

# Wood Pellet Market Development in South Korea

By Lee Brothers & Co., Ltd.

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# About Lee Brothers

- **Company founding: 1955 (in Hong Kong)**
  
- **Specializing in forest products marketing**
  - Sourcing newsprint for the Korean market in the beginning
  - Selling wood pulps to the Korean paper industry
  - Introduction of magazine (light weight coated) papers from the mid 1980's
  - Selling SPF dimension lumber, treated wood, and OSB to the Korean wood-frame construction market from the mid 1990's
  
- **Current activities: Marketing agent**
  - Bleached softwood kraft pulp (Canfor Pulp Limited Partnership)
  - Unbleached kraft pulp (Canfor Pulp Limited partnership)
  - BCTMP (Millar Western Forest Products)
  - High performance packaging papers (Premium 1 Papers)
  - SPF dimension lumber (Canfor Wood Products Marketing)
  - Eucalyptus log/lumber (Urufor S. A.)

# Korean Energy and GHG Situation

- **World's 10<sup>th</sup> largest energy consumer**
  - 96% of energy consumed is imported, 29% of total import
  - US\$118.3 billion energy import in 2007
  - 5<sup>th</sup> largest crude oil importer
  - 2<sup>nd</sup> largest coal importer
  
- **Fast increase in CO<sub>2</sub> emission**
  - 1<sup>st</sup> in CO<sub>2</sub> emission rate of increase among OECD nations
  - 9<sup>th</sup> largest CO<sub>2</sub> emission in the world (620 million tons in 2007)

# Korean Energy Strategy - Basic Direction

- Implementation of “low-carbon, Green Growth,” and Creation of “new growth engines” and jobs from “Green Technology” and clean energy
- Promotion of energy security, energy efficiency, and eco-friendly strategy to support sustained economic growth and future generations’ energy need

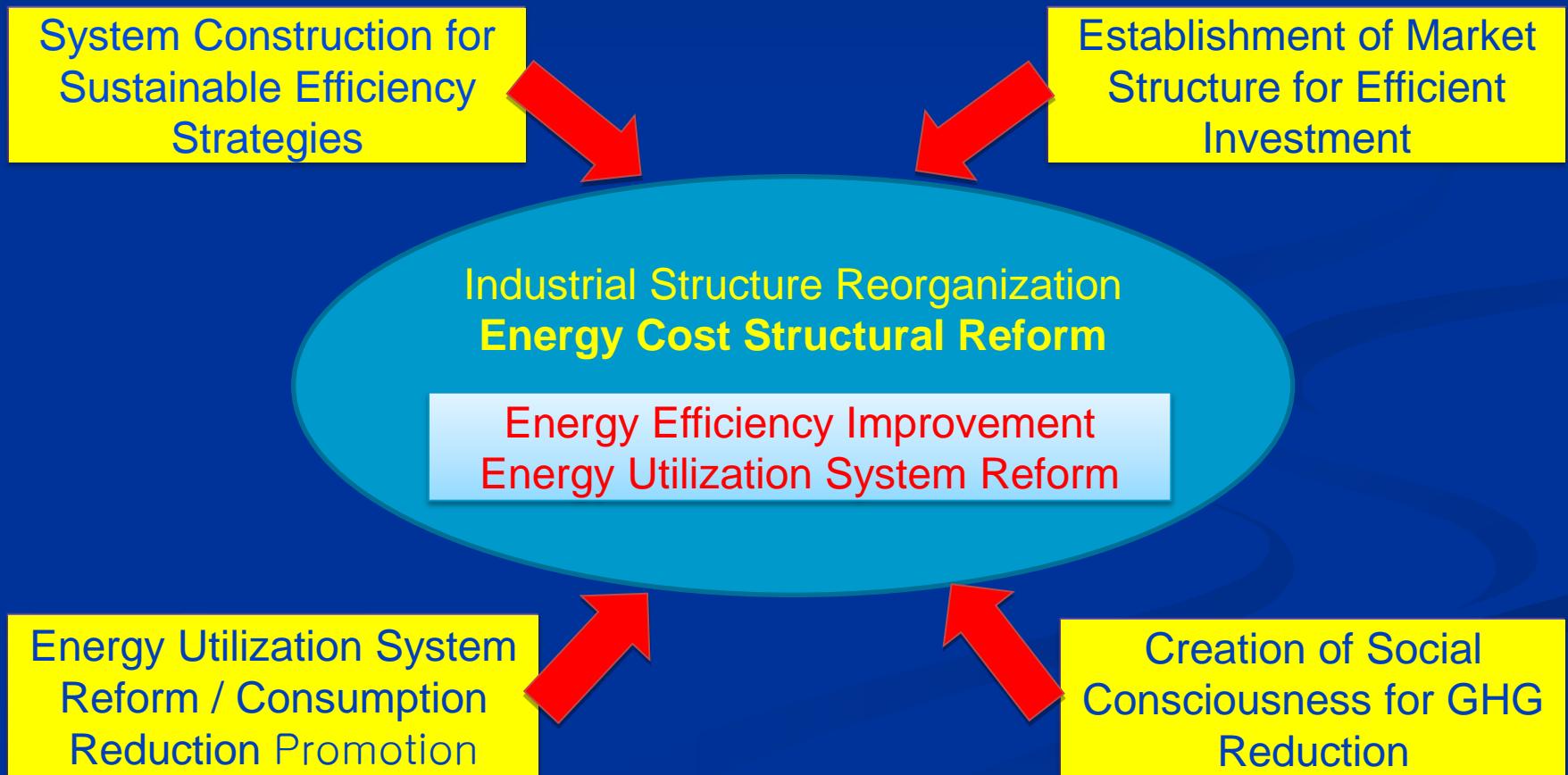
# Korean Energy Strategy - 'Vision 2030'

5 Visions	Index	2006	2030
Implementation of energy independent society	Self-sufficiency	3.2%	40%
	Renewable energy	2.2%	11%
Conversion to lower energy consuming Society	TOE	0.347	0.185
Conversion to oil-free Society	Fossil fuel dependency	43.6%	33%
Implementation of a society living together	Energy poverty	7.8%	0%
Creation of new growth engines and jobs from Green Technology and clean energy	Level of energy technology	60%*	Top

\* Advanced nations – 100 basis

# Conversion to Lower Energy Consumption

(47% Improvement in 2030 TOE Target)



# Strategy for Wood Pellet as Energy

## Target

### Short-term

2012 fuel use  
Farm homes 4%  
Greenhouse 20%  
Substitution

### Long-term

2020 fuel use  
Farm homes 16%  
Greenhouse 50%  
Substitution

## Strategy

Systematic  
Demand creation

Secure supply

Build foundation

## Execution

Public sector first

Farming / mountain homes

Establish consistent system regionally

Secure stable overseas supply

Achieve top-class technology

Build conditions for pellet use

# Wood Pellet Demand Creation Strategy and Supply plan

## Supply from Local production:

- Public sector to lead wood pellet use for generating demand initially.  
Recreation/lodging facilities at KFS owned forest, Arboretum, social welfare institutions, government/public offices, schools, etc.
- Install wood pellet boilers at 140,000 farming/mountain village homes by 2020.
- Replace 20% of fossil fuel with wood pellet at greenhouse horticulture by 2012

## Supply from overseas:

- Wood pellet use at power plants to start from 2012 - Renewable Energy Portfolio Standard is to be introduced from 2012

# Wood Pellet Supply Plan

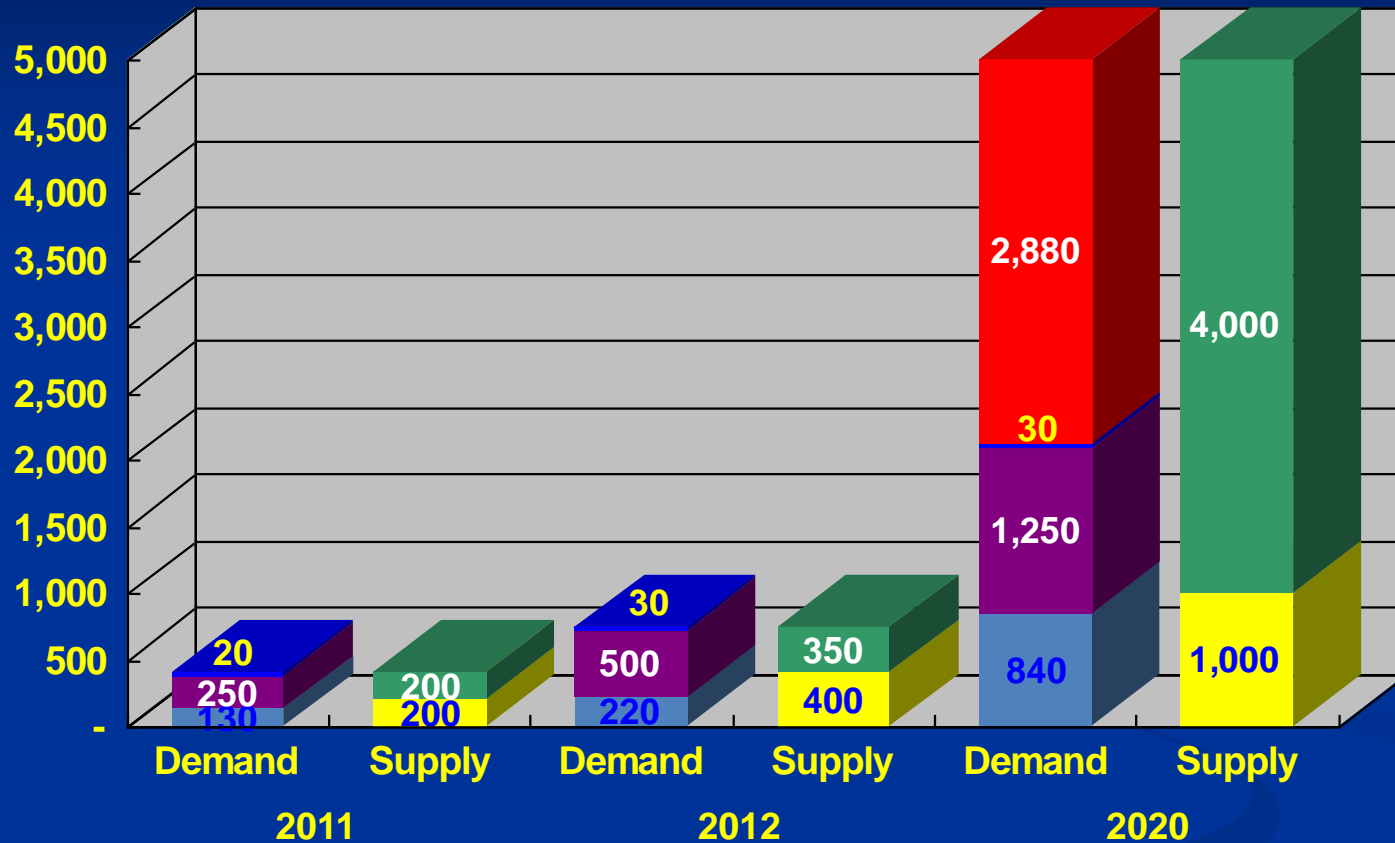
Year	Pellet Plants	Capacity (ton)	Production (ton)
2009	11	30,000	8,470
2011	22	237,000	10,000

- **Maximum, potential local capacity of wood pellet – 1 million tons**
- **2020 estimated wood pellet demand – 5 million tons**
- **Minimum 4 million ton wood pellets should be imported in 2020.**
- **KFS plans to secure wood pellet supply from Indonesia, New Zealand, and Myanmar by inducing them to install pellet operations. Indonesia is making available 200,000 ha of land for plantation to produce wood pellets for export to Korea, based on the Korea-Indonesia summit meeting (March, 2009).**

Source: Korea Forest Service

# Wood Pellet Demand-Supply Projection

Unit : 1,000MT

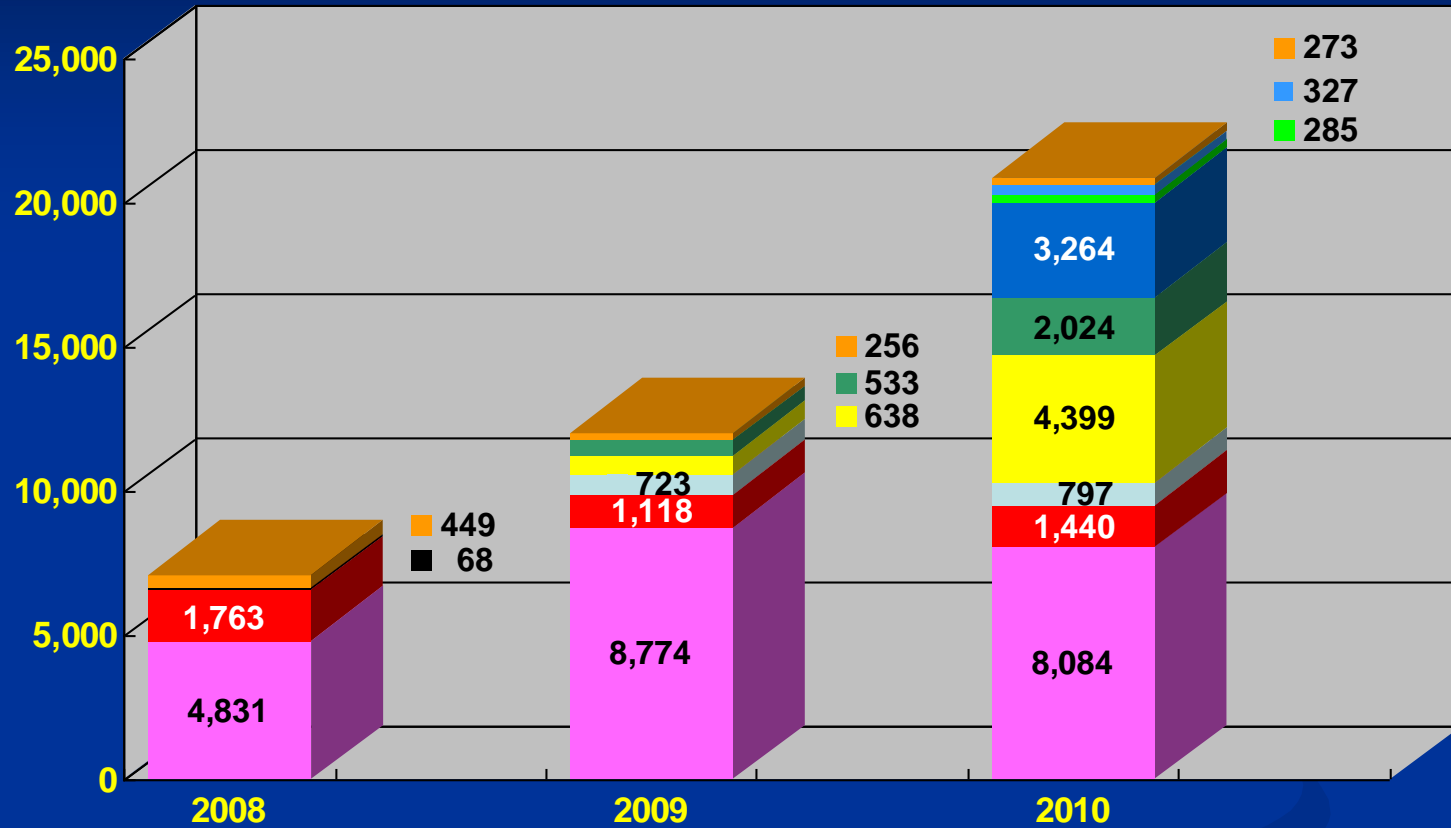


■ Household 
 ■ Green house 
 ■ Public sector 
 ■ Power plant 
 ■ Local production 
 ■ Import

Source : Korea Forest Service

# Wood pellet import by countries

Unit : MT



Source : Korea Customs Service

# Average Import Price of Wood Pellet by Key Countries – Year 2010

Unit	China	Vietnam	Malaysia	Chile	Canada	Indonesia
Tons	8,084	4,399	3,264	2,024	1,440	797
U\$1,000	1,244	530	429	359	351	108
Unit Price	154	120	131	177	244	136

- Higher calorific value could command higher price.
- Vietnamese pellet is reported to be in 4,200 ~ 4,800 CV.
- BC, Canada pellet is reported to be in 4,700 CV.
- Higher priced, cosmetically better looking Canadian pellets have been primarily used for animal bedding so far.
- Challenge for Canada for successful inroads into the Korean market would be how to compete against the lower cost pellet producers in the Southeast Asian countries.

# Questions in Logistics

- Wood pellets for household, public sector facilities, or commercial greenhouses are all packaged in 25 Kg unit. Since all pellet use in Korea so far has been in these areas, only 25 Kg unit pack has existed for both local and import packaging.
- When wood pellets start replacing coal for electricity from 2012, pellet packaging will have to change. For initial trials, container shipping would be suitable. But for larger volume, regular orders, bulk shipping would be most ideal, probably in minimum 50,000 ton loading.
- When pellets are shipped in bulk, transportation and storage will be a whole new issue. A close working relationship with customers would be important in problem solving in logistics.

*Thank you.*