

## Secretary Perry's Request

*"... develop a white paper assessing opportunities to advance U.S. coal exports."*

## Key Questions to Address

*~ What market, infrastructure & policy measures could be undertaken to increase export opportunities for U.S. coal?*

*~ What global market dynamics present opportunities for increased U.S. coal exports?*

*~ How can U.S. coal capitalize on its advantages & become more competitive in international markets?*

*~ What institutional & regulatory constraints are limiting the advancement of U.S. coal exports?*

## Strategic Objective

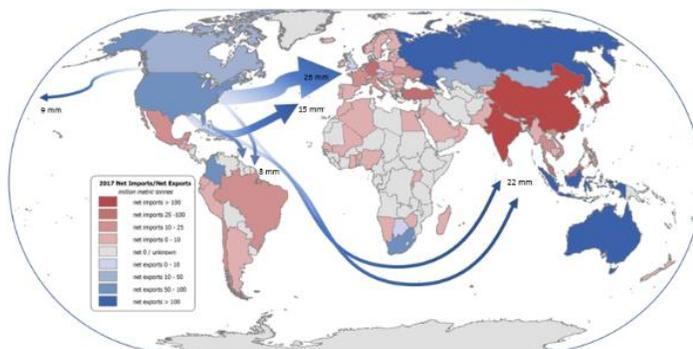
*Advance U.S. coal exports as part of the nation's efforts to achieve U.S. energy dominance, enhance international security & eliminate global energy poverty.*

## Principal Findings

- U.S. reserves of thermal and metallurgical coal are vast and can support both U.S. domestic needs and expanding international market demand.
- Coal exports provide the U.S. with significant economic and job benefits.
- Global coal trade is a robust and growing market; worldwide coal trade has more than doubled since 2000.
- While robust in many aspects, U.S. coal export infrastructure would be enhanced with improvements.
- U.S. and international policies limiting financial support for development of coal facilities overseas restricts opportunities for U.S. coal exports.
- The greatest competitive advantage U.S. coal has vis-à-vis other global suppliers is its security and regularity of supply.

Country	Million Tonnes	Share
U.S	258,709	25.0%
Russia	160,364	15.5%
Australia	144,918	14.0%
China	139,919	13.5%
India	97,728	9.4%
Germany	36,100	3.5%
Ukraine	34,375	3.3%
Poland	25,811	2.5%
Kazakhstan	25,605	2.5%
Indonesia	22,598	2.2%
Other	88,885	8.6%
<b>Total</b>	<b>1,035,012</b>	<b>100.0%</b>

Source: BP Statistical Review of World Energy, June 2017



**Major U.S. Coal Trade Flows (2017)**

## **Principal Recommendations**

*Establish a DOE-led, government-wide COAL EXPORTS TASK FORCE to monitor and coordinate policy developments relevant to advancing U.S. coal exports.*

*A Coal Exports Task Force would facilitate implementation of the following NCC recommendations.*

### **COAL PRODUCTION**

- **Develop & deploy advanced coal mining & processing technologies.** Technology improvements and innovations can reduce coal production costs, thus making U.S. coal more competitive in international markets. Production-enhancing technologies could include automation, robotics, big data/advanced computing, machine learning/artificial intelligence, and remote mining. Advanced coal preparation and upgrading technologies can increase coal heat content, remove impurities and lower costs.
- **Enhance U.S. mining operations with export potential in both traditional & non-traditional supply regions.** State tax credits, similar to those put in place in the State of Virginia, can provide support for existing coal mining operations and potentially be revenue positive. Infrastructure development in Alaska, Arkansas and Oklahoma could support new export mines. New and existing mine operations may benefit from eliminating barriers on Federal lands associated with bonus payments, rents and royalties.

### **RIVER TRANSPORT**

- **Streamline funding support for the nation's inland waterways system.** Regular maintenance and dredging of inland waterways river channels enhance non-restricted movements of coal barge traffic, facilitating the cost-effective flow of U.S. coal exports. Deployment of funds from the current excess balance of fees from the Harbor Maintenance Tax could help maintain inland waterway locks and dams.

### **PORTS & TERMINALS**

- **Enhance coal export port/terminal capacity on the U.S. Atlantic, Gulf & Pacific Coasts.** Competitiveness of U.S. coals in international markets would be greatly enhanced through 1) dredging of key export ports and shipping channels to accommodate larger vessels, 2) improved planning and cooperation between Federal and state authorities on environmental reviews/permitting and 3) reform of NEPA and related permitting processes. Further study is needed to assess the potential to reduce export constraints through development of export terminals on Federal properties.

### **TRADE & INTERNATIONAL RELATIONS**

- **Eliminate policy & technology barriers to financing coal facility deployment in international markets.** Reforms are needed to policies in place at the following organizations that are inhibiting development of coal mines and power plants: U.S. Export-Import Bank, Overseas Private Investment Corporation (OPIC), U.S. Agency for International Development (USAID), Multilateral Development Banks (MDBs).
- **Capitalize on trade expansion opportunities; assess U.S. trade policies that inhibit or promote U.S. coal exports.** The reduction/elimination of coal-punitive trade barriers and the pursuit of coal-supportive bilateral relationships could facilitate enhanced U.S. coal exports. Support of the U.S. Trade & Development Agency (USTDA), African Development Bank and Japan-US Strategic Energy Partnership (JUSSEP) would advance U.S. coal exports.

### **ECONOMIC DEVELOPMENT IN INTERNATIONAL MARKETS**

- **Support efforts to advance economic growth in international markets and the global development of advanced coal technologies.** Coal export supportive initiatives include creation of a new international finance corporation to assist developing nations' efforts to achieve economic growth/reduce poverty, and establishment of a global fossil fuel alliance to promote energy access/security.

<https://www.nationalcoalcoalouncil.org/page-NCC-Studies.html>

## Competitive Assessment of U.S. Coal Exports

### Advantages and Challenges of U.S. Metallurgical Coal versus Competitive Supply by Country

METALLURGICAL COAL	vs. Australia	vs. Russia	vs. Canada	vs. Mozambique
<b>Mine cost</b>	U.S. mine costs are higher	U.S. mine costs are higher	Mine costs are broadly similar	U.S. mine costs are lower
<b>Quality</b>	U.S. has limited premium low- & mid-vol	Russia has very low sulfur coal	U.S. has limited premium low- & mid-vol	U.S. has lower sulfur and ash
	U.S. has abundant high fluidity, high-vol & low ash	Low sulfur/high energy Russian PCI preferred in Europe	U.S. has abundant high fluidity, high-vol & low ash	
	U.S. has some expansion & CSR issues	U.S. coking coal quality is superior	U.S. has some expansion & CSR issues	
<b>Infrastructure and logistics</b>	U.S. rail costs are higher	U.S. rail costs are lower	Rail costs are broadly similar	U.S. rail costs are lower
	Government relations with rail companies are better in the U.S.	Russia has winter rail disruptions		
		Port costs are higher in Russia		
<b>Ocean freight (OF)</b>	U.S. OF is higher to Asia	U.S. OF is higher to Asia	U.S. OF is higher to Asia	U.S. OF is higher to Europe and Asia
	U.S. OF is lower in the Atlantic	U.S. OF is lower in the Atlantic		
	U.S. can't always load large vessels, although metallurgical coal consumers and producers usually favor Panamax vessels; dredging ports could be an equalizer, but at a cost			
<b>Security and regularity of supply</b>	U.S. seldom has labor strikes	Russian winter can interrupt coal delivery	Broadly similar - both high reputable suppliers	U.S. political structure and infrastructure dependable
	U.S. hurricanes seldom interrupt shipments	Russia in transition to market economy	U.S. has greater fiscal and regulatory stability	U.S. has greater fiscal and regulatory stability
	U.S. has greater fiscal and regulatory stability	U.S. has greater fiscal and regulatory stability		
<b>Shipment uniformity</b>	Broadly similar	U.S. has better quality control of shipments	Broadly similar - U.S. and Canada both careful shippers that carefully manage contracts	U.S. has better quality control of shipments

Note: Green shading indicates a U.S. advantage, red shading a U.S. disadvantage and blue shading a similarity.

## Advantages and Challenges of U.S. Thermal Coal versus Competitive Supply by Country

THERMAL COAL	vs. Australia	vs. Indonesia	vs. Russia	Colombia	South Africa
<b>Mine cost</b>	U.S. mine costs are higher	PRB mine costs are lower	U.S. mine costs are higher	U.S. mine costs are higher	U.S. mine costs are higher
<b>Quality</b>	U.S. sulfur levels are higher in the ILB and NAPP	Broadly similar characteristics (PRB)  U.S. has occasionally high sodium content (PRB)	Russia has very low sulfur coal	U.S. has higher energy content  Colombia has lower sulfur content, on average	U.S. has higher energy content
<b>Infrastructure and logistics</b>	U.S. rail costs are higher  Government relations with rail companies are better in the U.S.	Inland rail costs are higher in the U.S.  Port costs are higher in the U.S.	U.S. rail costs are lower  Russia has winter rail disruptions Port costs are higher in Russia	U.S. rail costs are higher	S Africa has rail capacity constraints
<b>Ocean freight (OF)</b>	U.S. has higher OF costs to Asian markets U.S. has lower OF costs to Atlantic markets	U.S. has higher OF costs to Asian markets	U.S. OF is higher to Asia U.S. OF is lower in the Atlantic	U.S. usually has higher OF costs	U.S. has higher OF costs
U.S. can't always load large vessels, although metallurgical coal consumers and producers usually favor Panamax vessels; dredging ports could be an equalizer, but at a cost					
<b>Security and regularity of supply</b>	U.S. seldom has labor strikes  U.S. hurricanes seldom interrupt shipments  U.S. has greater fiscal and regulatory stability	Indonesia has fiscal instability  Indonesia has domestic market obligation  Indonesia has checkered delivery history	Russian winter can interrupt coal delivery  Russia in transition to market economy  U.S. has greater fiscal and regulatory stability	The U.S. has greater fiscal and regulatory stability	The U.S. has greater fiscal and regulatory stability; there is a threat of domestic market obligation in South Africa
<b>Shipment uniformity</b>	Broadly similar characteristics	U.S. has better quality control of shipments	U.S. has better quality control of shipments	Broadly similar - U.S. and Colombia both careful shippers that carefully manage contracts	Broadly similar - U.S. and South Africa both careful shippers that carefully manage contracts

Note: Green shading indicates a U.S. advantage, red shading a U.S. disadvantage and blue shading a similarity.