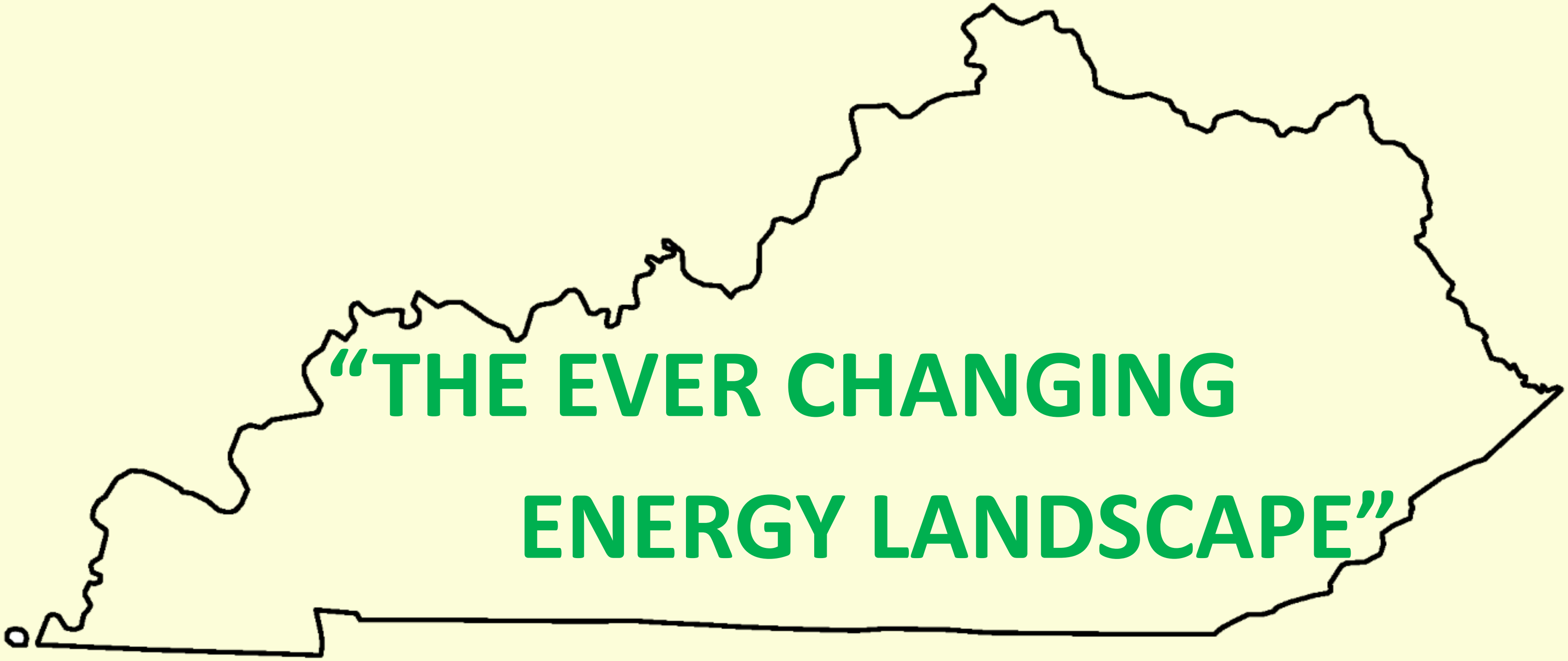
"THE EVER CHANGING ENERGY LANDSCAPE"



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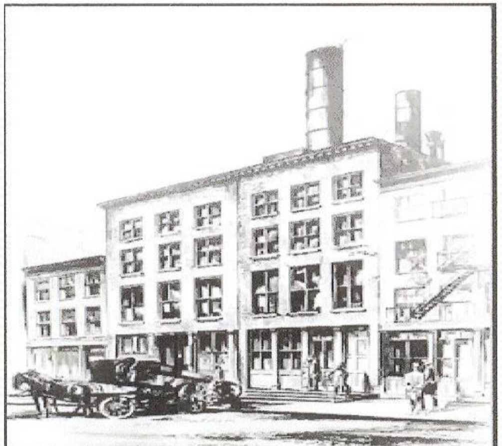
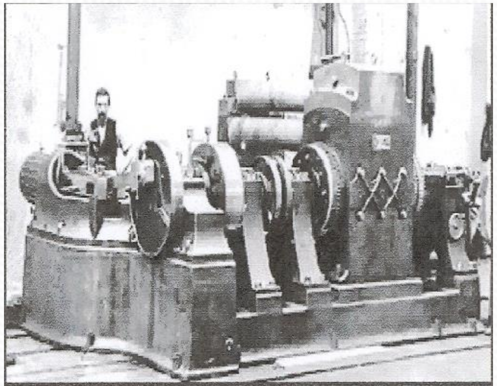
"DAWN OF COMMERCIAL ELECTRIC POWER"

- **1882 - EDISON'S PEARL STREET STATION in NYC**
- **1899 - ELECTRIC COMPANY OF AMERICA**
- **1912 - KENTUCKY UTILITIES**
- **1913 - LOUISVILLE GAS & ELECTRIC**



A sketch of the exterior of the Pearl Street station. Courtesy: Photographic Services of the Consolidated Edison Company of New York, Inc.



Edison's Jumbo dynamo. Courtesy: National Park Service, Edison National Historic Site.

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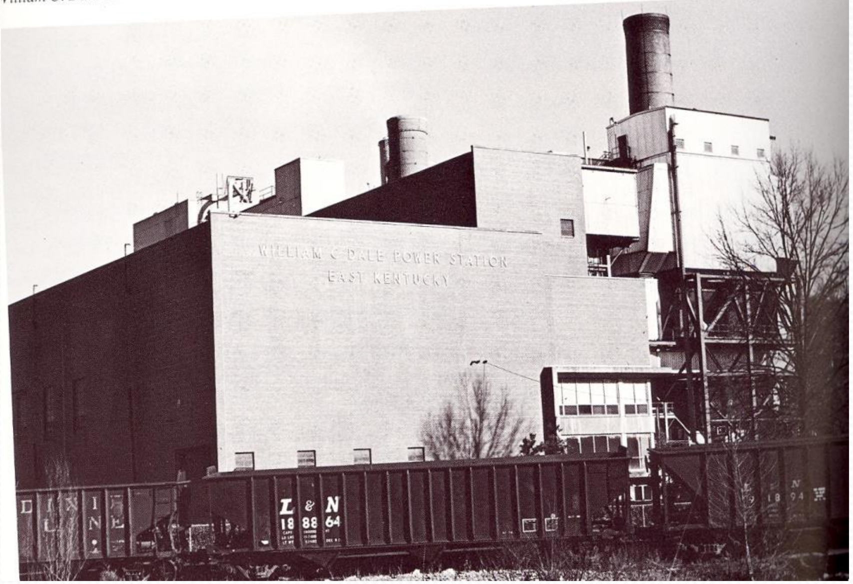
GREAT DEPRESSION - NEW DEAL 30's

- **1933 - TVA ACT**
- **1934 - PSC ESTABLISHED**
- **1935 – REA CREATED**

POST WAR YEARS - GROWTH & EXPANSION

- **KENTUCKY UTILITIES**
  - **1946 - TYRONE PLANT**
  - **1949 – CENTRAL DISPATCHING**
  - **1950's - GREEN RIVER & BROWN PLANTS**
- **EAST KENTUCKY POWER**
  - **1954 - DALE PLANT**
  - **1961 - COOPER PLANT**
- **BIG RIVERS**
  - **1961 - BIG RIVERS FORMED**
  - **1966 - REID PLANT**
- **TVA**
  - **1959 - STEAM PLANTS**

William C. Dale Station



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CLEAN AIR BECOMES NATIONAL FOCUS

- **1956 – AIR POLLUTION CONTROL ACT**
- **1963 – CLEAN AIR ACT**
  - **1970 - AMENDMENTS "CAA"**
  - **1990 - CLEAN AIR ACT AMENDMENTS**
- **UTILITIES COMPLY**
  - **ELECTROSTATIC PRECIPITATORS**
  - **SWITCH TO COMPLIANCE COAL**
  - **SOX AND NOX REMOVAL EQUIPMENT**

INFLATION AND REGULATION

(70's and 80's)

RECESSION – ARAB OIL EMBARGO

NATURAL GAS MORATORIUM

PLANT CANCELLATIONS

FOCUS ON EFFICIENCY

CUSTOMER CHOICE OR NOT - 90's

- ENERGY POLICY ACT OF 1992
  - EXEMPT WHOLESALE GENERATORS
  - OPEN ACCESS TARIFFS
- SOME STATES DEREGULATE RETAIL SERVICE

WHERE ARE WE TODAY

- THE GREAT RECESSION (December 2007 –June 2009)
- CONTINUED SLOW ECONOMIC RECOVERY
- HYDRAULIC FRACTURING ("FRACKING")
- ENVIRONMENTAL REGULATION - "WAR ON COAL"
- MASSIVE UTILITY RATE INCREASES

TODAY'S ELECTRICITY PROFILE

- **Competitive advantage of low prices declining**
- **Large percent of coal units retired by 2016**
- **GHG regulations limiting replacement options**
- **Low gas prices driving switch to natural gas before GHG regulations**

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KENTUCKY RESPONDS

Best Fuel Source . . .
Energy Efficiency

- Doesn’t require new technology
- Can do it today
- Reduces Greenhouse Gas
- Lowers Cost
- Improves Energy Security

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GOVERNOR’S ENERGY PLAN

Intelligent Energy Choices for Kentucky Future

November 2008

- **Strategy 1: Improve the Energy Efficiency of Kentucky’s Homes, Buildings, Industries, and Transportation Fleet**
  - **Goal of 16 % below expected 2025 level**
    - **Utility and non-utility sponsored programs**
    - **Strong education, outreach and marketing programs**
  - ***<u>Schools are key player</u>***

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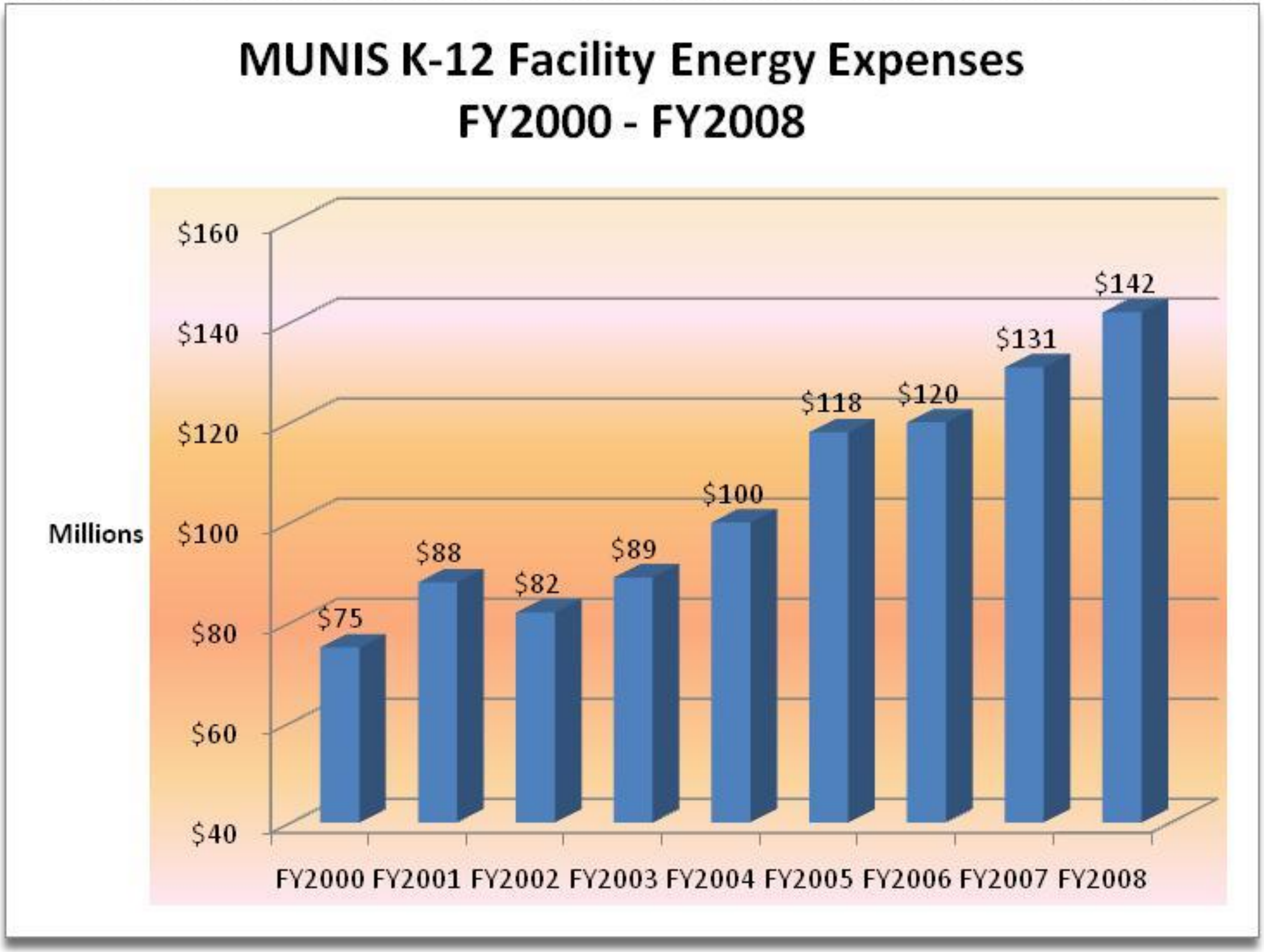
STATUTORY REQUIREMENTS

- KRS160.325 – School Energy Management
  - Develop & Implement Energy Management Plan
  - Annual Report to Board and Legislative Research Commission (July 2008)

- KRS157.455 – Highly Efficient Buildings
  - Meet or Exceed Efficiency Design Standards
  - Use Life-Cycle Analysis in Proposal Evaluation
  - Consider Net-Zero Construction (July 2010)



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SCHOOLS RESPOND

Escalating Cost of Electricity

Between 3/2010 and 6/2013 Kentucky
Average electric retail price

33% increase

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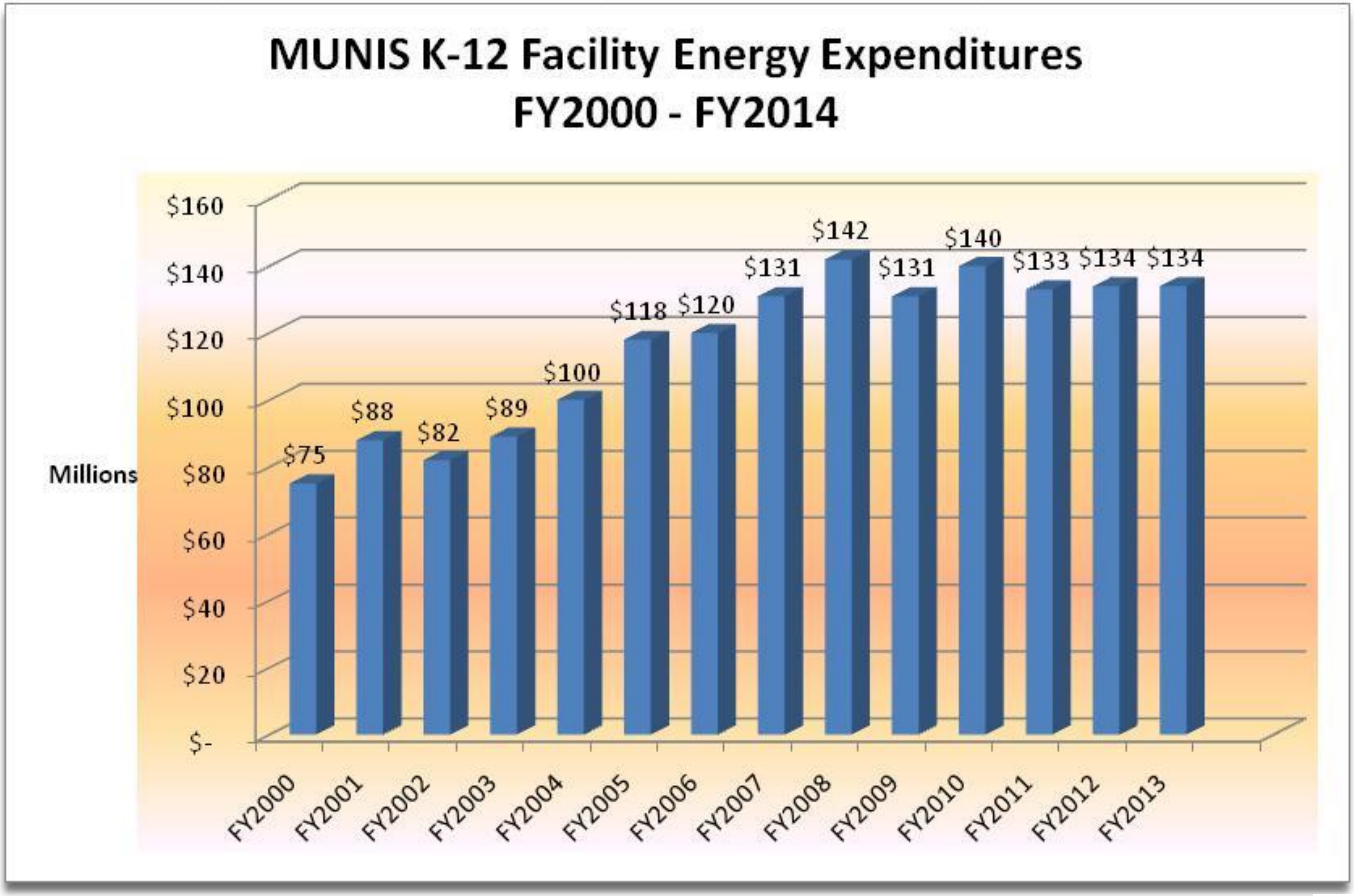

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WHAT'S AHEAD

Pending Base Rate Increases

- **Louisville Gas & Electric (LG&E)**
  - **Electric 2.7 -5%**
  - **Gas 4.2 %**

- **Kentucky Utilities (KU)**
  - **9.6 - 18%**

- **Kentucky Power Company (KPC)**
  - **12.5 %**

Kentucky's rates once among the nations lowest

Now 6 of 7 surrounding states have lower rates

ELECTRIC RATE INCREASE DRIVERS

- **ENVIRONMENTAL EQUIPMENT**
- **PLANT OBSOLESCENCE**
- **NEW GAS-FIRED GENERATION**
- **SALES DECLINE**
- **CYBER SECURITY**

KENTUCKY PLANT RETIREMENTS

LG&E - Cane Run	450 MW
TVA - Paradise	1250 MW
KPC - Big Sandy	750 MW

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RATE CASE INTERVENTION

Jim Gardner, Vice Chairman Public Service Commission

"If you don't have a seat at the table you won't get heard."

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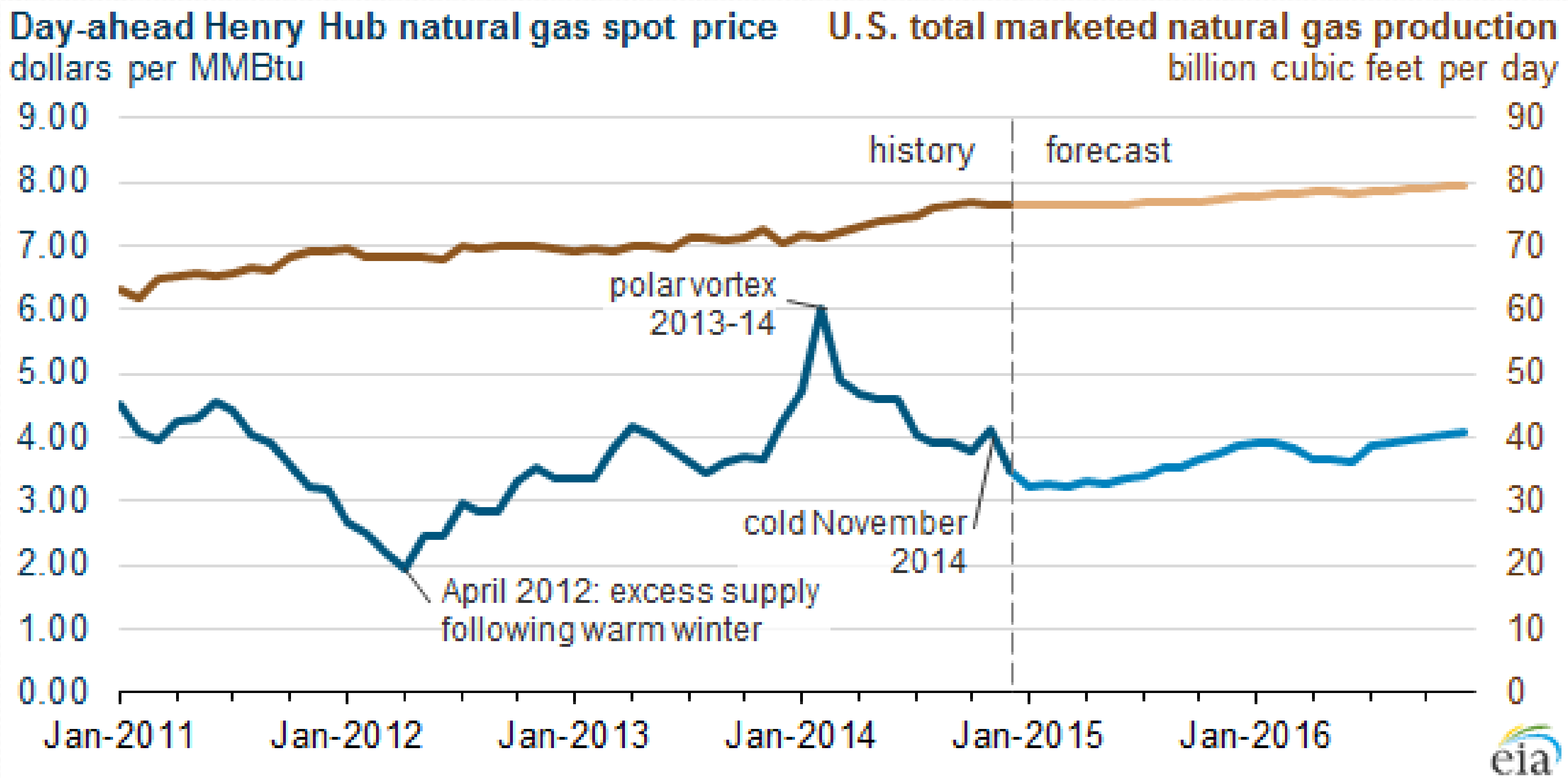
NATURAL GAS PRODUCTION RISES



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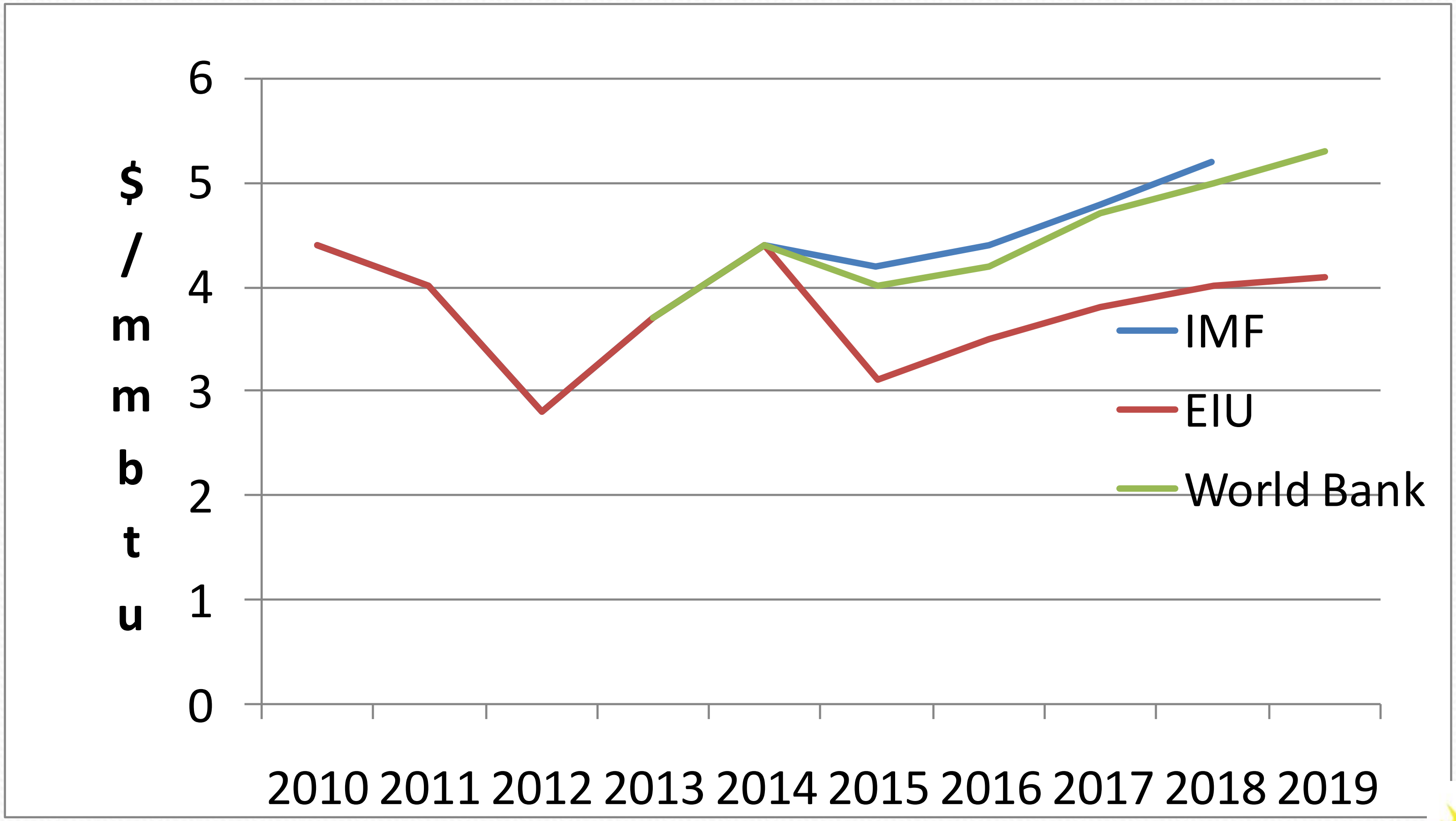
US DOMESTIC NATURAL GAS PRICE FORECASTS



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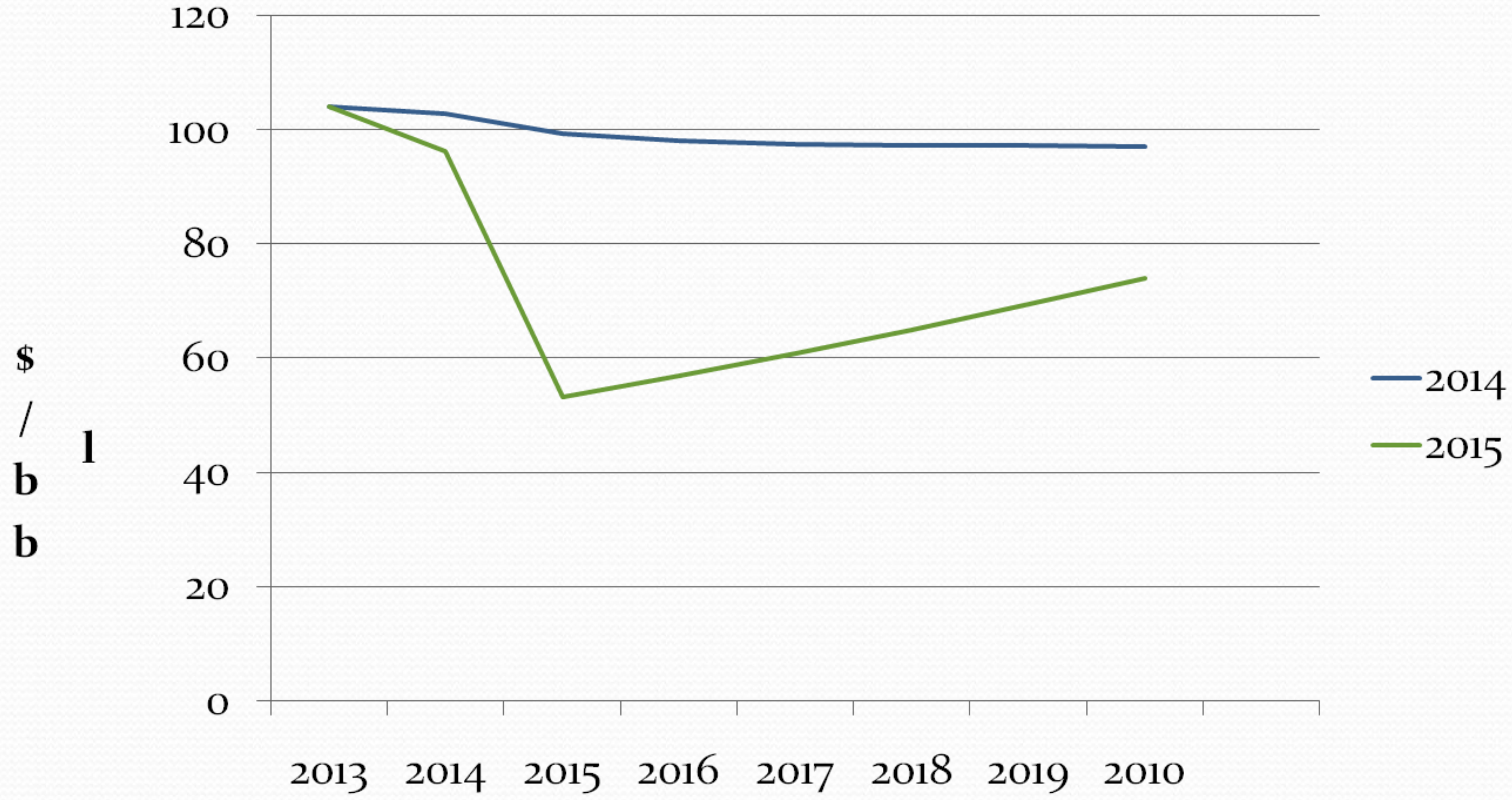
CRUDE OIL - SPOT PRICE FORECAST



World Bank Forecast

RENEWABLES

Source	2019 Projections		
	Capacity Factor	Levelized Cost/Mwh	Comments
Gas Baseload	87	66.3	
Coal Baseload	85	95.6	
Advanced Nuclear	90	96.1	Safety Concerns
Coal Gasification	85	115.9	
Gas Turbine	30	128.4	
Geothermal	92	47.9	
Wind	35	80.3	Transmission Investment
Hydro	53	84.5	
Solar PV	25	130.0	Transmission Investment
Wind Offshore	37	204.1	Transmission Investment
Source: US DOE and National Renewable Energy Laboratory			

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