

EIA's Outlook Through 2035

From the Annual Energy Outlook 2010

Diane Kearney

Energy Information Administration

U.S. Department of Energy

Surface Transportation Board

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Energy Information Administration

- Statistical and analytical agency within the Department of Energy
 - www.eia.doe.gov
- Produces monthly short-term and annual long-term forecasts of U.S. and world energy markets
 - Short Term Energy Outlook
 - <http://www.eia.doe.gov/emeu/steo/pub/contents.html>
 - Annual Energy Outlook, 2010
 - <http://www.eia.doe.gov/oiaf/aeo/index.html>
 - International Energy Outlook, 2009
 - <http://www.eia.doe.gov/oiaf/ieo/index.html>
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AEO2010: Key Issues

- **Renewable energy:** Continued representation of States' Renewable Portfolio Standards (RPS), extension of production tax credits (PTC), investment tax credits (ITC), and loan guarantees
- **Environmental rules:**
 - SO₂ and NO_x: Clean Air Interstate Rule (CAIR) modeled as cap and trade
 - Mercury: modeled as a 90 percent Maximum Achievable Control Technology (MACT) for several coal demand regions based on State-level initiatives
 - CO₂: Regional Greenhouse Gas Initiative (RGGI)
- **Expectation of greenhouse gas regulations**
 - 3% higher cost of capital for greenhouse gas intensive projects
 - Financial community adoption of “Carbon Principles”
- 2 gigawatts of coal w/ carbon capture and sequestration (CCS) assumed by 2017 (investment tax credits in the Energy Improvement and Extension Act of 2008 and funding from the American Recovery and Revitalization Act)

AEO2010: Key Issues

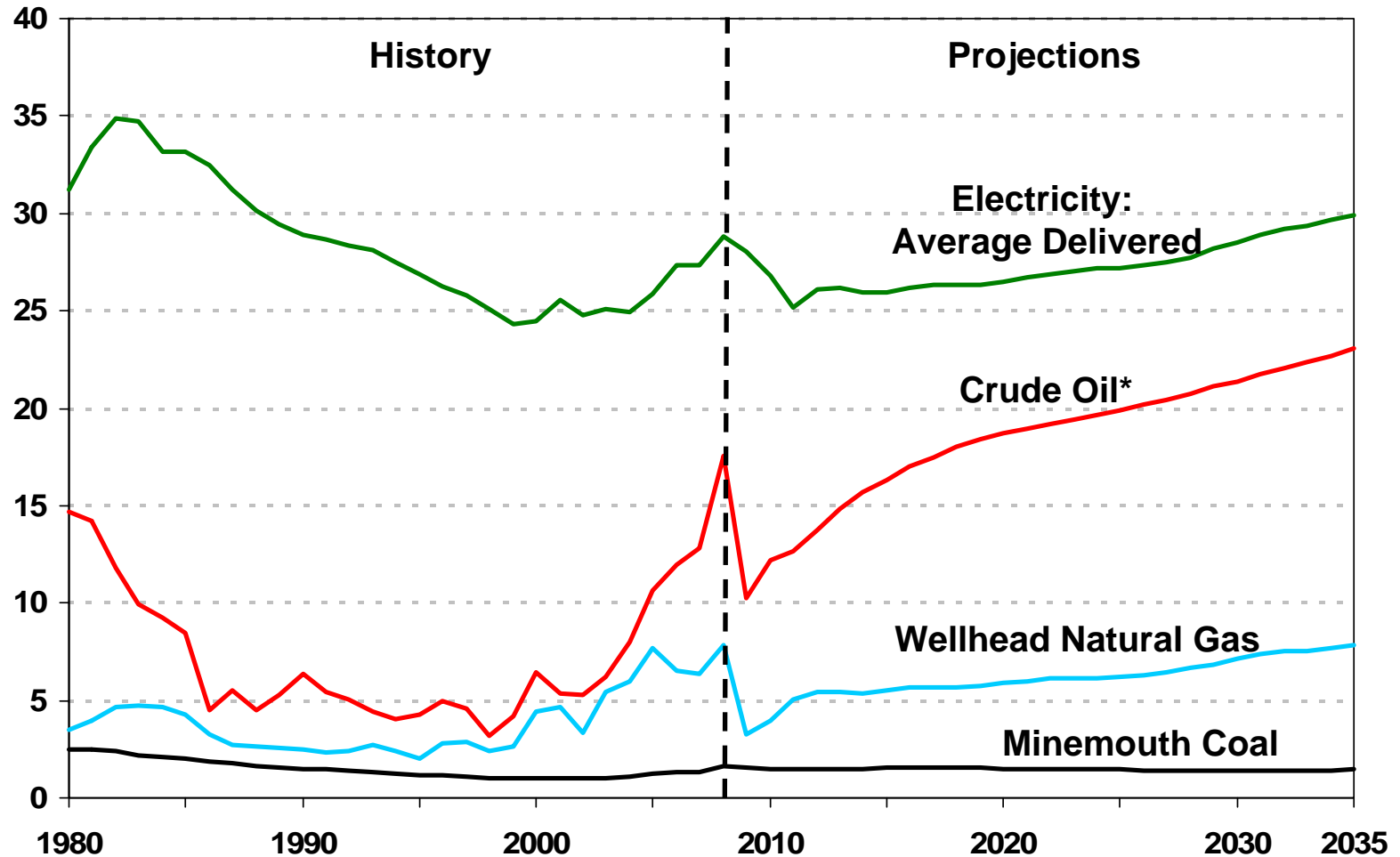
Compared to AEO2009

(continued)

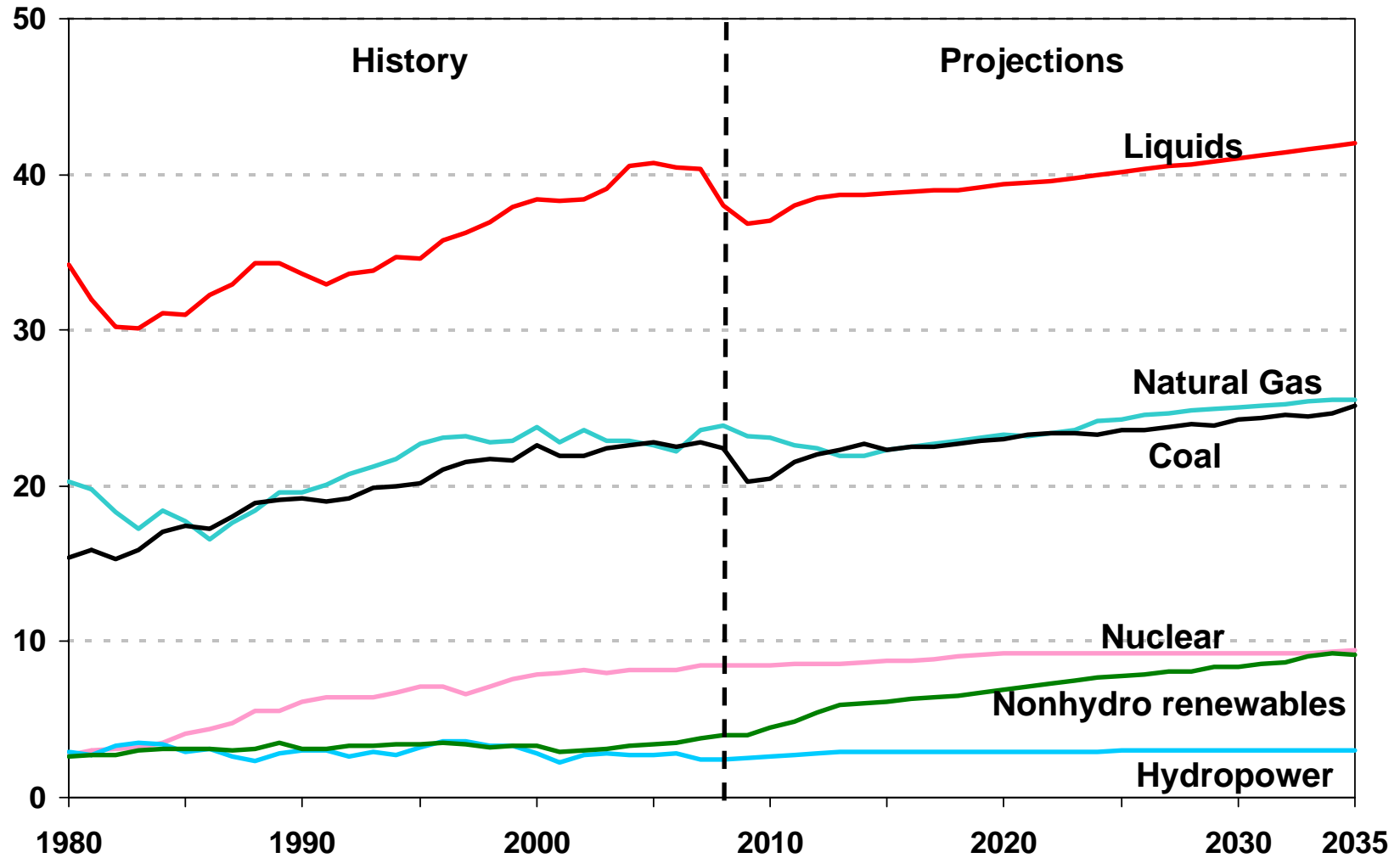
- Extend forecast horizon to 2035
- Electric Generating Capacity: Slightly higher capital cost estimates for new coal (+6%) and nuclear (+13%) power plants
- Fuel Prices: Slightly lower fossil fuel prices in 2030 (Oil: -8%, Natural Gas: -11%; Coal, -4%)*

* Price changes for fuels are calculated on physical units basis (i.e., per barrel, per thousand cubic feet, and per short ton).

Energy Prices, 1980-2035 (2008 dollars per million Btu)

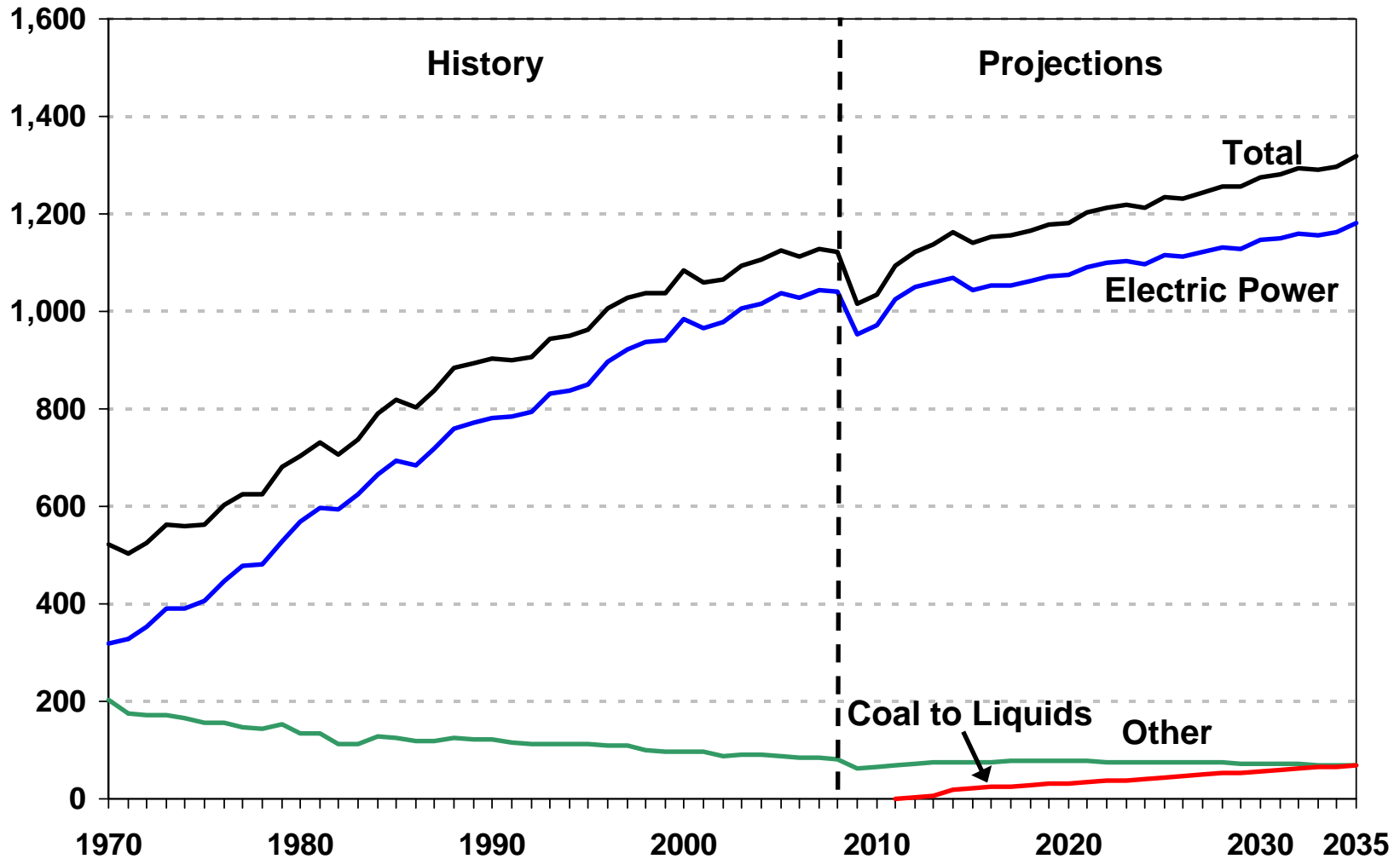


Energy Consumption by Fuel, 1980-2035 (quadrillion Btu)

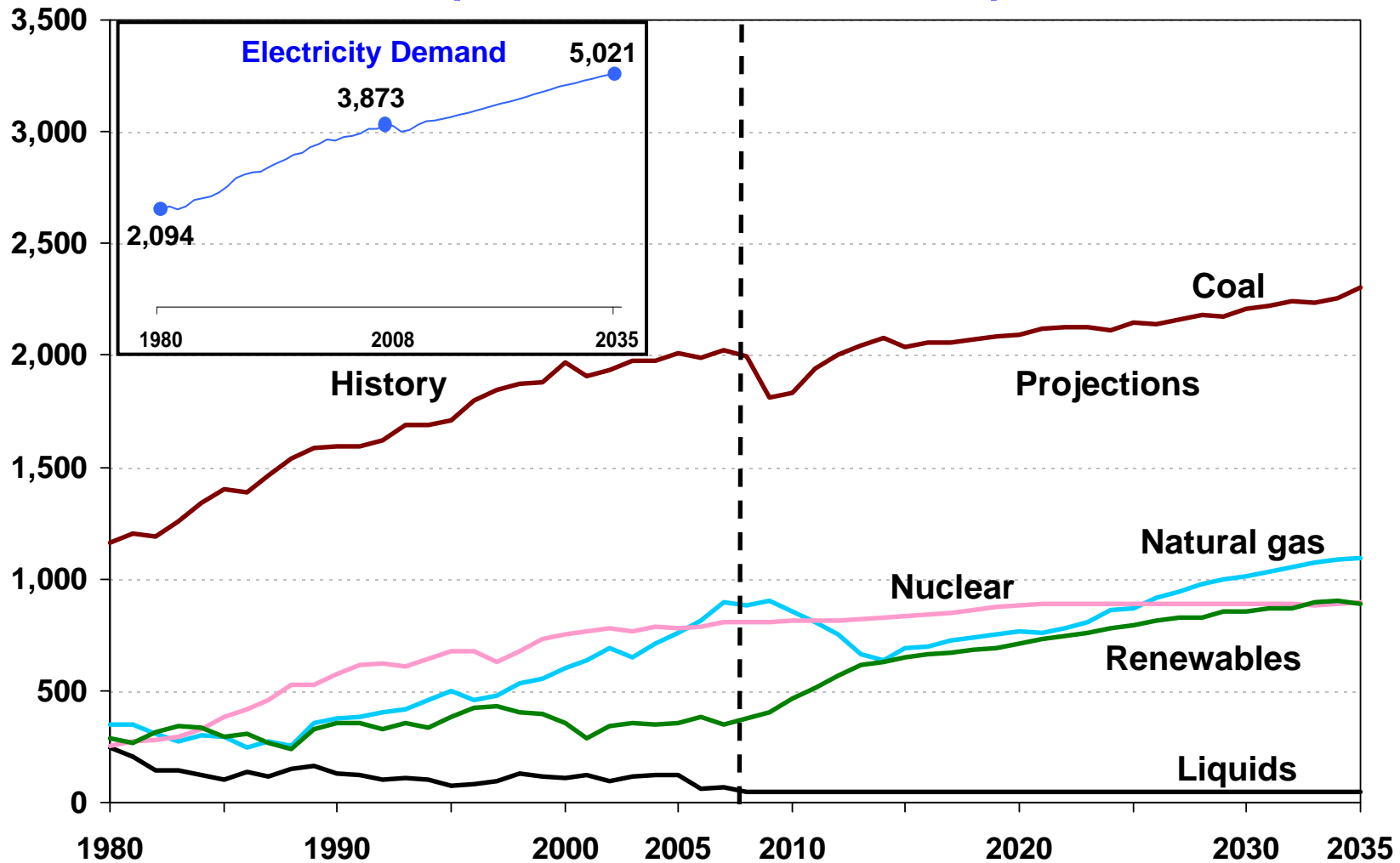


Source: Annual Energy Outlook 2010, Early Release (December 2009)

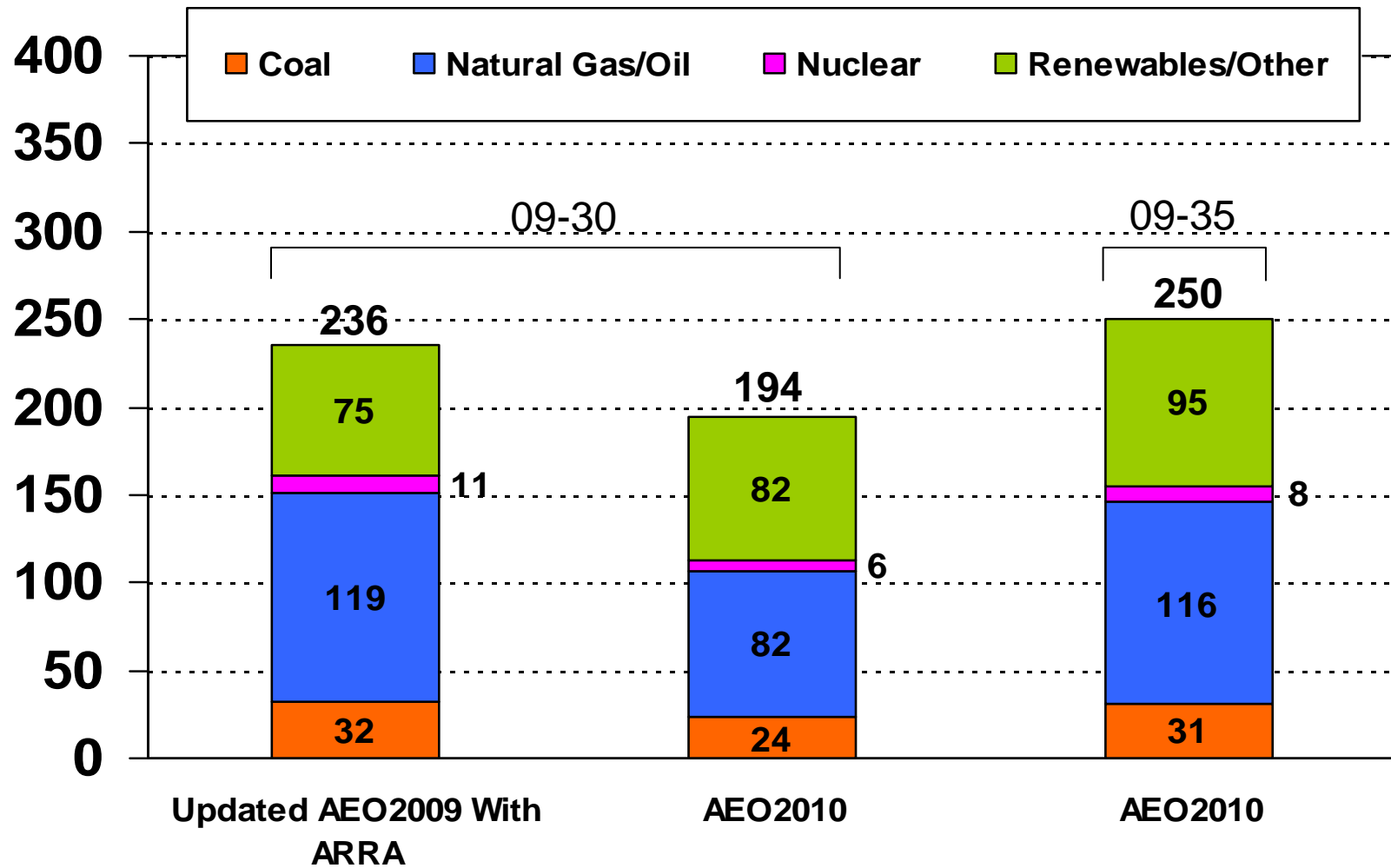
Coal Consumption by Sector, 1970-2035 (million short tons)



Electricity Generation by Fuel, 1980-2035 (billion kilowatthours)

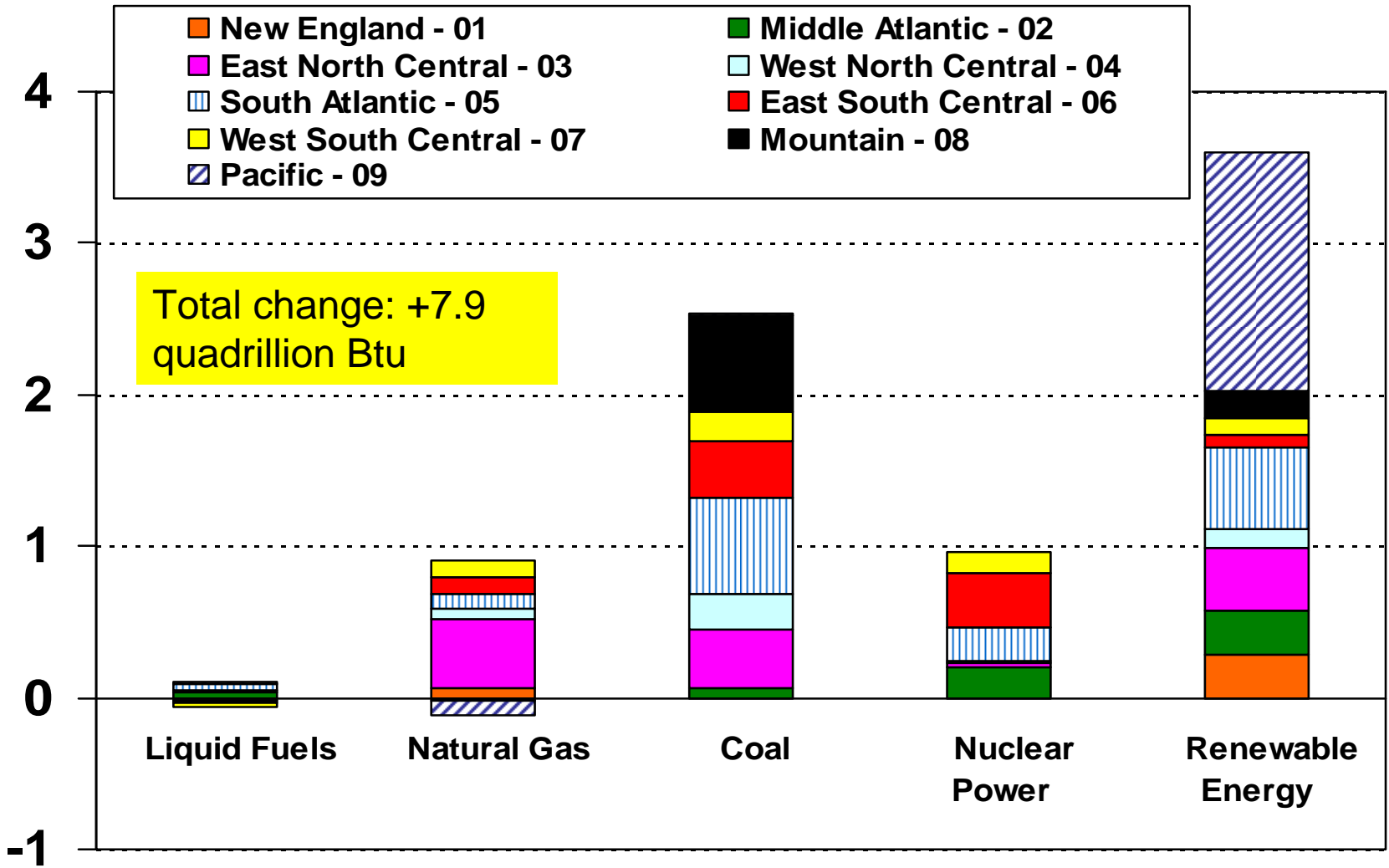


Cumulative Electric Generating Capacity Additions by Fuel: All Sectors, 2009-2035 (gigawatts)



Source: Annual Energy Outlook 2010, Early Release (December 2009); and Updated Annual Energy Outlook 2009 With ARRA (April 2009)

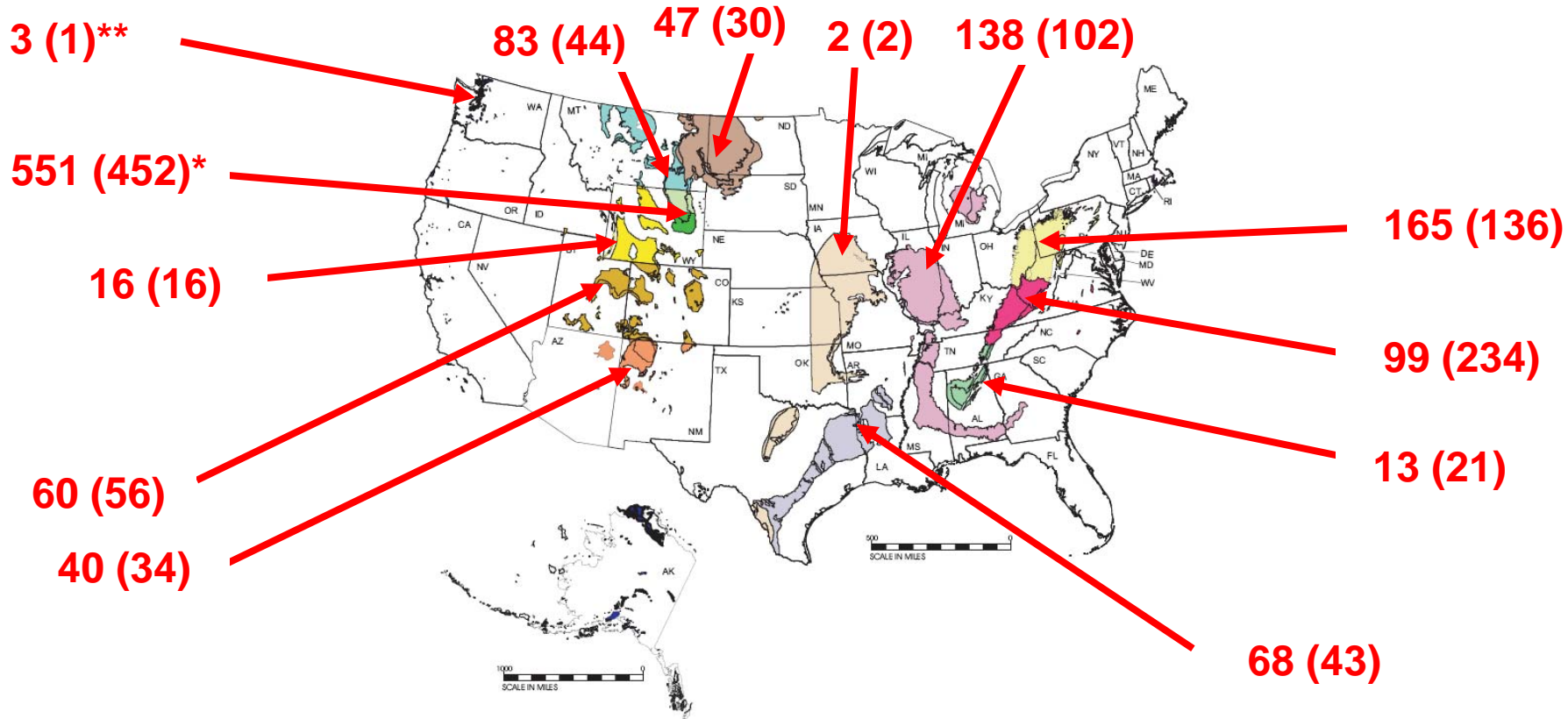
Changes in Energy Use for Electricity By Fuel Source and Census Division, 2008-2035 (quadrillion Btu)



Source: Annual Energy Outlook 2010, Early Release (December 2009)

Coal Production, 2035 (and 2008)

(million short tons)



- APPALACHIA**
 - Northern Appalachia
 - Central Appalachia
 - Southern Appalachia
- INTERIOR**
 - Eastern Interior
 - Western Interior
 - Gulf Lignite
- NORTHERN GREAT PLAINS**
 - Dakota Lignite
 - Western Montana
 - Wyoming, Northern Powder River Basin
 - Wyoming, Southern Powder River Basin
 - Western Wyoming
- OTHER WEST**
 - Rocky Mountain
 - Southwest
 - Northwest

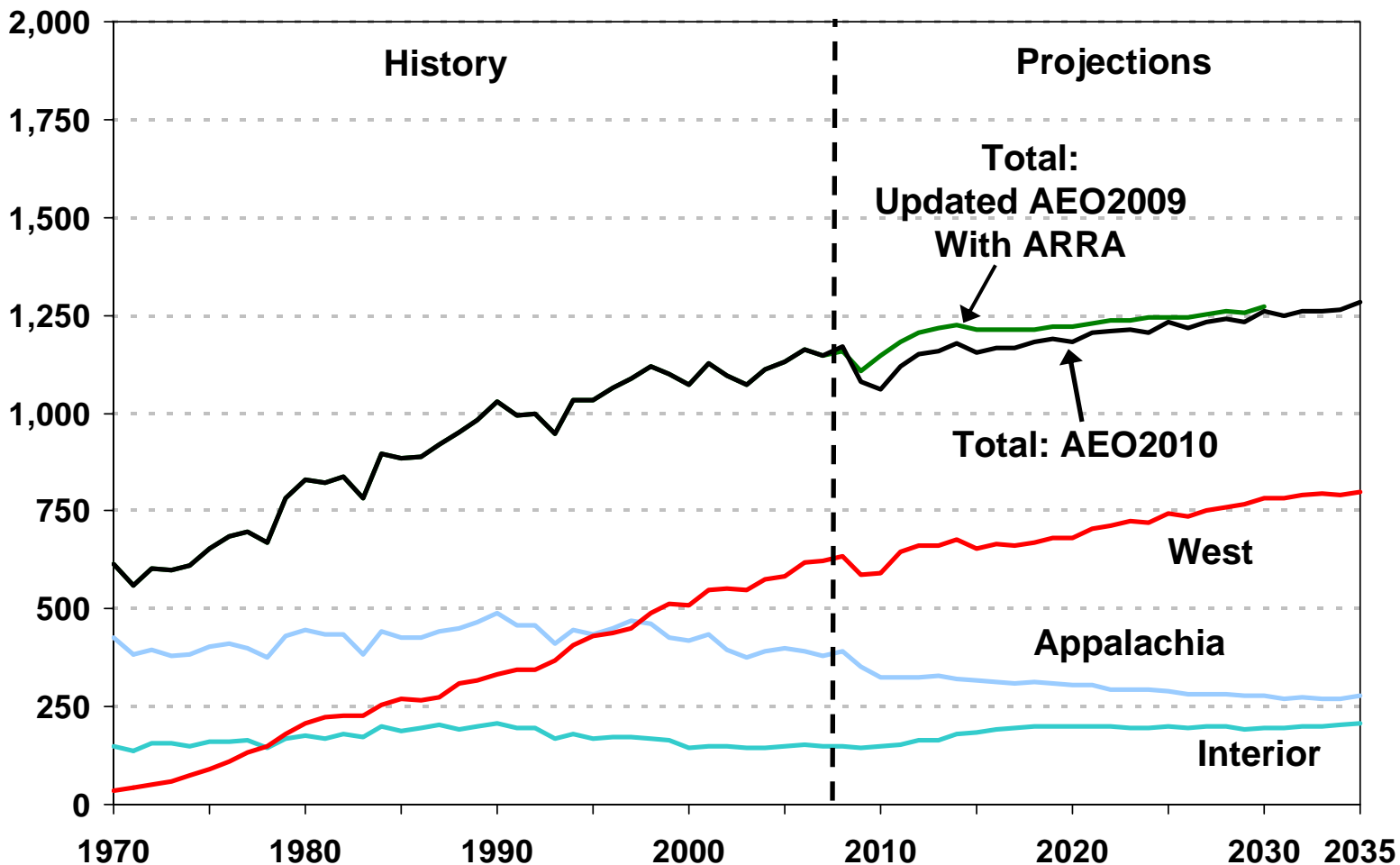
U.S. Total:
1,285 (1,172) million short tons

Source: Energy Information Administration, Office of Integrated Analysis and Forecasting

* Includes production from all mines in Wyoming's Powder River Basin.
 ** Includes production from mines in both Alaska and Washington.
 Source: Annual Energy Outlook 2010, Early Release, Reference Case (December 2009)

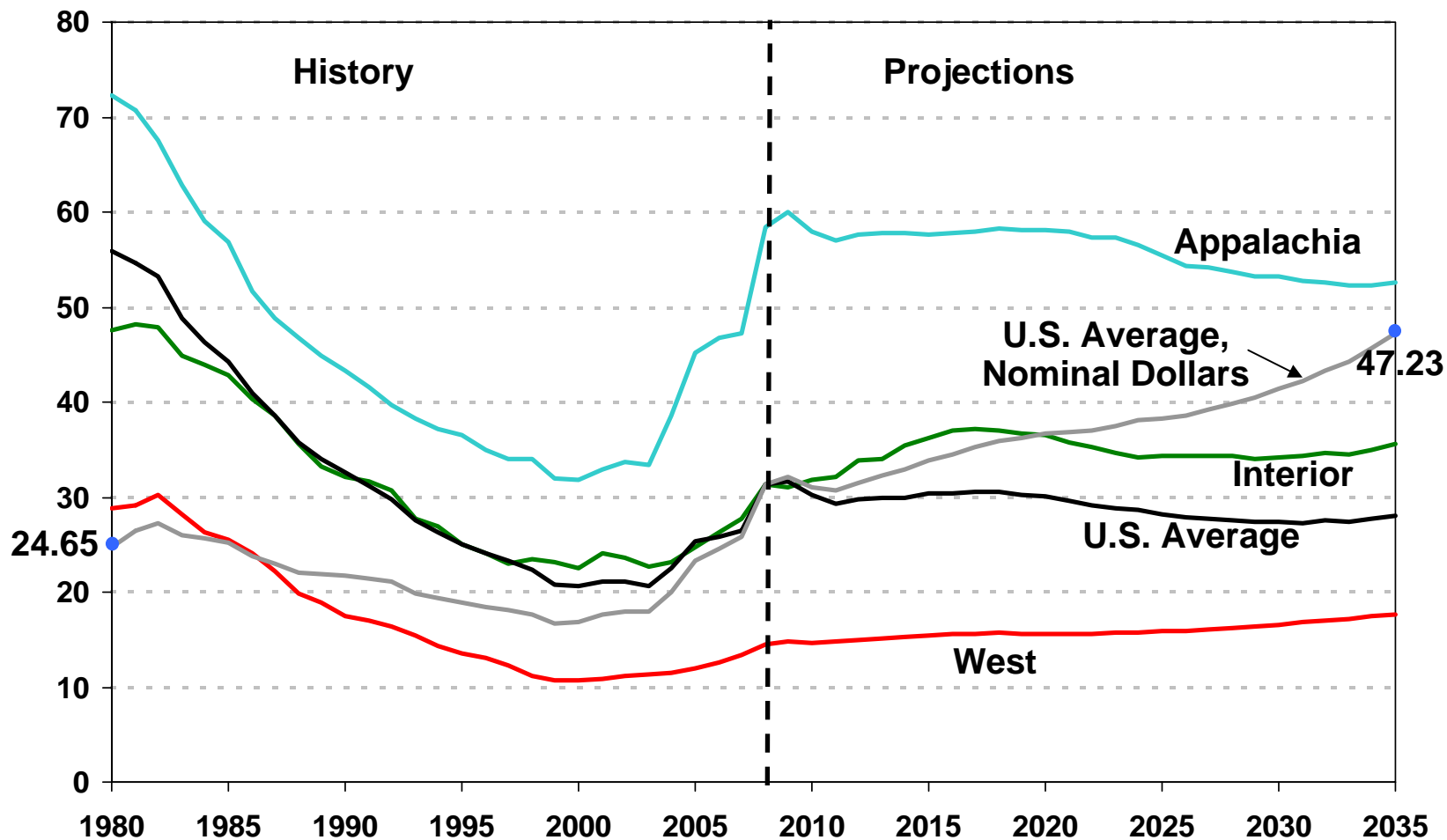


Coal Production by Region, 1970-2035 (million short tons)



Source: Annual Energy Outlook 2010, Early Release (December 2009); and Updated Annual Energy Outlook 2009 With American Recovery and Revitalization Act (ARRA) (April 2009)

Average Minemouth Price of Coal by Region, 1980-2035 (2008 dollars per short ton)



Contact Info:

Diane Kearney
Office of Integrated Analysis and
Forecasting
Energy Information Administration

Diane.Kearney@eia.doe.gov

(202) 586-2415

U.S. Census Divisions

	Census Division	States Included
1.	New England	CT, MA, ME, NH, RI, VT
2.	Middle Atlantic	NY, PA, NJ
3.	East North Central	OH, IN, IL, MI, WI
4.	West North Central	MN, IA, ND, SD, NE, MO, KS
5.	South Atlantic	WV, MD, DC, DE, VA, NC, SC, GA, FL
6.	East South Central	KY, TN, AL, MS
7.	West South Central	TX, LA, OK, AR
8.	Mountain	MT, WY, ID, CO, UT, NV, AZ, NM
9.	Pacific	AK, HI, WA, OR, CA