

# Country Report on Energy Policy in Lao PDR

**Mr. Lamphone DIMANIVONG**  
Electrical Engineer  
Power Sector Planning Division

**Ministry of Energy and Mines**  
Department of Electricity

**Japan 7, April 2009**



# Contents

1. Background of Lao PDR
2. History of Power Sector Development
3. Power Sector Policy.
4. Existing of Energy Policy.
5. Demand and Supply Balance .
6. Conclusion.

# 1. Background of Lao PDR



⚡ Mountainous area with major tributaries of the Mekong River covering 35% of total Mekong River basin.

⚡ Relatively high annual rainfall.

⚡ Situated amongst neighboring countries where demand for electric power is steadily increasing.

⚡ Experience in electric power exchange with neighboring countries.

# 1. Background of Lao PDR (cont'd)



- ✦ Area of 236800 km sq.
- ✦ Population of 6.1 million
- ✦ Still poor( LDC status)
- ✦ GDP of USD 4.1 billion
- ✦ GDP per Capita of USD 670
- ✦ Hydropower potential say 23000 MW
- ✦ Existing installed capacity of 672 MW (3%)
- ✦ Produced energy of 3500 GWh/Y
- ✦ Produced energy per capita of 700kWh/Y
- ✦ Exported energy per capita of 320 kWh/Y



## 2. History of Power Sector Development

- Memorandum of Understanding on the power exchange program was signed with the Royal Thai Government in 1993 and 1996 under which 3,000 MW is to be supplied to Thailand and subsequently increased 7,000 MW is agreed;
- In 1998 and 2006 MOUs were signed with the Government of Vietnam for 3000 MW and subsequently 5000 MW is agreed;
- In 1999 Agreement on Cooperation in Power Sector was signed with Cambodia;
- Power Sector Strategy developed and updated from time to time;
- Power sector opened to private foreign direct investment;
- Legal framework has been improved from time to time to meet international financing requirements.

### 3. Power Sector Policy

- 
- ✧ Maintain and expand affordable, reliable and sustainable electricity supply to promote economic and social development;
  - ✧ Promote power exports as well as domestic power supply to earn revenues to meet Government development objectives with particular emphasis on poverty eradication.
  - ✧ Develop and enhance the legal and regulatory framework to facilitate power sector development by either public, private or public private partnership;
  - ✧ Gain capacity building through international technical know-how and expertise;
  - ✧ Ensure accountability and transparency of environmental and social impacts and thereby achieve sustainable development.

# Objective of the Power Sector Development

- 
- ✧ Provide a source of foreign exchange to fund economic and social development and alleviate poverty.
  - ✧ Meet the commitments under intergovernmental MOUs and Agreements with Thailand, Vietnam and others.
  - ✧ Extend rural electrification to promote better socio-economic development and reach the government target of 70% and 90% by year 2010 and 2020 respectively.
  - ✧ Integrate power sector and maintain its economic development as a whole with international communities through its power exchange programs and foreign direct investment.

## 5. Existing of Energy Policy



- This policy base on three principles of sustainability and applies to all large hydropower dams, where large dams are defined as having installed capacity of higher than 50 MW or inundation more than 1000 ha of land at their fully supply level.
- This national policy also applies to hydropower project constructed after 1990.
- An integrated approach to river basin management will be practiced for multiple projects planned to dam a single river.



## *Three importance principles of hydropower sector sustainable development*

1. Economic sustainability relies upon the maintenance of the renewable resource base, and the use of non-renewable resource rent to support the development of other factors of production.
2. Social sustainability is based upon the principle of inclusiveness, mutual understanding and consensus.
3. Ecological sustainability relies upon the avoidance of irreversible environmental impact such as the loss of biodiversity accumulation of persistent pollutants or disruption of ecological cycle.
4. Renewable energy Policy now is under drafting by Finland .

## 6.Demand forecast

### 1: Summary of Demand forecast for Northern area

Descriptions	Actual	Forecast →				Growth Rate		
	2006	2007	2010	2015	2020	2006-10	2006-15	2006-20
Energy Demand , GWh	26.03	32.90	50.88	865.61	921.39	18%	48%	29%
System Losses, GWh	7.55	9.25	13.00	48.53	54.70			
	22%	22%	20%	5%	6%			
Energy Demand (Including system losses), GWh	33.59	42.15	63.88	914.15	976.10	17%	44%	27%
Peak Load, MW	12.78	15.16	18.56	155.20	162.98	10%	32%	20%
Load Factor	30%	32%	39%	67%	68%			

#### Average Growth per annum

Energy Demand, GWh

Energy Demand (Including system losses), GWh

Peak Load, MW

#### 2007-2020

68.3

71.8

11.4

## 2: Summary of Demand forecast for Central area

Descriptions	Actual	Forecast →				Growth Rate		
	2006	2007	2010	2015	2020	2006-10	2006-15	2006-20
Energy Demand , GWh	794.8	902.8	1,669.5	3,531.9	4,549.0	20%	18%	13%
System Losses, GWh	230.6	245.7	301.2	408.3	495.5			
	22%	21%	15%	10%	10%			
Energy Demand (Including system losses), GWh	1,025.4	1,148.6	1,970.7	3,940.2	5,044.5	18%	16%	12%
Peak Load, MW	216.1	242.2	374.0	683.5	880.6	15%	14%	11%
Load Factor	54%	54%	60%	66%	65%			

### Average Growth per annum

Energy Demand, GWh

Energy Demand (Including system losses), GWh

Peak Load, MW

### 2007-2020

280.5

299.7

49.1

### 3: Summary of Demand forecast for Central2 area

Descriptions	Actual	Forecast →				Growth Rate		
	2006	2007	2010	2015	2020	2006-10	2006-15	2006-20
Energy Demand , GWh	464.3	645.3	923.2	1,469.2	1,671.0	19%	14%	10%
System Losses, GWh	54.6	73.3	92.6	128.1	147.7			
	11%	10%	9%	8%	8%			
Energy Demand (Including system losses), GWh	518.9	718.6	1,015.8	1,597.3	1,818.7	18%	13%	9%
Peak Load, MW	83.6	117.7	168.7	271.0	313.7	19%	14%	10%
Load Factor	71%	70%	69%	67%	66%			

#### Average Growth per annum

Energy Demand, GWh

Energy Demand (Including system losses), GWh

2007-2020

79

85



#### 4: Summary of Demand forecast for Southern area

Descriptions	Actual	Forecast →				Growth Rate		
	2006	2007	2010	2015	2020	2006-10	2006-15	2006-20
Energy Demand , GWh	115.5	130.4	390.7	491.2	629.3	36%	17%	13%
System Losses, GWh	33.5	36.7	52.0	66.5	80.5			
	22%	22%	12%	12%	11%			
Energy Demand (Including system losses), GWh	149.0	167.0	442.7	557.8	709.7	31%	16%	12%
Peak Load, MW	36.9	40.6	87.1	106.5	129.5	24%	13%	9%
Load Factor	46%	47%	58%	60%	63%			

##### Average Growth per annum

Energy Demand, GWh

Energy Demand (Including system losses), GWh

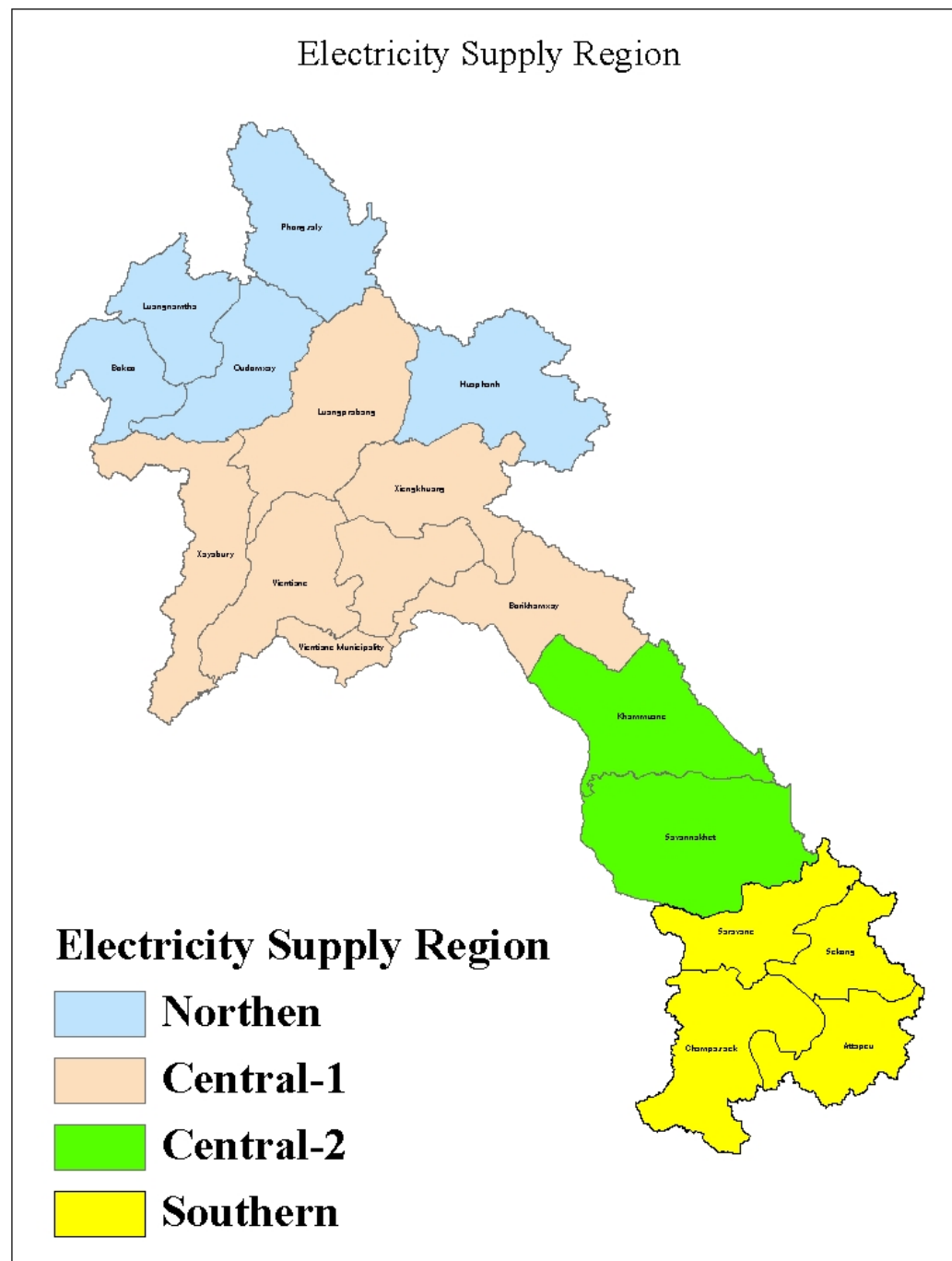
Peak Load, MW

##### 2007-2020

38.4

41.7

6.8



## DEMAND - SUPPLY BALANCE

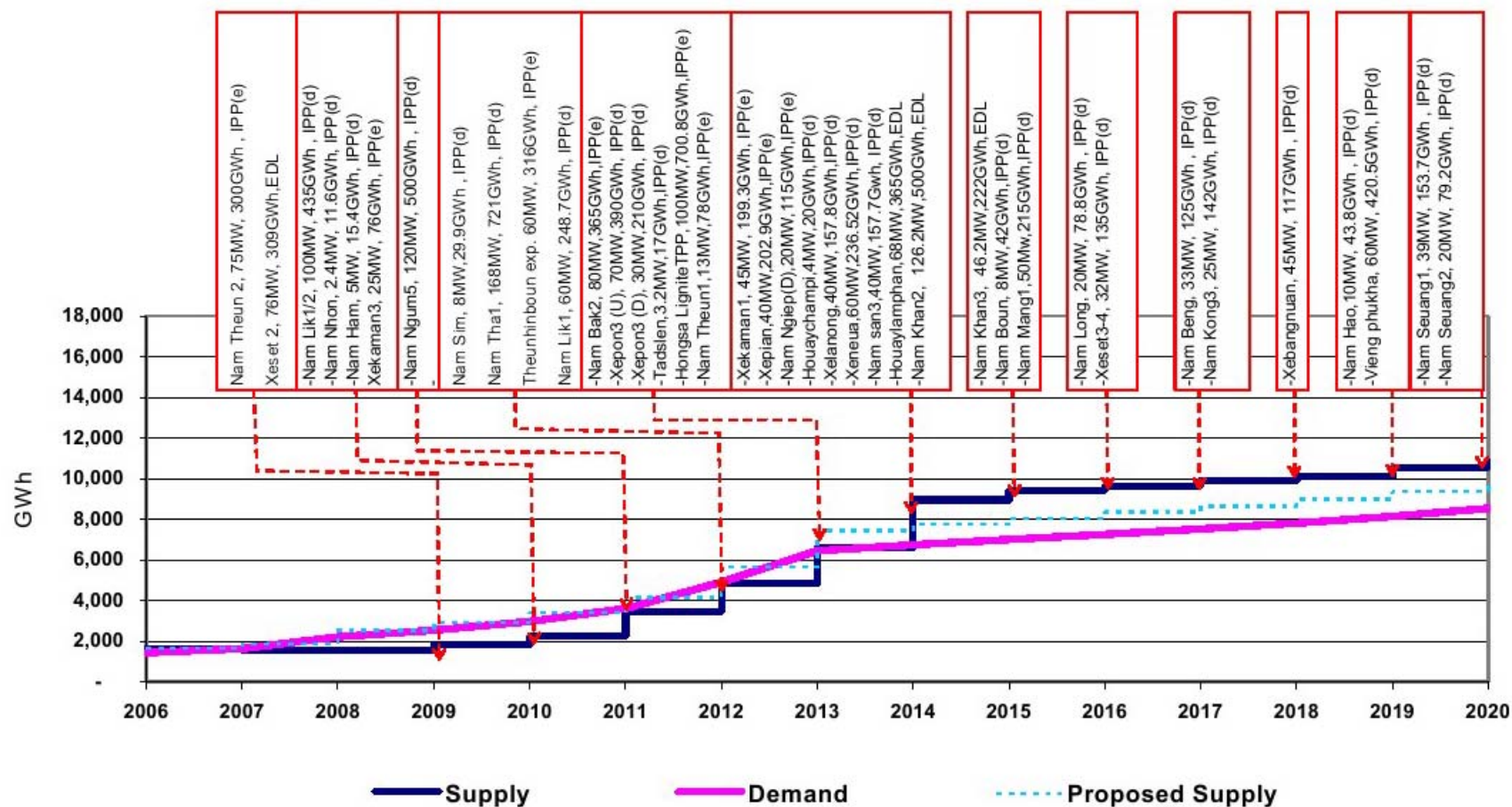


Figure 3.2-1: Demand – Supply Balance



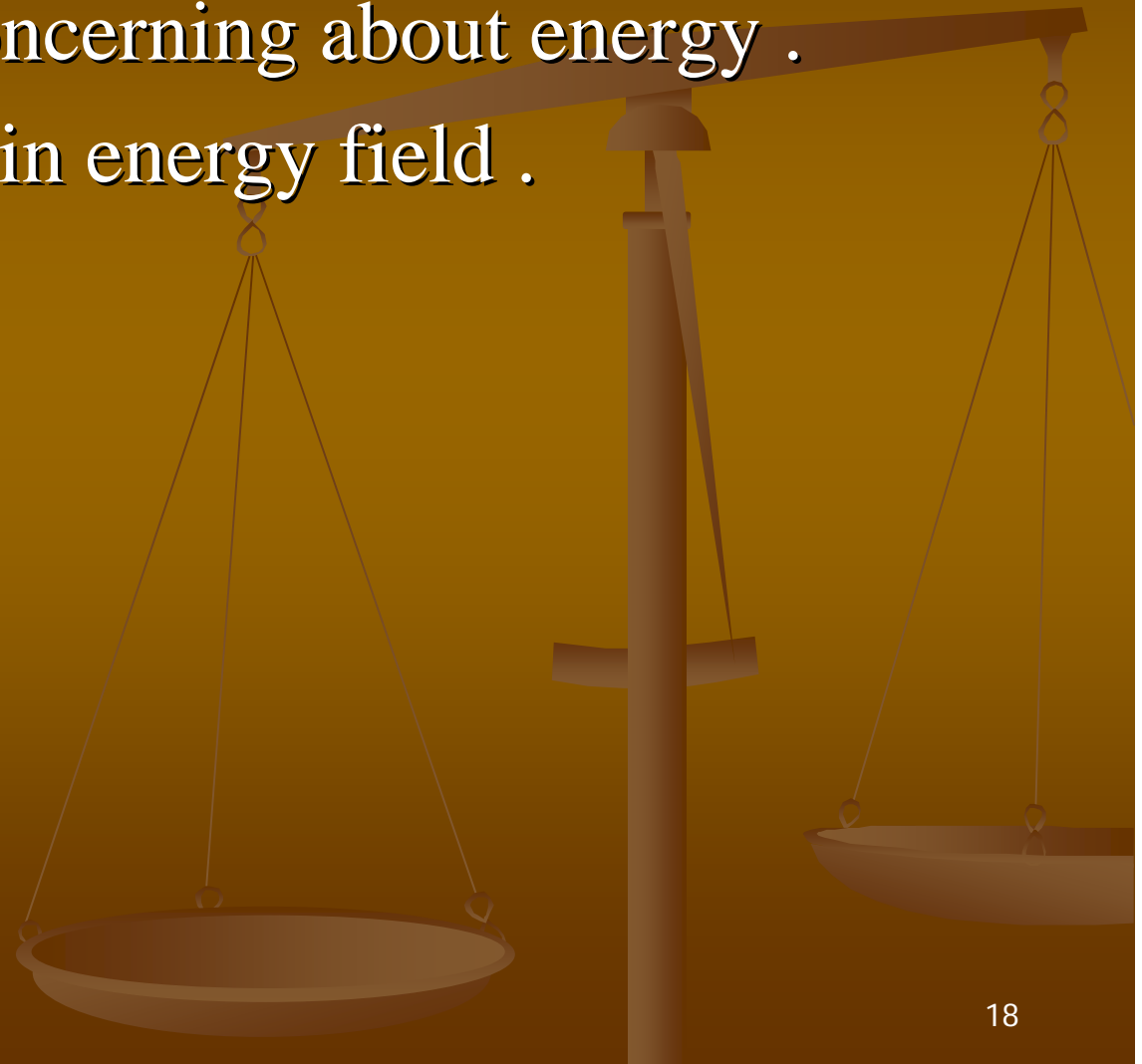


## 7.Conclusion.

- Due to Laos is abundant of hydropower potential, the main energy source is base on hydropower electric only it cause of shortage power during dry season.
- The grid extension is not connected from Northern part to Southern part that why we need a huge budget to extend a grid .
- A demand of each region is very difference, the grid extension is not efficiency but GOL have to do .
- Lack of Resource person.
- Lack of fund.

# The expectation from this training course

- All policy that concerning about energy .
- Market principle in energy field .





Thank you for your attention !  
Kopchai.  
Arikato.