

New Global Coal Market and U.S. Role

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THE INSTITUTE FOR
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& FINANCIAL ANALYSIS

New Global Coal Market and U.S. Role

- **U.S. Coal Production –Global and Domestic**
- **Global Trade Going Forward**
- **Can U.S. Coal Producers forge permanent role in global market?**

U.S. Coal Producers Role: Global and Domestic

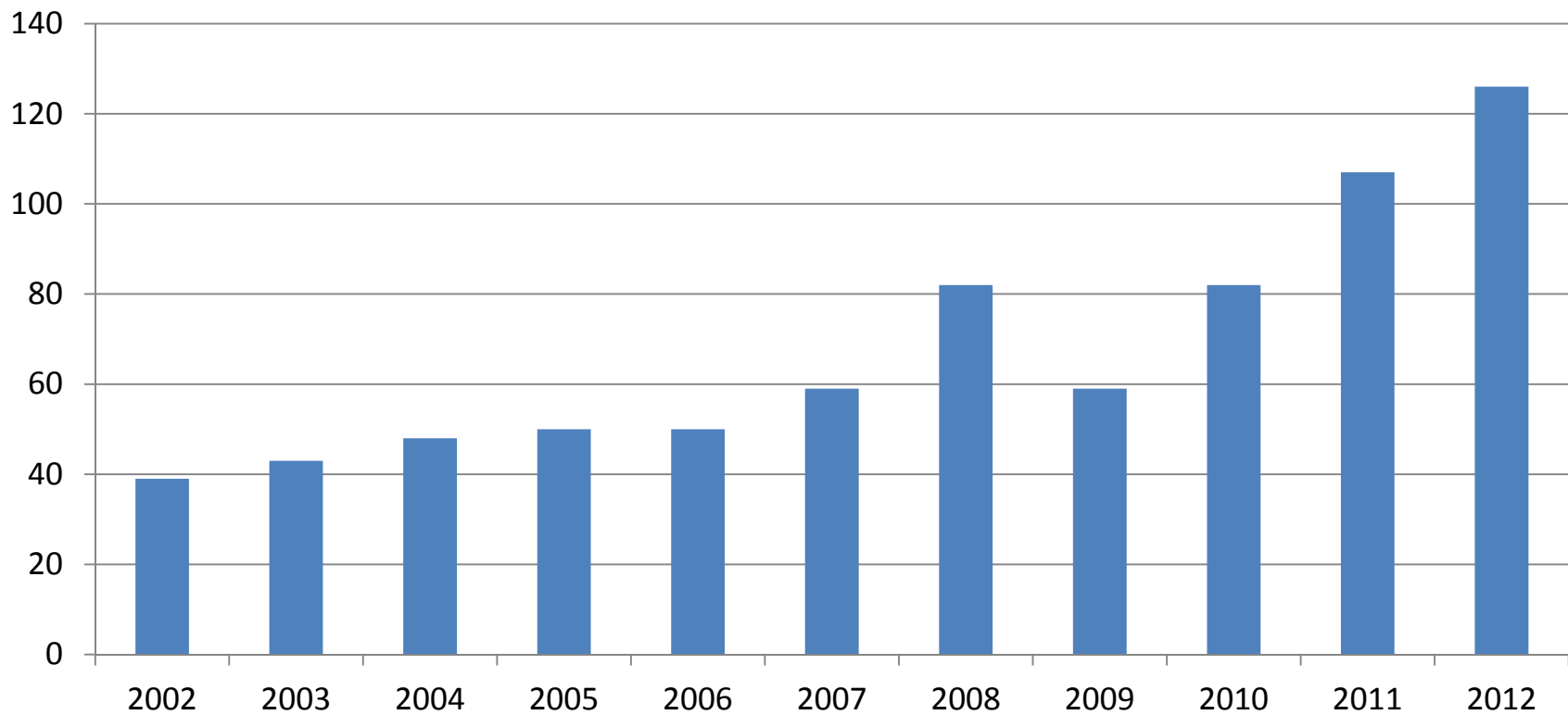
- **GROWING IMPORTANCE OF GLOBAL TRADE**

Global Production/U.S. Shares

	Tons of Coal
2011 Global Coal Production	7.6 billion
2011 Minus Lignite	6.6 billion
2011 Worldwide Coal Exports	1.1 billion
• 2011 Thermal Coal Exports	860 million
• 2011 Coking Coal Exports	270million
2011 U.S. Production	1.1 billion
2011 U.S. Share of All Exports (10%)	108 million
• 2011 Thermal Exports	37 million
• 2011 Coking Exports (25% of Coking Exports)	69 million

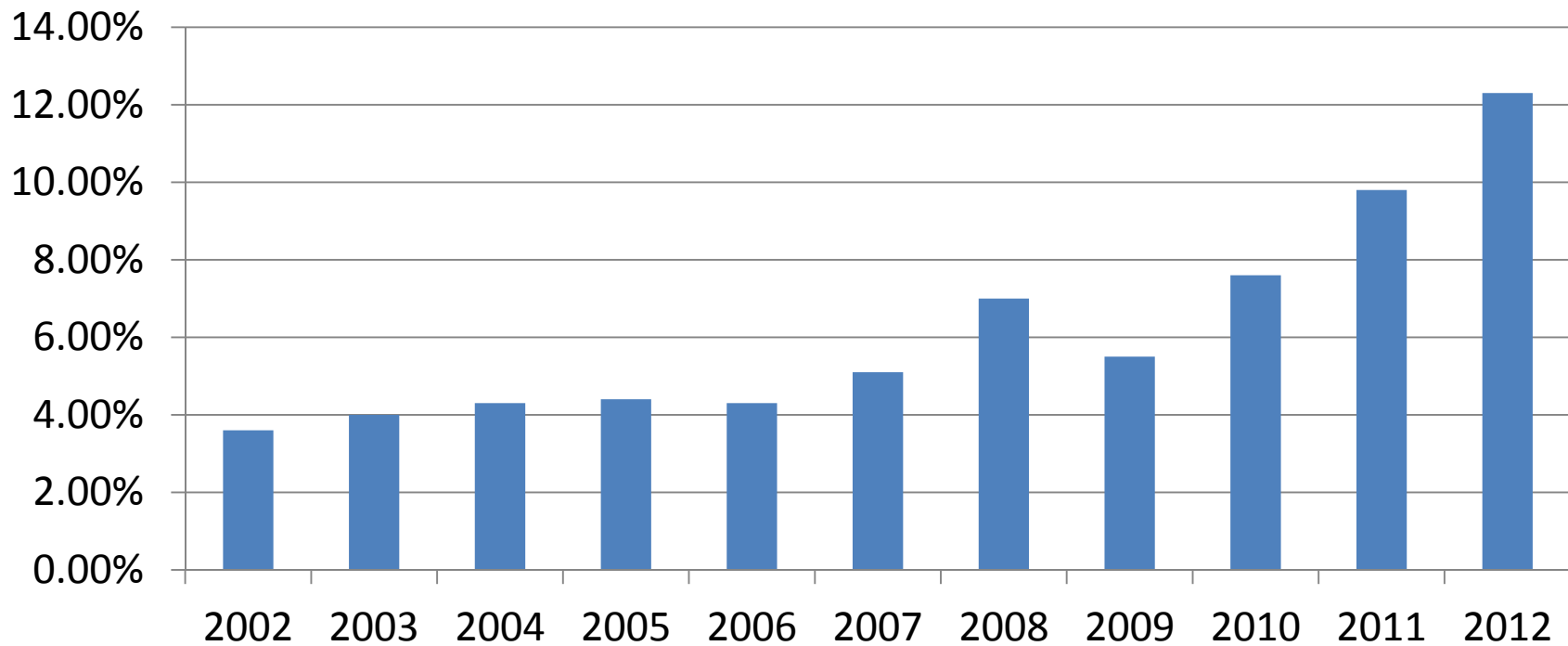
U.S. Coal Exports have increased last four years

Annual U.S. Coal Production Exported (2002-2012)
(millions)



U.S. Coal Exports- Rising Importance

Percent of Total Annual U.S. Coal Production Exported
from United States (2002-2012)
(millions)

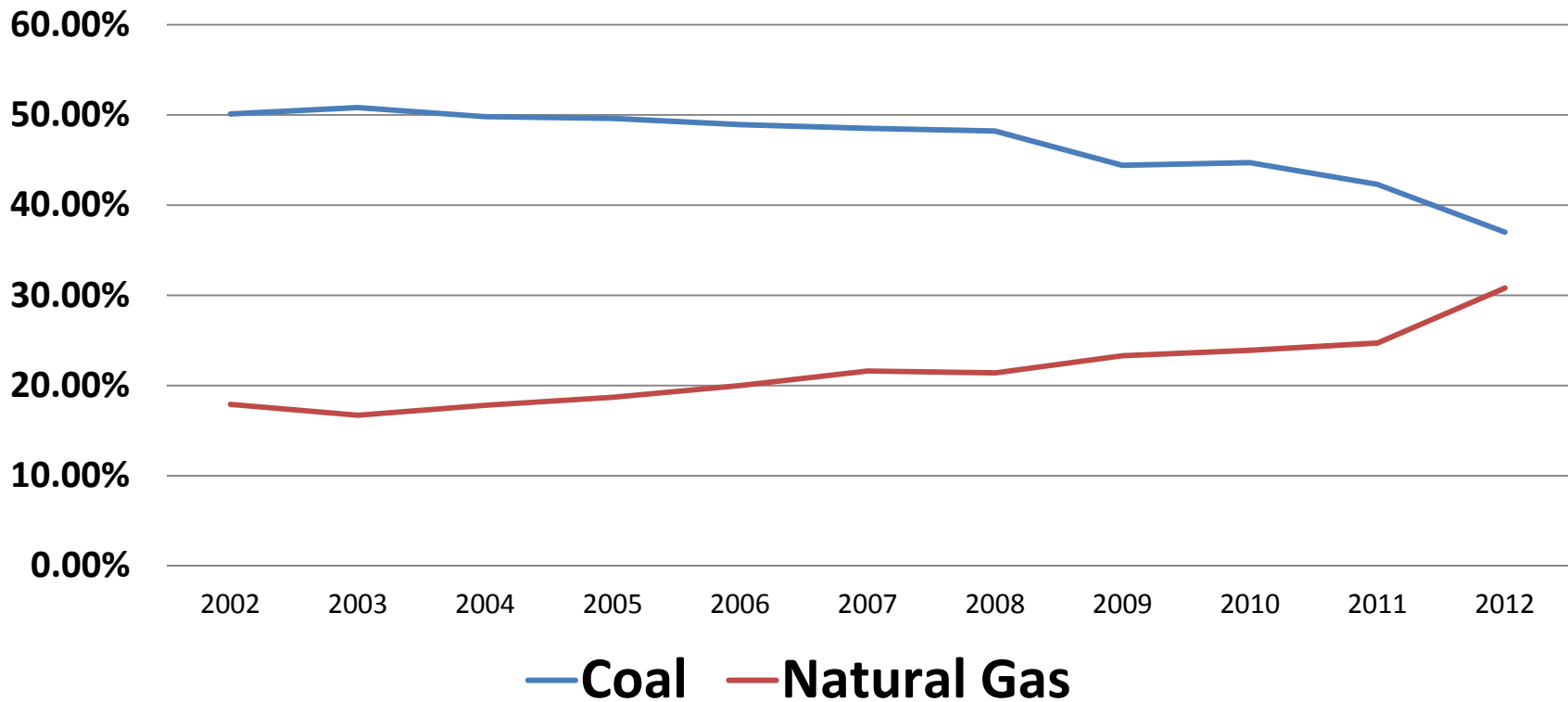


Exports: Few Tons/High Revenues for Coal Producers

Company	Exported Tons/Total Production (million tons)	% of Annual Production Exported	% of Annual Revenue from Exports	Export Annual Revenue (\$ billions)	Total Annual Revenue (\$ billion)
Cloud Peak (2012)	4.4/93	4.7%	19.5%	\$1.516	\$0.296
Alpha (2011)	16/107	15%	44.0%	\$7.100	\$3.100

Coal's Share of U.S. Electricity Declining

Coal vs. Natural Gas Percentage of All U.S. Electricity Generation
(2002-2012)



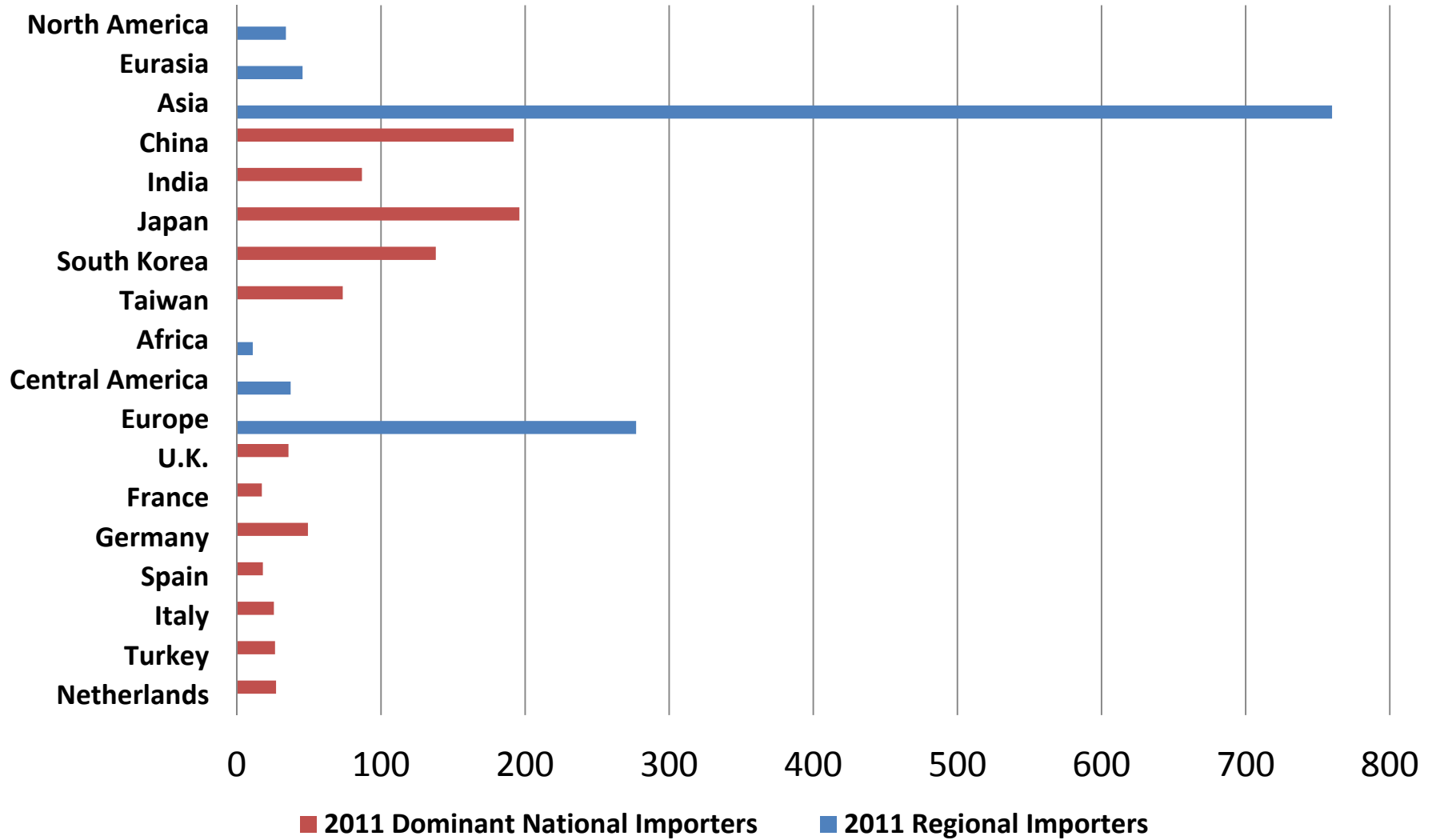
Global Market: Shape of the Competition

- **COMPETITION FOR GLOBAL MARKET SHARE**

IMPORTANCE TO U.S. EXPORT SALES

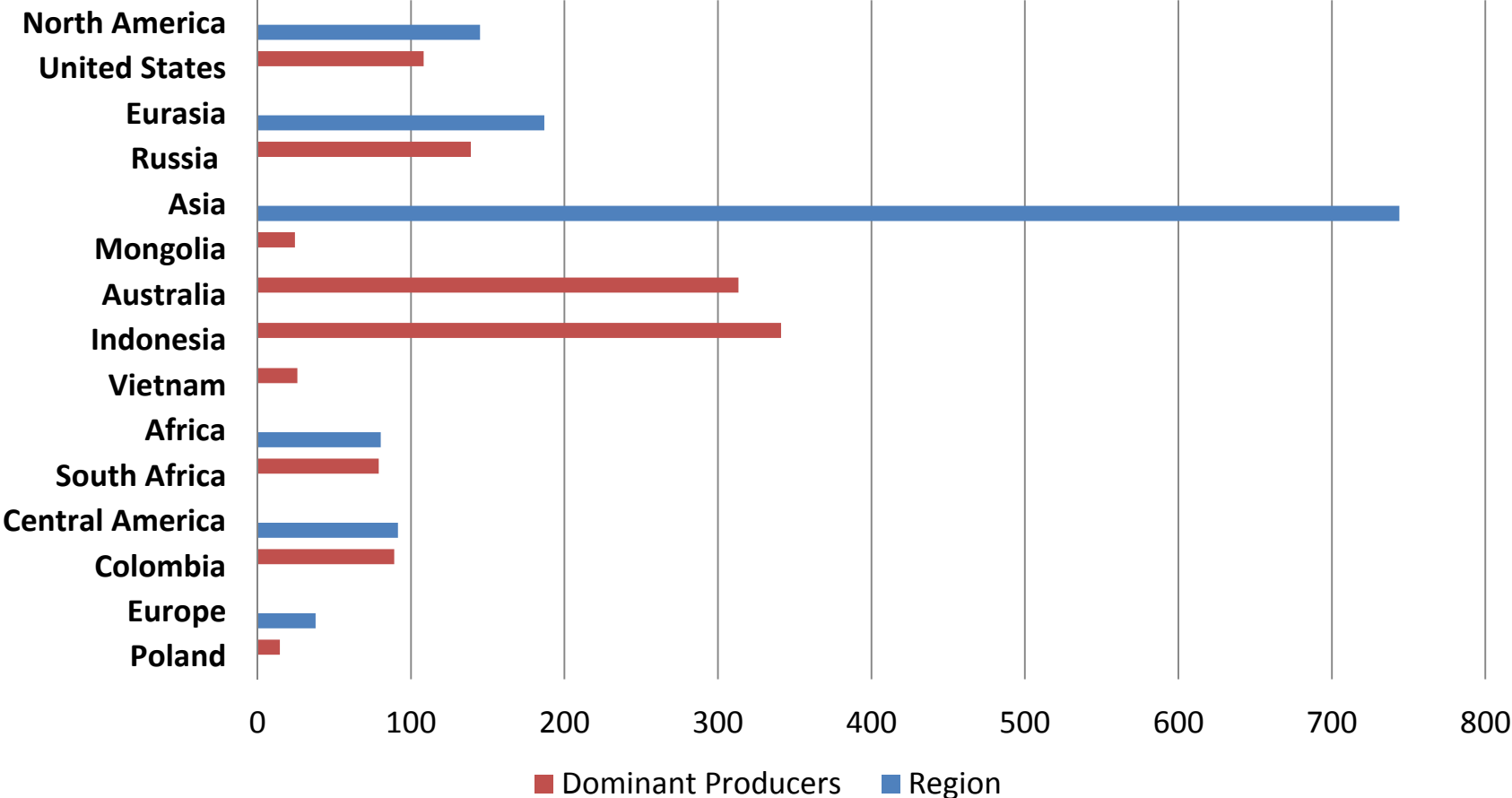
Importers: Asian Imports drove demand in – 2011

(Million tons)



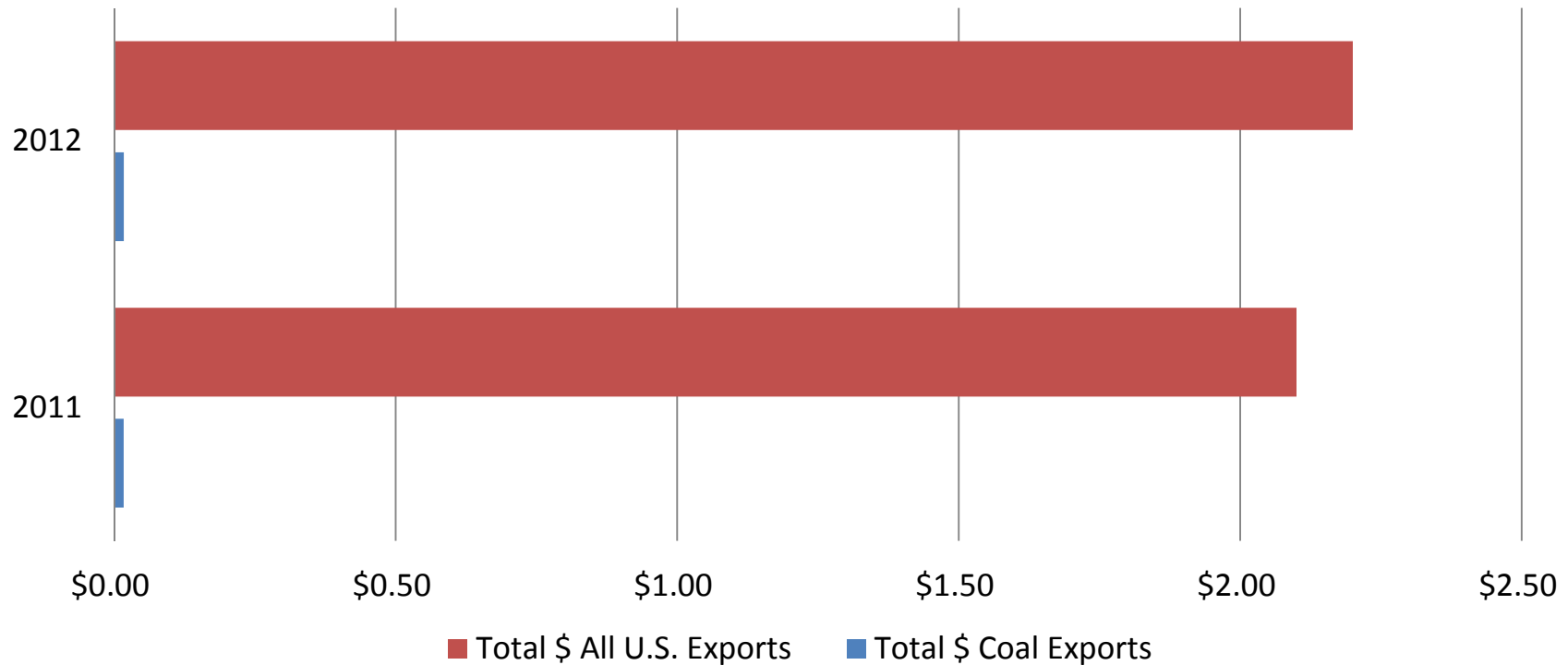
Exporters: U.S. supplied 10% of exported coal 2011

(million tons)



Annual \$ Value of U.S. Coal Exports is less than one percent of \$ Value of all U.S. Exports

Value of Exported U.S. Coal as Percentage of All Exported Goods and Services (2011-2012)
(\$ trillions)



Global Trade Going Forward

- **GLOBAL MARKET EXPANSION – SIZE AND PACE**

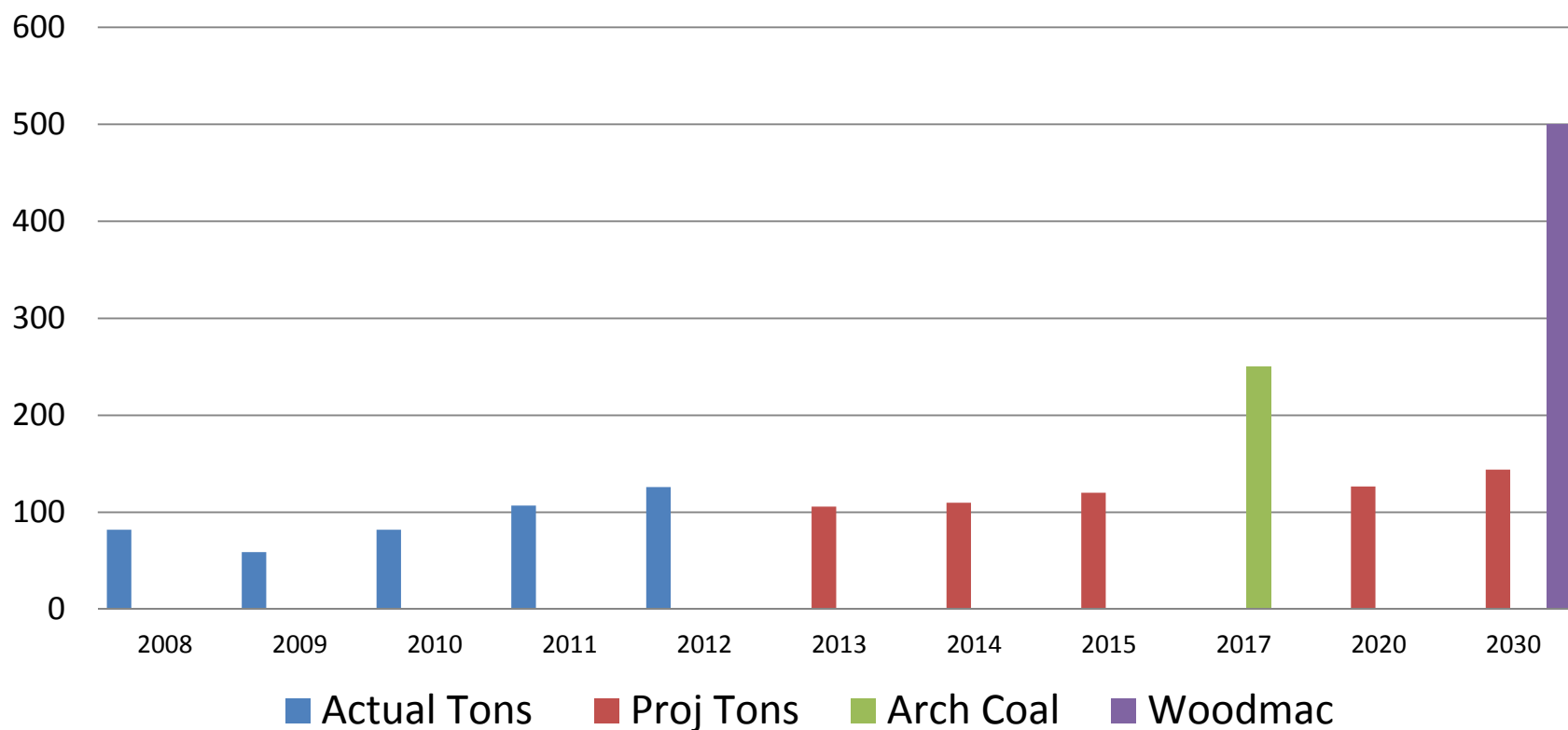
A CLOSER LOOK AT U.S. POSITION

World Wide Export Growth Projections Vary: U.S. Producers more optimistic

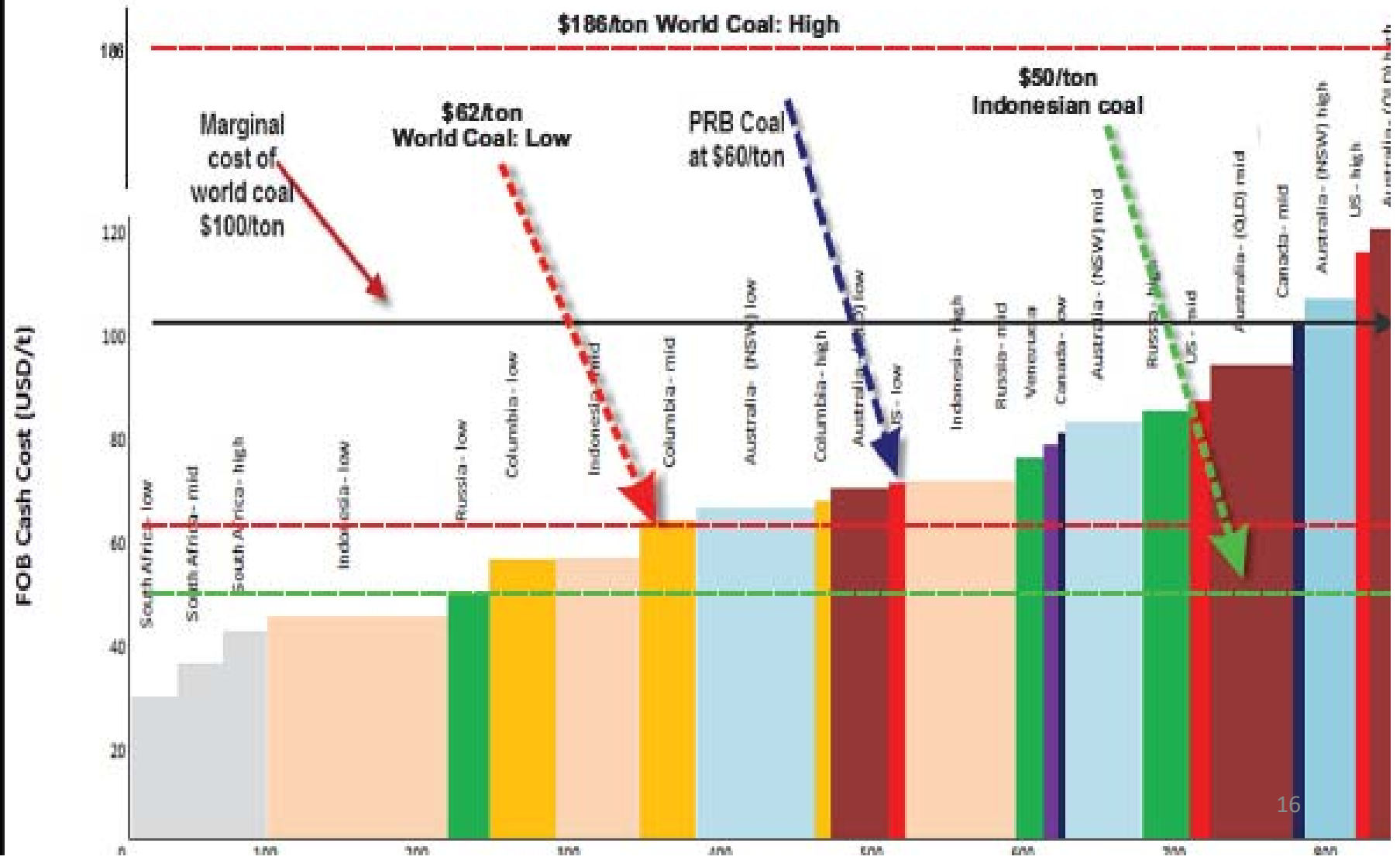
Source	Total Export Growth Beyond Current Levels (million tons)	Target Dates
International Energy Agency	600	2035
EIA – International Outlook	400	2035
Peabody Energy (6% Annual Growth)	400	2017

EIA Projects Modest U.S. Export Gains thru 2030; Arch: 2017 Double; Woodmac: 5x 2030

EIA Annual and Projected U.S. Coal Exports (2008-2030)
(million tons)



Merit Order Curve for Export Mine Capacity in 2010/11



Can U.S. Coal Forge Permanent Growth Scenario on the Global Market?

ASIAN ASSUMPTIONS?

ARE U.S. PRODUCER'S PREPARED?

Can World Prices Sustain U.S. Producer Price Requirements?

- Coal consumption grew by 9% in China in 2011 – 12th consecutive year of upward trend.
- China increased 2011 consumption by 325 million tons, 87% of total global growth of 374 million.
- China accounts for 47% of world coal consumption
- Since 2000 annual coal demand has grown by 9% in China, only 1% for all other countries
- China GDP grew on average by 10% annually over last 30 yrs.
 - Last year 7.2%. This year government projects 7.5%.

Asian Assumptions: U.S. Producer's

- **Assumptions:**
 - Is Chinese GDP growth at lower levels sufficient to sustain demand and prices?
 - NIC- half the GDP growth thru 2035;
 - World bank thru 2015, 10% lower.
 - Will China continue to choose coal to fuel growth?
 - Will ROW follow similar development models.
 - Will China adopt policy incentives for imports?
 - Even handed? Why U.S.?
 - Will risks in competitor countries ultimately prove advantageous to U.S. coal interests?
 - Can U.S. coal producers take advantage of these changes?
 - Port Opposition
 - Project Financing
 - PRB Costs – Low cost advantage, lost in transportation.

Is U.S. Coal Prepared for long term effort on global markets? Current Investor Confidence

Price Change (%) Chart



SNL Coal : All Coal Companies

Are U.S. Coal producers prepared for long-term effort on global markets?

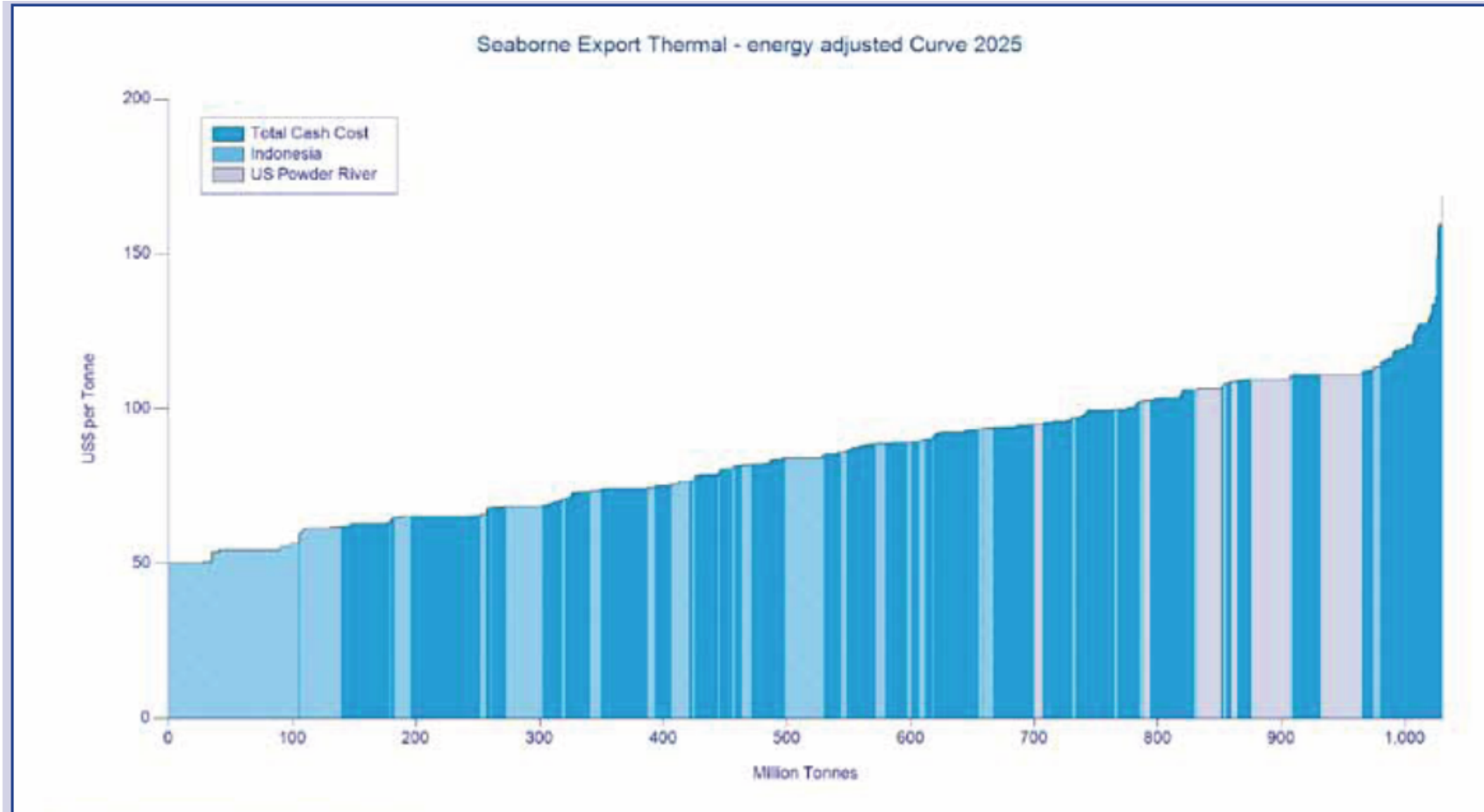
- **Continued weakness in domestic revenues and market share.**
- **Uncertain global demand and price signals.**
- **Cutting or Flat Capital investment** – Arch, Alpha, Peabody.
 - Are deep commitments Arch/Otter Creek/Millennium sustainable?
 - Peabody's large Australian acquisition, significant debt?
- **Continued pressure from natural gas prices** – domestic/global.
- **Downgrades** – debt difficulties – new capital.
- **Layoffs and mine closures**
- **Substantial delays in IPO's** – The Illinois Basin potential?
- **Projected 2013 U.S. export decline** despite world market growth.
- **13 bankruptcies of small coal producers, last 15 months.**
- **Uncertainty:** PRB oversight, first in thirty years.

APPENDIX

Sources for Key Slides

Slide	Source
\$ Value Coal Exports	U.S. Census Bureau, Value of U.S. Exports, <i>Exhibit 1 2012 U.S. International Trade in Goods and Services</i> and <i>Exhibit 7 Goods by End Use Category and Commodity (Coal-Fuels and Met Coal)</i>
U.S. Coal Import/Export	U.S. Energy Information , <i>Quarterly Coal Reports</i> , Coal, Exports/Imports
Global Production Stats	World Coal Association, except for U.S. 2011 Exports, EIA, <i>Quarterly Coal Report (4Q - 2011)</i>
WW Export Projections	IEA, <i>Rules for the Golden age of gas</i> , p. 79; EIA, <i>International Energy Outlook, 2005-2036</i> , World total coal flows by Importing regions and Exporting Countries; Peabody Energy, <i>Credit Suisse Conference, 2/6/13</i> , p. 13.
Merit Order	Energy Policy Research Foundation, Inc. (EPRINC), <i>The Economic Value of American Coal Exports</i> , August 2012.
China Background	EIA, <i>China consumes nearly as much coal as the rest of the world combined</i> , January 29, 2013. http://www.eia.gov/todayinenergy/detail.cfm?id=9751
Preparedness	UBS Investment Research, <i>U.S. Coal: Some Export and Port Capacity Math</i> , May 2012.

Woodmac view 2025: Is PRB “last in, first out”



Woodmac on PRB Exports

- **Driver of next phase of U.S. Exports**
 - 55 million tons by 2020; 110 mt by 2025.
- **Higher BTU Mines first order**
 - Spring Creek – Cloud Peak
 - Signal Peak – First Energy/Gumovor
- **8800 BTU Mines next**
 - Black Thunder – Arch
 - Peabody – North Antelope
 - Antelope – Cloud Peak
 - School Creek- Peabody