Globalizing US Climate Pollution: Negating Mitigation through Fossil Exports

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The US Coal Market until Now

Coal Industry Plans and Why

Obama Administration Complicity

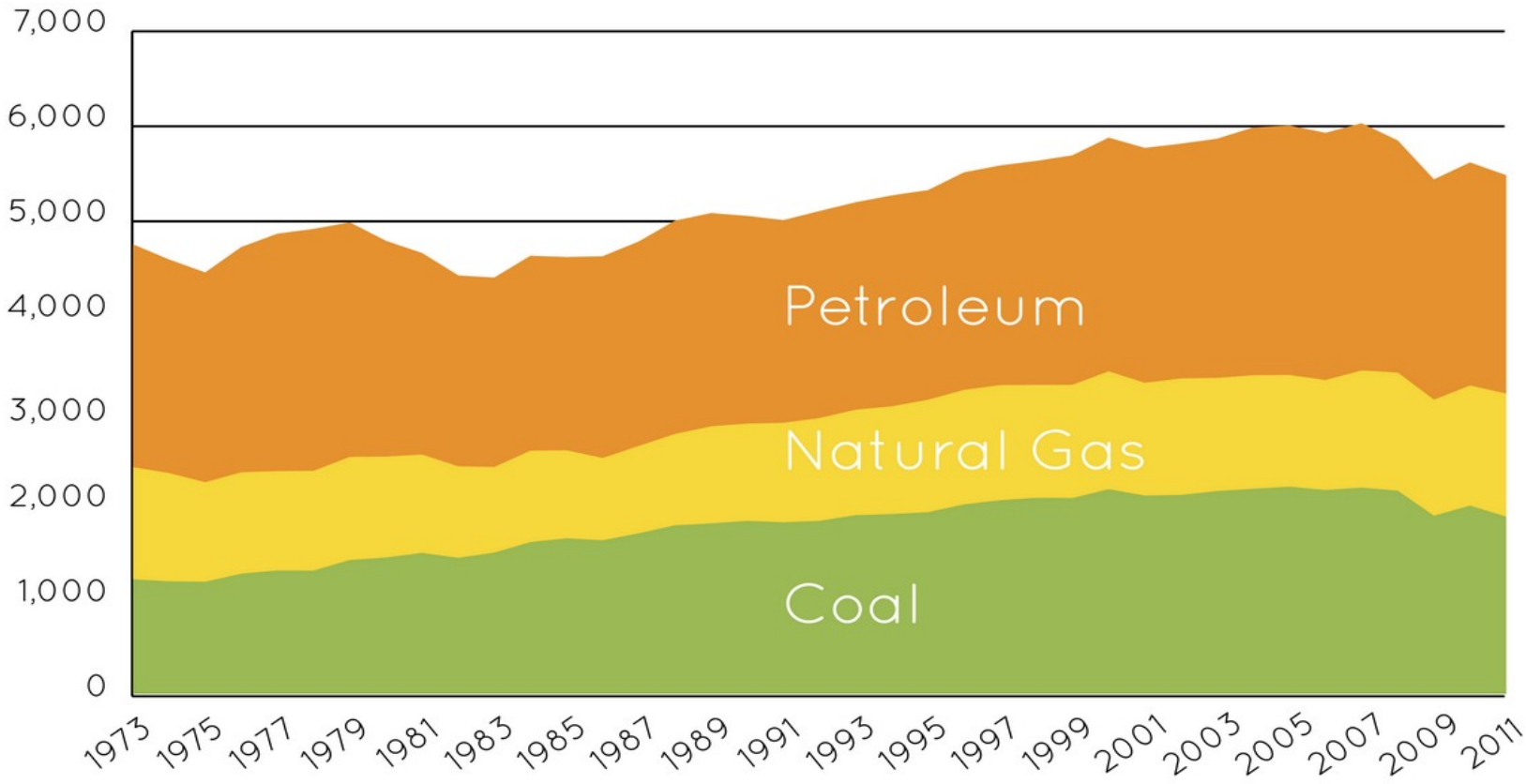
Flaws in Pro-Exports Logic

Future Fracked Gas Exports

Conclusions/ Implications for Climate

Carbon Dioxide Emissions from Fossil Fuels

(million metric tons)



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Source: Energy Information Administration, Monthly Energy Review, Table 12.1
http://www.eia.gov/totalenergy/data/monthly/pdf/sec12_3.pdf

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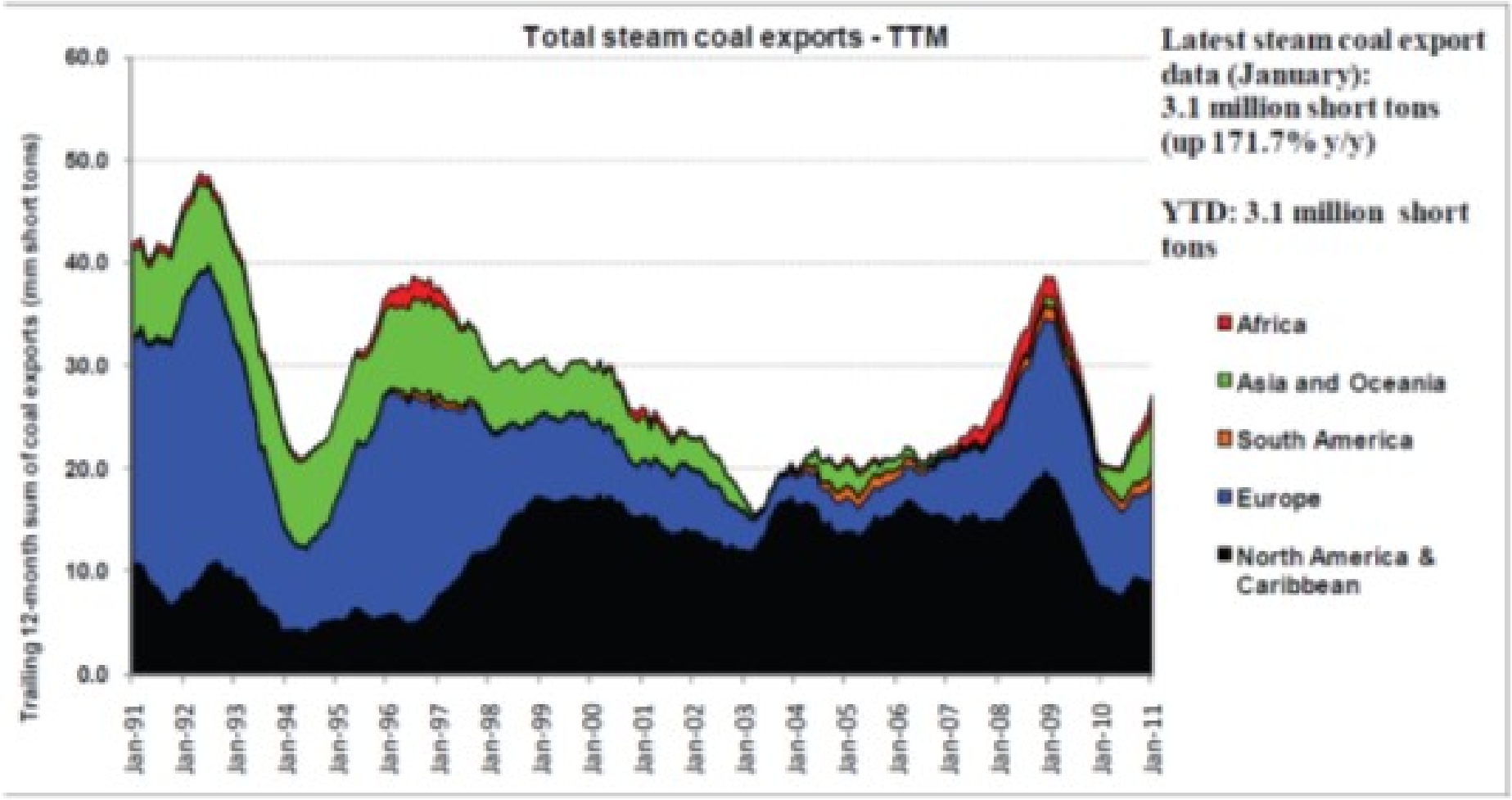
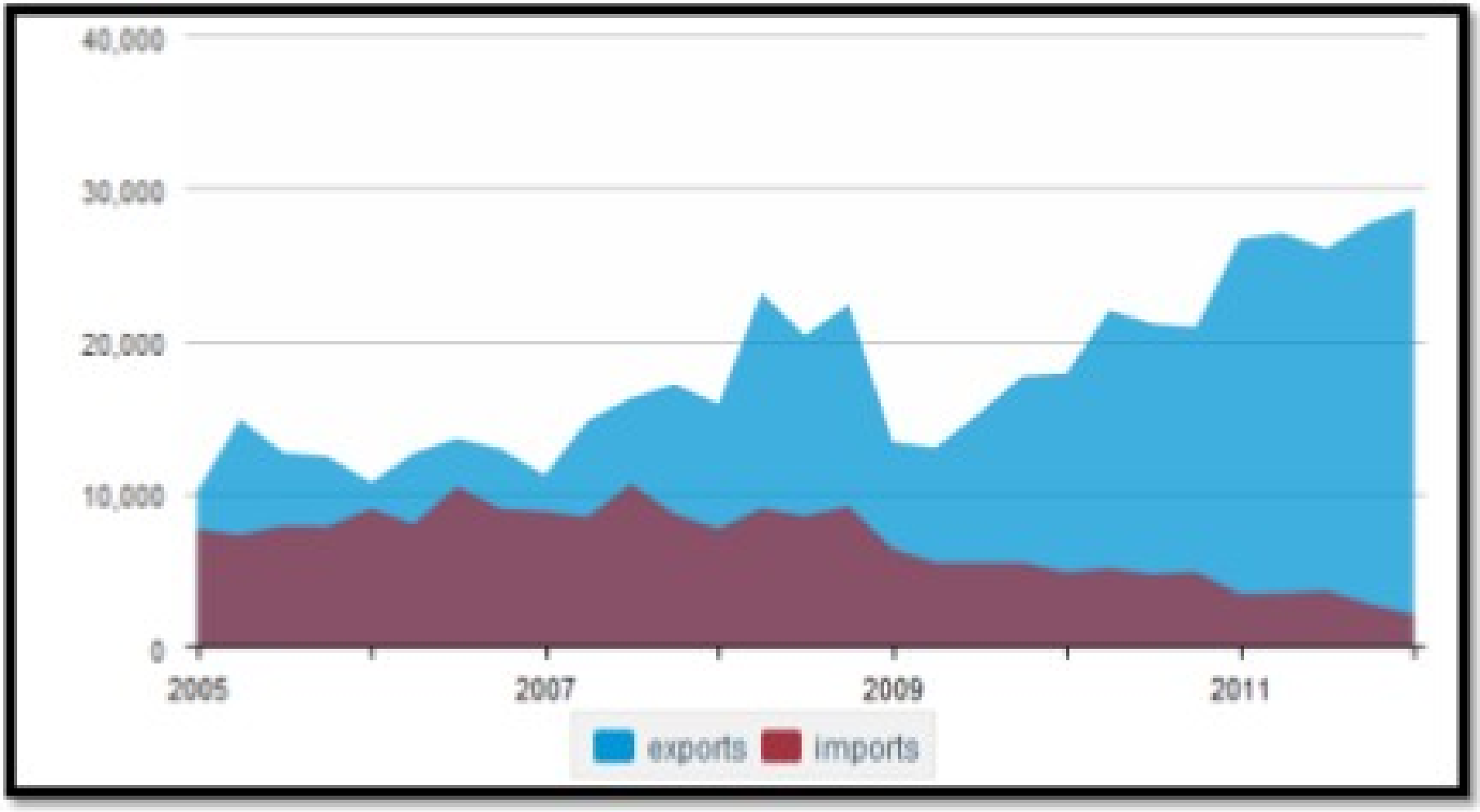
US Steam Coal Exports 1991-2011



U.S. Coal Exports and Imports
(Thousands of Short Tons, Monthly Data)



Source: Energy Information Administration

Players

Peabody

Cloud Peak

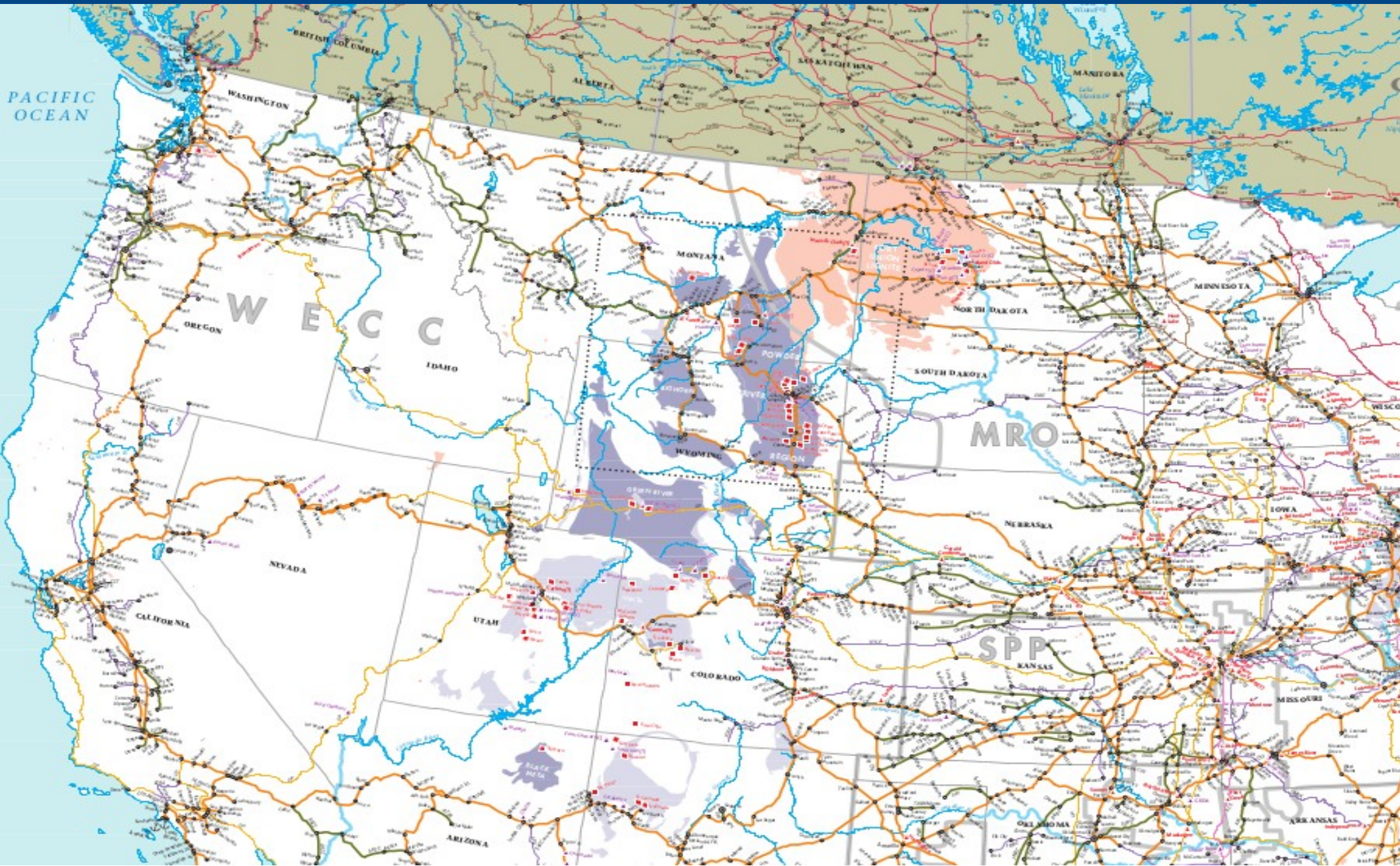
Arch

Kinder Morgan

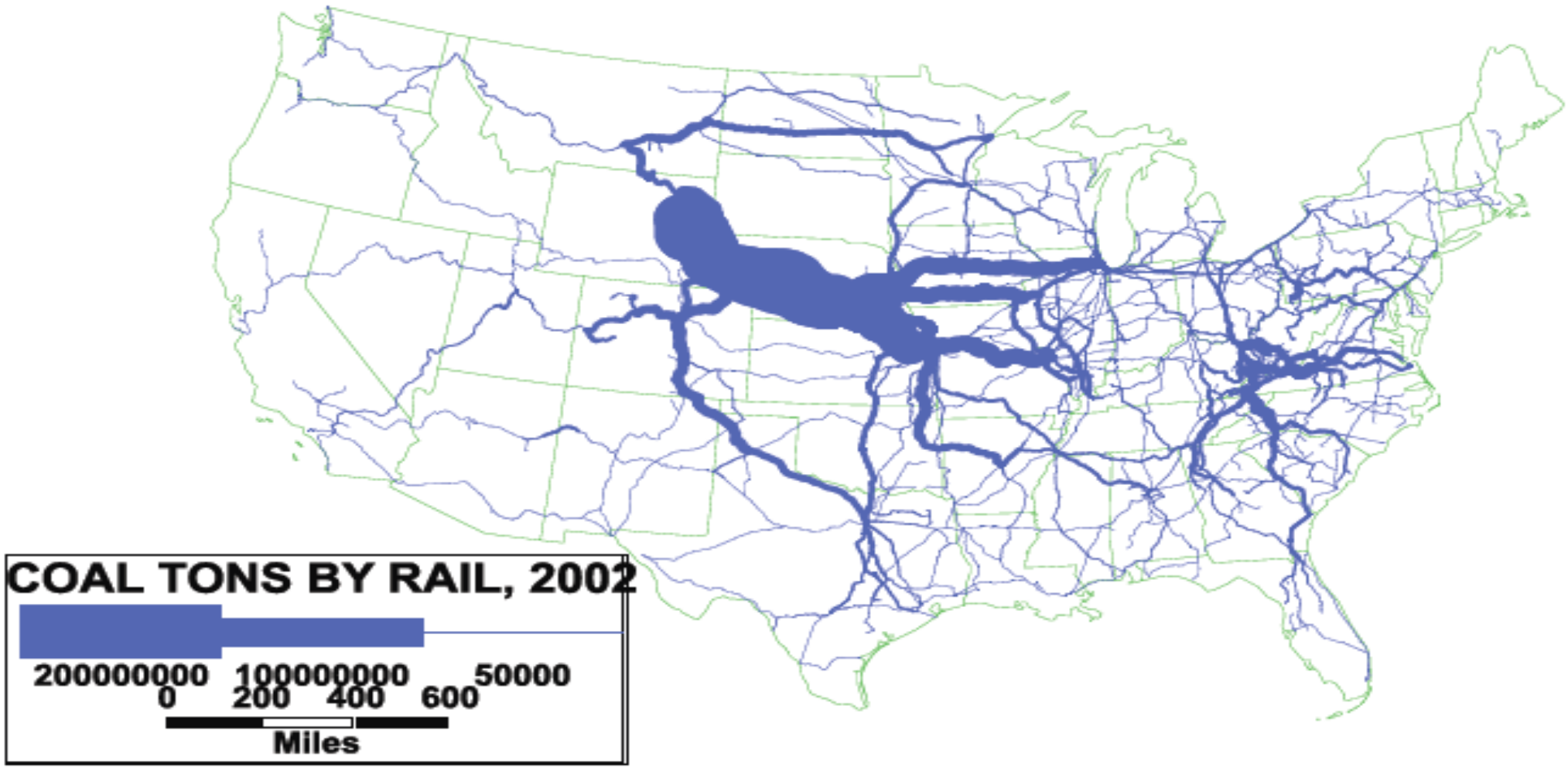
Ambre Energy

BNSF

Powder River Basin



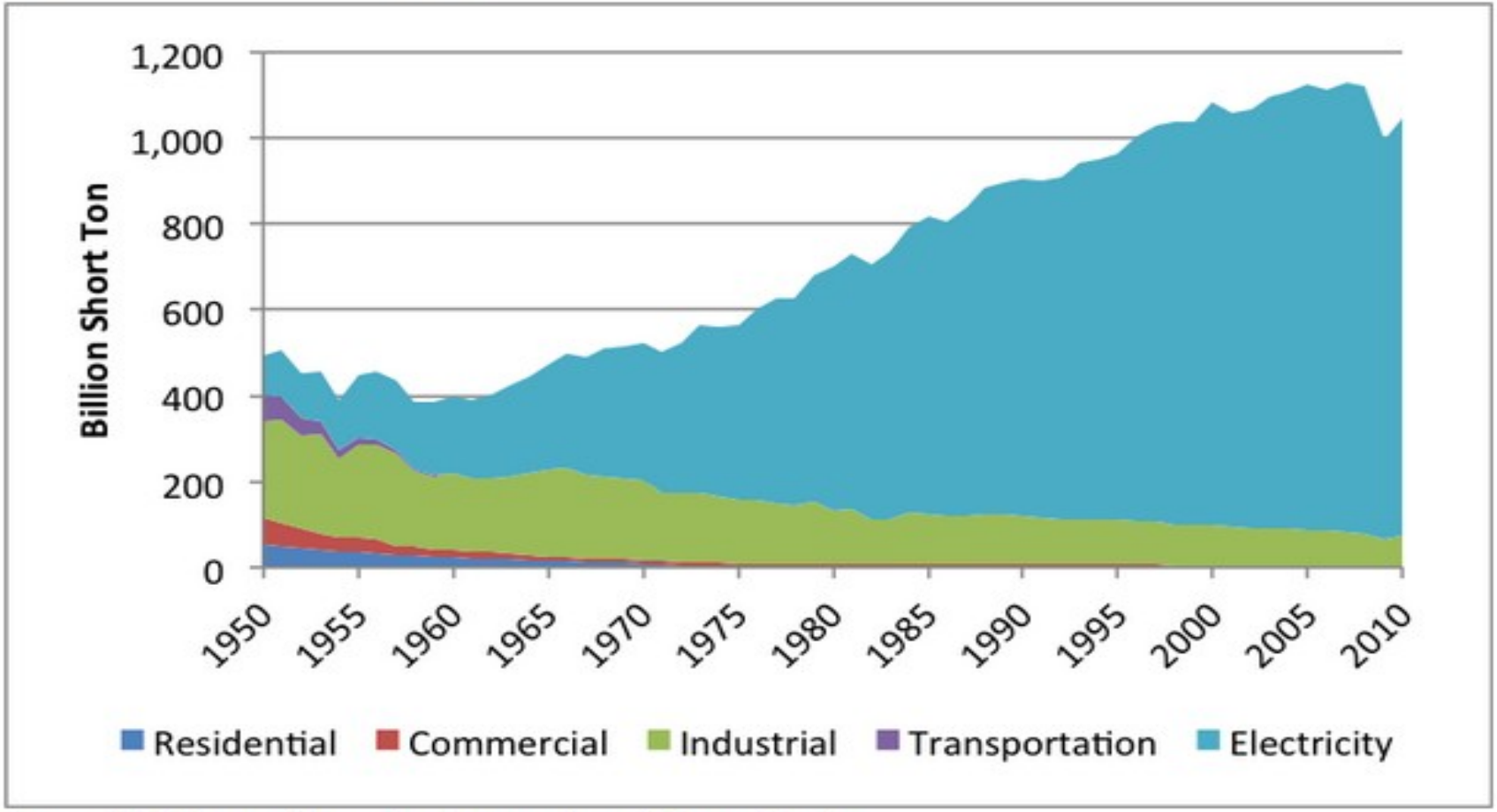
50% of rail traffic by weight, 25% by revenue (BNSF, 2012)



Source: Oak Ridge National Laboratory

Coal Consumption

Figure 5. U.S. Coal Consumption, 1949 – 2010



Source: U.S. Energy Information Agency, Annual Energy Review

Predictions

Consumption:

Coal phase out (Duke, by 2050; Exelon, 10-15% imminent). 25% by 2020 (EEI)

up to 24% capacity gone by 2018 (ICF),

fleet-wide ***CO2 down by 10%*** by 2020 (Brattle Group)

Extraction:

“Modest rebound in 2011”, “...greater recovery seen in 2012 and beyond...” -Peabody

Extraction Industry Strategy

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Add Capacity

Capacity at Major U.S. Coal Export Terminals

Capacity Utilization And Available Capacity at Major U.S. Coal Export Terminals

(loading & capacity data in millions of short tons)

	2010 Loadings (export + coastwise)	Estimated Total Capacity (best month 2010 x 12)	Estimated Capacity Utilization (%)	Estimated Available Capacity
Hampton Roads				
Lamberts Point	16.7	21.6	77%	4.9
DTA	14.0	18.0	78%	4.0
Pier IX	7.3	11.6	63%	4.3
Subtotal for Hampton Roads	**38.0**	**51.2**	**74%**	**13.2**
Baltimore				
CNX Marine (Consol)	10.8	15.6	69%	4.8
Chesapeake Bay	4.5	7.0	64%	2.5
Subtotal for Baltimore	**15.3**	**22.6**	**68%**	**7.3**
Gulf Coast (New Orleans + Mobile)	**24.6**	**36.5**	**67%**	**11.9**
Total	**77.9**	**110.3**	**71%**	**32.4**

Data source: T. Parker Host presentation to Coaltrans USA conference, February 4, 2011

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Coal is Awesome!

-PRB coal is 'cleaner'

-200 years of reserves

-Good for the economy

Mercury, Sulfur, BTU, and Carbon

COUNTRY	COAL BASIN OR FIELD	COAL MINE	Type	CARBON in %	CO2 Emissions per million btu	SULFUR in %	SULFUR weighted to average PRB btu	Btu PER lb	MERCURY in PPM	MERCURY weighted to average PRB btu	% additional to equal average PRB btu
USA	PRB	average	subbituminous			0.48	0.48	8220	0.13	0.13	
USA	PRB	BT type 2	subbituminous	50.57	212.71	0.30	0.28	8718			-5.71%
USA	PRB	BT type 1	subbituminous	74.55	274.22	0.37	0.31	9969	0.07	0.06	-17.54%
USA	CAPP	Blacksville	bituminous	84	231.62	3.10	1.92	13299	0.09	0.06	-38.19%
Indonesia	n.d.	n.d.	n.d.	34.87	216.36	0.14	0.19	5910	0.088	0.12	39.09%
Australia	n.d.	Leigh Creek	subbituminous	38.24	221.53	0.22	0.29	6330	0.16	0.21	29.86%
Australia	Galilee	Carmichael East	subbituminous			0.38	0.36	8616			-4.60%
Indonesia	n.d.	Banko	n.d.	50.69	215.89	0.24	0.23	8610	0.043	0.04	-4.53%
Mongolia	Tavan suveet	Baganuur	subbituminous	46.13	217.12	0.27	0.28	7791	0.032	0.03	5.51%
Mongolia	Tavan suveet	Baganuur	subbituminous	47.26	215.79	0.28	0.29	8031	0.032	0.03	2.35%
Indonesia	n.d.	Kaltin Prima	n.d.	57.47	209.71	0.37	0.30	10049	0.051	0.04	-18.20%
Mongolia	Atlay-Chandmani	Zeegt	subbituminous	69.72	210.51	0.42	0.28	12145	0.074	0.05	-32.32%
Mongolia	Orkhon-Selenge	Sharyngol	subbituminous	60.31	210.69	0.43	0.34	10497	0.021	0.02	-21.69%
Mongolia	Choir-Niarga	Nalaykha	subbituminous	45.76	217.11	0.49	0.52	7729	0.057	0.06	6.35%
Indonesia	n.d.	Ombilin	n.d.	73.16	203.19	0.51	0.32	13203	0.022	0.01	-37.74%
Indonesia	n.d.	n.d.	n.d.	84.28	228.84	0.61	0.37	13505	0.17	0.10	-39.13%
Mongolia	Choir-Niarga	Nalaykha	subbituminous	42.48	216.14	0.62	0.71	7207	0.047	0.05	14.06%
Mongolia	Orkhon-Selenge	Sharyngol	subbituminous	52.84	211.51	0.67	0.60	9161	0.062	0.06	-10.27%
Indonesia	n.d.	Senakin	n.d.	63.69	199.91	0.79	0.56	11683	0.19	0.13	-29.64%
Indonesia	n.d.	n.d.	n.d.	48.38	213.69	1.00	0.99	8302	0.13	0.13	-0.99%
Indonesia	n.d.	n.d.	n.d.	62.37	201.93	2.21	1.60	11326	0.14	0.10	-27.42%
Mongolia	Kharkhiraa	Khartarvagatai	bituminous	67.18	215.13	0.34	0.24	11451	0.031	0.02	-28.22%
Mongolia	Atlay-Chandmani	Zeegt	bituminous	58.04	220.05	0.36	0.31	9672	0.03	0.03	-15.01%
Mongolia	Kharkhiraa	Khartarvagatai	bituminous	66.38	216.47	0.39	0.29	11245	0.03	0.02	-26.90%
Mongolia	Orkhon-Selenge	Nuursteinam	bituminous	69.92	211.76	0.40	0.27	12108	0.02	0.01	-32.11%
Mongolia	Orkhon-Selenge	Nuursteinam	bituminous	73.79	210.33	0.40	0.26	12865	0.02	0.01	-36.11%
Mongolia	Altay	Khusheet	bituminous	73.08	218.57	0.40	0.27	12261	0.031	0.02	-32.96%
Mongolia	Altay	Khusheet	bituminous	74.6	213.43	0.41	0.26	12817	0.03	0.02	-35.87%
Mongolia	South Govi	Narynsuhait	bituminous	76.09	214.57	0.52	0.33	13004	0.03	0.02	-36.79%
Mongolia	Alagtogoo	Sharyngol	bituminous	63.67	210.99	0.63	0.47	11066	0.021	0.02	-25.72%
Mongolia	Orkhon-Selenge	Jilchigbulag	bituminous	70.31	206.29	0.68	0.45	12498	0.03	0.02	-34.23%
Mongolia	South Govi	Tavantologoi	bituminous	74.8	208.22	0.71	0.44	13173	0.17	0.11	-37.60%
Mongolia	Orkhon-Selenge	Saihan Ovoo	bituminous	67.07	210.52	0.73	0.51	11683	0.031	0.02	-29.64%

Reserves ≠ Economic Recoverability

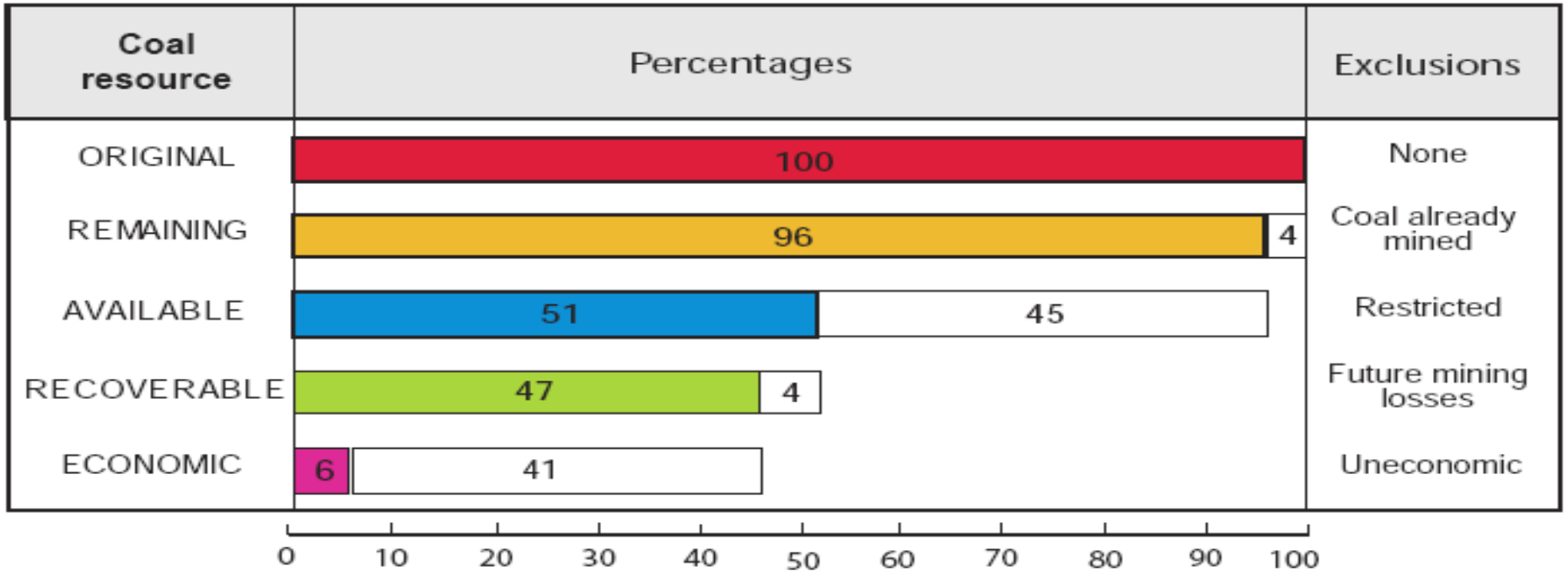
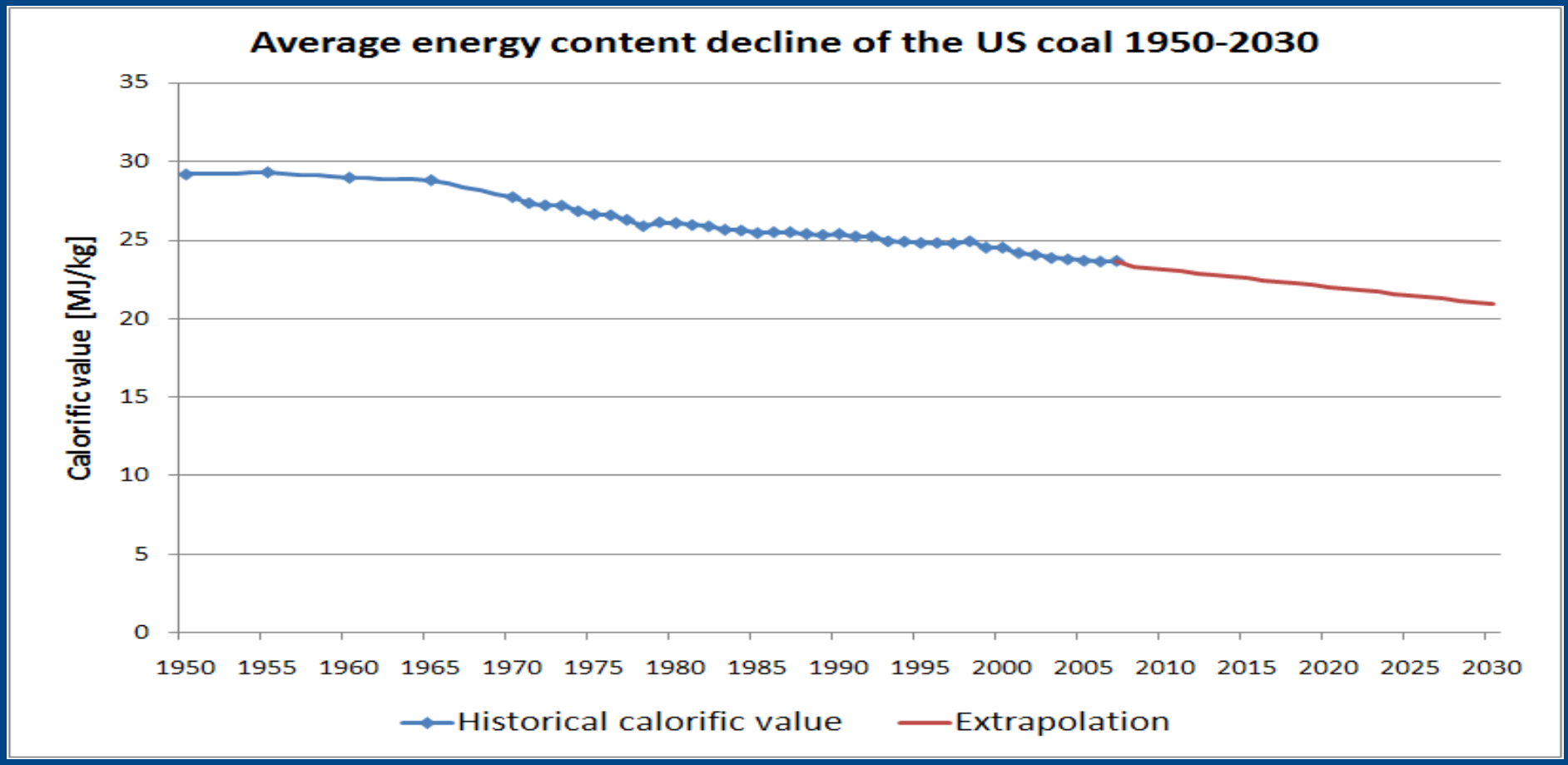


Figure 68. Bar graph showing Gillette coalfield coal resource analysis results for the six coal beds from figure 67, reported as percentages of original resources (at sales price of $10.47 as of January, 2007). Percent of remaining resources are shown in colored bars; excluded resources from the previous category are shown in white bars.

BTU Content Peaked in 1950s



EIA, Annual Energy Review, 2007.

Government Support

-regulatory leniency

-opening up PRB with historic leasing practice

-rail subsidies

-harbor maintenance/ expansion subsidies

-tax subsidies

$1.744 billion – tax deduction for sales revenue, to reflect declining investment value, regardless of actual value.

$422 million – enacted in 1951, allows coal companies to treat income from mines as a capital gain, taxed at 15 percent maximum, instead of regular income which could be taxed at a much higher rate.

Industry Plans = more CO2

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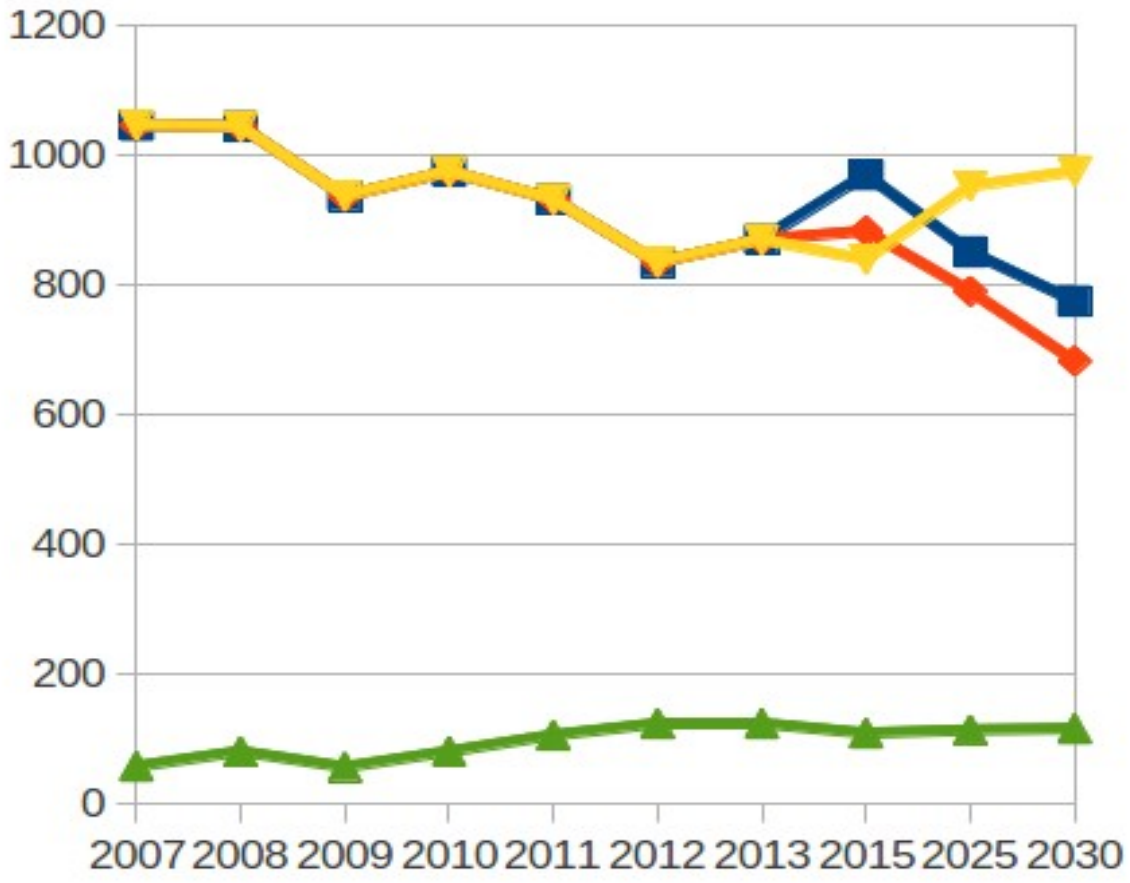
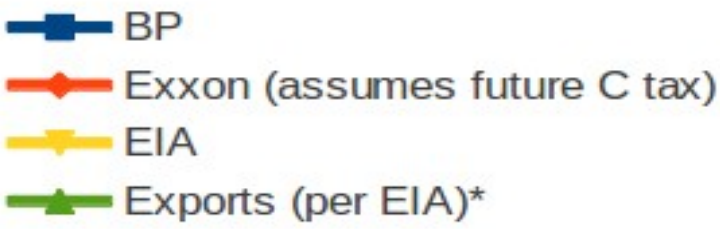
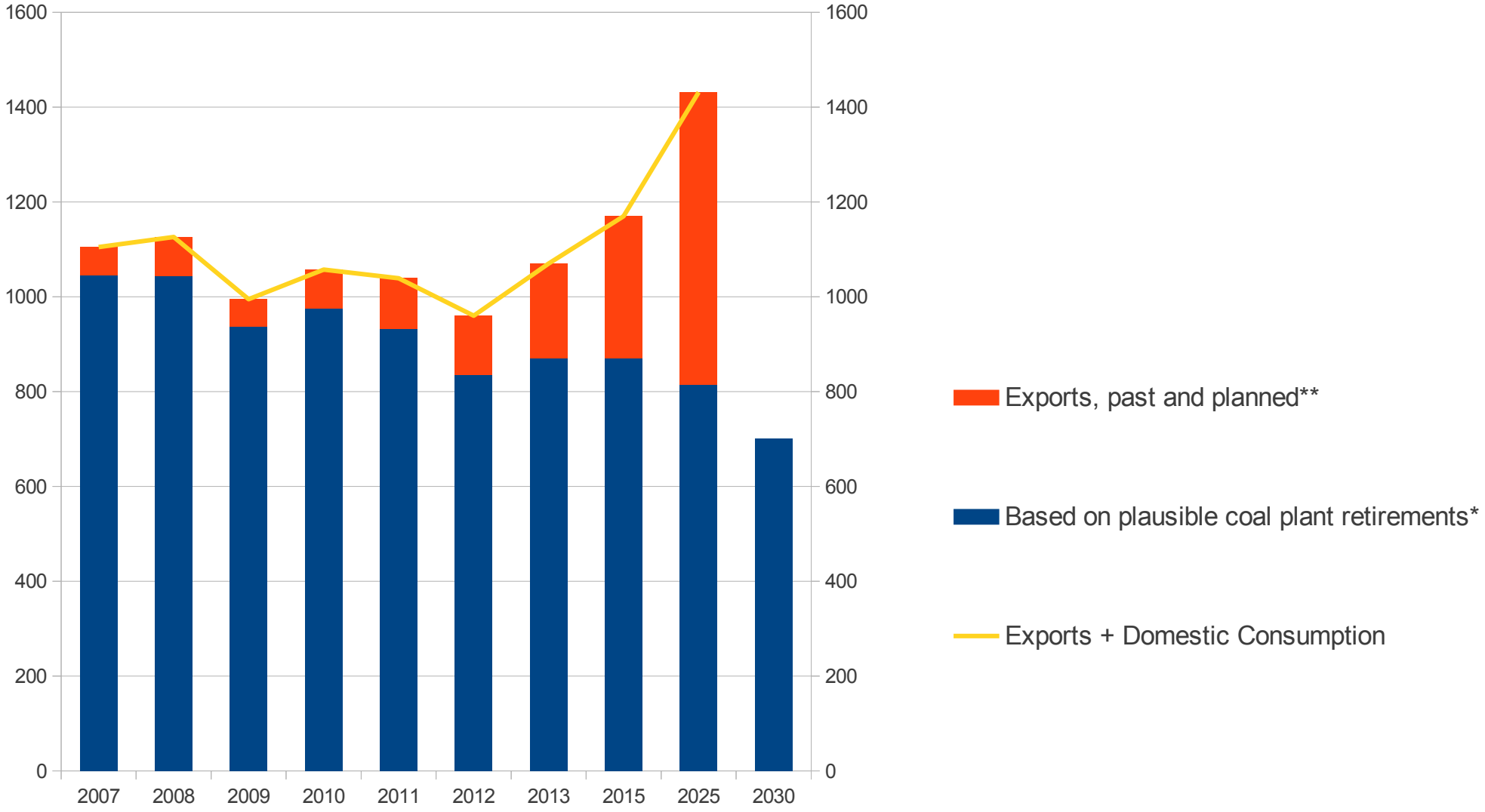
EIA Forecasts
(what coal industry wants people to see)





Exports Planned and Plausible Coal Plant Retirements



From Fossil User to Pusher

Proposed LNG Export Capacity Amounts to Over 40 Percent of 2011 U.S. Natural Gas Consumption

Applications Received by the Department of Energy to Export Domestically Produced LNG From the Lower 48 States (as of October 26, 2012)			
Company	**Initial application date filed**	**Proposed export capacity (billion cubic feet per day)**	**Facility location (if applicable)**
Sabine Pass Liquefaction, LLC	August 11, 2010	2.2	Cameron Parish, LA
Freeport LNG Expansion, LP and FLNG Liquefaction, LLC	December 17, 2010	1.4	Quintana Island, TX
Lake Charles Exports, LLC	May 6, 2011	2.0	Lake Charles, LA
Carib Energy (USA) LLC	June 6, 2011	0.04	third-party liquefaction
Dominion Cove Point LNG, LP	September 1, 2011	1.0	Calvert County, MD
Jordan Cove Energy Project, LP	September 22, 2011	2.0	Coos Bay, OR
Cameron LNG, LLC	November 10, 2011	1.7	Cameron Parish, LA
Freeport LNG Expansion, LP and FLNG Liquefaction, LLC	December 20, 2011	1.4	Quintana Island, TX
Gulf Coast LNG Export, LLC	January 10, 2012	2.8	Brownsville, TX
Gulf LNG Liquefaction Company, LLC	May 2, 2012	1.5	Pascagoula, MS
LNG Development Company, LLC	May 3, 2012	1.25	Warrenton, OR
SB Power Solutions Inc.	May 7, 2012	0.07	third-party liquefaction
Southern LNG Company, LLC	May 15, 2012	0.5	Savannah, GA
Excelerate Liquefaction Solutions I, LLC	May 25, 2012	1.38	Calhoun County, TX
Golden Pass Products, LLC	August 17, 2012	2.6	Sabine Pass, TX
Cheniere Marketing, LLC	August 31, 2012	2.1	Corpus Christi, TX
Main Pass Energy Hub, LLC	September 11, 2012	3.22	16 miles offshore LA
CE FLNG, LLC	September 21, 2012	1.07	Plaquemines Parish, LA
Waller LNG Services, LLC	October 12, 2012	0.16	Cameron Parish, LA
Daily total (billion cubic feet per day)		**28.39**	
Annual total (trillion cubic feet per year)		**10.36**	
U.S. consumption of natural gas, 2011 (trillion cubic feet)		**24.5**	

LNG = MORE CO2 from NG

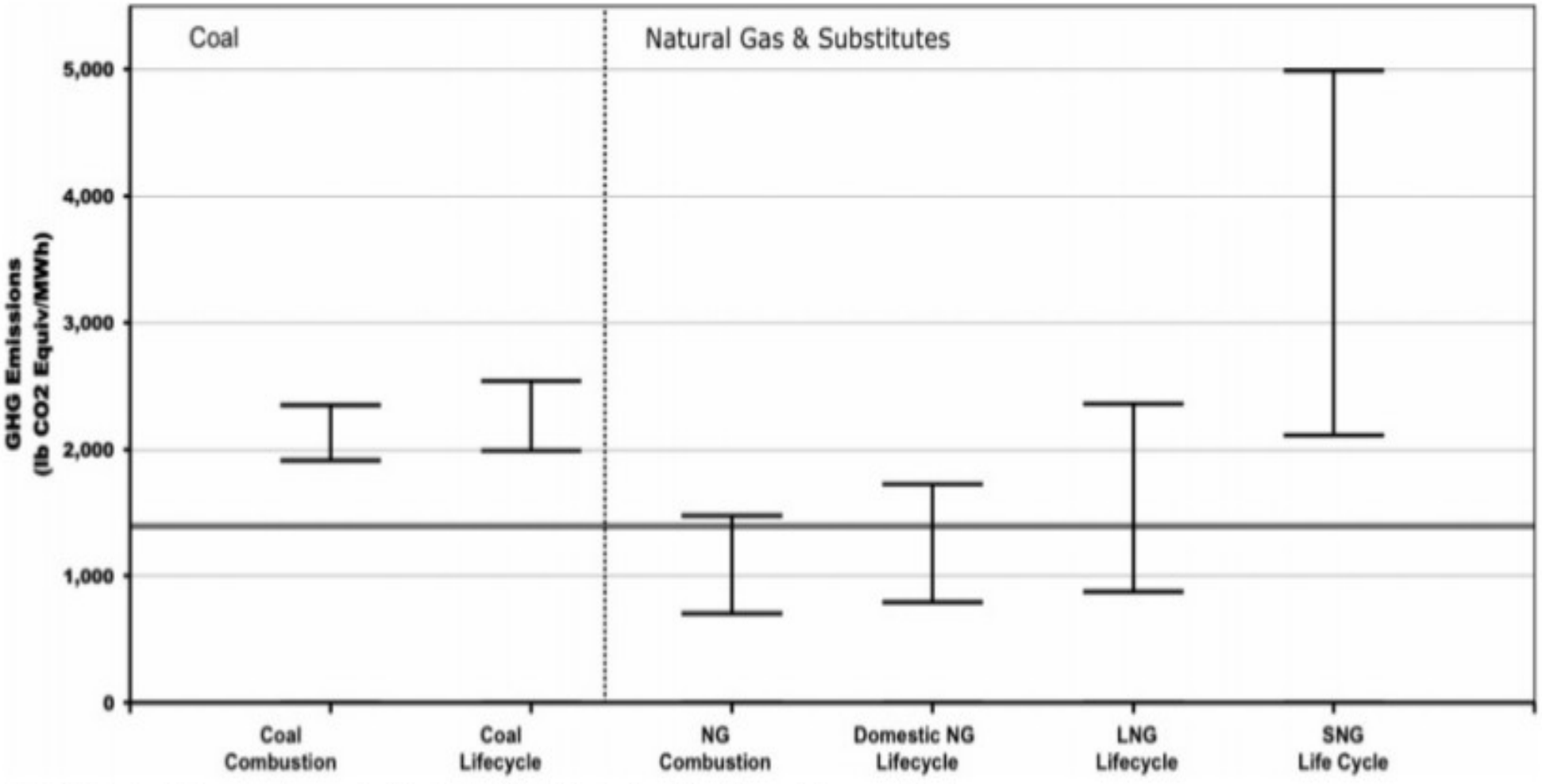
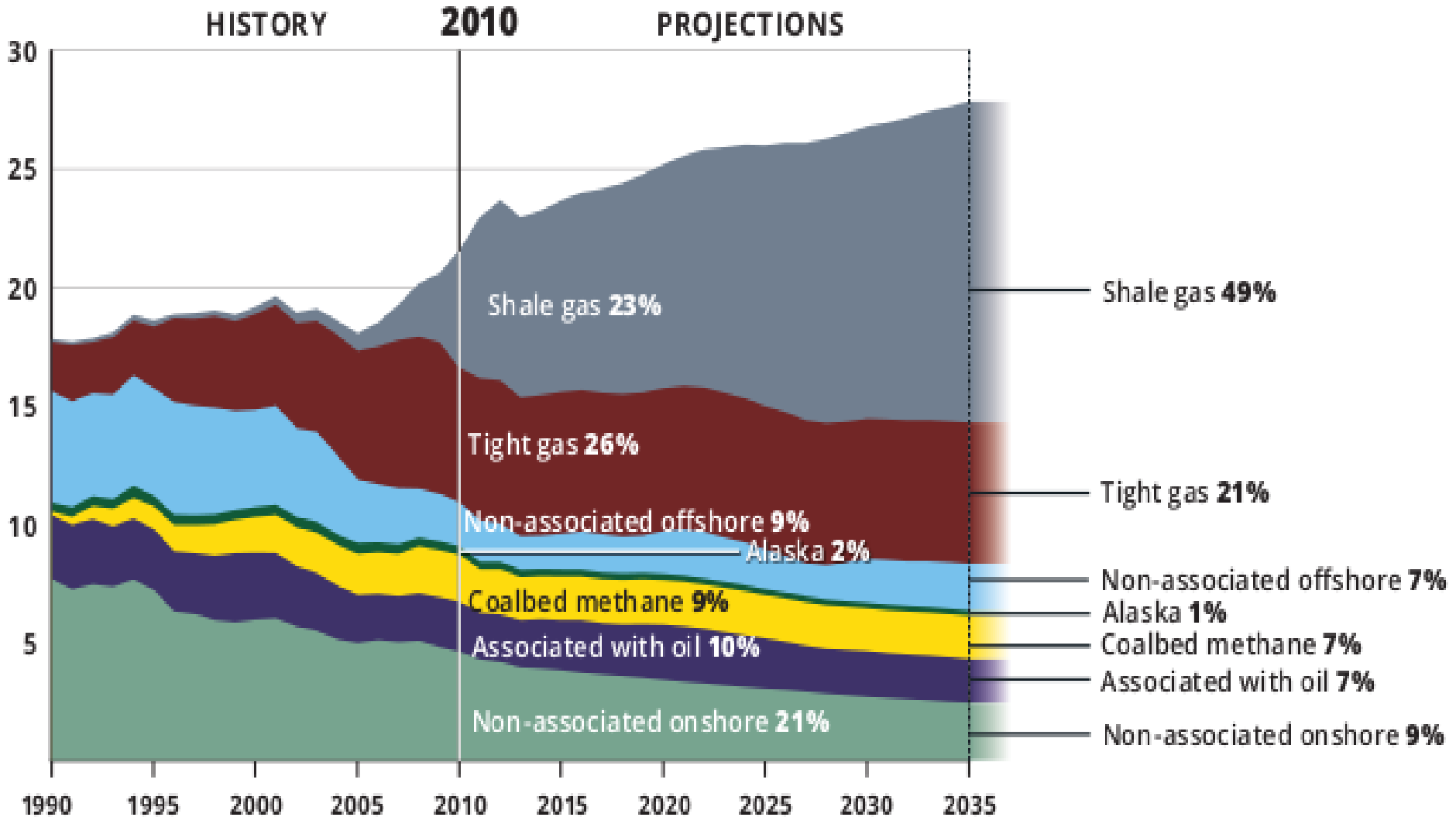


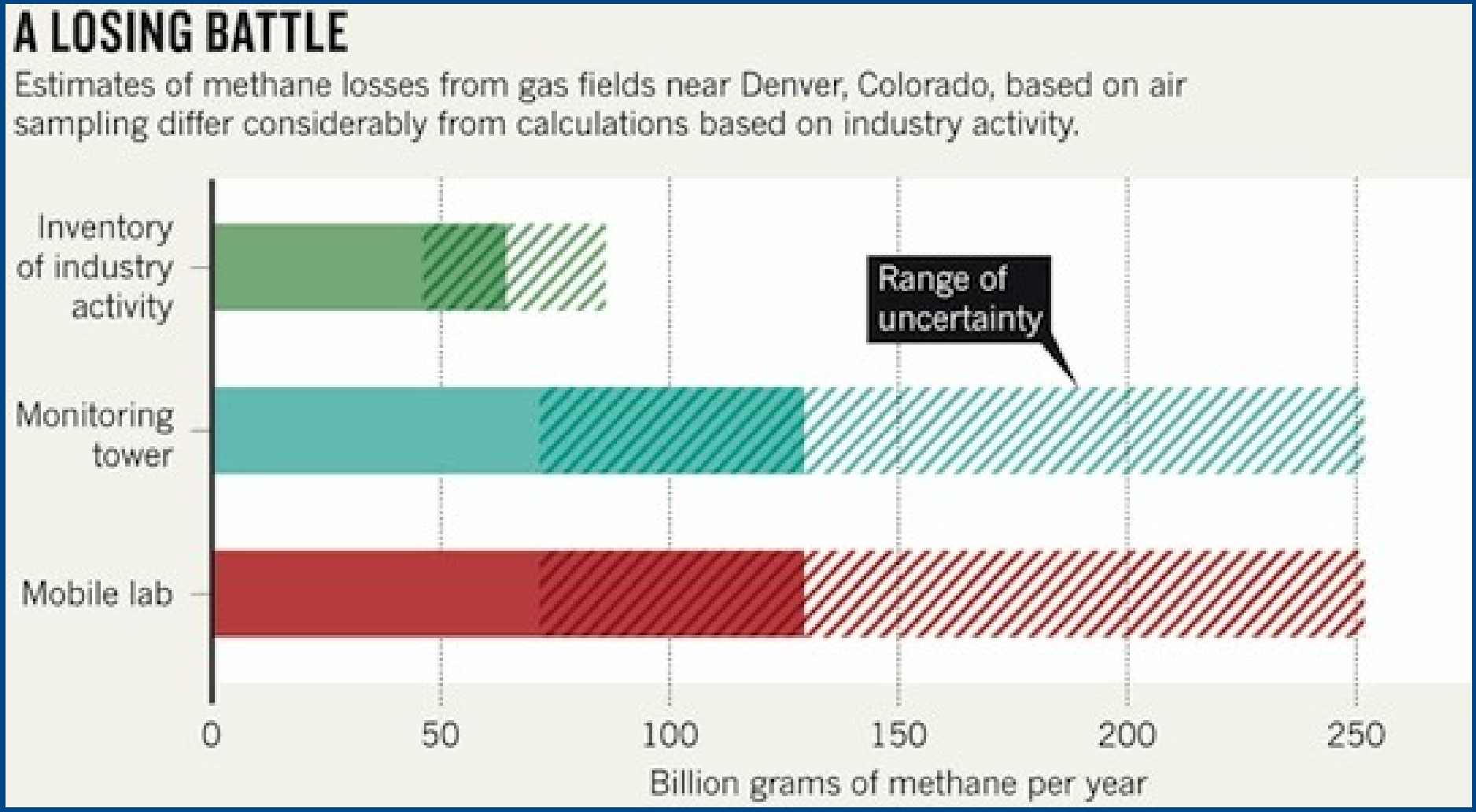
FIGURE 1. Fuel Combustion and Life-Cycle GHG Emissions for Current Power Plants.

Figure 2. Past and Projected U.S. Natural Gas Production, 1990–2035

TRILLION CUBIC FEET



Methane Emissions are Poorly Tracked



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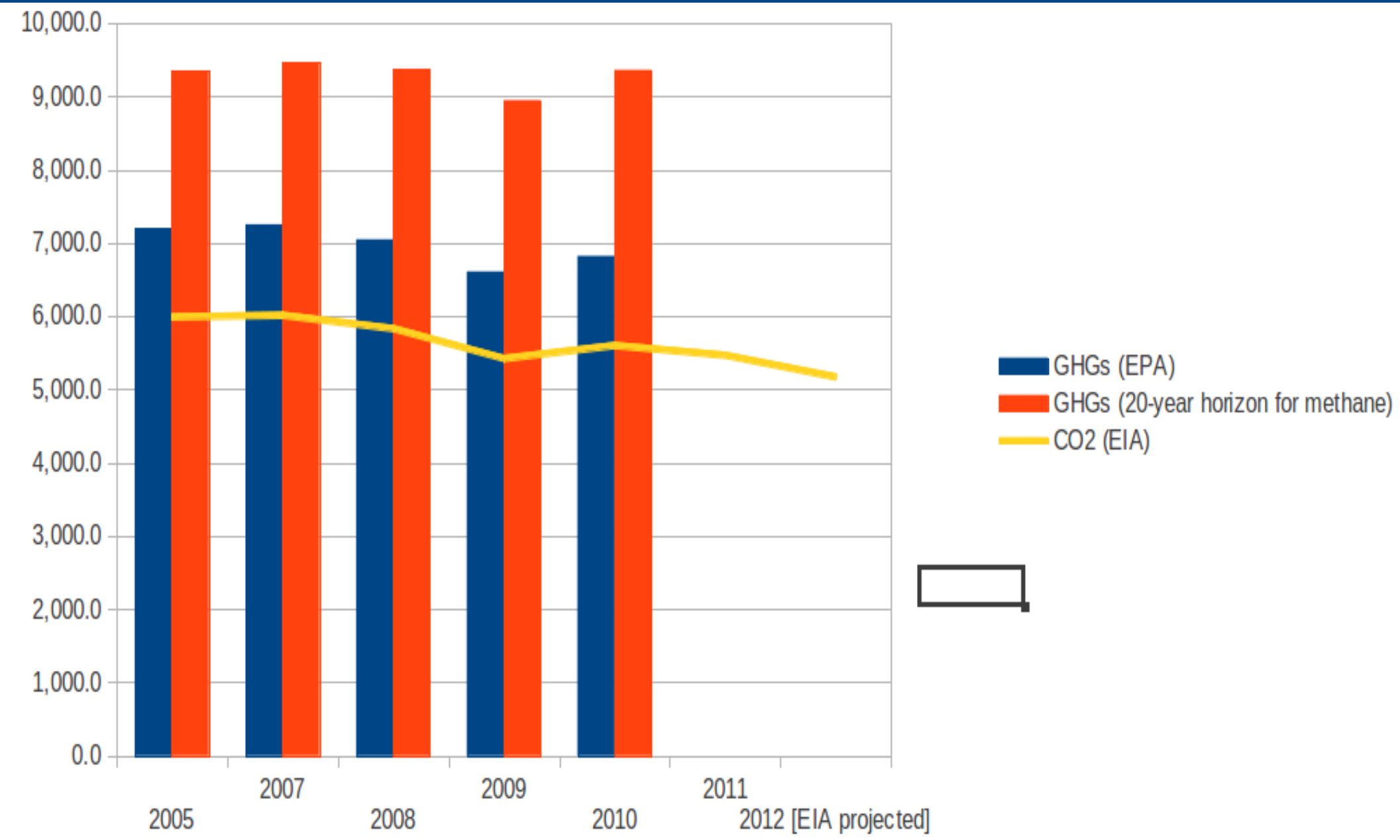
CO2 falling, methane rising (and GWP problem)



CONCLUSIONS

Exports mean higher emissions from US fossils

-for coal, 3 - 11% economy-wide emissions (2005 levels)

-higher CO2 per BTU (LNG, transport)

US providing poor signals for long term utility investment

-EIA forecasts (domestic energy market)

-adding fossils to global trade (non-US energy market)

(for coal, from 12% to as much as 50%)

US phasing out coal despite EIA, and export strategy is flawed