

**WORKING GROUP PRESENTATION FOR DISCUSSION PURPOSES
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Annual Energy Outlook 2013

1st Coal Working Group



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Issues/assumptions for AEO2013

- Compressed AEO modeling and production schedule
- Re-coding of coal model from Fortran to AIMMS
- Extension to 2040
- Current laws and regulations
 - Cross State Air Pollution Rule
 - Mercury and Air Toxics Standards
 - State Renewable Portfolio Standards
- 3% higher cost of capital for new coal plants (including coal-based synthetic liquid plants) and capital investment projects at existing coal-fired power plants
- Expect stronger outlook for exports in AEO2013
- Review assumptions and modeling for coal-to-liquids and coal- and biomass-to-liquids

Preliminary AEO2013: Planned Coal-Fired Capacity Additions

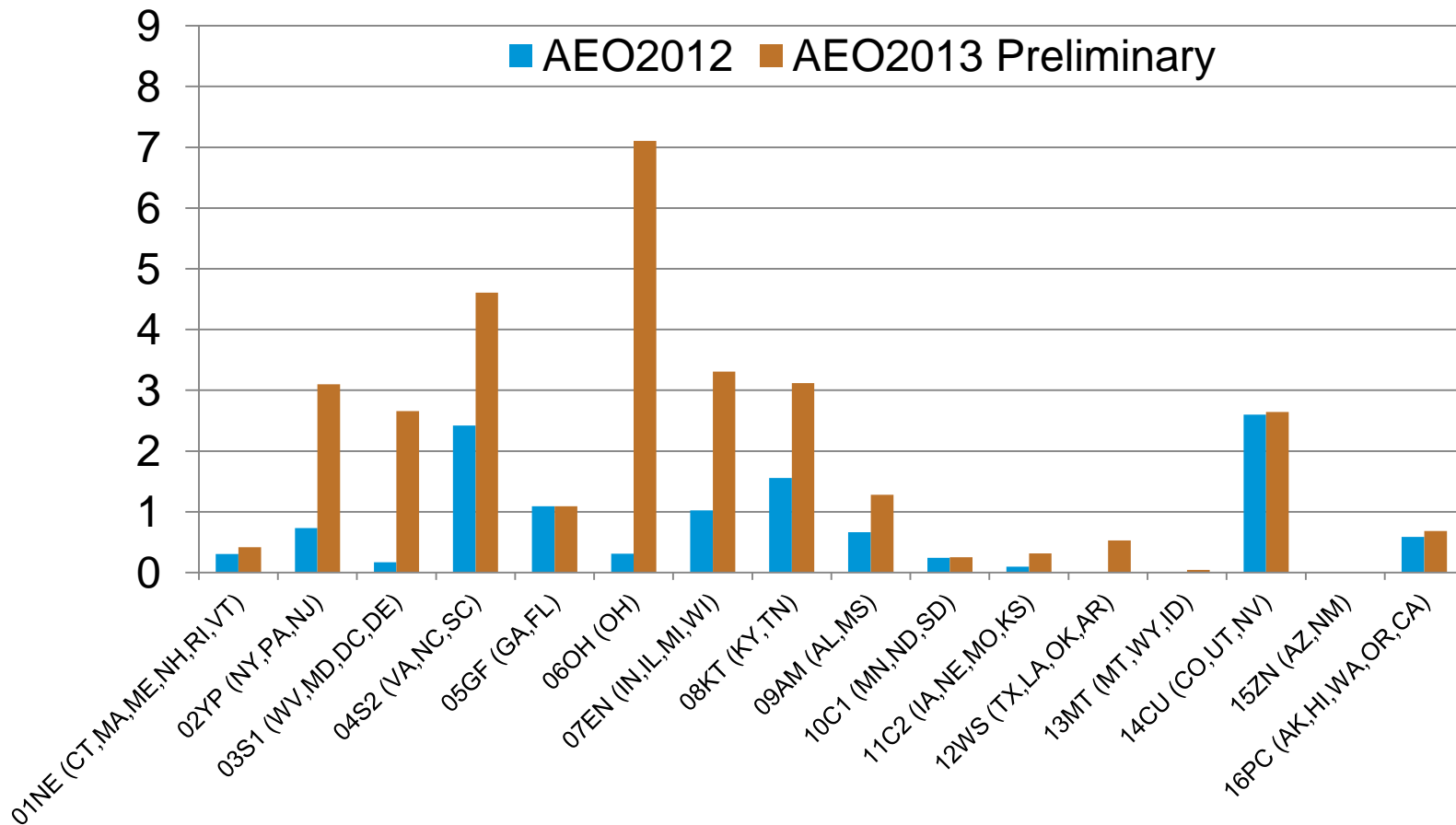
(megawatts)

FACILITY CODE	PLANT NAME	GENERATOR ID	STATE	PLANT TYPE	ENERGY SOURCE	START YEAR	START MONTH	SUMMER CAPABILITY
56068	Elm Road Generating Station	2	WI	PC	BIT	2011	1	633.8
6195	John Twitty Energy Center	ST2	MO	PC	SUB	2011	1	279
6071	Trimble County	2	KY	PC	BIT	2011	1	731.9
6180	Oak Grove	OG2	TX	PC	LIG	2011	4	825
60	Whelan Energy Center	2	NE	PC	SUB	2011	6	225
56609	Dry Fork Station	01	WY	PC	SUB	2011	11	405
56671	Longview Power LLC	MKA01	WV	PC	BIT	2011	12	700
56808	Virginia City Hybrid Energy Center	1	VA	PC	BIT	2012	5	585
55856	Prairie State Generatng Station	PC1	IL	PC	BIT	2012	6	800
2721	Cliffside	6	NC	PC	BIT	2012	8	825
1004	Edwardsport	ST,CT1,CT2	IN	IGCC	BIT	2012	10	586.1
56564	John W Turk Jr Power Plant	1	AR	PC	SUB	2012	11	600
55856	Prairie State Generatng Station	PC2	IL	PC	BIT	2012	12	800
55360	Two Elk Generating Station	GEN1	WY	PC	WC	2013	1	275
56611	Sandy Creek Energy Station	S01	TX	PC	SUB	2013	2	936.5
7570	Spiritwood	1	ND	PC	LIG	2013	9	62
57037	Kemper County IGCC Project	1A,1B,1C	MS	IGCC	LIG	2014	5	593
							2011	3799.7
							2012-2014	6062.6
							Total	9862.3

Source: U.S. Energy Information Administration, Form EIA-860, “Annual Electric Generator Report”

Planned coal-fired capacity retirements in the electric power sector by coal demand region, 2011-2035

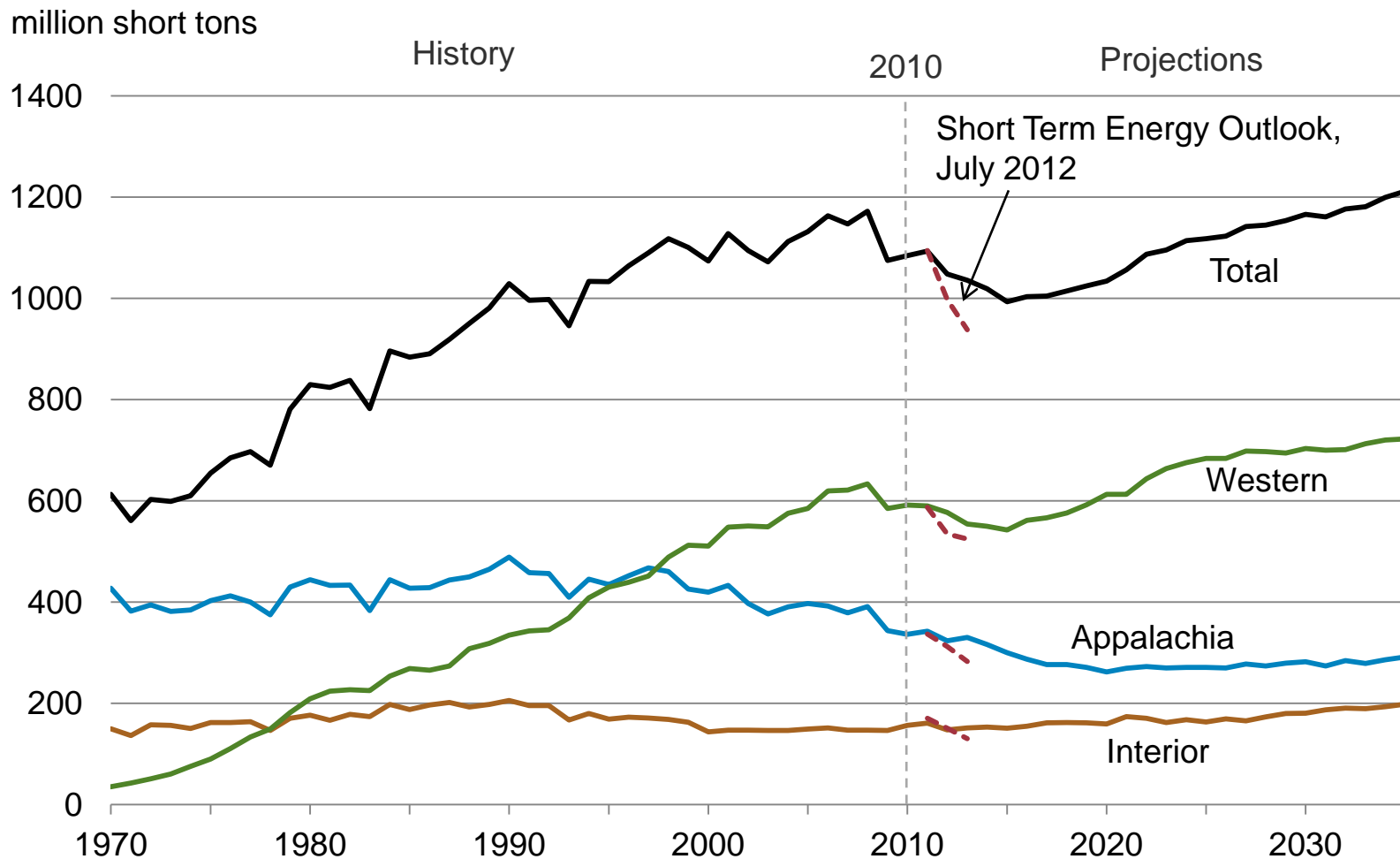
gigawatts, net summer



Note: Planned retirements represent those reported to EIA by generators in the electric power sector.

Source: U.S. Energy Information Administration (EIA), *Annual Energy Outlook 2012*, Reference Case; and EIA, Form EIA-860, "Annual Electric Generator Report"

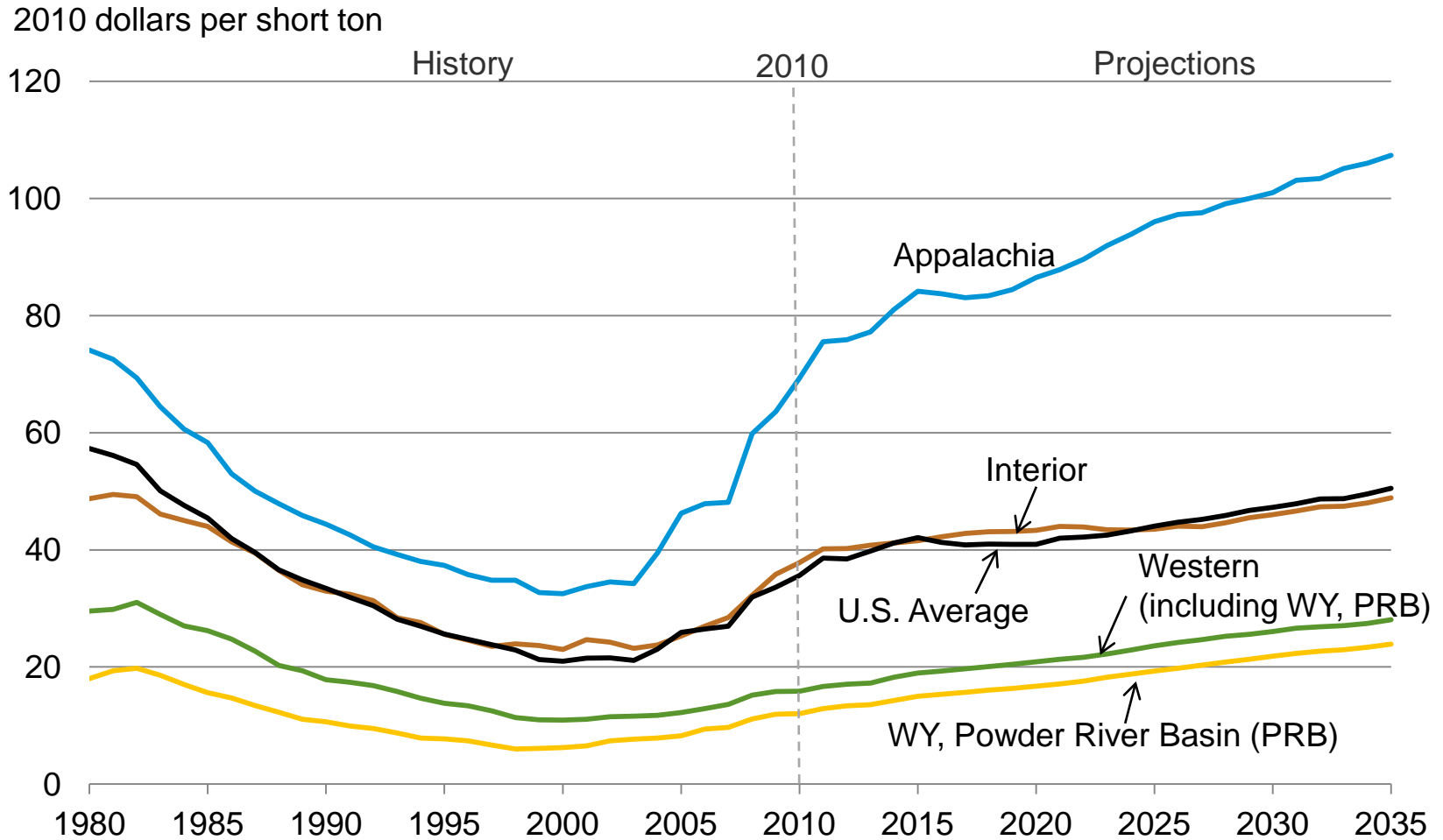
Coal production by region, 1970-2035



Source: History: U.S. Energy Information Administration (EIA), *Annual Coal Report*.

Projections: EIA, *Annual Energy Outlook 2012*, Reference Case; and *Short Term Energy Outlook, July 2012*.

Average Minemouth Coal Price by Region, 1980-2035

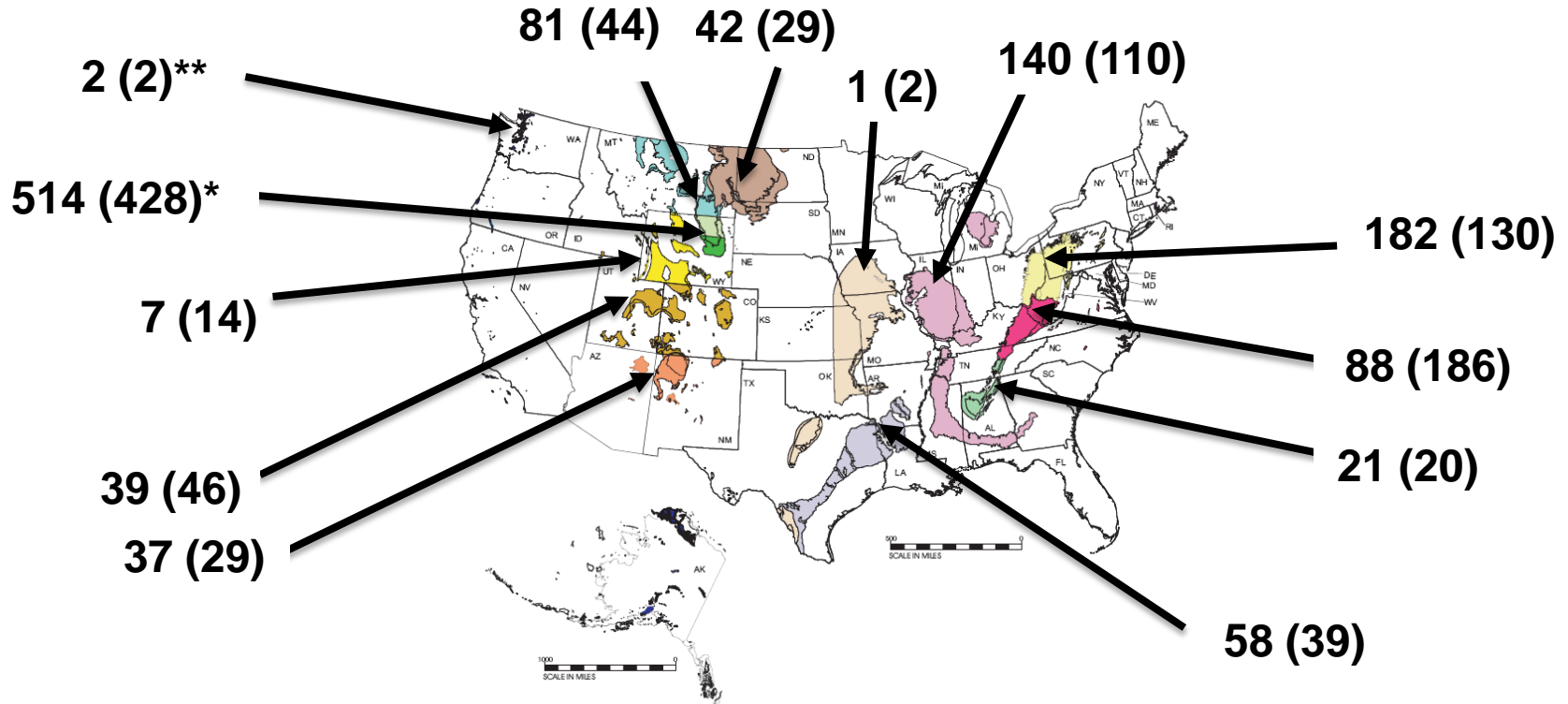


Note: Historical price data for Wyoming's PRB is represented by data for Campbell county.

Source: History: U.S. Energy Information Administration (EIA), *Annual Coal Report*;

Projections: EIA, *Annual Energy Outlook 2012*, Reference Case.

Coal production, 2035 (and 2010) (million short tons)



* Includes production from all mines in Wyoming's Powder River Basin.

** Includes production from mines in both Alaska and Washington.

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

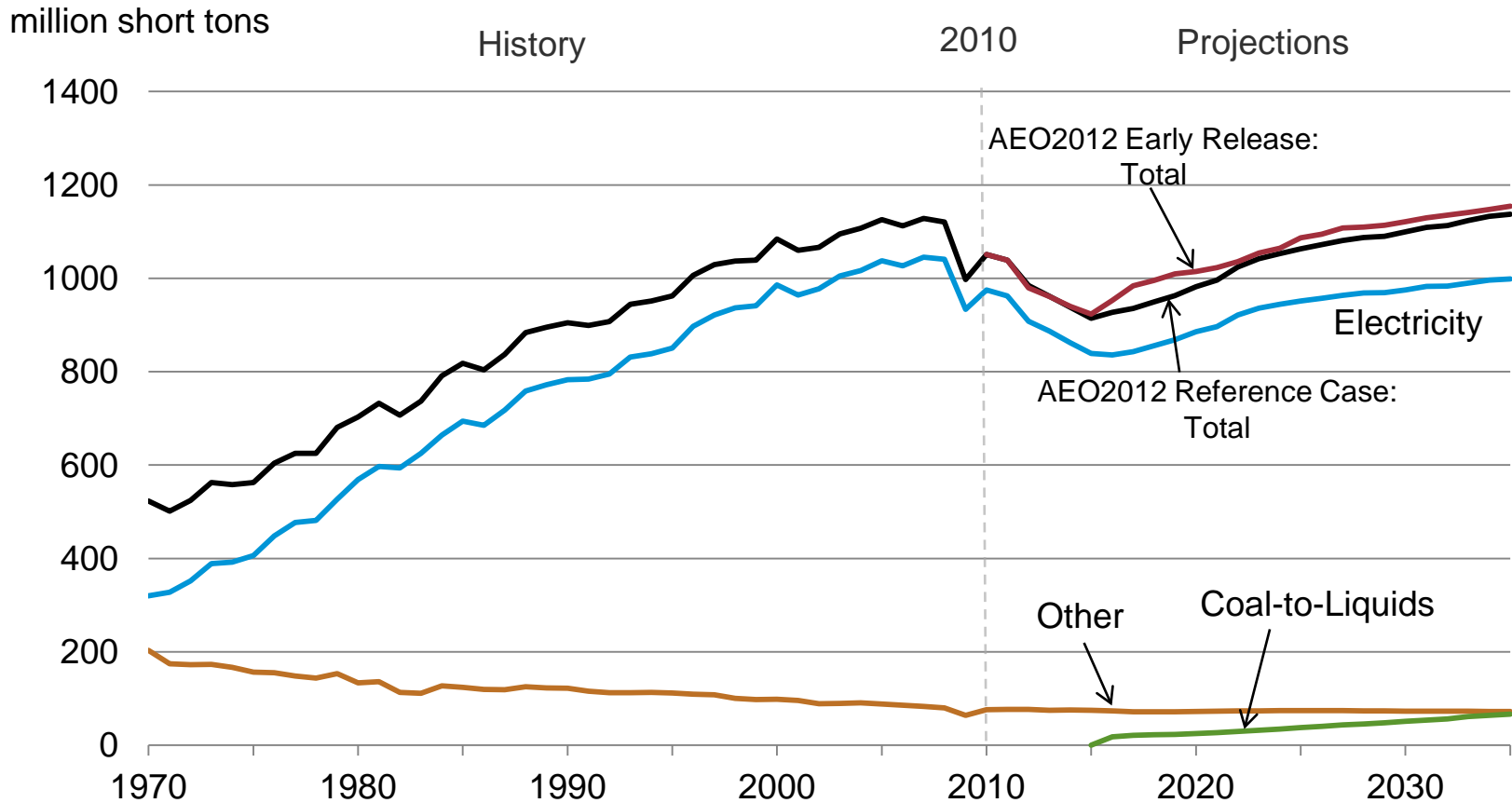
Source: U.S. Energy Information Administration, *Annual Energy Outlook 2012*, Reference Case

Average annual growth in coal mining labor productivity for selected supply regions (percent)

Coal Supply Region	1980-1990	1990-2000	2000-2010	2010-2035
Northern Appalachia	5.4	5.5	-2.2	-1.3
Central Appalachia	7.3	4.4	-5.9	-3.9
Eastern Interior	4.8	3.7	-1.4	-0.7
Gulf Lignite	2.6	2.4	-3.5	-2.6
Dakota Lignite	6.0	1.0	-2.7	-1.0
Western Montana	4.6	2.0	-2.8	-1.3
WY, Northern Powder River Basin	7.5	3.2	-2.9	-1.9
WY, Southern Powder River Basin	7.2	4.9	-2.5	-1.9
Rocky Mountain	7.8	5.5	-3.5	-2.0
U.S. Average	7.1	6.2	-2.3	-1.3

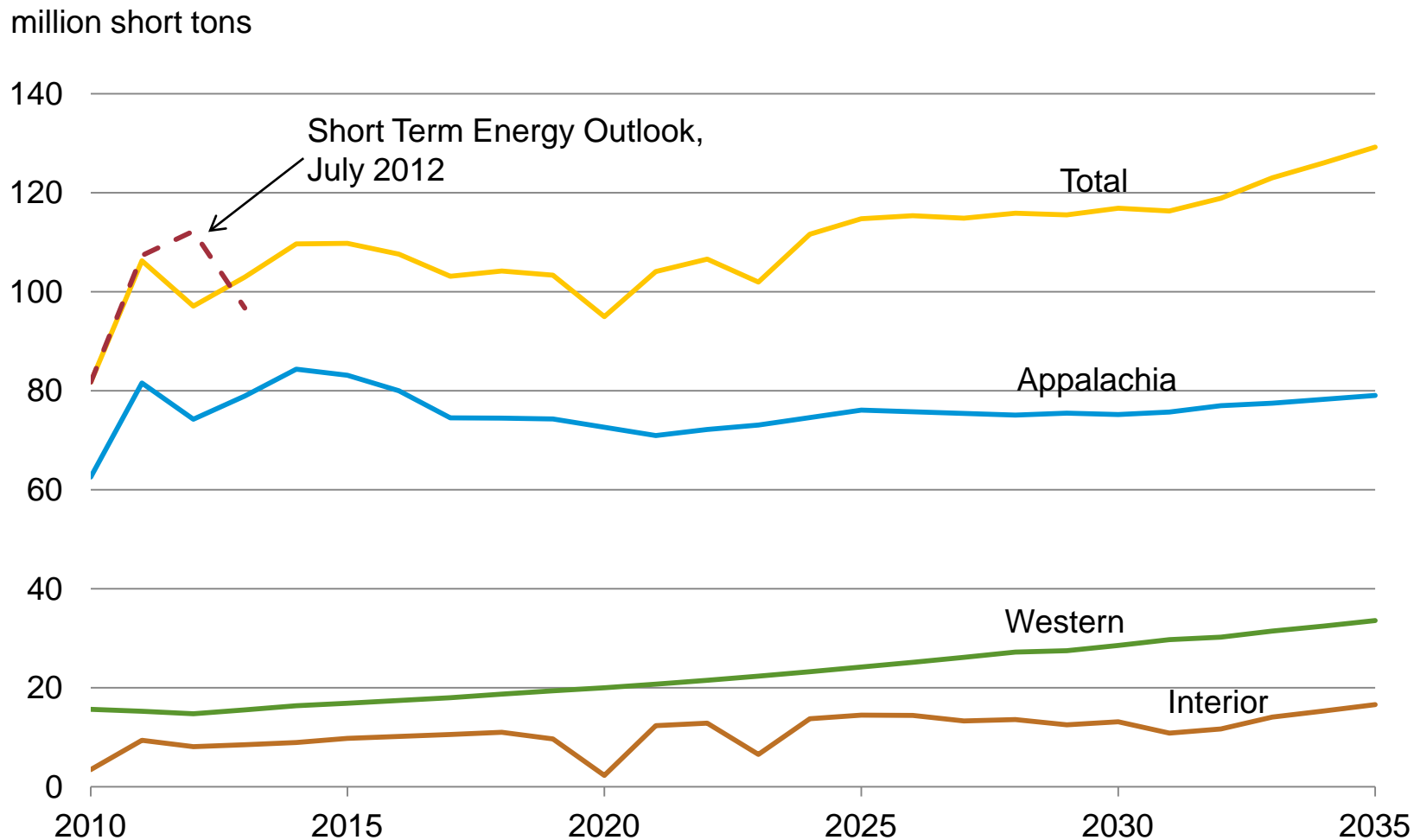
Source: History: U.S. Energy Information Administration (EIA), *Annual Coal Report*,
Projections: EIA, *Annual Energy Outlook 2012*, Reference Case

Coal consumption by sector, 1970-2035



Source: History: U.S. Energy Information Administration (EIA), *Annual Energy Review*;
Projections: EIA, *Annual Energy Outlook 2012*, Reference Case.

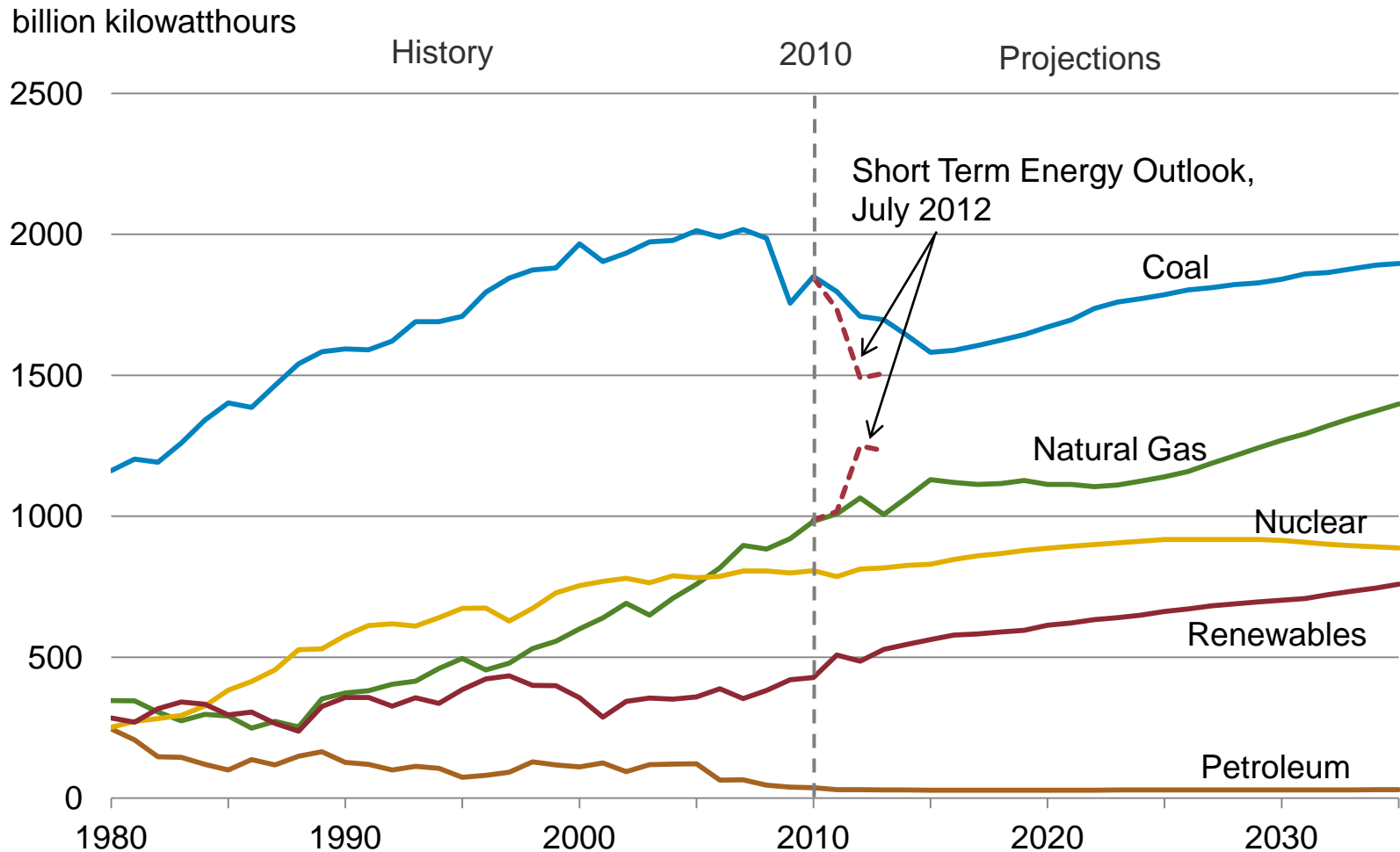
Coal Exports by region, 2010-2035



Source: 2010: U.S. Energy Information Administration (EIA), *Annual Coal Distribution Report*;

Projections: EIA, *Annual Energy Outlook 2012*, Reference Case; and *Short Term Energy Outlook*, July 2012.

Electricity Generation by Fuel, 1980-2035

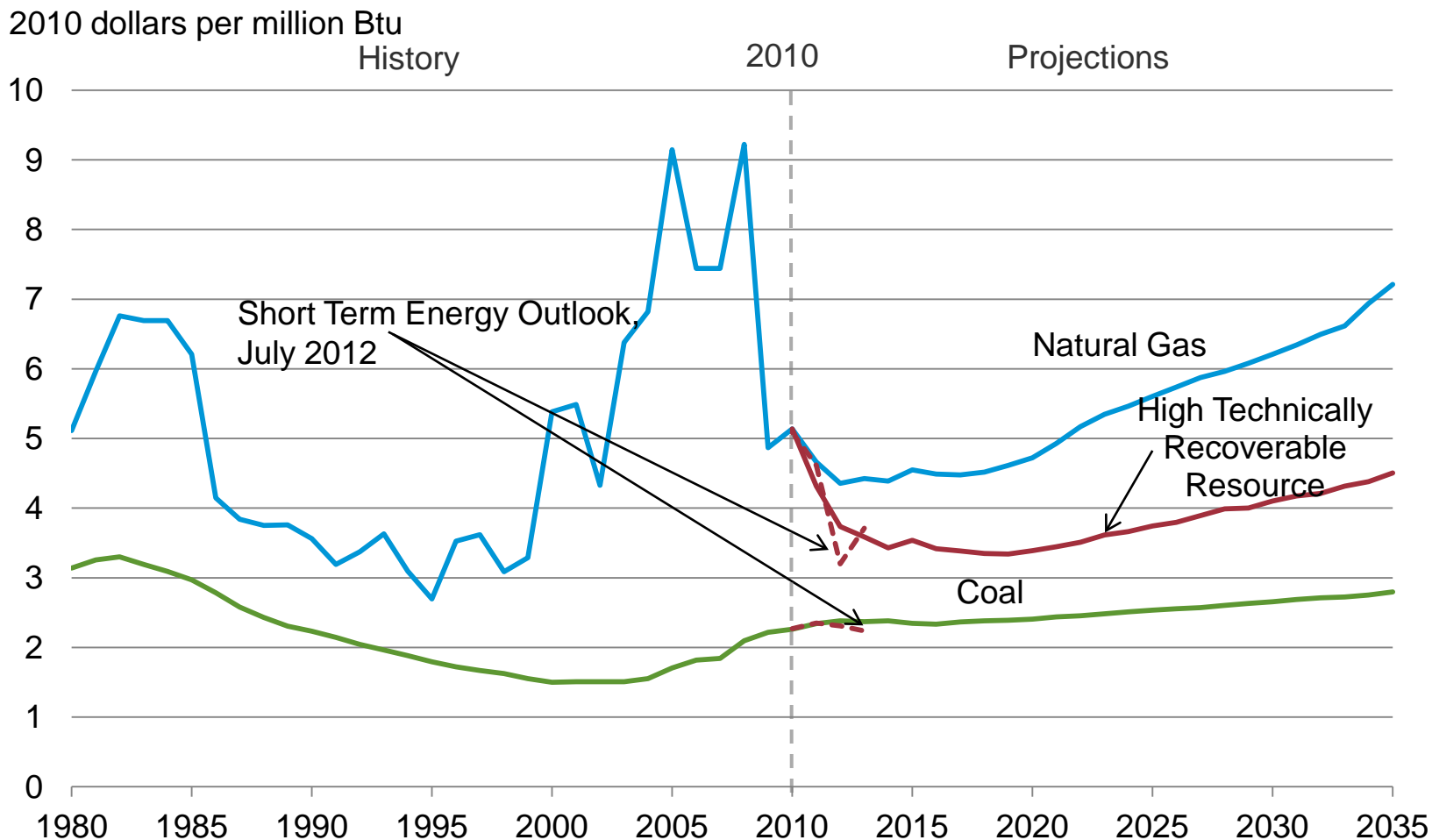


Note: Includes generation from plants in both the electric power and end-use sectors.

Source: History: U.S. Energy Information Administration (EIA), *Annual Energy Review*;

Projections: EIA, *Annual Energy Outlook 2012*, Reference Case; and *Short Term Energy Outlook*, July 2012.

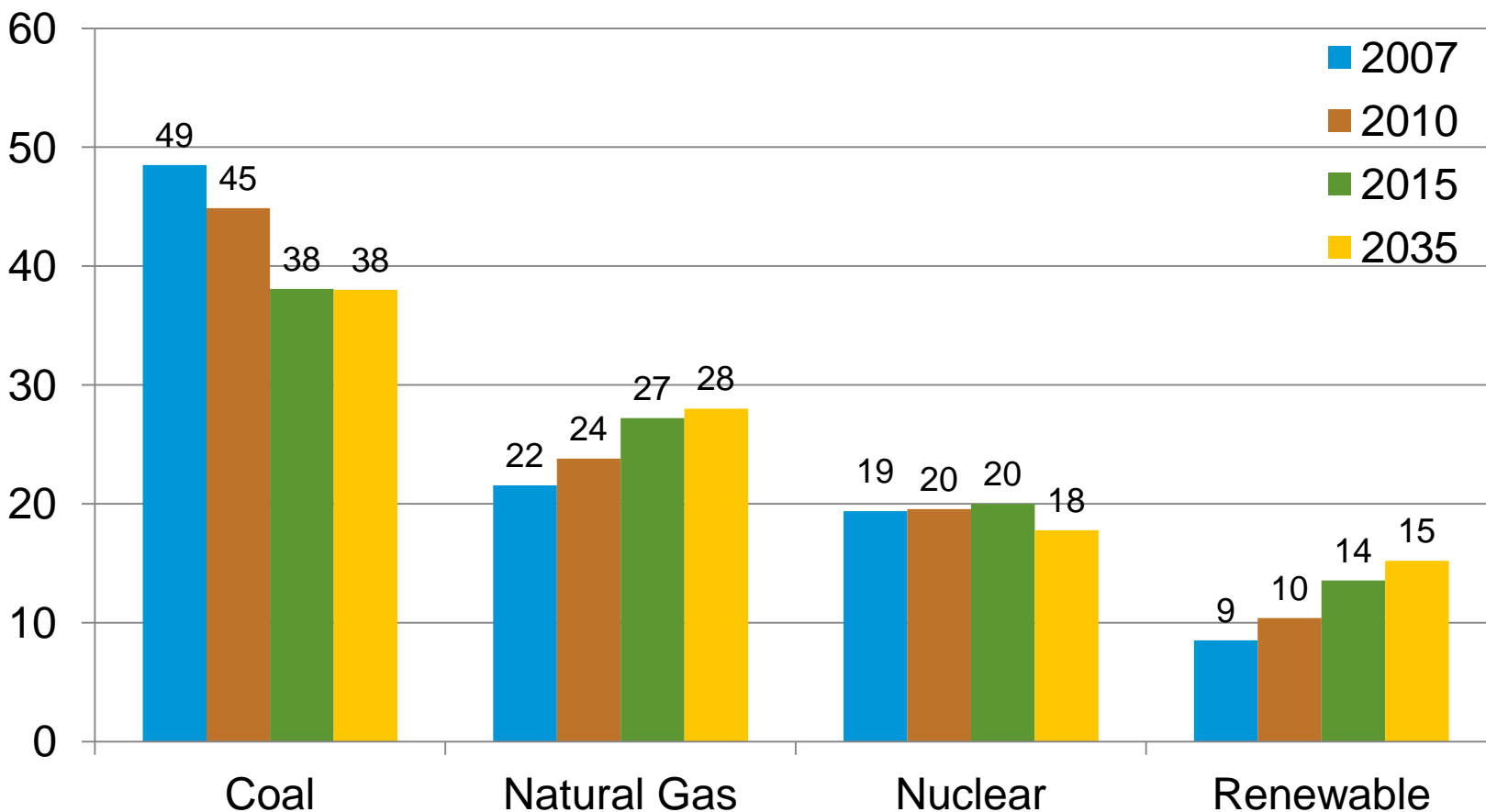
Average Delivered Price of Coal and Natural Gas to the Electric Power Sector, 1980-2035



Source: History: U.S. Energy Information Administration (EIA), *Monthly Energy Review* and *Electric Power Monthly*;
Projections: EIA, *Annual Energy Outlook 2012*, Reference Case; and *Short Term Energy Outlook, July 2012*.

Electricity Generation Shares by Fuel, 2007-2035

percent

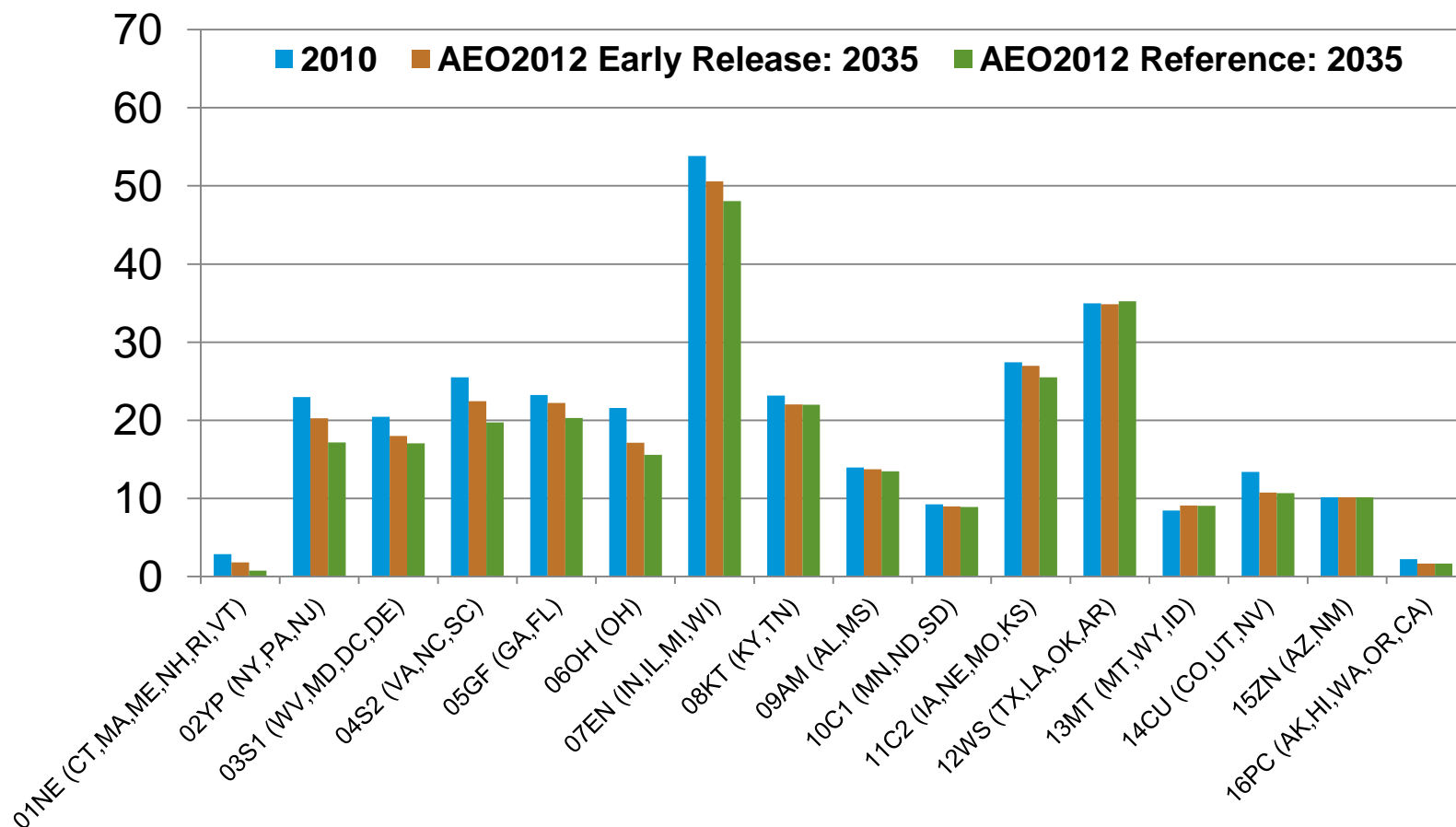


Note: Includes generation from plants in both the electric power and end-use sectors

Source: U.S. Energy Information Administration, *Annual Energy Outlook 2012*, Reference Case

Coal-fired generating capacity in the electric power sector by coal demand region, 2010 and 2035

gigawatts, net summer



Source: U.S. Energy Information Administration, *Annual Energy Outlook 2012*, Early Release and Reference Case

Electric Net Summer Generating Capacity by Fuel, 2007-2035 (gigawatts)

Fuel	2007	2010	2015	2020	2035
Coal	311	318	286	281	285
Electric Power Sector	308	313	282	275	275
End-Use Sectors	4	4	4	7	10
Natural Gas	329	350	373	383	479
Petroleum	115	109	91	91	89
Nuclear Power	100	101	104	111	111
Renewable Sources	109	134	163	168	201
Other (includes pumped storage)	25	25	25	25	25
Total	990	1,036	1,042	1,059	1,190

Source: U.S. Energy Information Administration, *Annual Energy Outlook 2012*, Reference Case

For more information

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