



**FREEPORT-McMoRAN**  
**COPPER & GOLD**

# Copper

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William H. Wilkinson

Vice President Africa

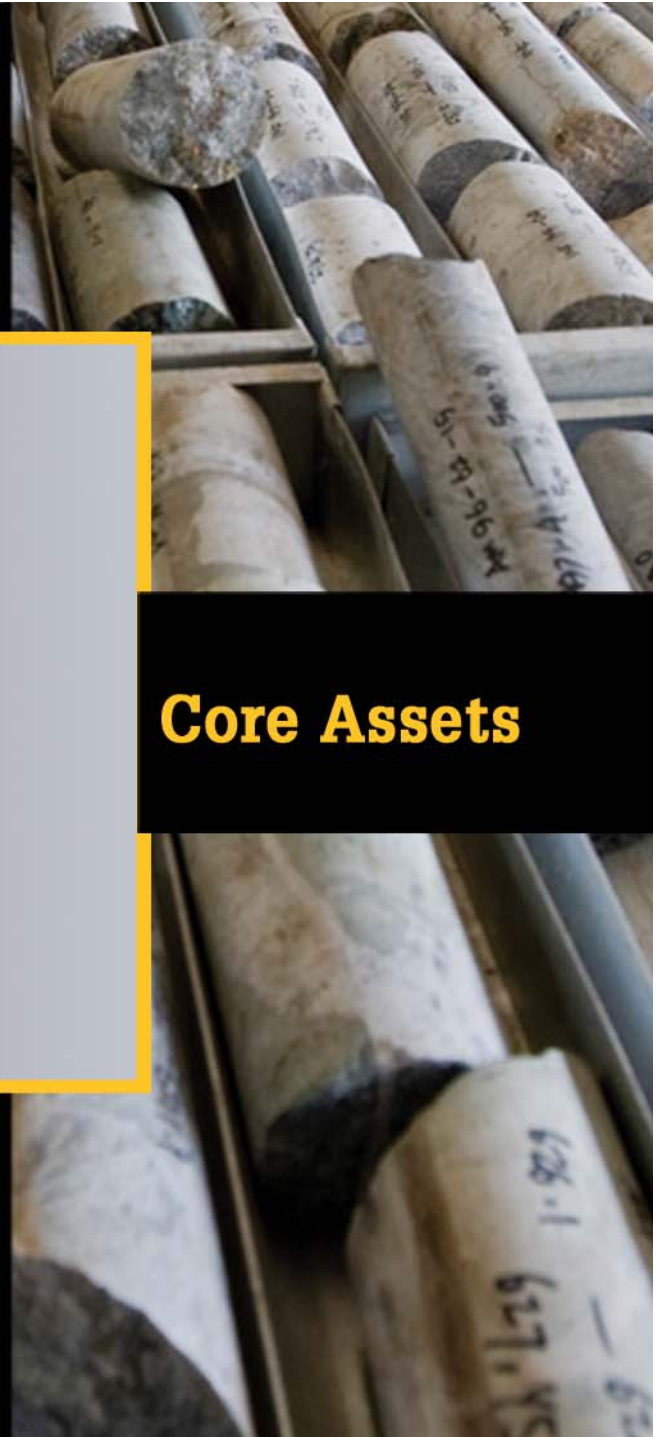
Freeport-McMoRan Exploration Corp.

February 4, 2010

**Core Assets**

**FCX**  
LISTED  
**NYSE**

[www.fcx.com](http://www.fcx.com)



# *Outline*

**Core Assets**

- Uses of copper
- Global demand and supply
  - Key issues
- Supply and demand forecasts
- U.S. vulnerability
- U.S. policy issues

# *Copper*

**Core Assets**

- Most efficient conductor of electricity
- Highly durable material
- 100% recyclable without degradation
  - Nearly all of the copper ever mined is still in use today
  - Approximately one-third of copper semi's is generated by scrap material
- Strong demand in "Green" technologies

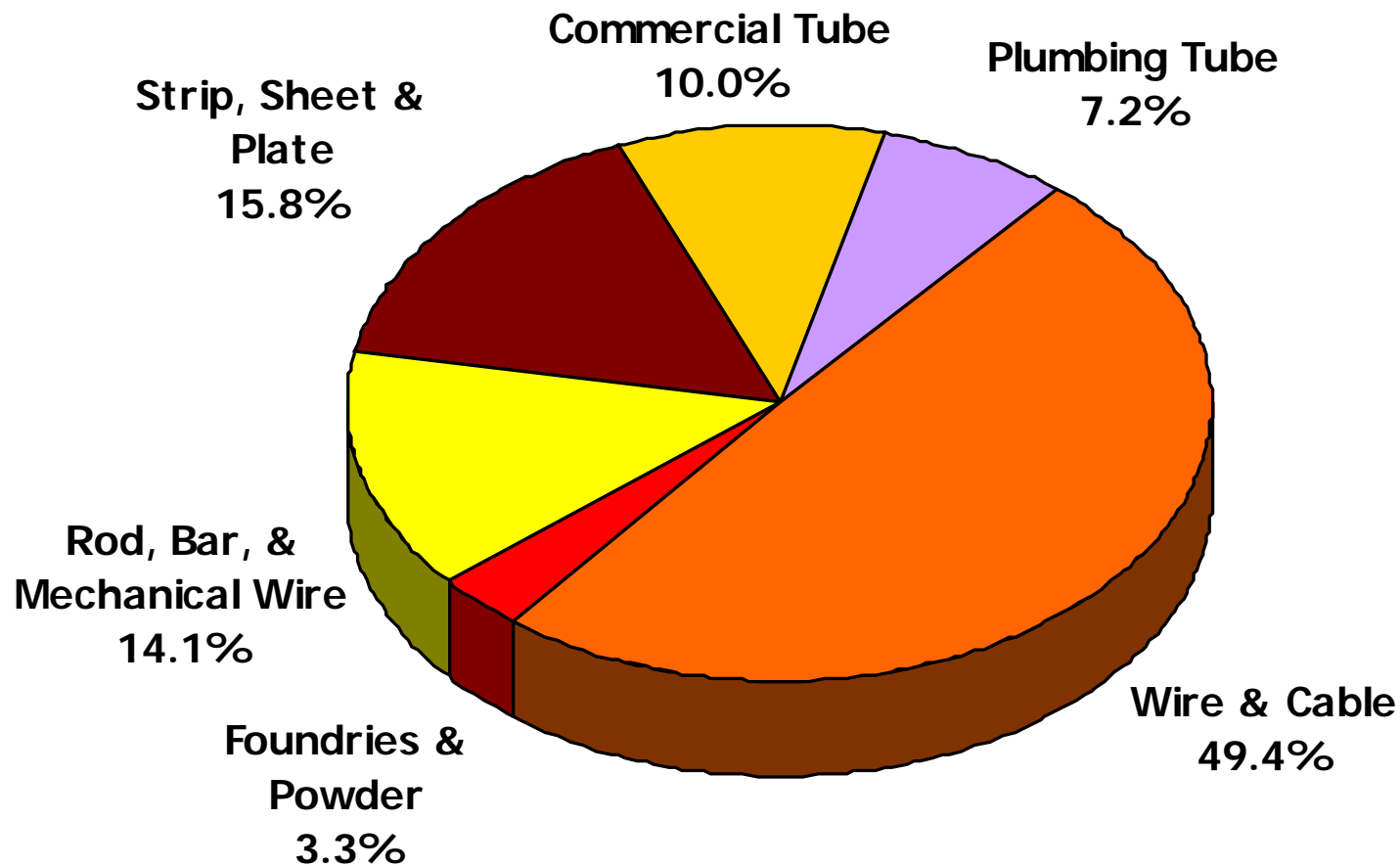
# *Copper*

**Core Assets**

- Copper contributes greatly to overall environmental performance
  - Due to superior thermal and electrical conductivity properties
  - Standard for environmentally sound wiring and plumbing

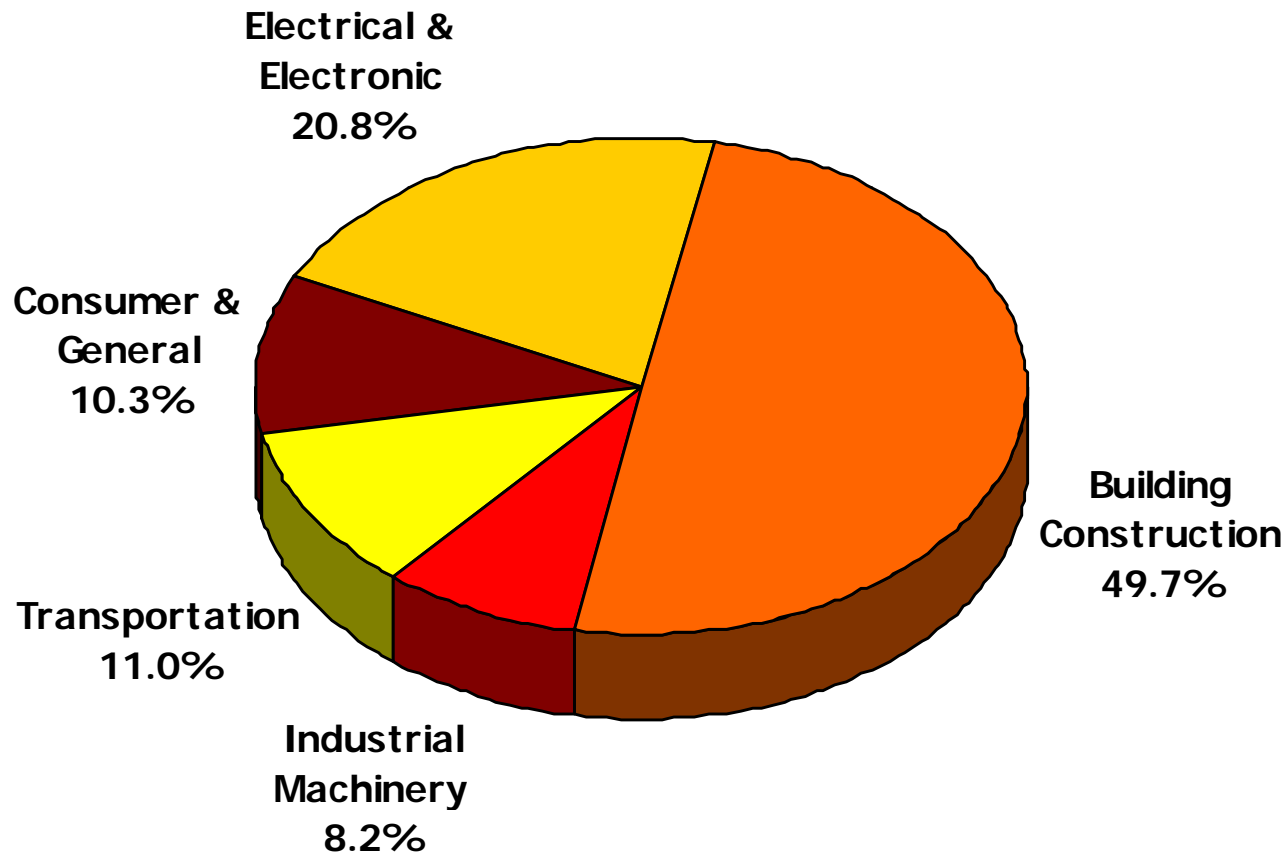
# 2008 U.S. Copper Consumption

## Products

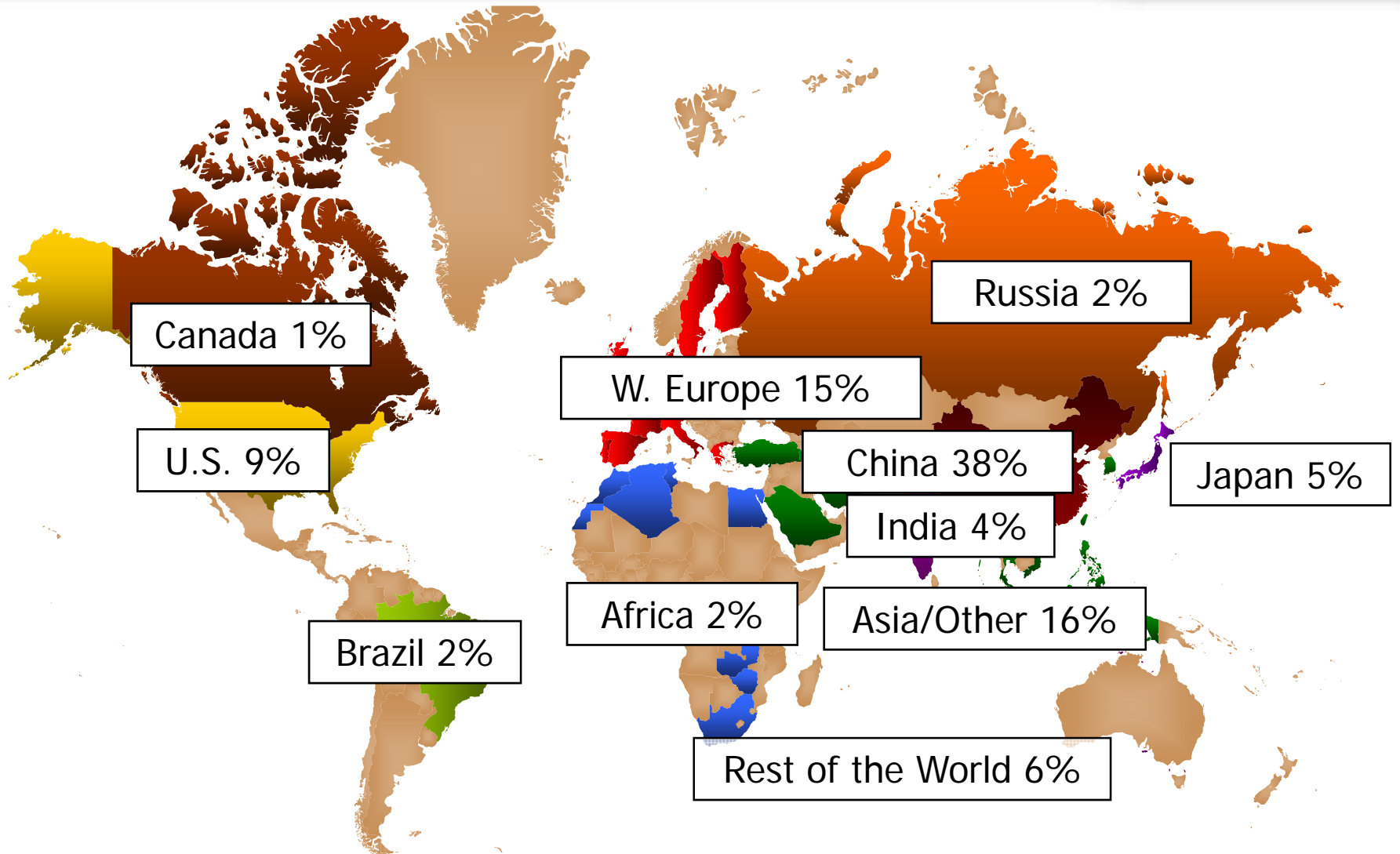


# 2008 U.S. Copper Consumption

## Markets



# Global Refined Consumption by Region



# *Refined Copper Consumption*

**Core Assets**

(000 t)

	2005	2006	2007	2008	2009	2010e
<b>U.S.</b>	2,270	2,130	2,189	1,961	1,545	1,558
<b>Global</b>	16,959	17,500	17,977	18,019	17,103	18,138



## *Key U.S. Issues in 2009-2010*

**Core Assets**

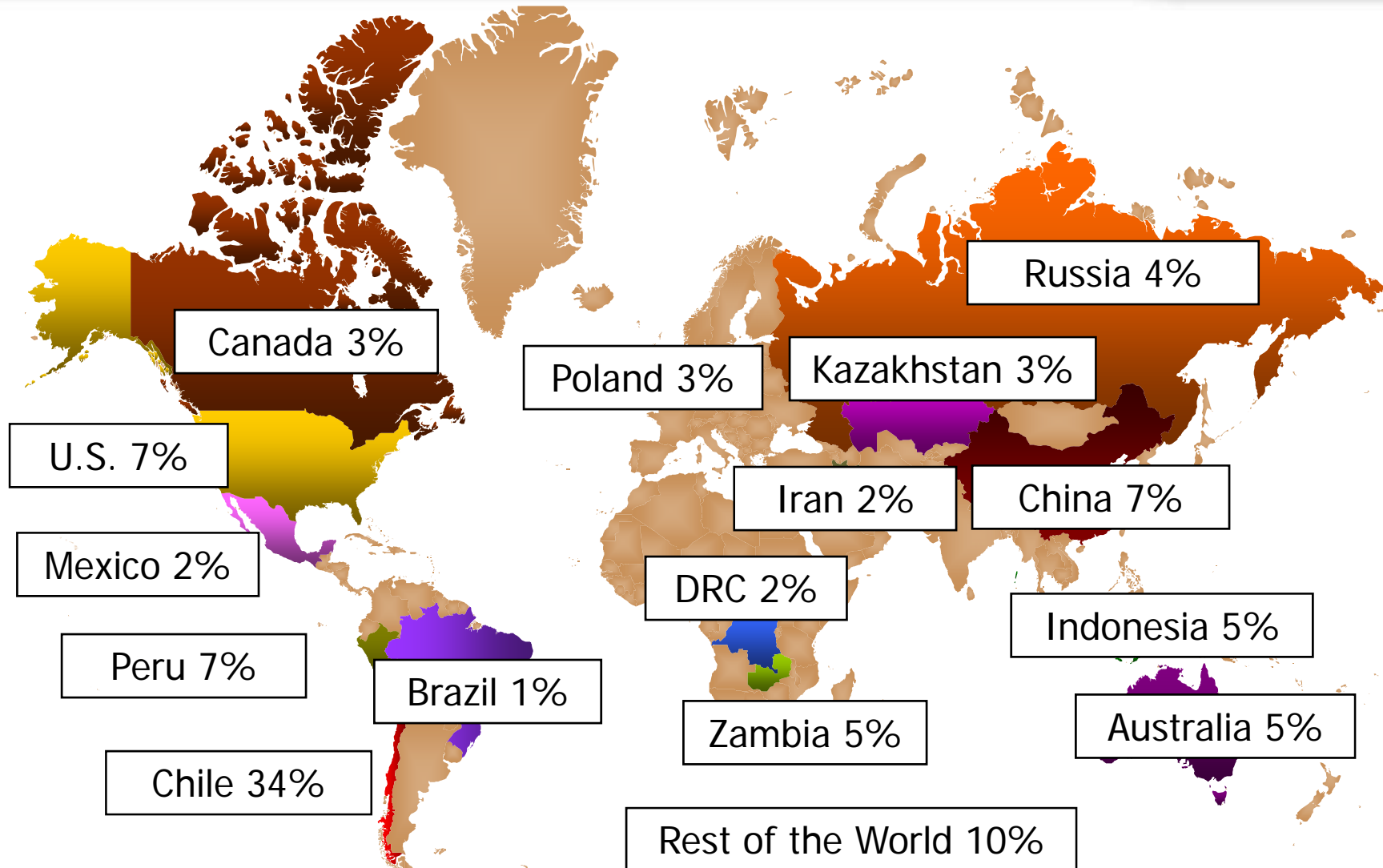
- U.S. refined use was down 21.2% in 2009 at 1,545kt
- Weak U.S. building market
- Soft auto market
- Import about 31% (USGS, 2008)
- Signs that the recession is bottoming out
- Recovery not expected until later this year

# *Key Near-term Copper Issues*

**Core Assets**

- Demand side factors:
  - Inventory levels are low throughout the supply chain
  - Economic stimulus in China, the U.S. and Japan
- Supply side factors:
  - Production shortfalls
  - Reduced scrap availability

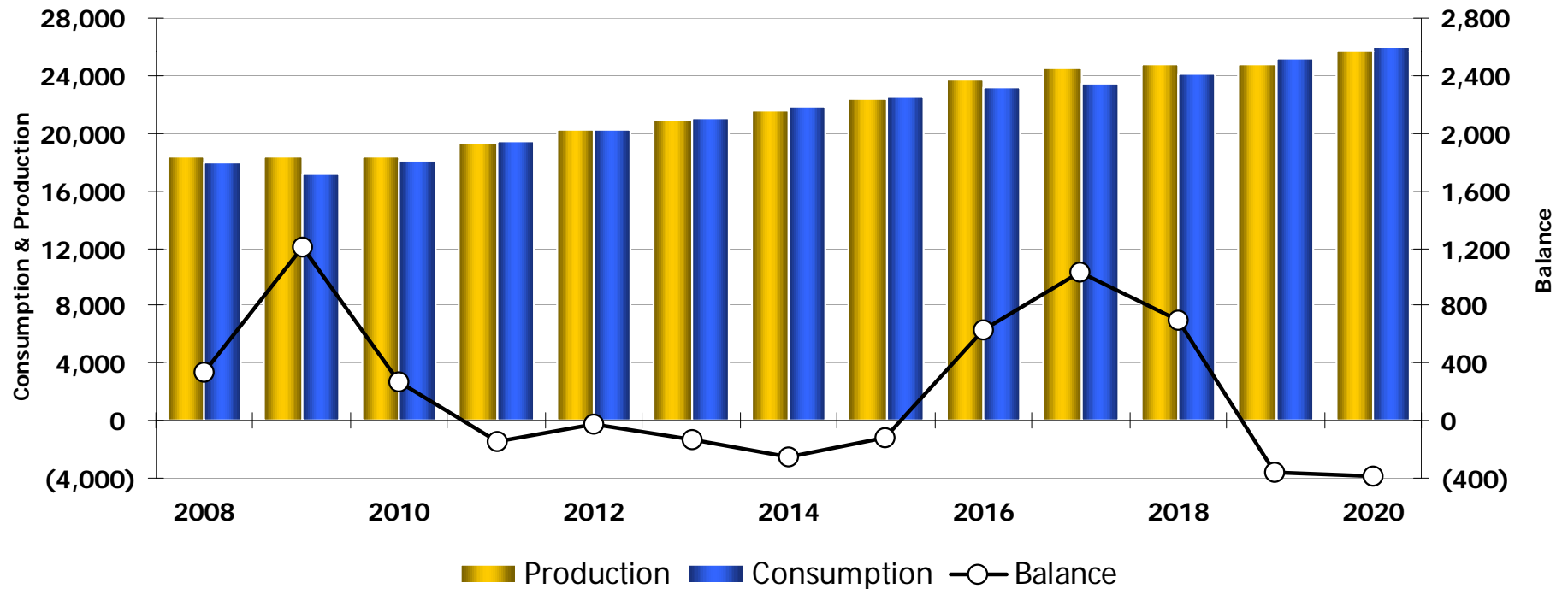
# Global Mine Production by Region



# Supply and Demand Forecast

**Core Assets**

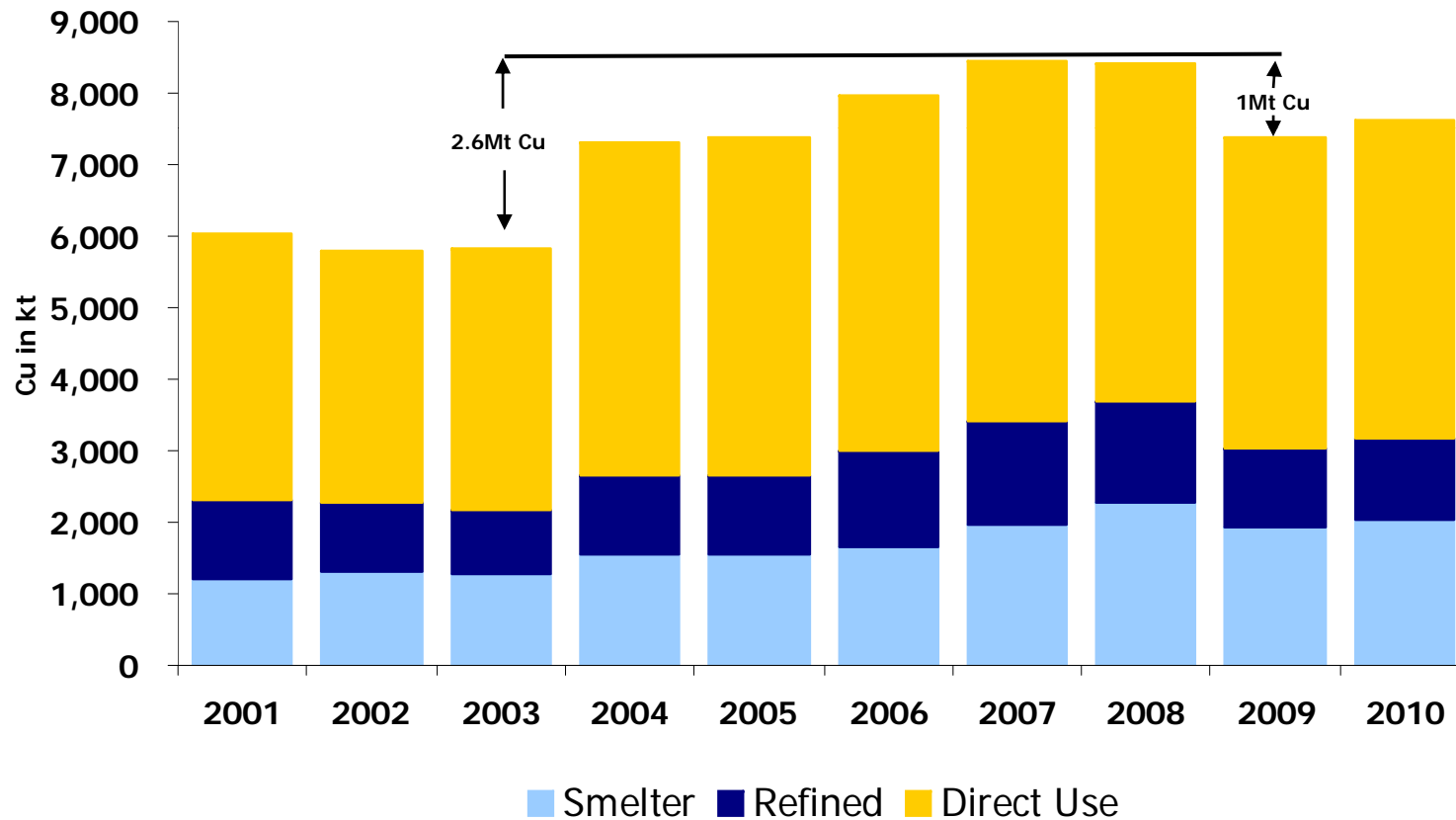
**Refined Copper Market Balances**  
Cu in kt



# Less Scrap Availability

**Core Assets**

Scrap Usage

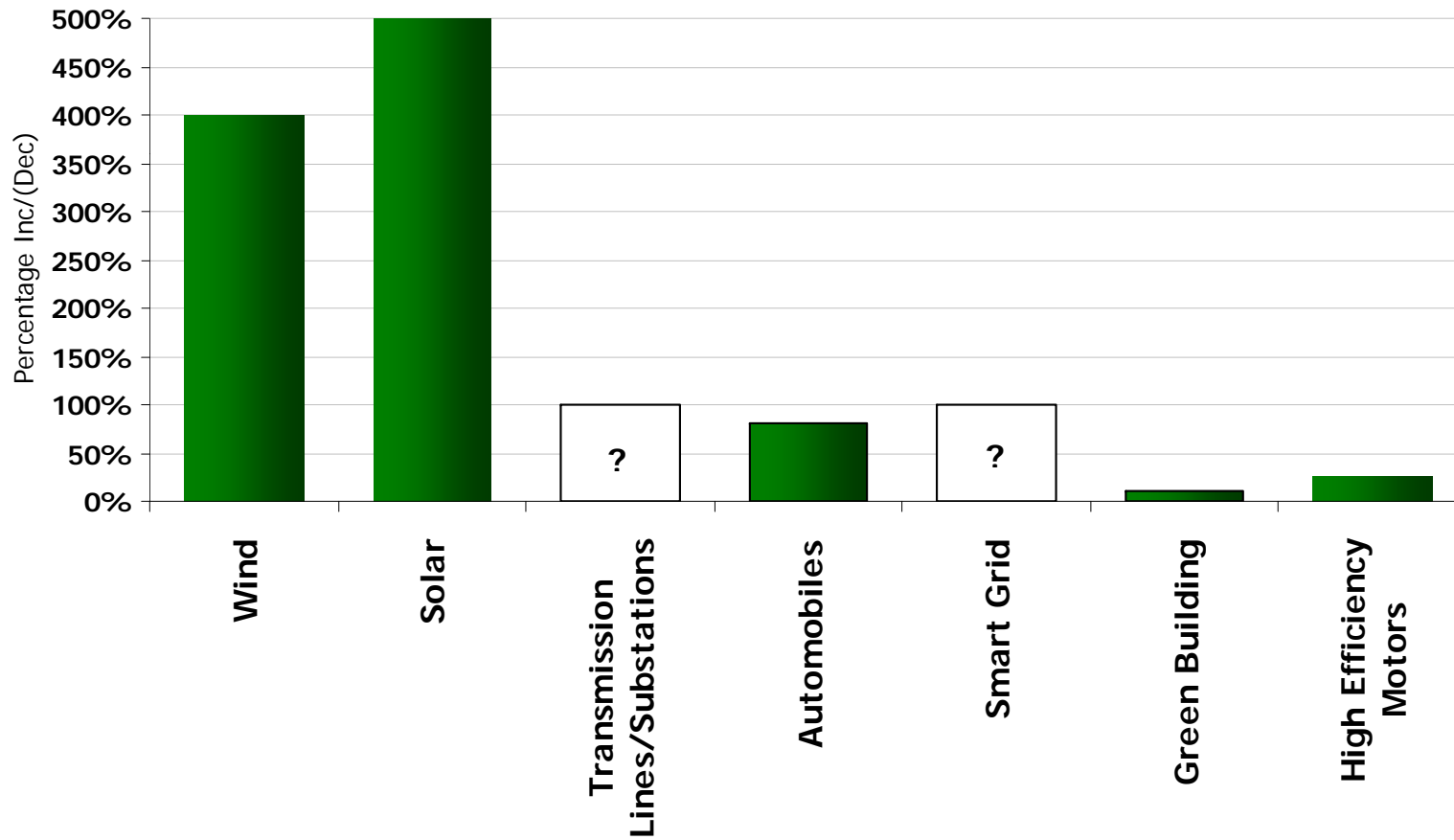


# *Green Technology Needs Copper*

*(% Increase Over Traditional Uses)*

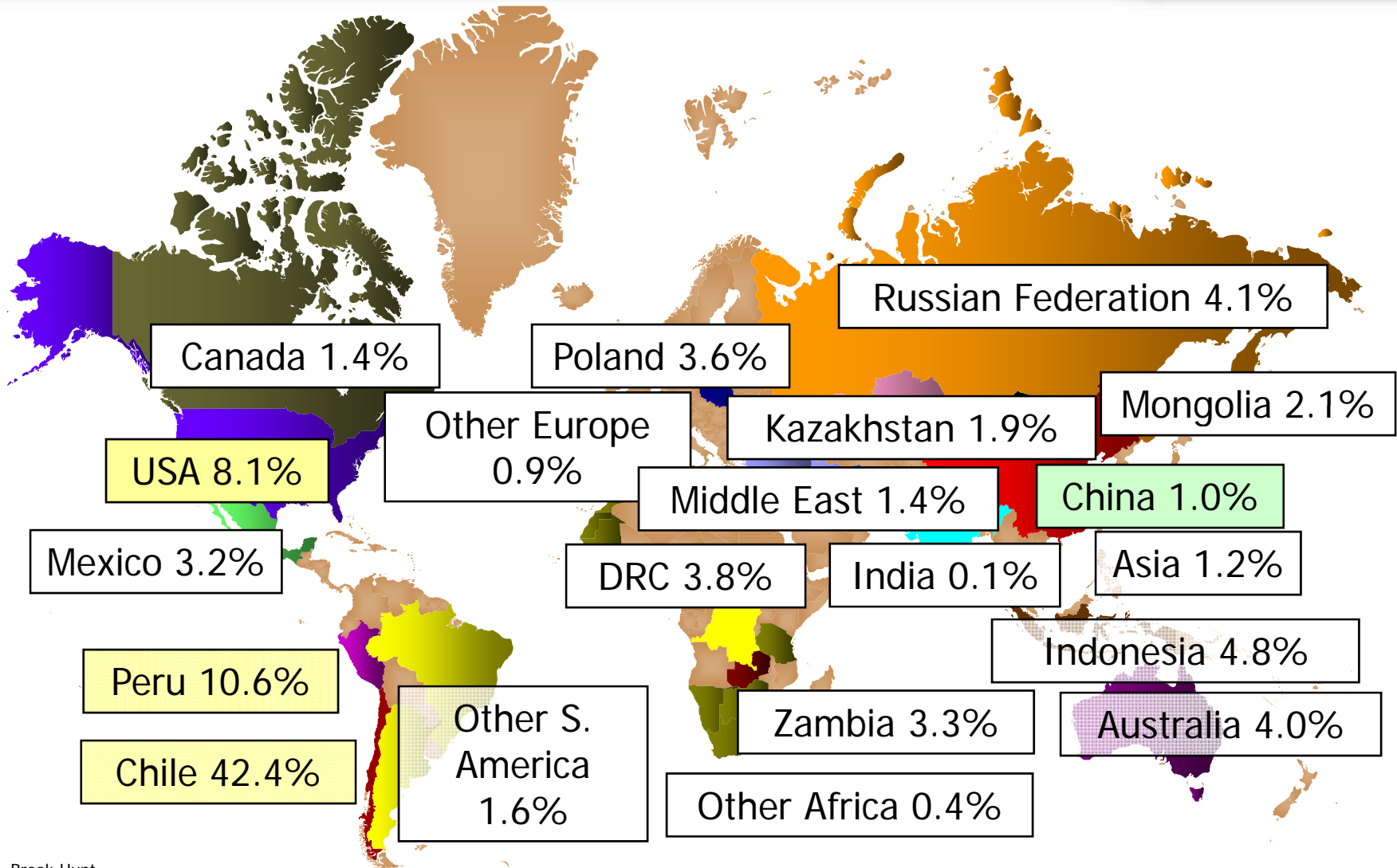
**Core Assets**

**Copper Intensiveness of Green Technology**

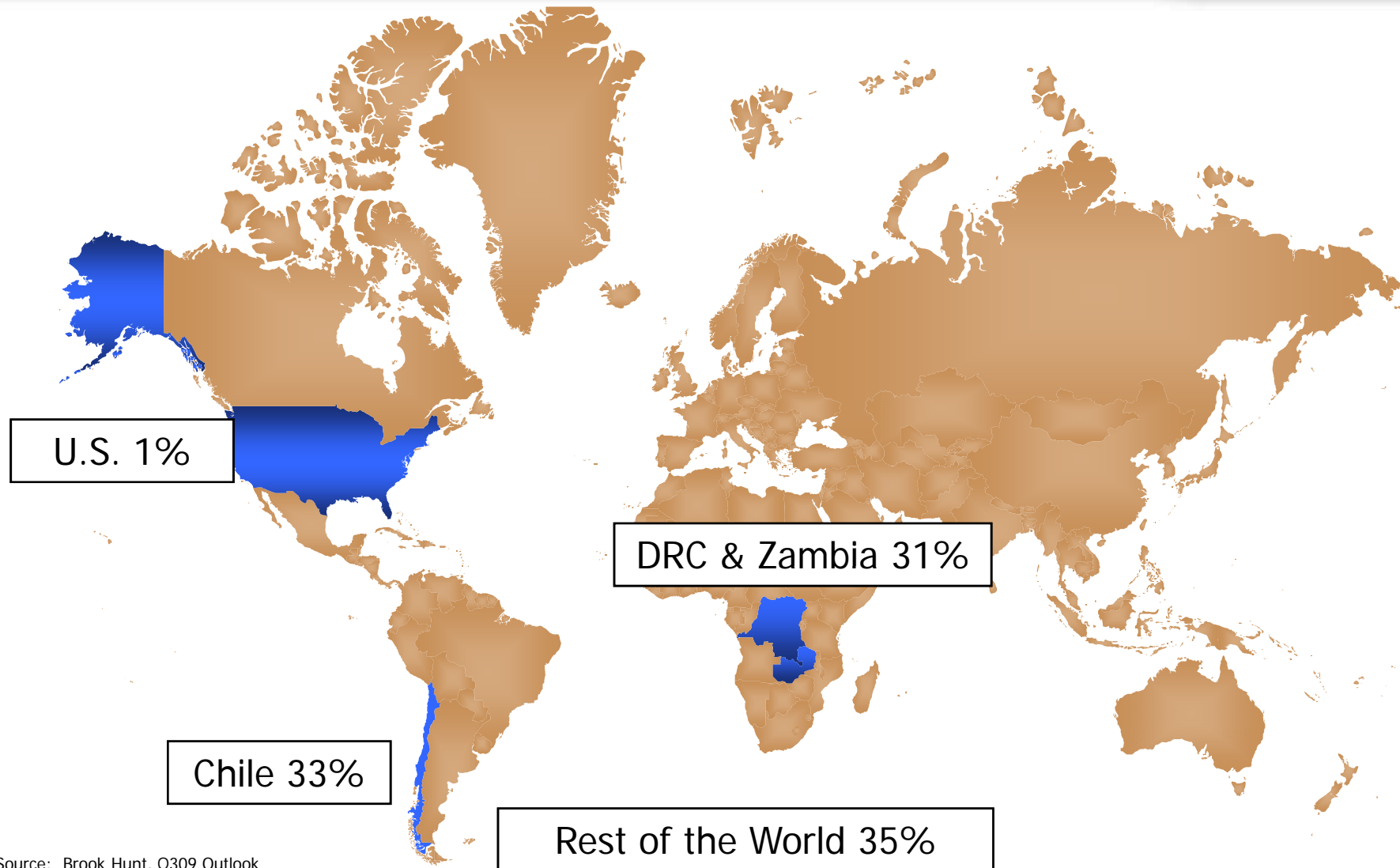


# Global Copper Resources

Core Assets



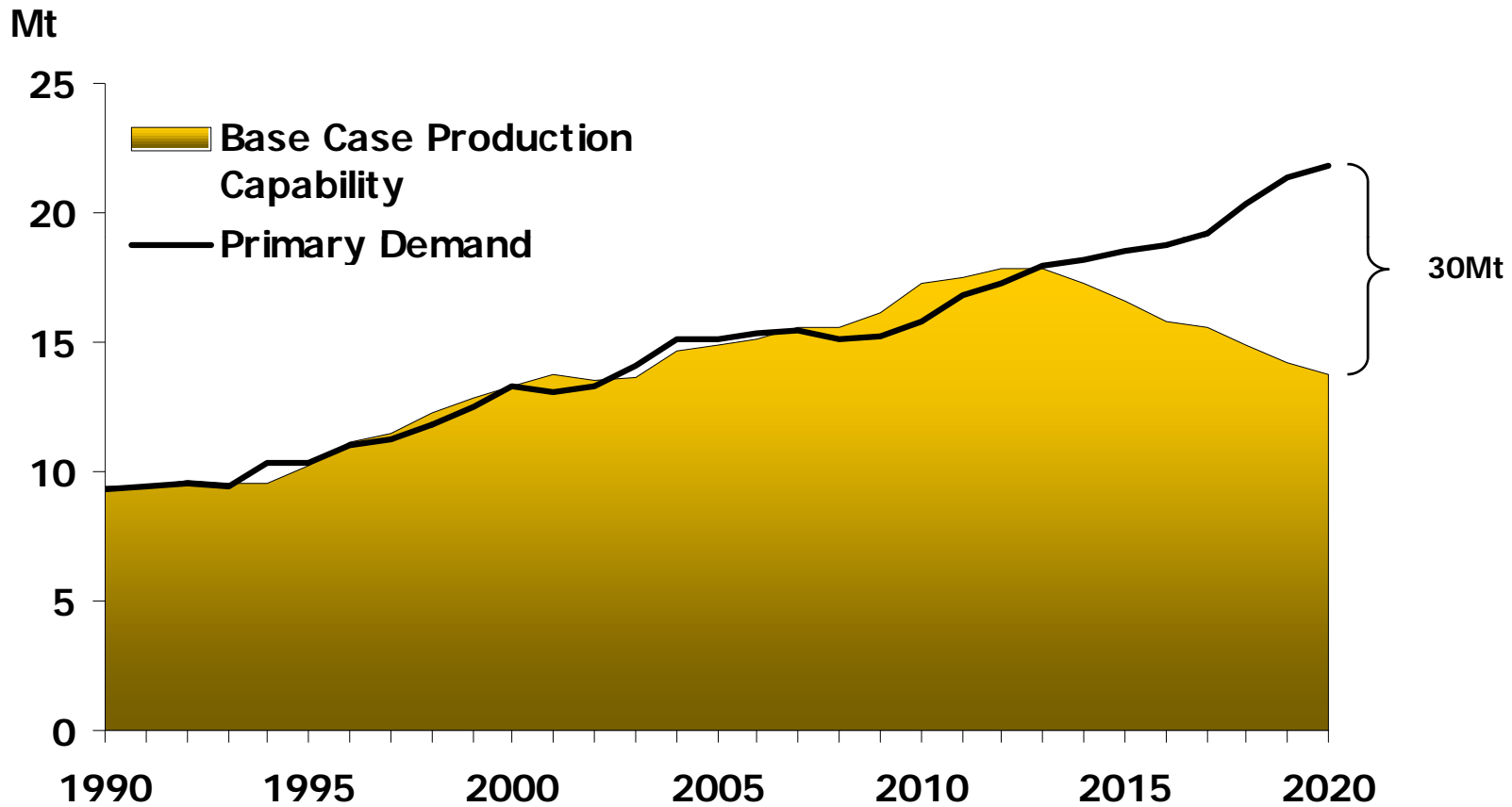
# Mine Production Growth 2008-2013





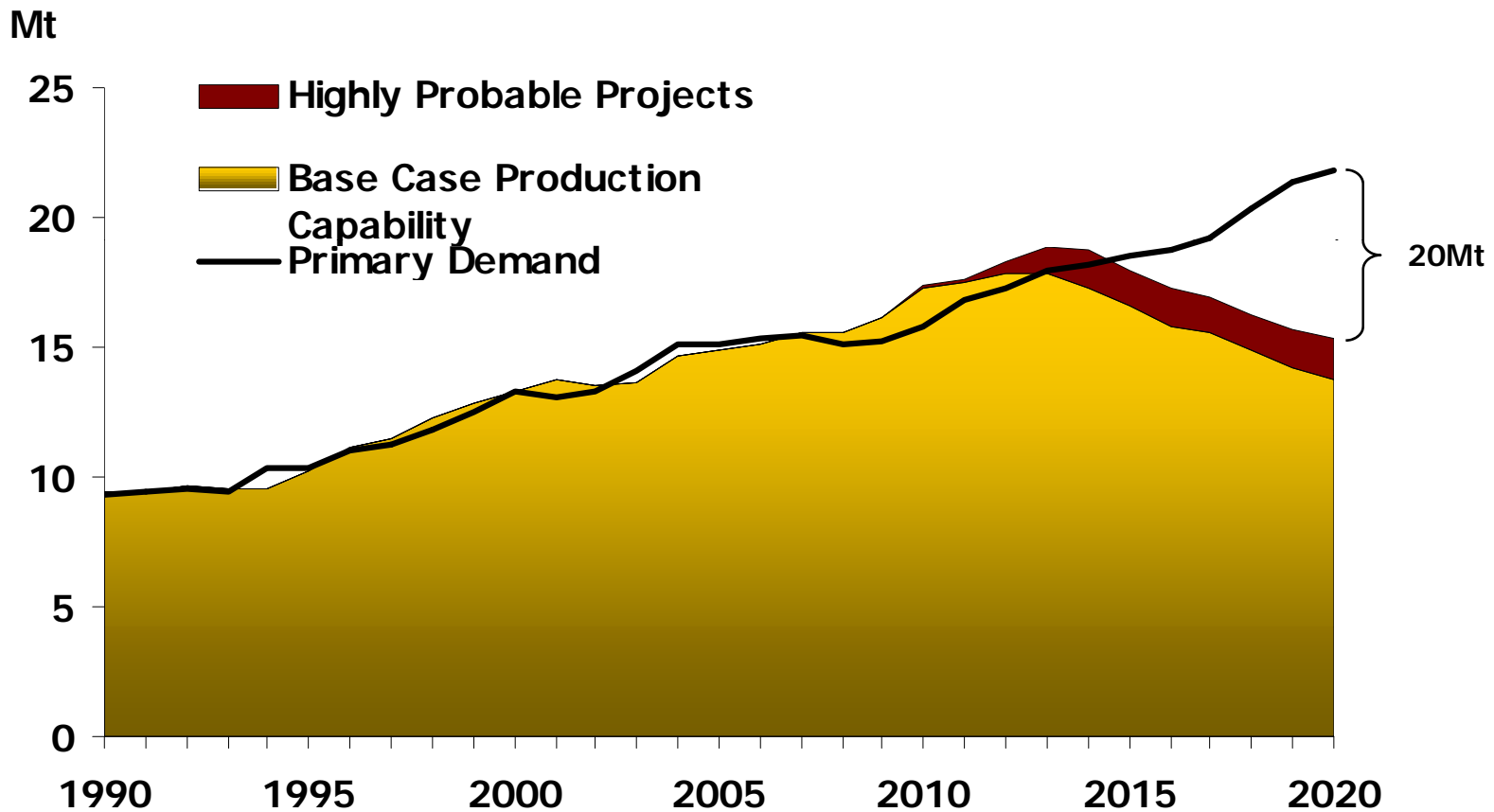
# Current Mine Production Insufficient

**Core Assets**



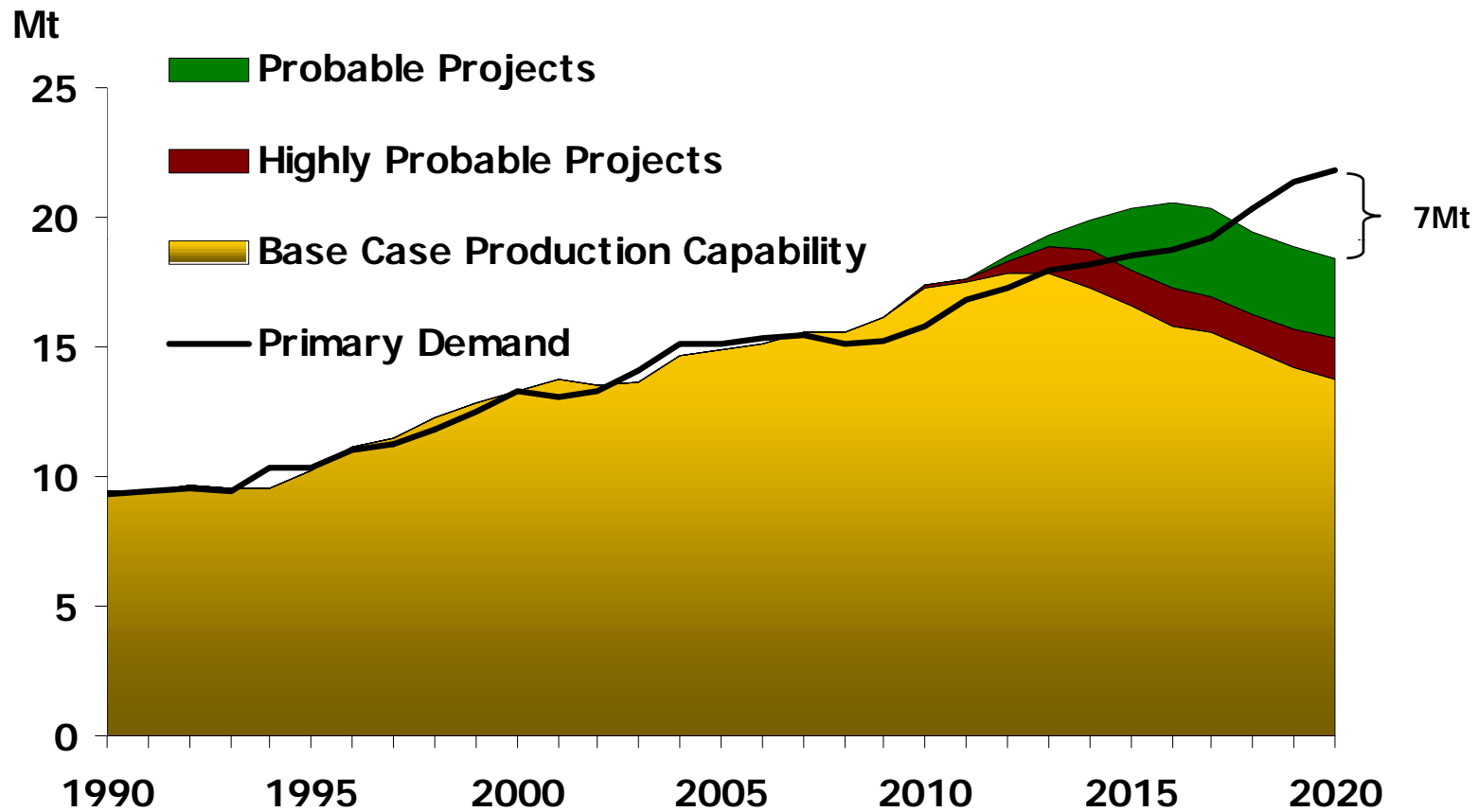
# Highly Probable Mine Production Insufficient

Core Assets



# Probable Mine Production Insufficient

Core Assets



# *U.S. Resource Vulnerability*

**Core Assets**

- A significant portion of resources in politically challenged regions
- U.S. has significant resources, but not being developed
  - Potential for new discoveries
- Major competition to secure resources world wide
  - China
    - Tying up resources through state subsidized entities
    - Difficult to compete with
  - Japan
  - India
  - Korea

# *China*

**Core Assets**

- China
  - Consumes 38% of copper production
  - Produces 7% of copper
  - Has 1% of copper resources
- Faces a tremendous shortfall
- Will intensify development of overseas resources to ensure “stable” supplies for economic growth—Zhang Xiaoqiang
- Will invest in infrastructure in key countries

# *Major U.S. Policy Issues*

**Core Assets**

- Permitting delays
- Decreased access to potential resources due to land withdrawals
- Ever tightening environmental regulations
  - Federal, state and local
- Regulatory uncertainties
  - Modifying permits after approval
- Community relations challenges

# *Major U.S. Policy Issues*

**Core Assets**

- U.S. should consider a constructive attitude toward exploration and development of strategic commodities
  - Development provides resource security
  - Development provides high paying jobs
- U.S. should promote its exploration/mining industry at home and abroad
  - Canadian approach possible model to follow

# *Summary*

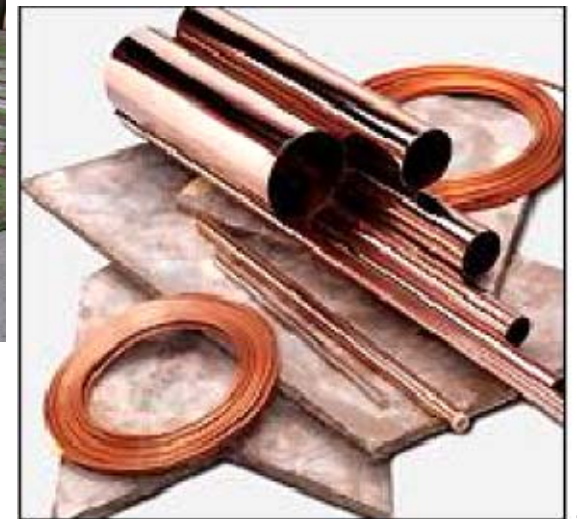
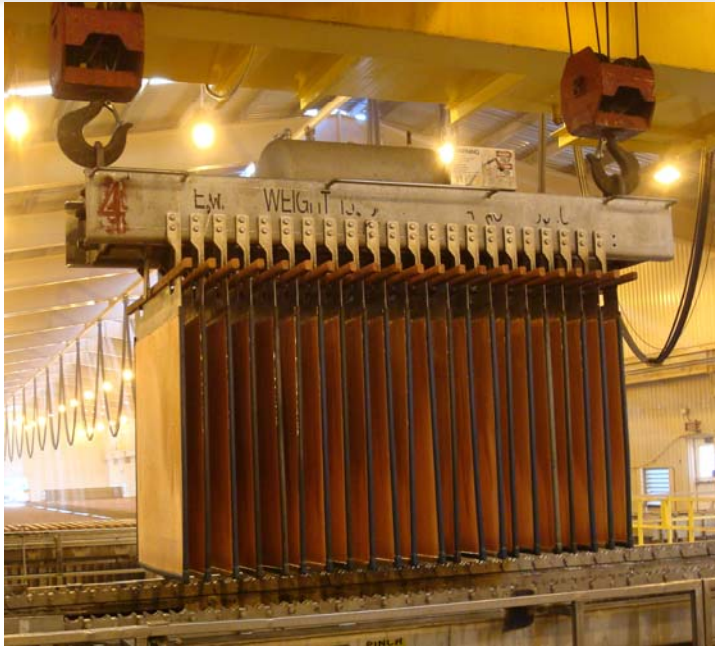
**Core Assets**

- Copper is a strategic metal in our economy
- “Green” technologies are generally more Cu intensive than traditional technologies
- Economic recovery and expansion of alternative energy generation expected to increase consumption
- Foreign dependence increasing
  - Domestic Cu production being discouraged
- U.S. facing tremendous competition for Cu resources
- Discussions about increasing “green” energy are generally inconsistent with anti-mining policies (J. R. Burnell, TPG, 2009)



# Questions ?

**Core Assets**



# *Potential Substitutes*

**Core Assets**

- Aluminum
  - Power cables, electrical equipment
- Titanium
  - Heat exchangers
- Steel
  - Heat exchangers
- Plastics
  - Water pipes, drain pipes, plumbing fixtures

# Reduction in YOY Project Development

**Core Assets**

