

# **Rural Electrification Situation in Lao PDR**

## **CAP-REDEO MEETING**

**4<sup>th</sup> April 2007. Vientiane, LAO PDR**

**Department of Electricity,  
Ministry of Energy and Mines  
LAO PDR  
Tel: 856-21-415714  
Fax; 856-21-415388  
Email: [anousak\\_PV@yahoo.com](mailto:anousak_PV@yahoo.com)**

# OUT LINE

1. INTRODUCTION
2. ROLES AND RESPONSIBILITIES
3. CURRENT STATUS AND ON-GOING RE PROGRAM
4. GOVERNMENT TARGET FOR RE
5. POLICY AND PLANNING
6. CONCLUSION



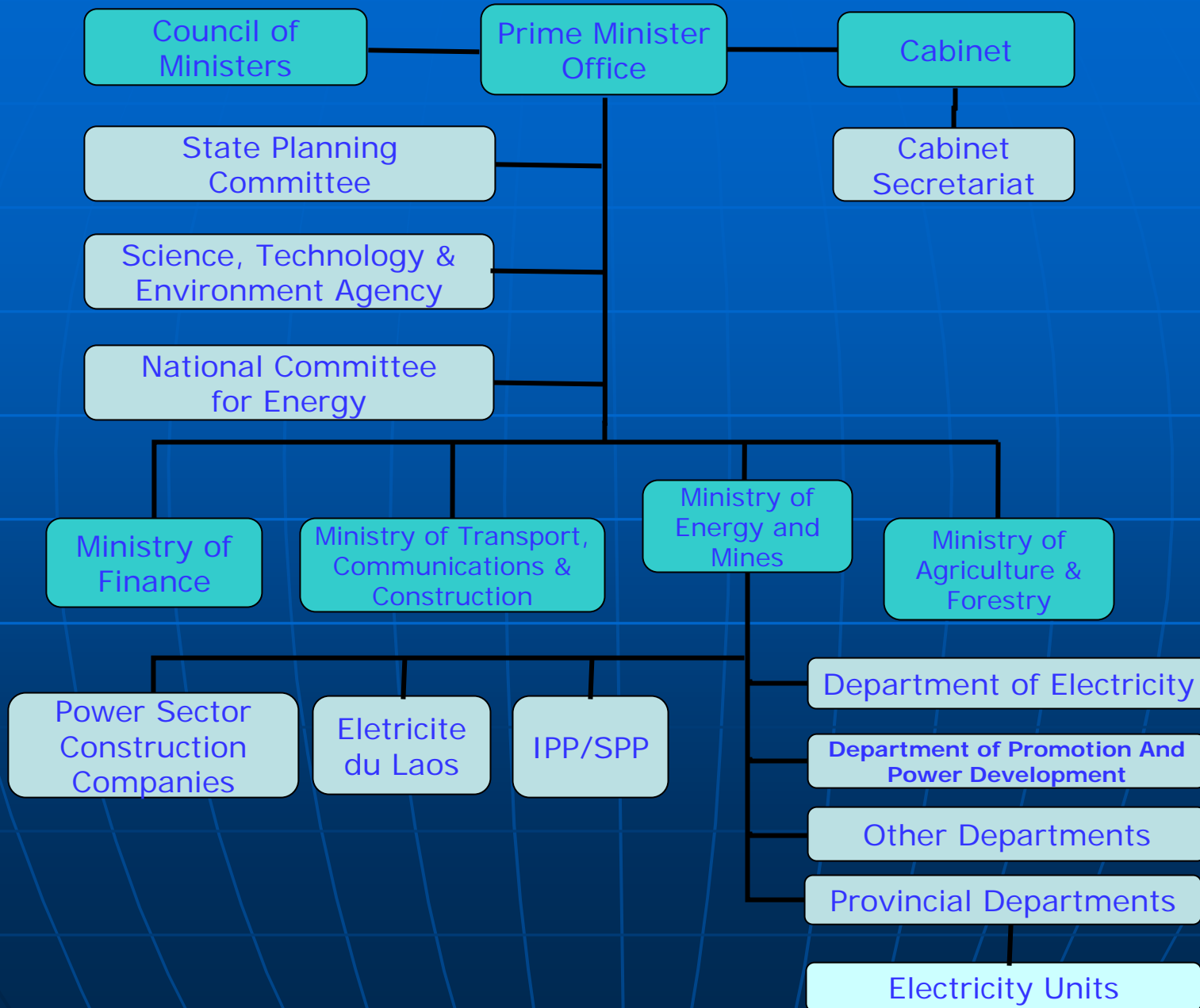
# 1. INTRODUCTION

1. Country: Centrally located in GMR Area = 236,800 km<sup>2</sup>, Mountainous, land locked
2. Population: 5.6 million, 80% in rural areas, 2.6% annual Growth,
3. Economy: Narrow base - resource exploitation GNP per capita of US\$ 400, GDP growth of 7% annually, 26.6% of GDP from industry and other remaining from Agriculture, and services sector
4. Hydropower Potential: over 23,000 MW.

**47 % of Household electrified (2005)**



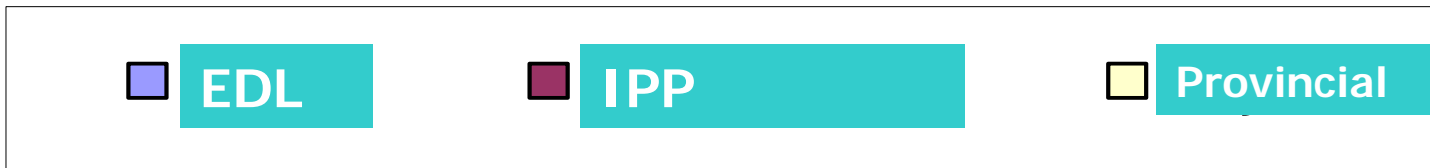
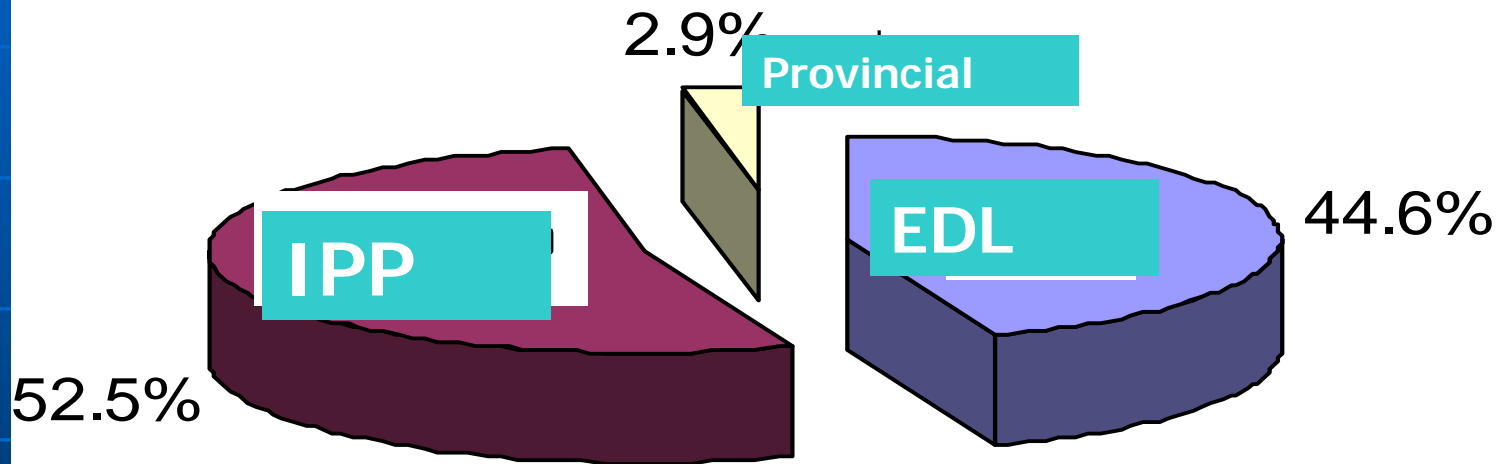
## 2. Power Sector for Lao PDR



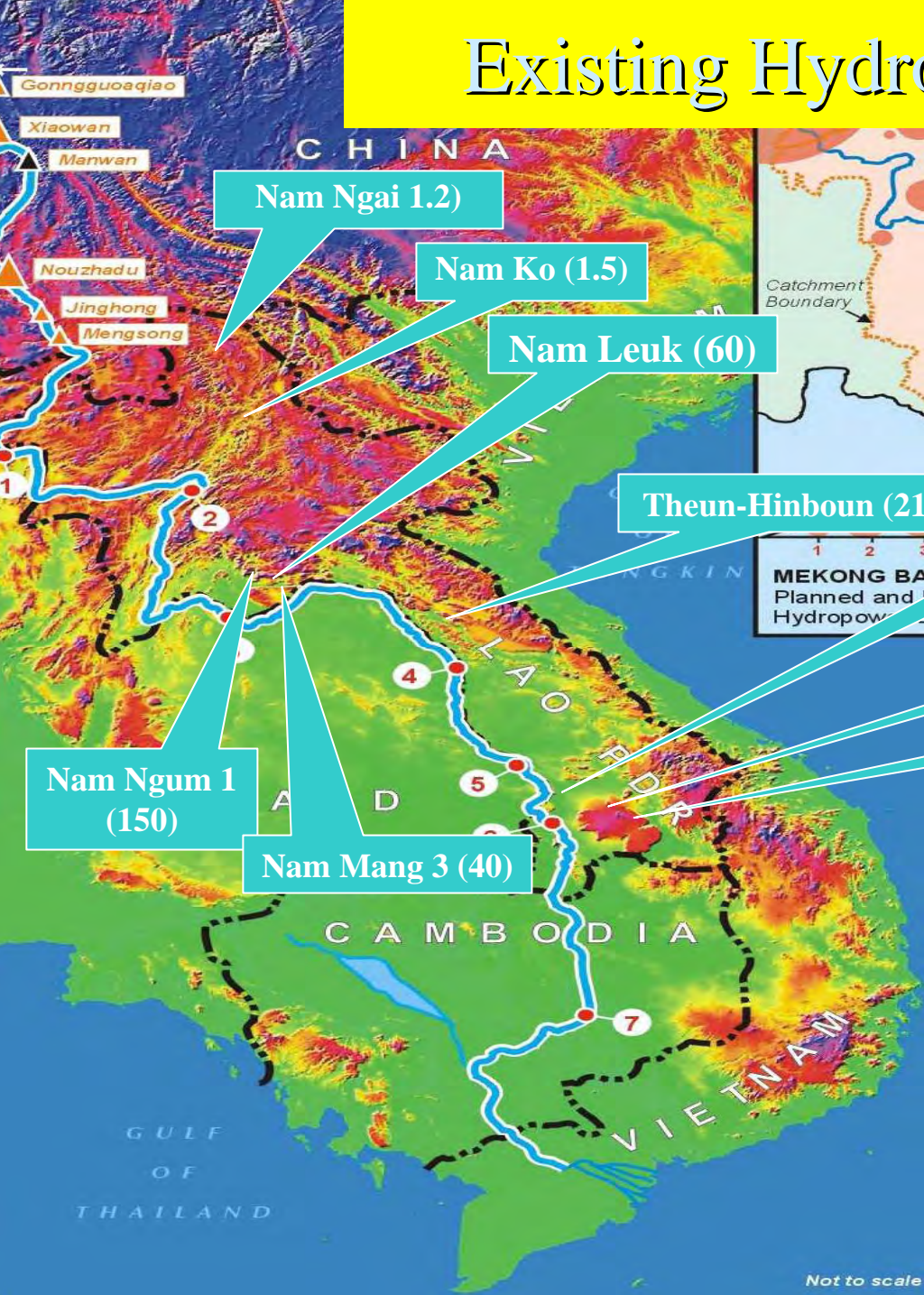
# 3. Ownership of Generation

Installed Capacity: 690 MW: EdL 307.5 MW

IPP: 362.5 MW, Provincial: 20



# Existing Hydropower Projects



- Location of Existing Hydropower Plants
- Installed Capacity: 690 MW

# Small Hydro



**The Nam Mong and Houay Se Hybrid System Projects have supported Villages.**

***Small Hydro for the People***



## **Village Hydro Station**

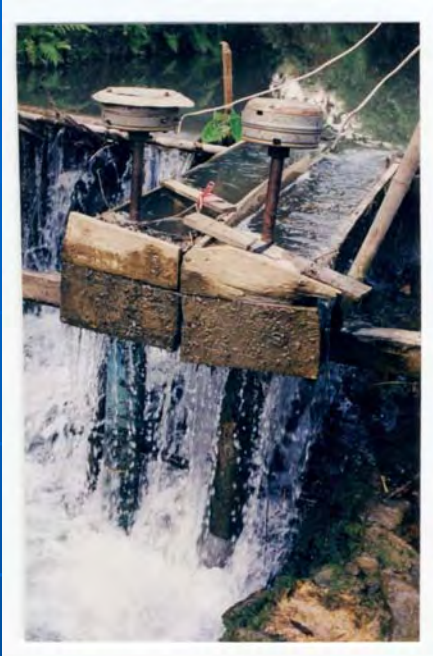
**Thapen Village,  
Luang Prabang  
Province**

**Capacity: 2 kW  
About 50 customers**



**Nam Bo Village,  
Luang Prabang  
Province  
Capacity: 3 kW**





# Household Pico-Hydro

In most of villages  
Northern Province

Capacity: 0.2 – 3  
kW

Use for lighting and  
TV





# Solar Home System

(Off-Grid Project)



SHS is the most popular system for villagers, especially in the isolated areas.

Capacity: 20 – 50 Wp  
Use for lighting and TV

## 4. GOVERNMENT TARGET

- **GOL aims to electrify 90% of households by 2020.**
- **GOL aims to electrify 70% of household by 2010.**

# 5. POLICY AND PLANNING

# Power Sector Policy

- Maintain and expand affordable, reliable and sustainable supply electricity to promote economic and social development
- Promote power generation for export to provide revenues to meet GOL development objectives
- Develop and enhance the legal and regulatory framework to effectively direct and facilitate power sector development
- Strengthen institutions and institutional structures and enhance the commercial function and streamline administration

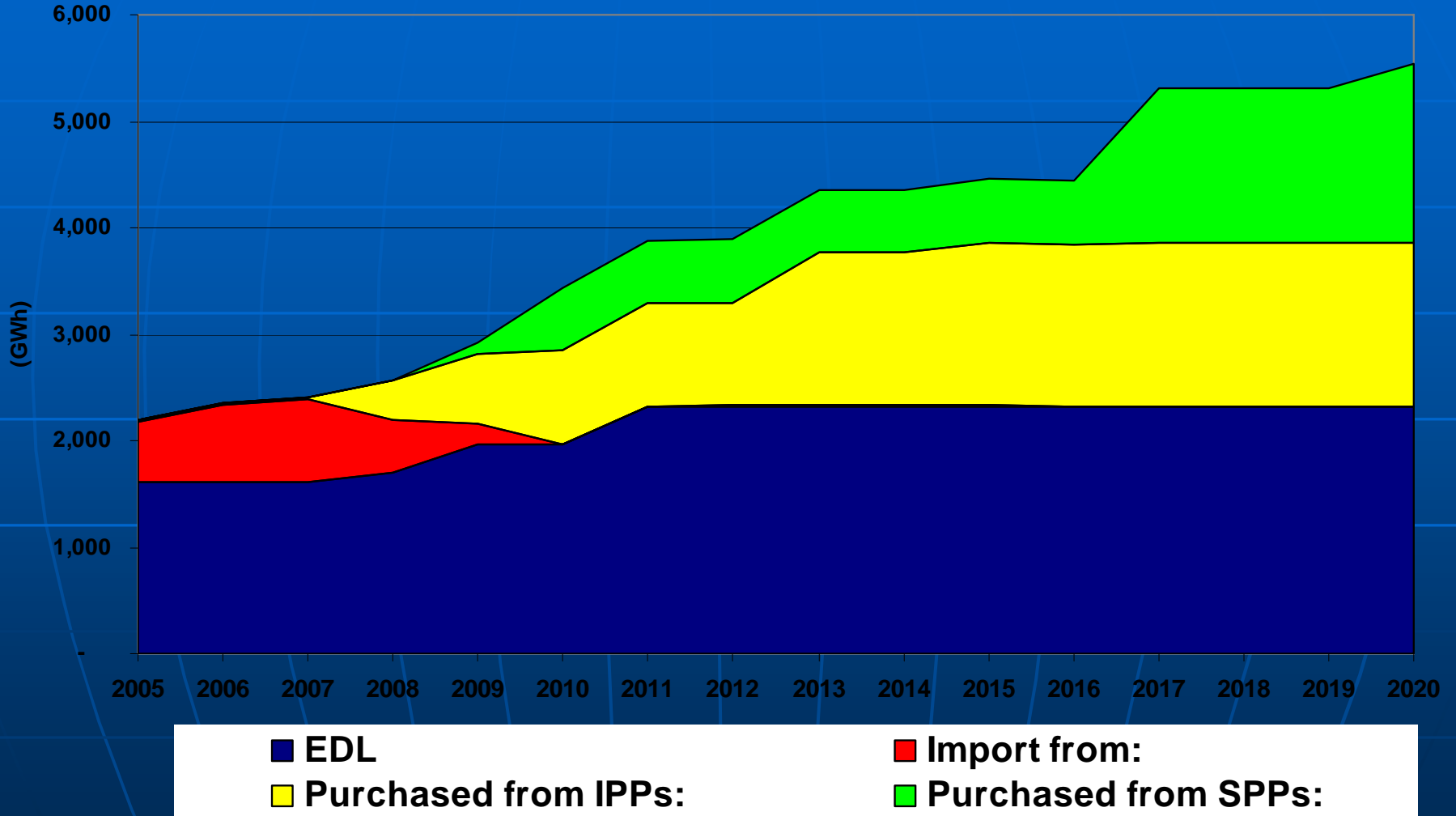
# Objectives of the power development policy

- ⚡ Provide a source of foreign exchange to fund economic and social development and alleviate poverty;
- ⚡ Meet the commitments specified in intergovernmental MOUs with Thailand, Vietnam and Cambodia;
- ⚡ Expand the customer base through grid extensions and satisfy growth in domestic demand;

# Objectives of the power development policy (Con't)

- ✦ Explore and exploit mutually beneficial cross border exchanges of electricity with neighbouring countries of the sub-region.
- ✦ Extend off-grid rural electrification to promote better socio-economic conditions within isolated communities.
- ✦ Tariff policy support the move to cost recovery pricing over a period of time. Transparency and predictability in electricity pricing will assist present and potential developers and lenders in making informed decisions about electricity investment.

# DOMESTIC SUPPLY BALANCE





# ELECTRICITY DEMAND FORECAST

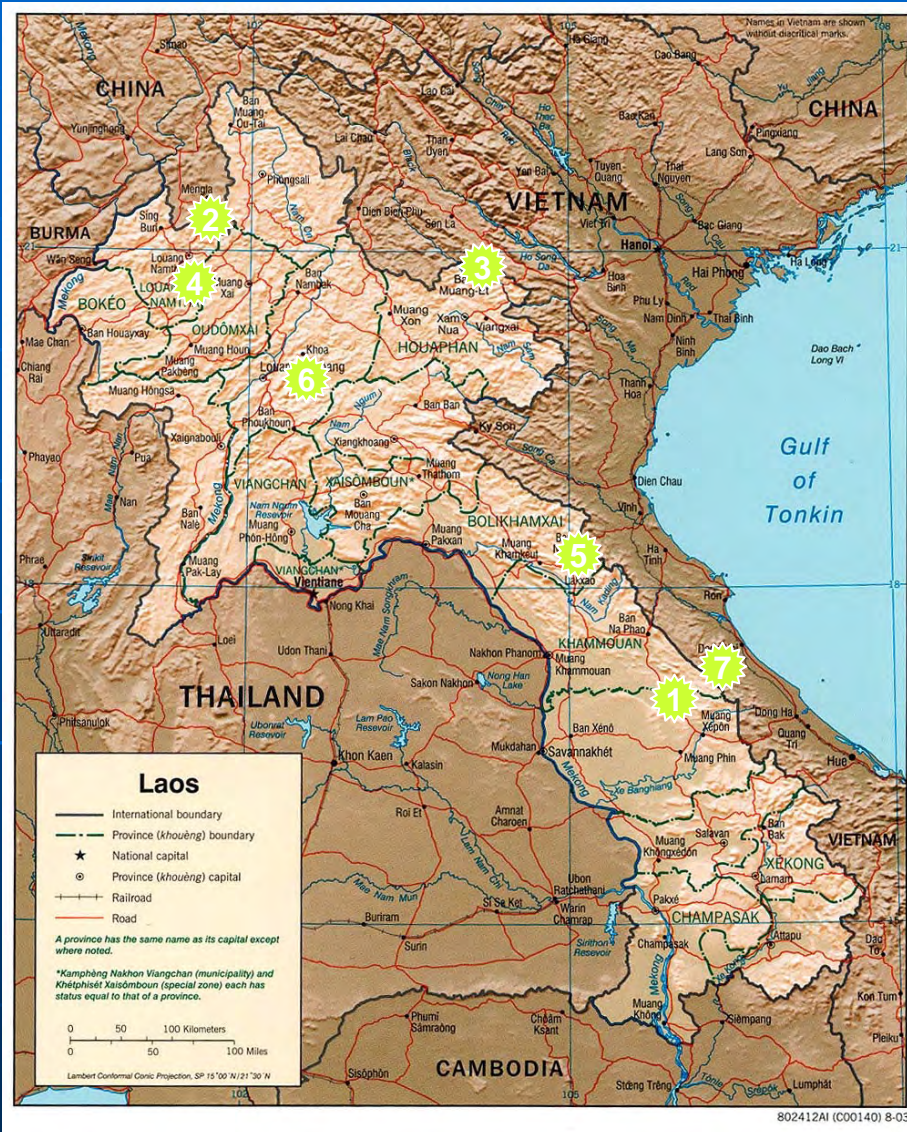
**Table 3.2-1: Summary of Electricity Demand Forecast in Lao PDR**

<b>Description</b>	<b>Units</b>	<b>2003</b>	<b>2005</b>	<b>2010</b>	<b>2015</b>	<b>2020</b>
Energy Consumption	(GWh)	1,101.7	1,608.7	2,684.1	3,650.8	4,854.7
Growth Rate	(%)		21.0	11.0	6.0	6.0
Peak Load	(MW)	232.3	328.3	510.7	694.6	923.6
Growth Rate	(%)		19.0	9.0	6.0	6.0
Load Factor	(%)	54.1	55.9	60.0	60.0	60.0

**Table 2.7-1: Forecast of Incremental Demand in Lao PDR**

<b>Description</b>	<b>Units</b>	<b>2003-05</b>	<b>2003-10</b>	<b>2003-20</b>
Additional Energy Consumption	(GWh)	507.1	1,582.5	3,753.0
Average growth per annum	(GWh)	253.5	226.1	220.8
Additional Peak Load	(MW)	96.0	278.4	691.4
Average growth per annum	(MW)	48.0	39.8	40.7

# Domestic Generation 2006-2020



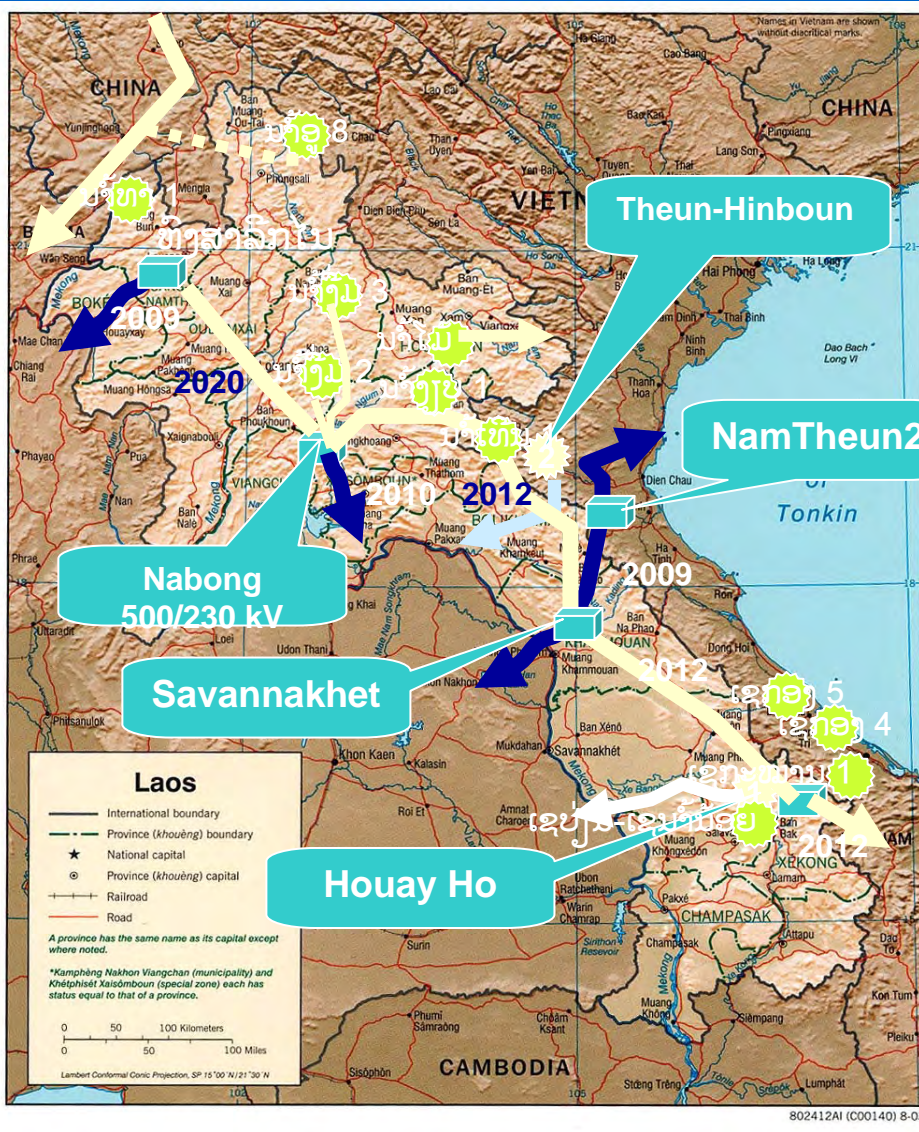
1. Xeset 2 (76MW/ 309 GWh),
2. Viengphoukha Lignite Power Plant (50 MW/225 GWh)
3. Nam Sim 7.8 MW/34 GWh,
4. Nam Beng (20MW/67 GWh),
5. Nam Theun 2 off take (75 MW/275 GWh)
6. Nam Lik1/2 100 MW/347GWh
7. Xepone 3 (75 MW/301 GWh)
8. Nam Ngiep 1 offtake 16 MW/200 GWh
9. Nam Bak 2B 116 MW/ 563 GWh
10. Houay Lamphan Ngai 60MW/ 354 GWh
11. Xekatom 60MW/210 GWh
12. Nam Long 11MW/ 53 GWh
13. Nam Pot 20 MW/105 GWh
14. Nam Ngum 4 (54 MW/267Gwh)
15. Nam Pot (20 MW/105 GWh)
16. Nam Sane 3 (30 MW/285 GWh)
17. Xeset 3 (20 MW/69 GWh)

# EXISTING PLANNING TOOLS

- SWEDNET- EDL is used for rural electrification planning in early 90's and;
- CYMDISK- is a software that also using in EDL planning and system analysis.

# Transmission line

Plan up to 2020



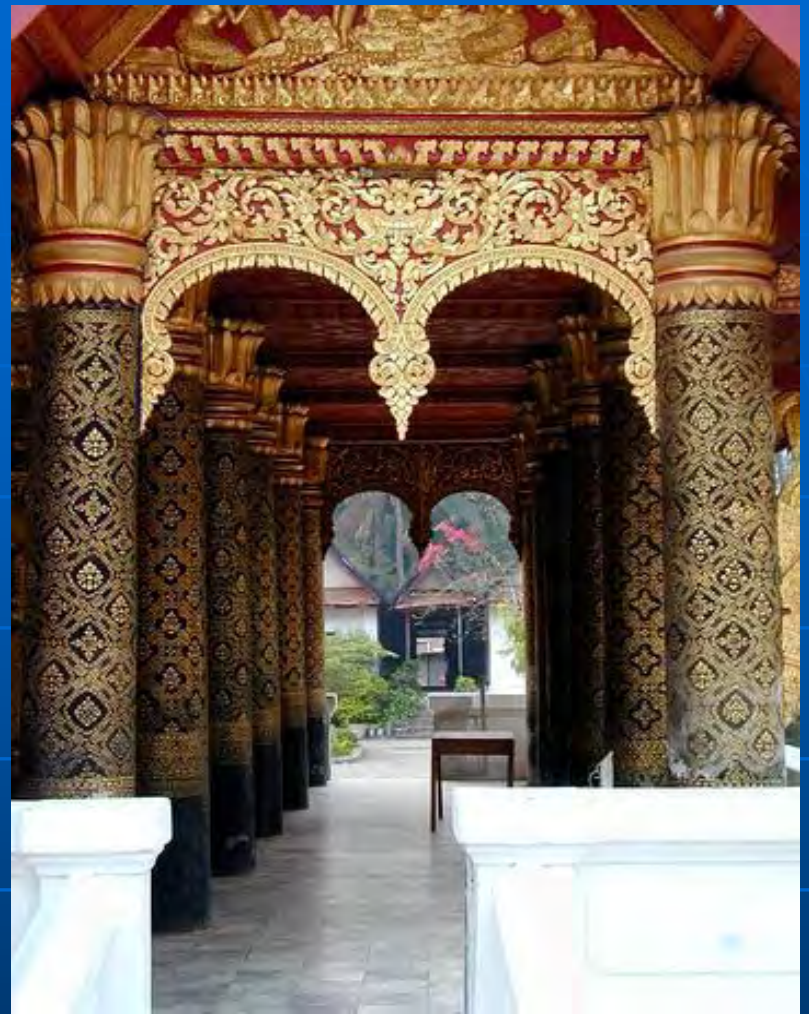
1. Nam Theun 2- Savannakhet (Lao-Thai border) and Nam Theun 2- Hatinh (Lao-Viet Nam border)
2. Nam Ngum ( Ban Nabong) to Lao-Thai border
3. Hongsia Lignite to Maemo (Lao-Thai border )
4. Sekong Basin (Ban Sok or Pa Am) to Plekeu
5. Sekong Basin to Savannakhet
6. Nam Ngum Basin (Nabong)- NamTheun 2
7. Xienghoung ( China)- Bangkok(Thailand)

## 6. CONCLUSSION

- There is needed an appropriated tool for RE planning, in order to provide various options to the decision makers and the Government;
- Capacity building essentially need for both at central level and local level of Government officer as planner and utility, such as EDL.

# Tourism

1. Eco-tourism
2. Culture-Tourism
3. Agro-Tourism



# Eco-tourism

- Clean air
- Beautiful landscape
- Attractive for health-improving purposes



# Culture-tourism

- Rich in well-preserved culture and traditions
- World heritage sites





**Thank You For  
Your Attention**

