

VIETNAM'S COAL, MINING, AND COAL-FIRED POWER GENERATION

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Outline

- 1. Country Briefing
- 2. Coal Industry
- 3. Mining Industry
- 4. Coal-fired Power
- Generation



Geography

- Extending 1,650 km north to south, Vietnam is only 50 km across at its narrowest point
- Low, flat delta in south and north; central highlands; hilly, mountainous in far north and northwest





System of Government

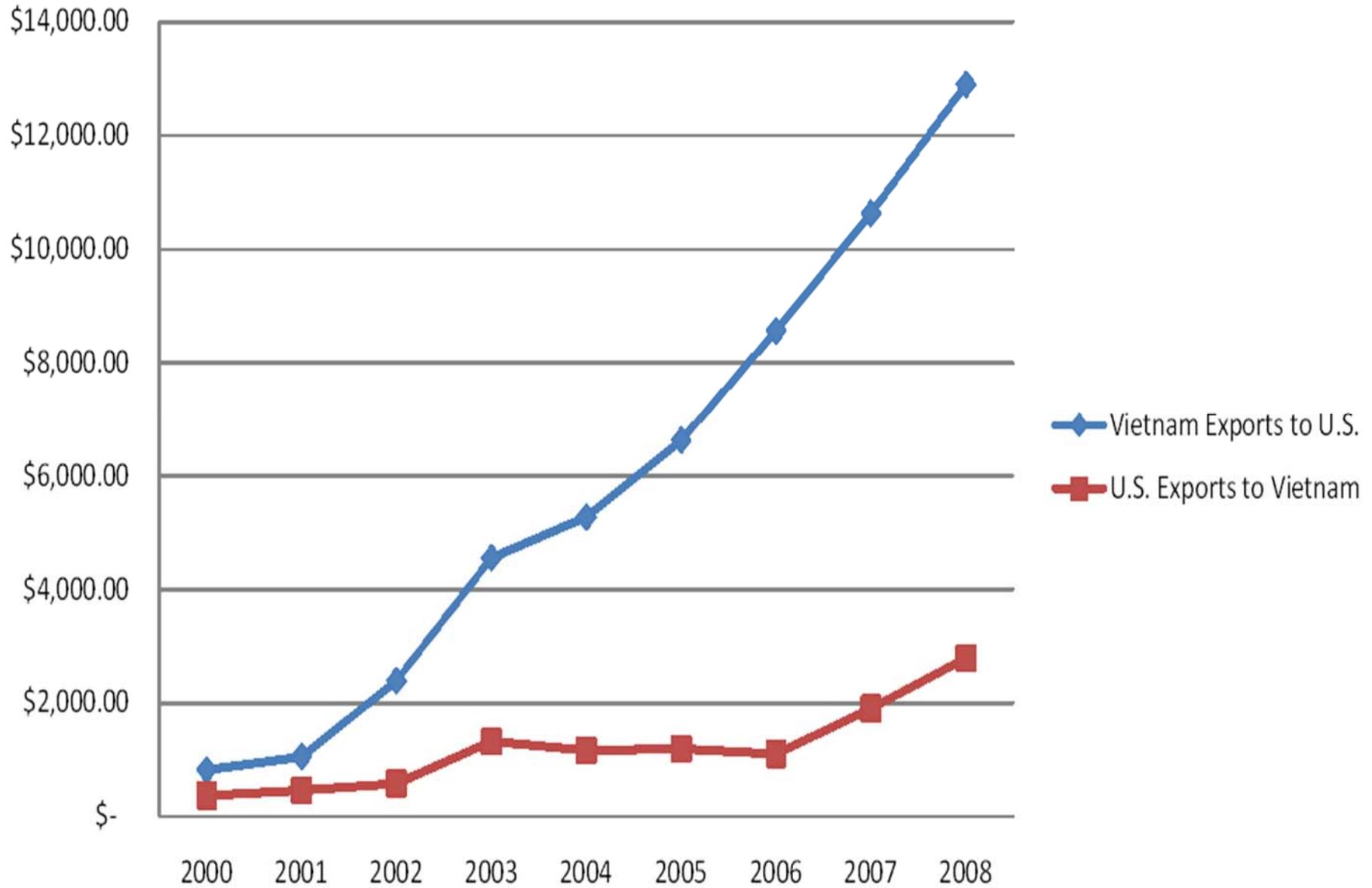
- Communist State
- President Nguyen Minh TRIET (since 27 June 2006)
- Prime Minister Nguyen Tan DUNG (since 27 June 2006)



Economy

- GDP (PPP)
 - \$241.8 bn (2008 est.)
 - \$227.7 bn (2007 est.)
- GDP (Off. Exch. Rate)
 - 90.88 Bn (2008 est.)
- GDP Per Capita (PPP)
 - \$2,800 (2008 est.)
 - \$2,700 (2007est.)
- GDP Growth Rate
 - 6.2% (2008 est.)
 - 8.5% (2007 est.)
 - 8.2% (2006 est.)
- Labor Force
 - 47.41 Million (2008 est.)

U.S.- Vietnam Bilateral Trade 2000 - 2008



Challenges



U.S.
COMMERCIAL
SERVICE
United States of America
Department of Commerce

- Infrastructure (ports, airports, roads, power, and HR)
- Inflation
- Human rights
- Corruption
- Red tape
- Environment
- Labor
- SOE dominance (38% of GDP)

Looking toward the future



- “Vietnam is one of the best-performing developing economies in the world. It is going through a far-reaching transformation from an inward-looking planned economy to one that is globalized and market-based. It has the potential to be one of the great success stories in development.” World Bank

Coal and Mining Industries





Open-Pit Mines

- 29 Total
- Largest Mines
 - 6 with capacity 800,000-1.5 mn tons/year/mine
- Others
 - Capacity 200,000-400,000 tons/year/mine
- 60% of total mined
 - Decreasing in future





Underground Mines



- 20 Total
- 7- capacity 1 mn tons/year+
- Others 300-800,000 tons/year/mine
- 45% of yearly total (2007)
- 55% by 2010

Quang Ninh Anthracite Basin

- North-East Vietnam
- Total Reserve- 10.5 Billion tons
 - 3.5 Bn tons at -300 meter level
 - Currently being exploited
 - 7 bn tons at -1,000 meter level
 - Under exploration



Red River Delta Semi-Anthracite Basin

- Brown Coal Field
- Reserves estimated at 210 billion tons
- Asbitum B (Sub-Bituminous B) Coal
 - sufficient for thermal power generation, and cement, steel, and chemical production
- Underground coal: -100 to -3500+ meters

Other Coal Mines

- Regional Coal Mines
 - 400 million tons of reserves
 - Numerous types: Brown, Long-Fire, Semi-Anthracite, Fat Coal, etc.
- Peat Coal Mines
 - 7 Billion cubic meters of reserves
 - Throughout country, especially in South
 - High ash level, low calories, especially suitable for agricultural manure

Coal Production, Consumption, and Export

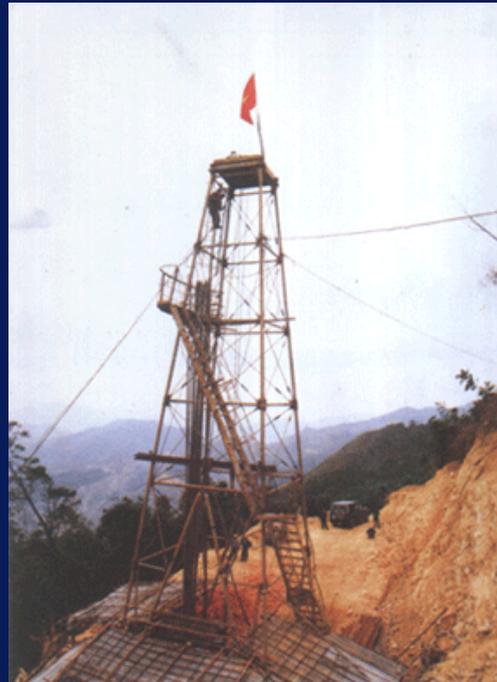
YEAR	PRODUCTION	CONSUMPTION	EXPORT
2004	27.3	24.7	10.5
2005	34.9	30.2	14.7
2006	40.1	36.9	21.3
2007	N/A	N/A	12.5
2008	42.5	36.1	20
First 5 months of 2009 <i>(Source: Vinacomin & MOIT)</i>	18.9	7.15	N/A



Coal Industry Development Strategy to 2015

• BY 2010

- Exploit 45-50 Million Tons
- Explore and Estimate Reserves in Quang Ninh Basin (under - 300m)
- Begin Pilot Projects to exploit Red River Delta Basin



• BY 2015

- 55-60 Million Tons
- Estimate Reserves in Red River Delta Basin
- Coal Will Be Imported (est. 34 Million tons) after 2011, and hundreds of tons after 2020.



Bauxite

- Crude Bauxite: 5.6 Bn. Tons
 - (Equal to 2.4 Bn. Tons of Bauxite Concentrate)
 - Gipsit Bauxite
 - 91.4% of Reserves
 - Located in Central Highlands
 - Diaspo Bauxite
 - 91 Million tons of Concentrate
 - Located in North of Vietnam



Aluminum Smelting Projects (Projected After 2010)

- Lam Dong

- Expected Capacity:
100,000 tons/year
- Total Investment: US\$
250-300 Million
 - By Vietnam or
Jointly with
Foreign Investor

- Binh Thuan

- Expected Capacity:
300,000 tons/year
- Total Investment:
US\$ 750-900 Mn
- By Vietnam or
Jointly with Foreign
Investor

- Quang Ninh

- Expected Capacity:
300,000 Tons/year
- Total Investment:
US\$ 750-900 Million
- By Vietnam or Jointly
with Foreign Investor

Other Mineral Mining

- Good Quality and Reserves
 - Iron Ore: 1 Billion Tons
 - Chromites: 20 Million Tons
 - Copper: 751,000 Tons
 - Also:
 - Tin, Wolfram, Gold, Lead, Zinc, Uranium, Antimony, Rare Earths, Gems, Limestone, Clay, etc.

Coal-Fired Power Generation



Energy Overview

- By Source

- Gas: 39%
- Hydro: 37%
- Coal: 13%
- Oil & Import: 11%

(Source: EVN, 2007)

- Thermal Power Plants in Vietnam

- Total: 27
- Coal-Fired TPP: 10
- Gas-Fired TTP: 13
- Diesel TPP: 4

(Source: MOIT's Dept. of Energy, 2008)

Power Plants

- Plans to build 12 Thermal Power Plants (combined capacity 6,300MW-7,000MW) in Northern Economic Zones by 2015, according to Master Plan VI.



Vinacomin's coal-fired power plants

- Operational Plants
 - Na Duong (110MW) Coal-Fired Power Plant
 - Low Calorific Value/High Sulphur (6.5%)
 - Cao Ngan (110MW) Thermal Plant
 - Cam Pha (2x340MW) and Son Dong (220MW) Thermal Plants

Vinacomin's coal-fired power plants

- Under Construction
 - Mao Khe (220MW) and Nong Son (30MW) Thermal Plants
 - Being prepared for investment
 - Vinacomin holds 10% and 15% of shares in Hai Phong (600MW) and Quang Ninh (1,200MW) Thermal Power Plants
 - U.S. Company AES in Discussion to Build Mong Duong 2 (1,200MW) Power Plant

Vinacomin

- Chairman: Mr. Doan Van Kien
- President/CEO: Dr. Tran Xuan Hoa
- 60 subsidiaries
 - 23 Companies 100% Owned
 - 32 joint-stock Co.'s (50%+ owned)
 - 5 Non-Profit Units
- 2008- Ranked 4th in Vietnam's Top Co.'s
 - \$1.4 Bn. in Exports to Major Markets
 - China, Japan, South Korea, Northeastern Europe



Potential Business Partners

- GVN relevant agencies: OOG, MoIT, MPI, MOF, Customs of Vietnam, etc.
- International donors:
 - WB, ADB, etc.
- Local investors/Major buyers:
 - Vinacomin, EVN (Electricity of Vietnam)
- Other local distributors/agents and EPC contractors in the mining and electric power industries

Sources of Information

- GVN (Government of Vietnam)
 - <http://www.chinhphu.vn>
- MOIT (Vietnam Ministry of Trade and Industry)
 - <http://www.moit.gov.vn>
- Vinacomin (Vietnam National Coal, Minerals Industries Group)
 - <http://www.vinacomin.vn>
- EVN (Electricity of Vietnam Group)
 - <http://www.evn.com.vn>



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<http://www.buyusa.gov/vietnam>



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