The Changing Face of Kentucky's Utility Future

KJEANRL – Symposium on Energy & the Environment
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ATTORNEYS

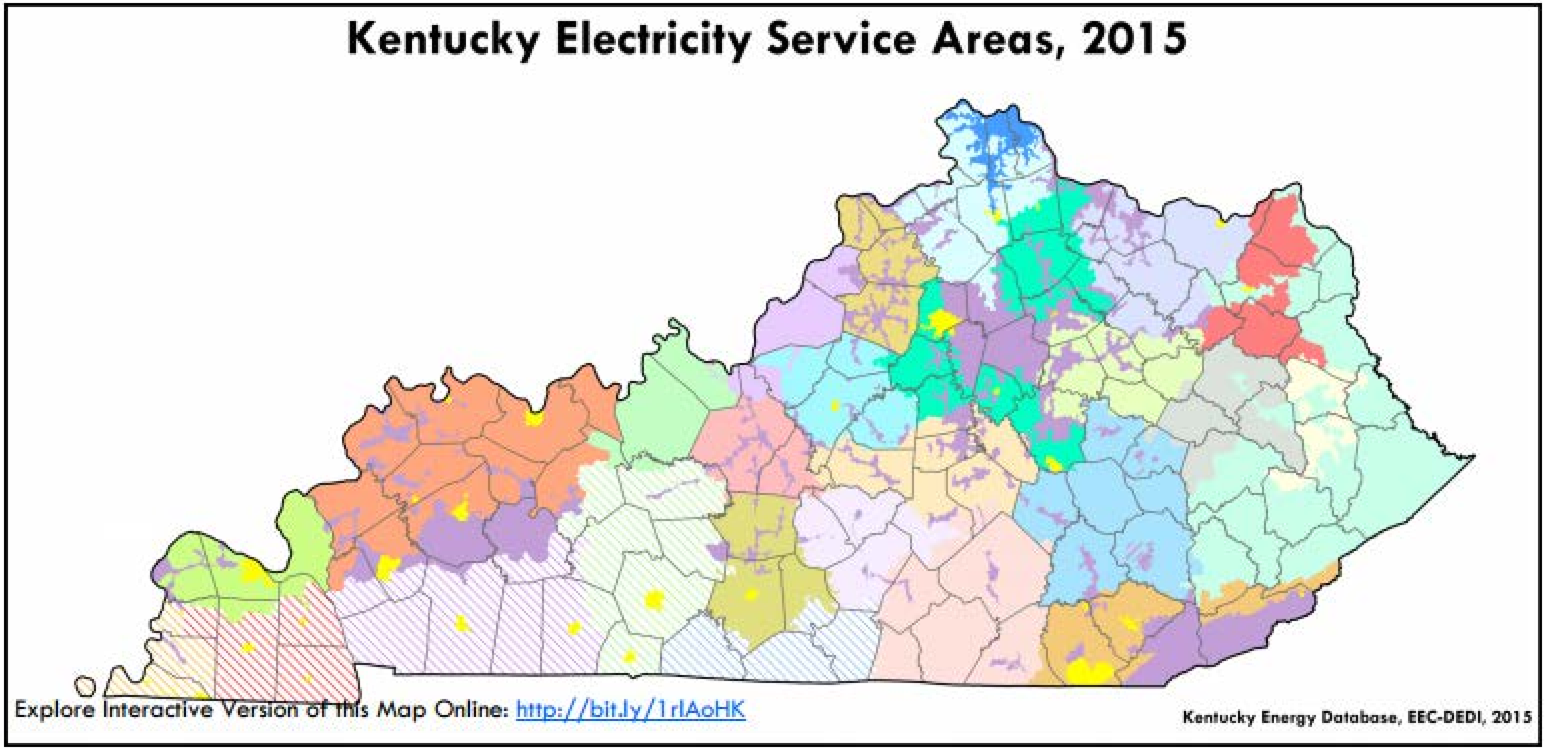
Presentation Outline

- Overview of the changes in Kentucky’s generation portfolio

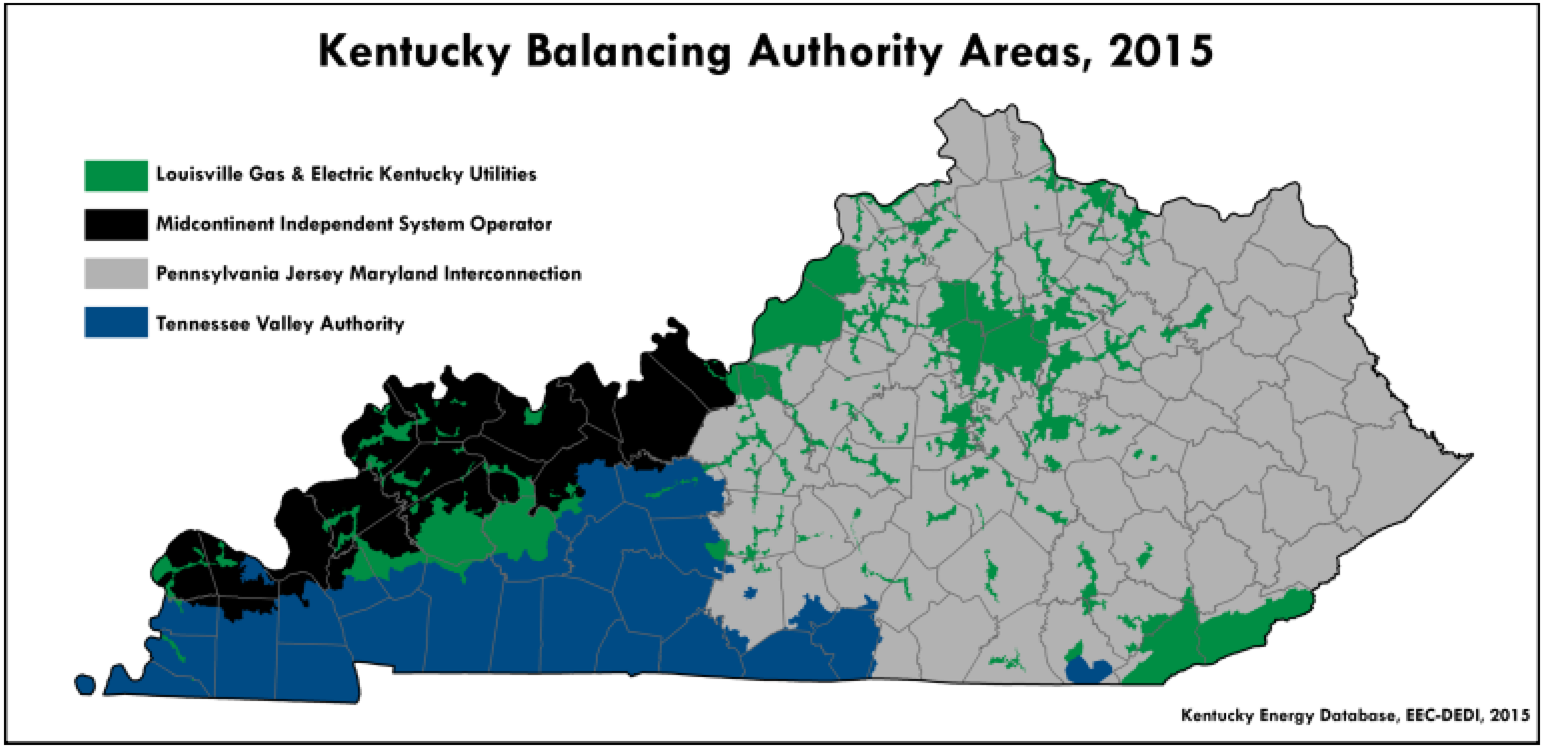
- Root causes of those changes
  - [Spoiler – it’s $$$]

Changes to Kentucky's Generation Portfolio

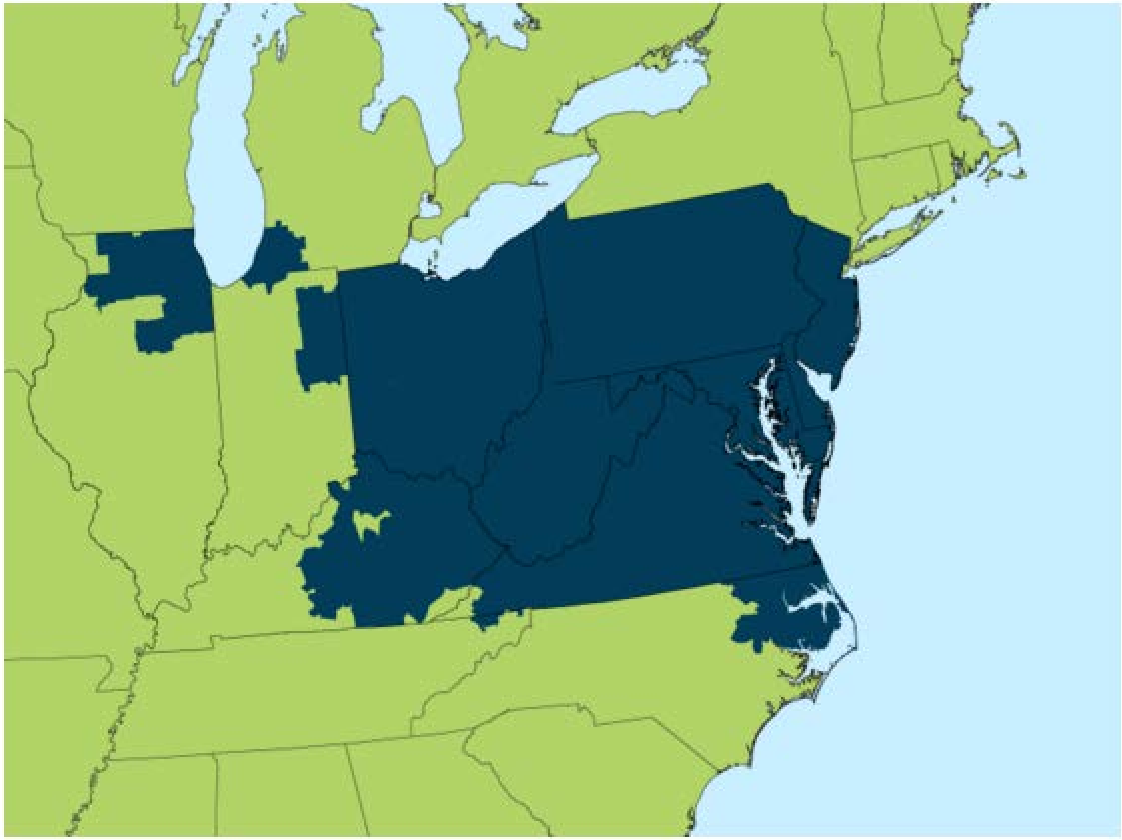
Kentucky’s Electric Utilities



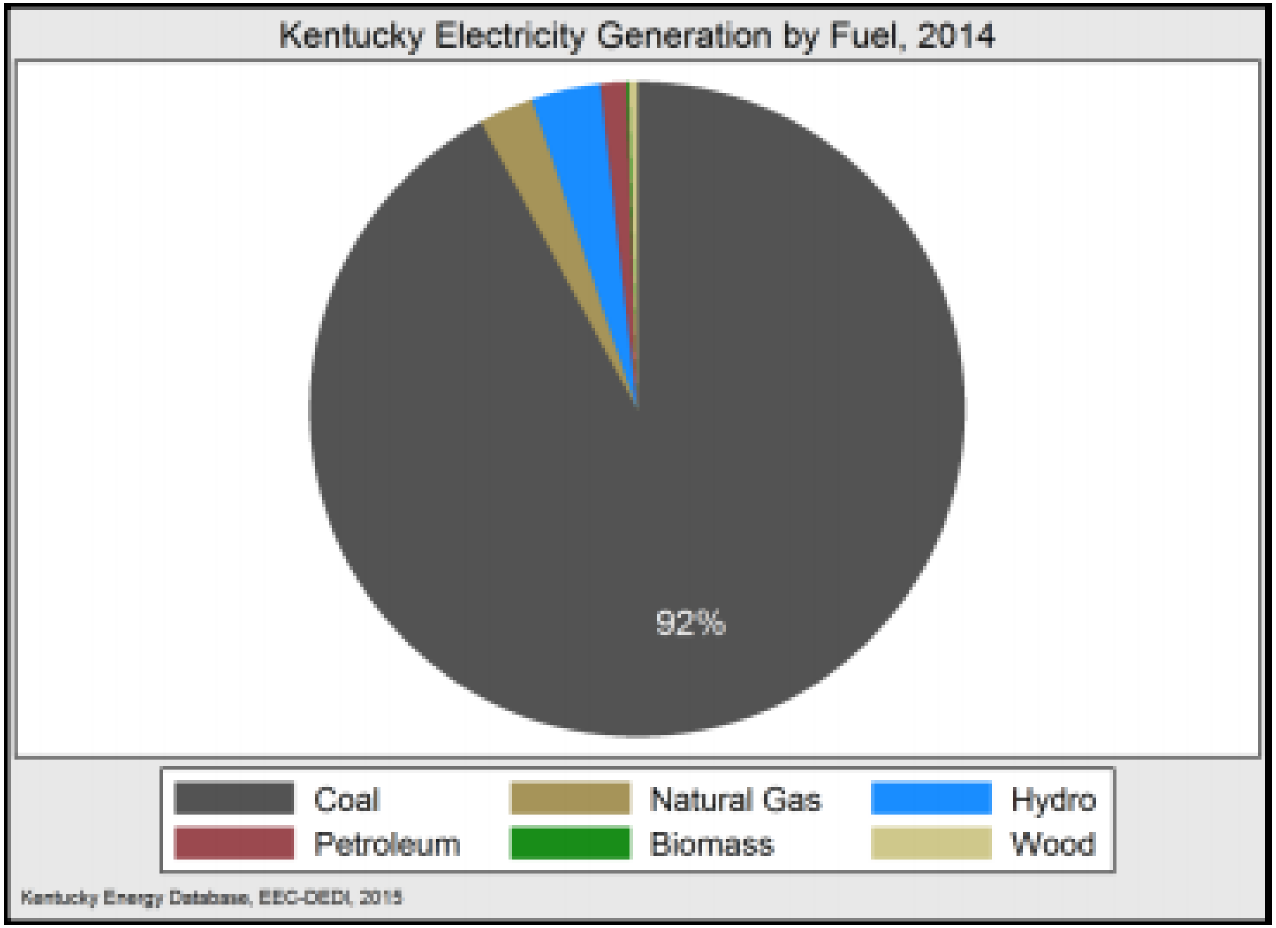
Kentucky Balancing Authorities



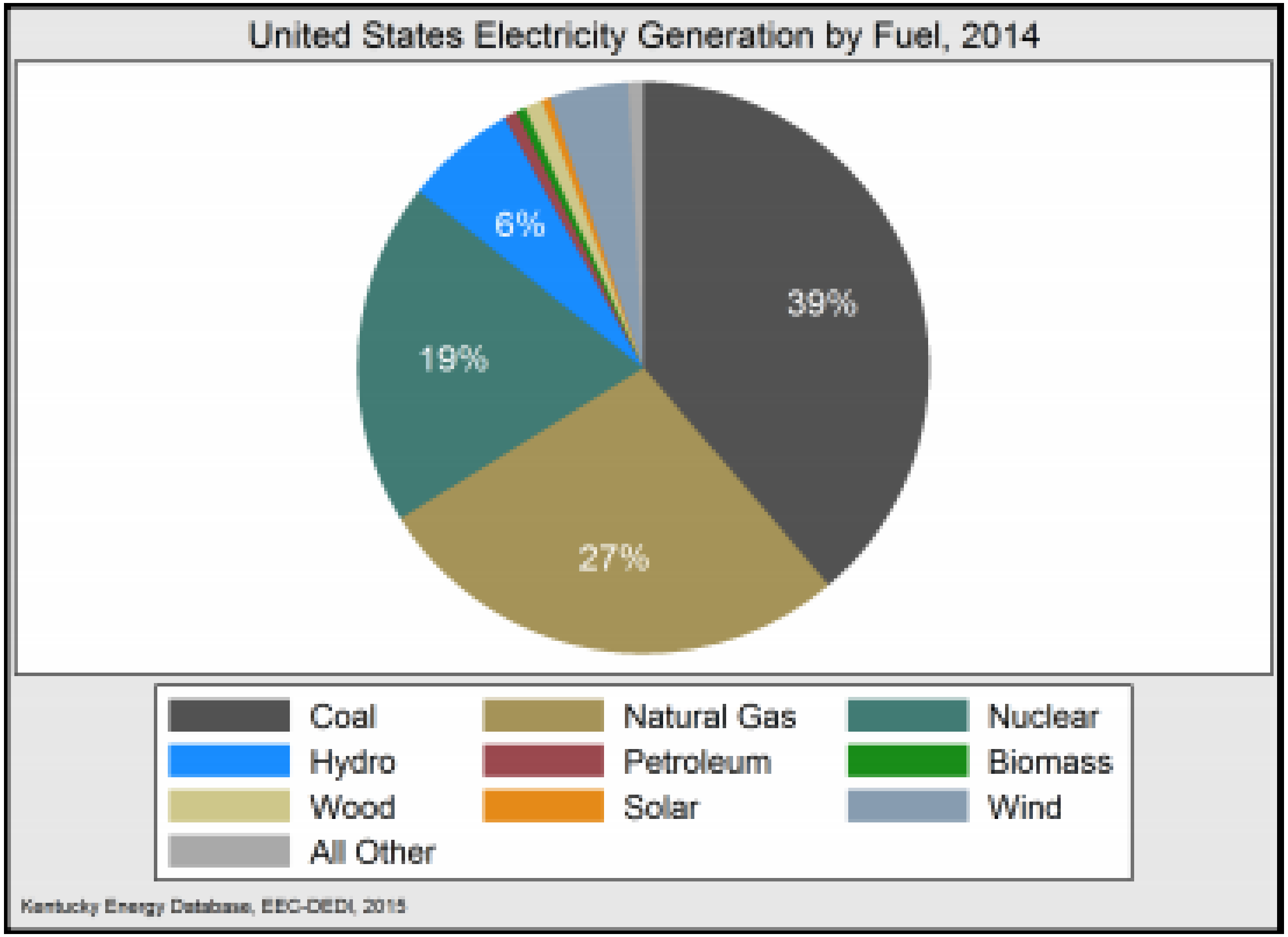
PJM Footprint



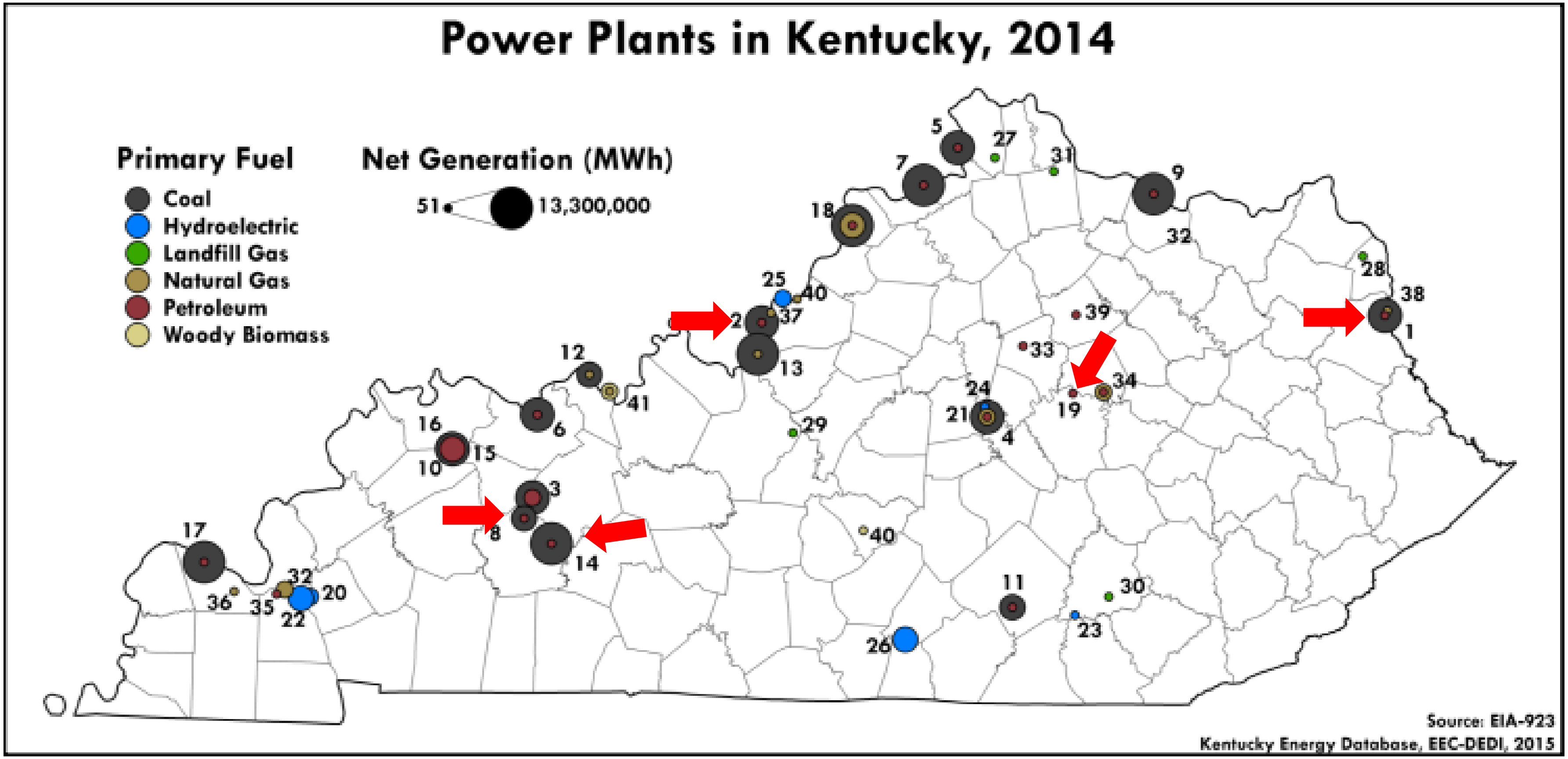
Generation by Fuel Source (KY Only)



Generation by Fuel (US)



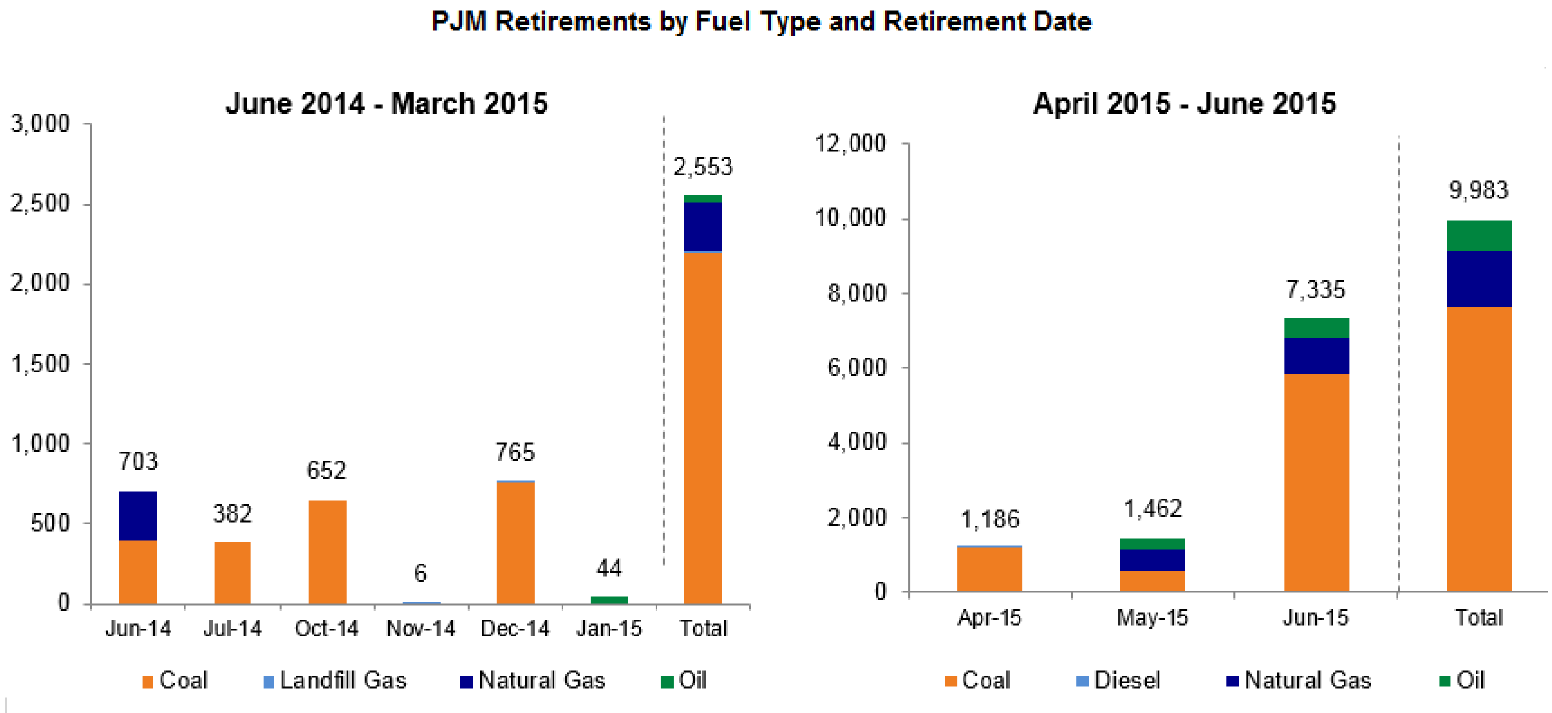
EGUs in Kentucky - 2014



Kentucky Coal Plant Retirements (2015-16)

- Big Sandy (KPCO) – 1078 MW
- Cane Run (LG&E/KU) – 563 MW
- Green River (LG&E/KU) – 163 MW
- Paradise (TVA) – 1230 MW
- Dale (EKPC) – 199 MW
- TOTAL = 3,233 MW Retired

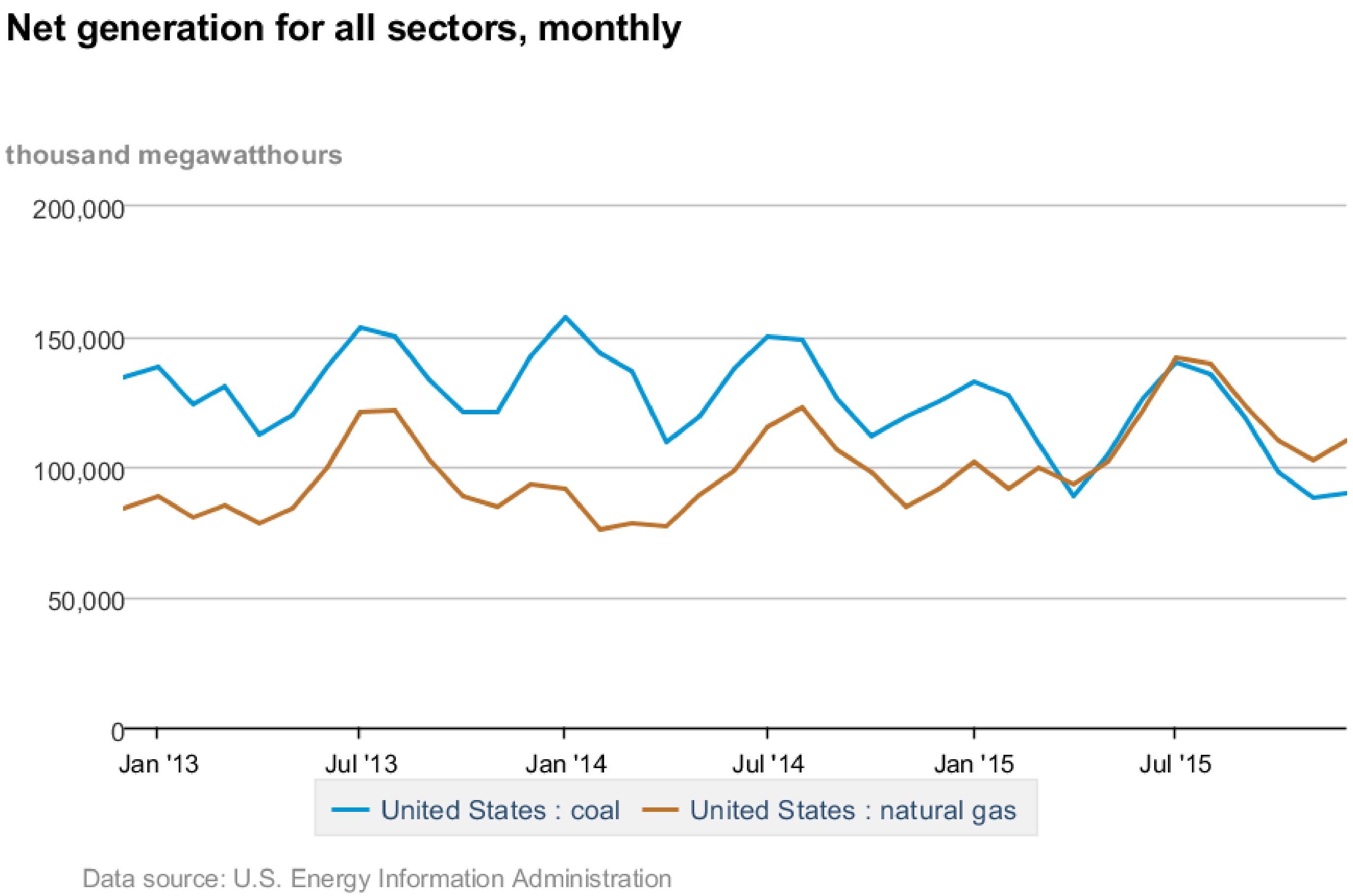
PJM Retirements June 2014-June 2015



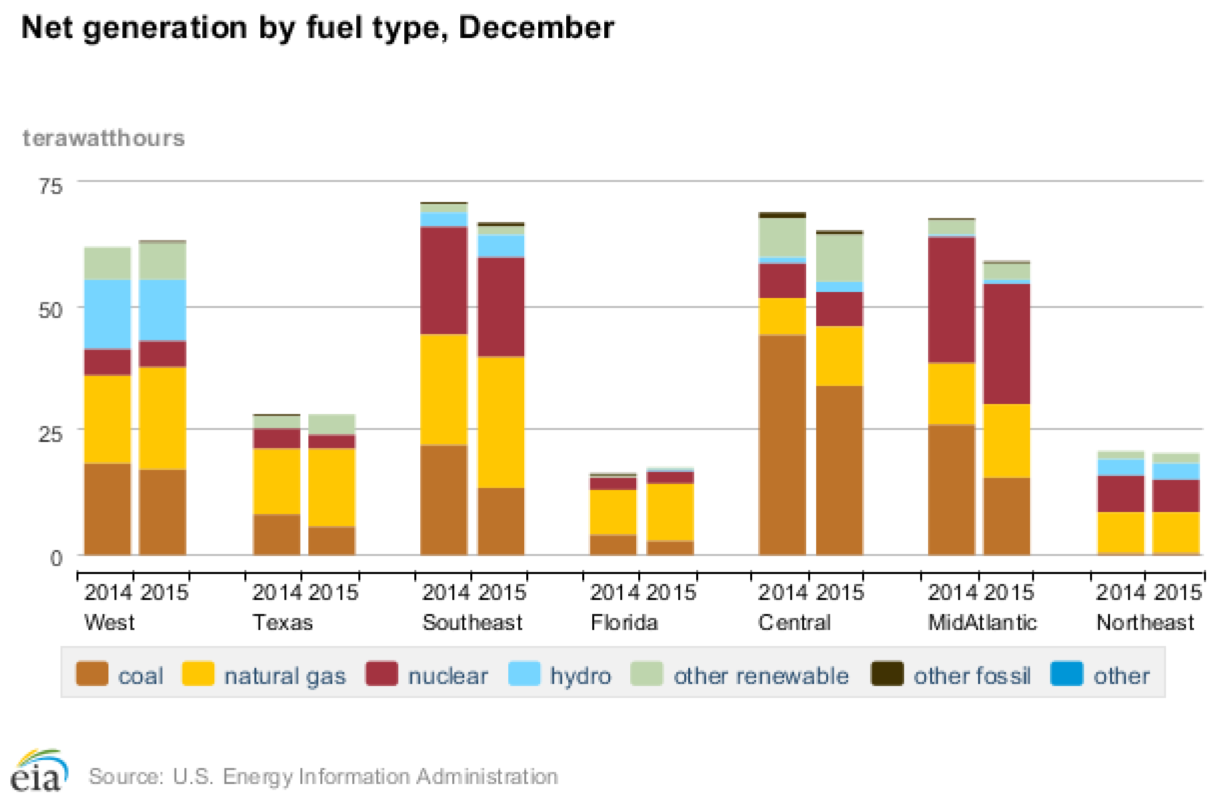
New Generation in Kentucky

- Cane Run #7 – 640 MW
- Paradise – 1,100 MW
- Big Sandy #1 – 268 MW
- Brown Solar – 10 MW
- ecoPower – 58.5 MW

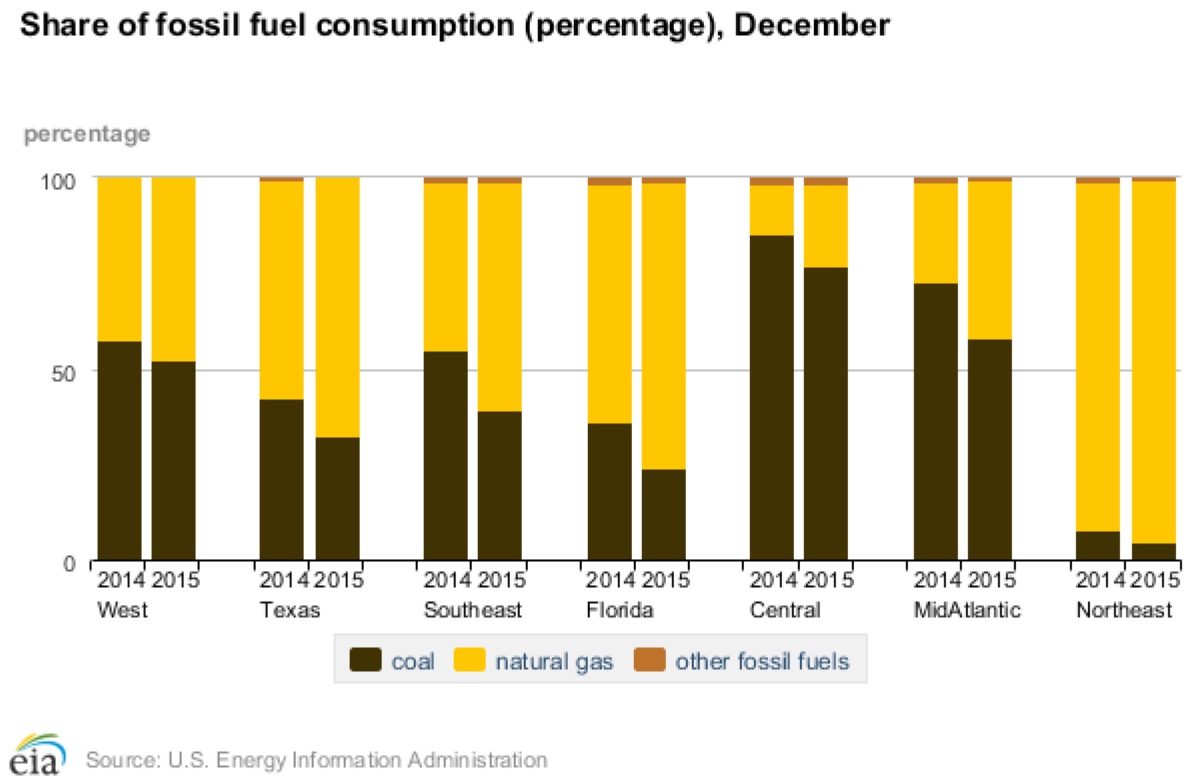
Coal v. Natural Gas (Dec 12 – Dec 15)



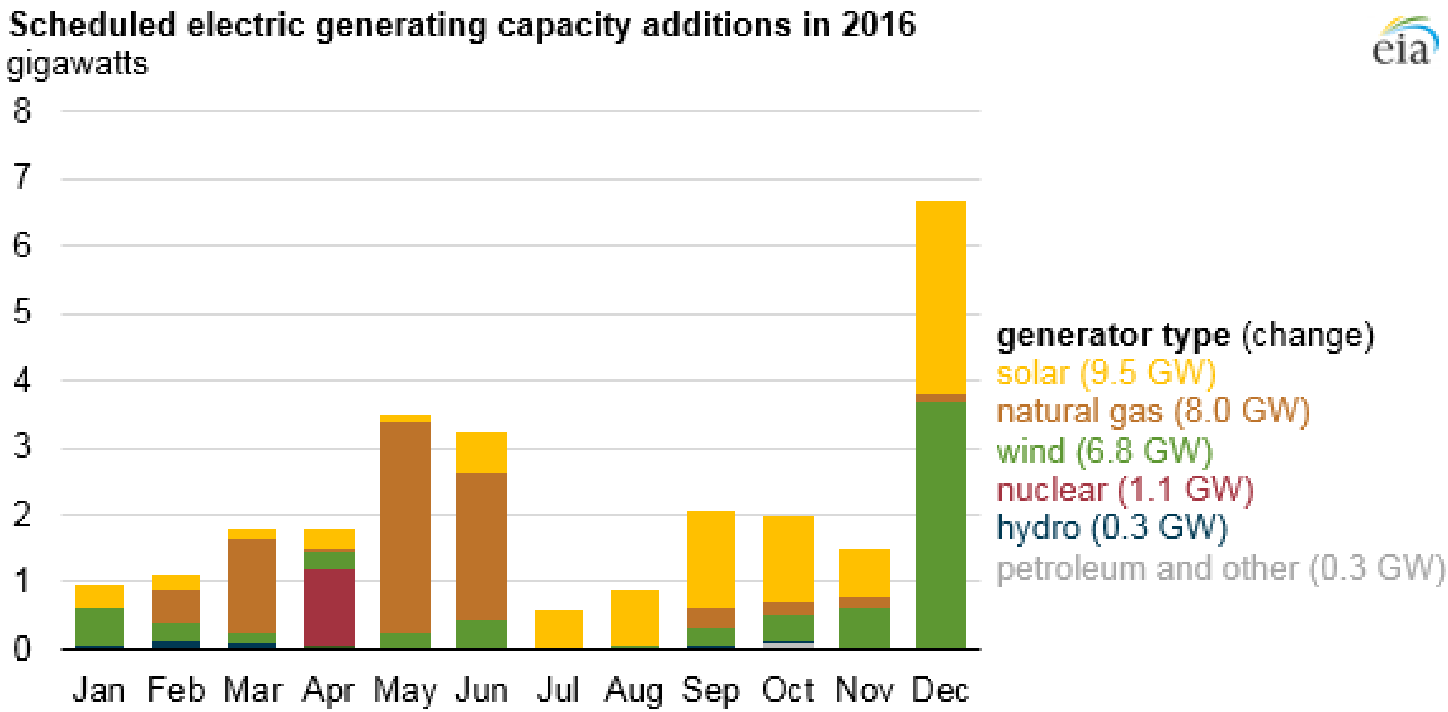
Nationwide Change in Fuel Mix



Nationwide Change in Fossil Fuel Mix



Scheduled Generation Adds (2016)



Root Cause of the Changes

[Still $$$]

Generation Economics

- Dispatch Stacking
- Least Cost Generation Planning
- External Drivers on Cost

Dispatch Stacking

Available Generation

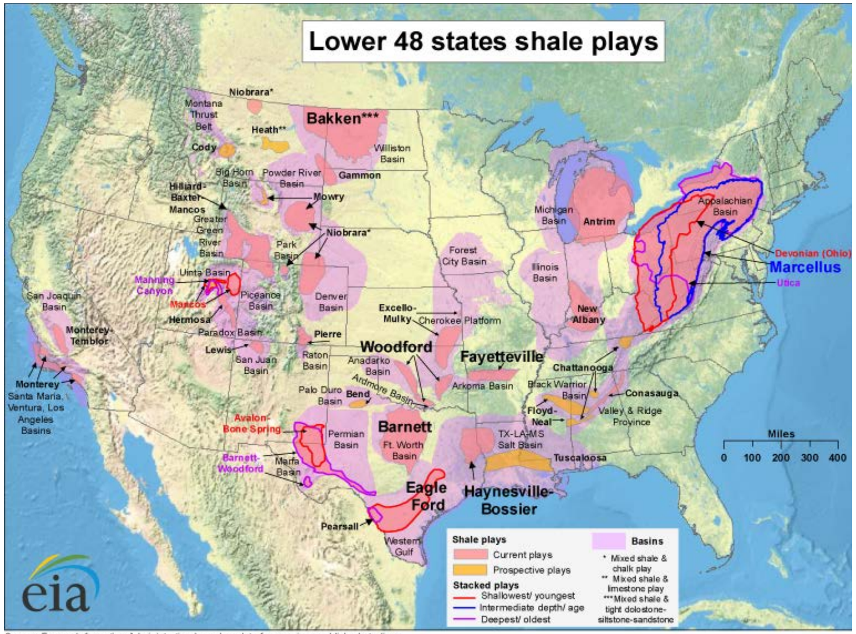
Demand

Least Cost Generation Planning

- CPCN = least cost (mostly); KRS 278.020
- Levelized costs for new build (includes fuel/O&M)
  - Scrubbed Coal – $95.1/MWh
  - Coal with CCS - $144.4/MWh
  - NGCC - $75.2/MWh
  - NGCC with CCS - $100.2/MWh
  - Wind - $73.6/MWh (non-dispatchable)
- Gas is the future because it's cheaper…

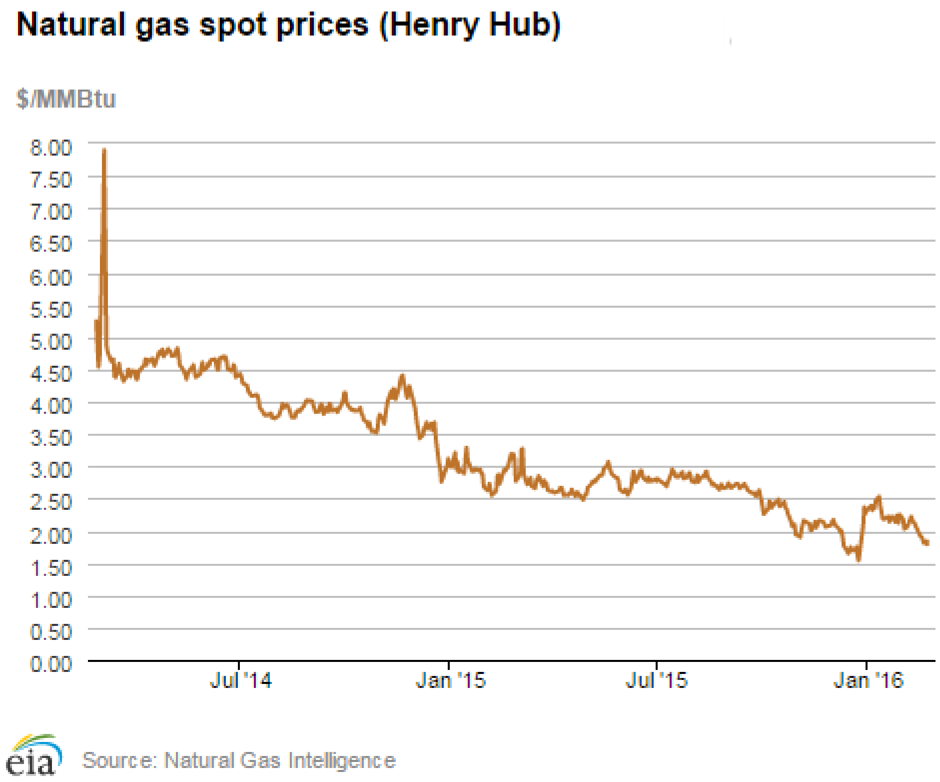
Why makes natural gas cheaper?

- Market Price of Natural Gas
- Regulatory Pressure on Coal

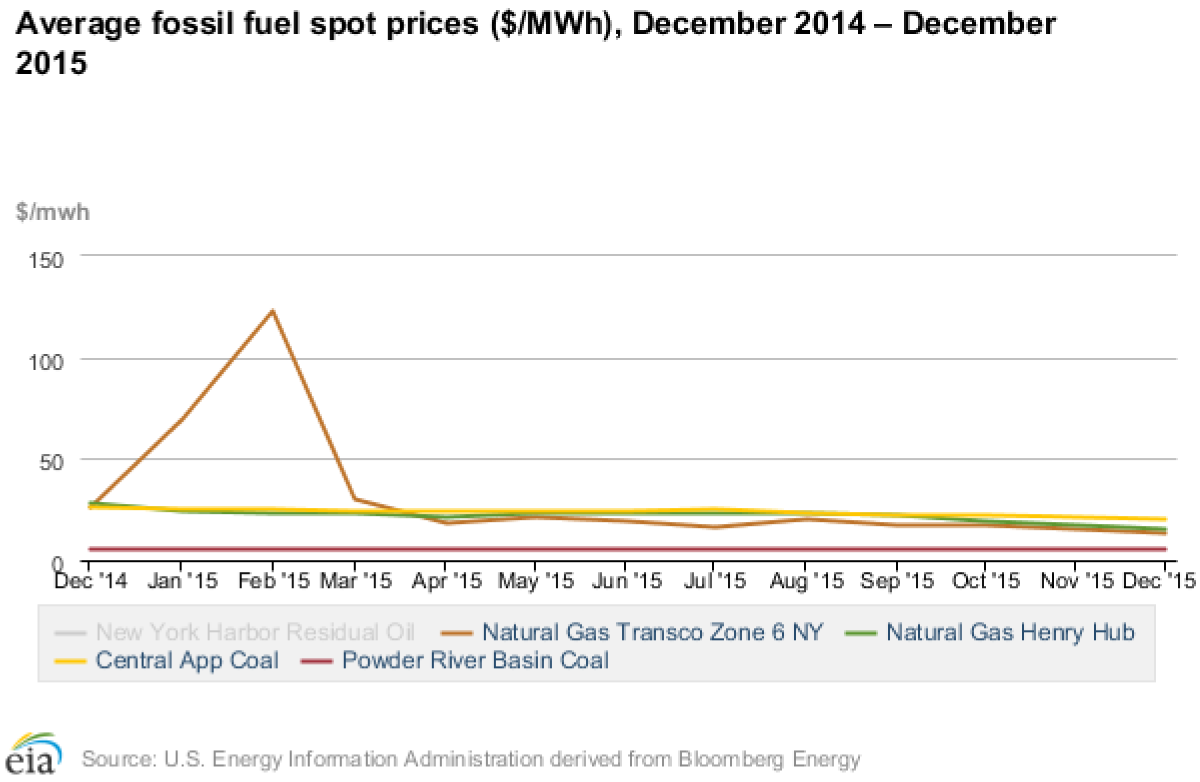


Source: Energy Information Administration based on data from various published studies.
Updated: May 9, 2011

Natural Gas Spot Prices (Henry Hub)

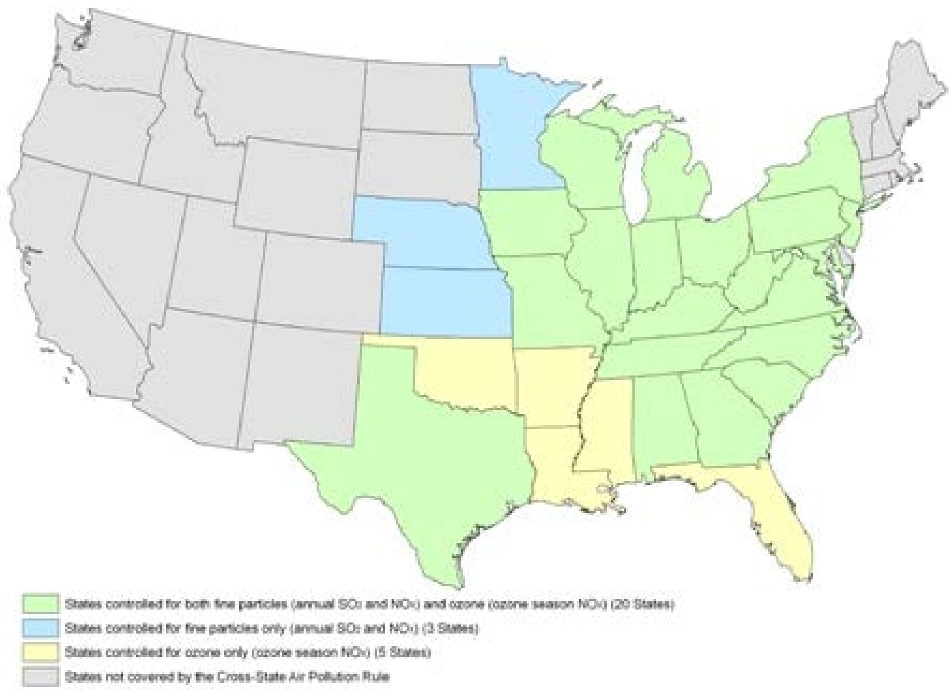


Comparison of Fuel Costs



Regulatory Pressure on Coal

- Cross State Air Pollution Rule (CSAPR)
  - "Good Neighbor Rule" – CAA § 110(a)(2)(D)(i)(I)
  - Annual SO_2 and NO_X; Ozone Season NO_X
  - Cap and Trade System
  - Lots of Litigation
  - 2015 = first budget year



More Regulatory Pressure

- Mercury and Air Toxics Standard (MATS)
  - Appropriate and Necessary under CAA § 112(d)
  - Numeric limits on Hg, PM (non-Hg Metals) and HCl (acid gases)
  - Effective April 16, 2012
    - Compliance Date(s) – April 16, 2015 or May 31, 2015 or April 16, 2015…
  - Litigation still on-going…although rule remains in place

Why CSAPR and MATS Drive Cost…

Clean Power Plan????

- Promulgated under § 111(d) of the CAA
- Establishes two goal milestone dates – 2022 & 2030
- Goals set via BSER – three "building blocks"
  - Increased efficiency
  - Replace with less carbon intensive existing NG plants
  - Replace with new renewables
- Two ways to measure
  - Emission rate reductions
  - Mass reductions (i.e. market)
- Litigation…

Predictions for the Future

- More natural gas baseload generation in KY
- Increased renewables?
- Increased energy rates regardless
- CPP outcome?
  - Ask me November 9

QUESTIONS?

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