FRANCO-ASEAN SEMINAR ON POWERING ASEAN

CAMBODIA POWER SECTOR DEVELOPMENT

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Ministry of Industry, Mines and Energy

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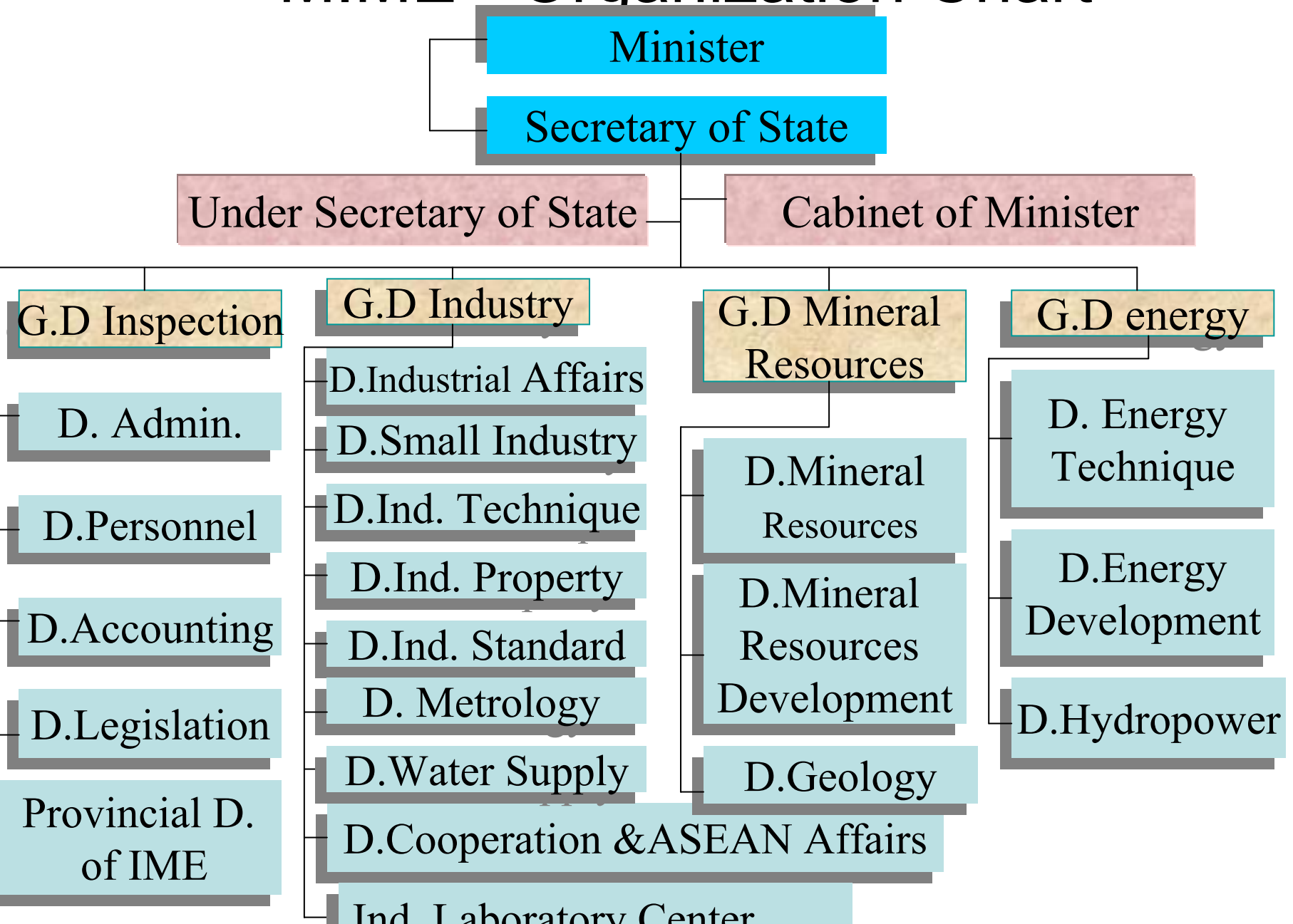
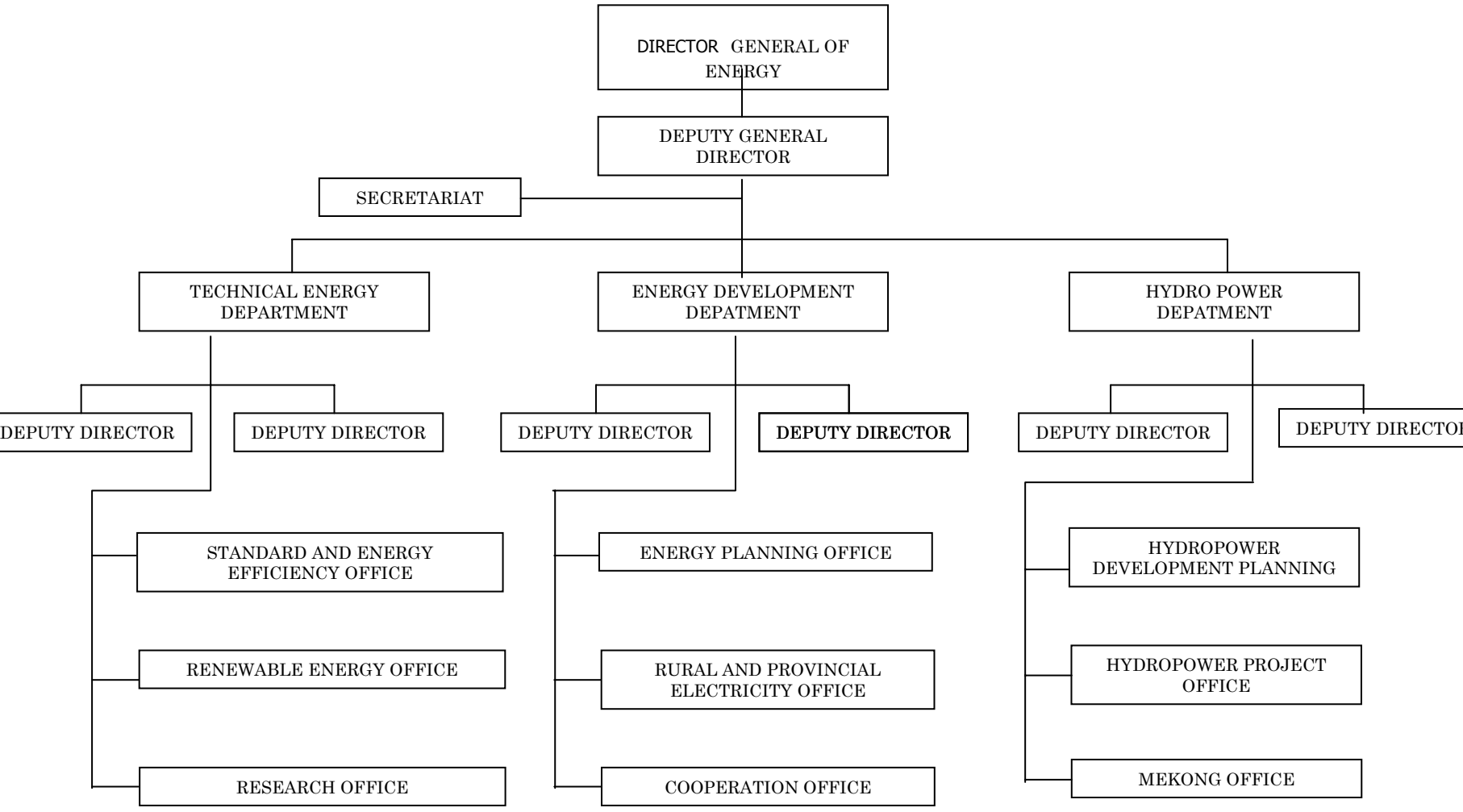
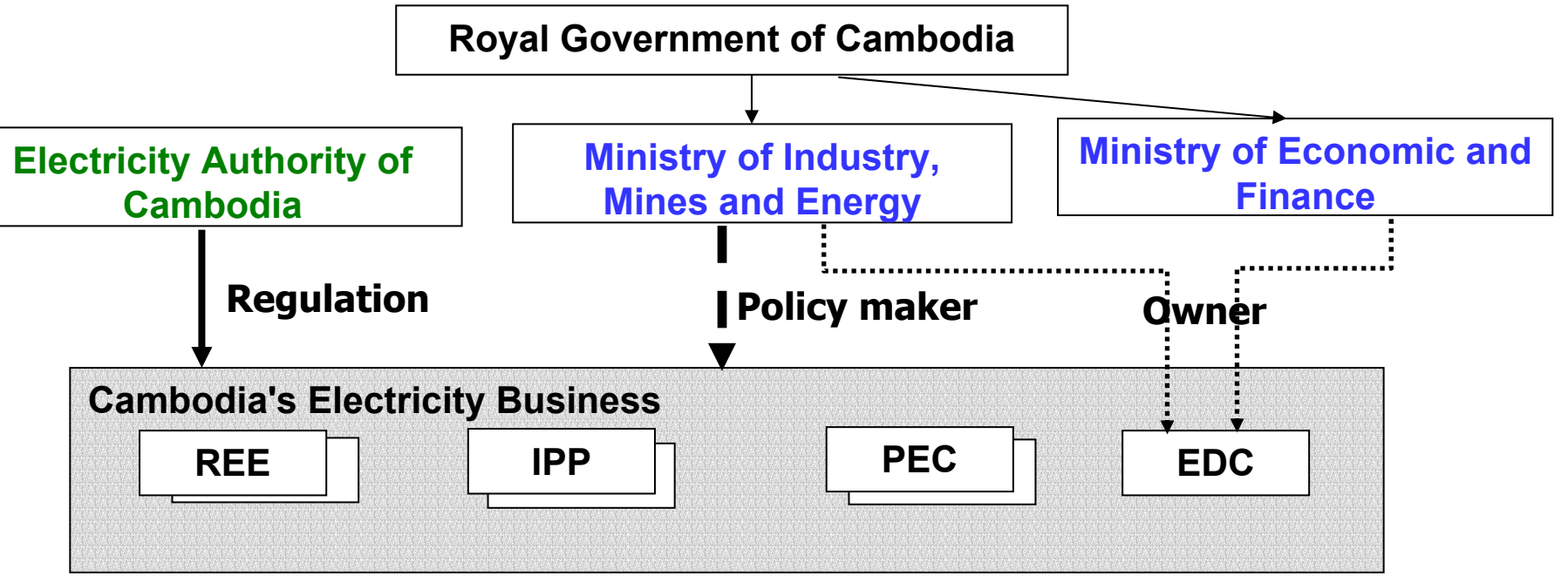
MIME - Organization Chart



Organization Chart
Of General Directorate Of Energy



Current Structure of Electricity Sector



Ownership of EDC

Policy; Planning; Development; Technical standard

Tariff, license, Review the Planned Investments, finances and performance; Enforce the regulations, rules and standards

Current Status of Cambodia Power Sector

1. Current status of Cambodia power sector

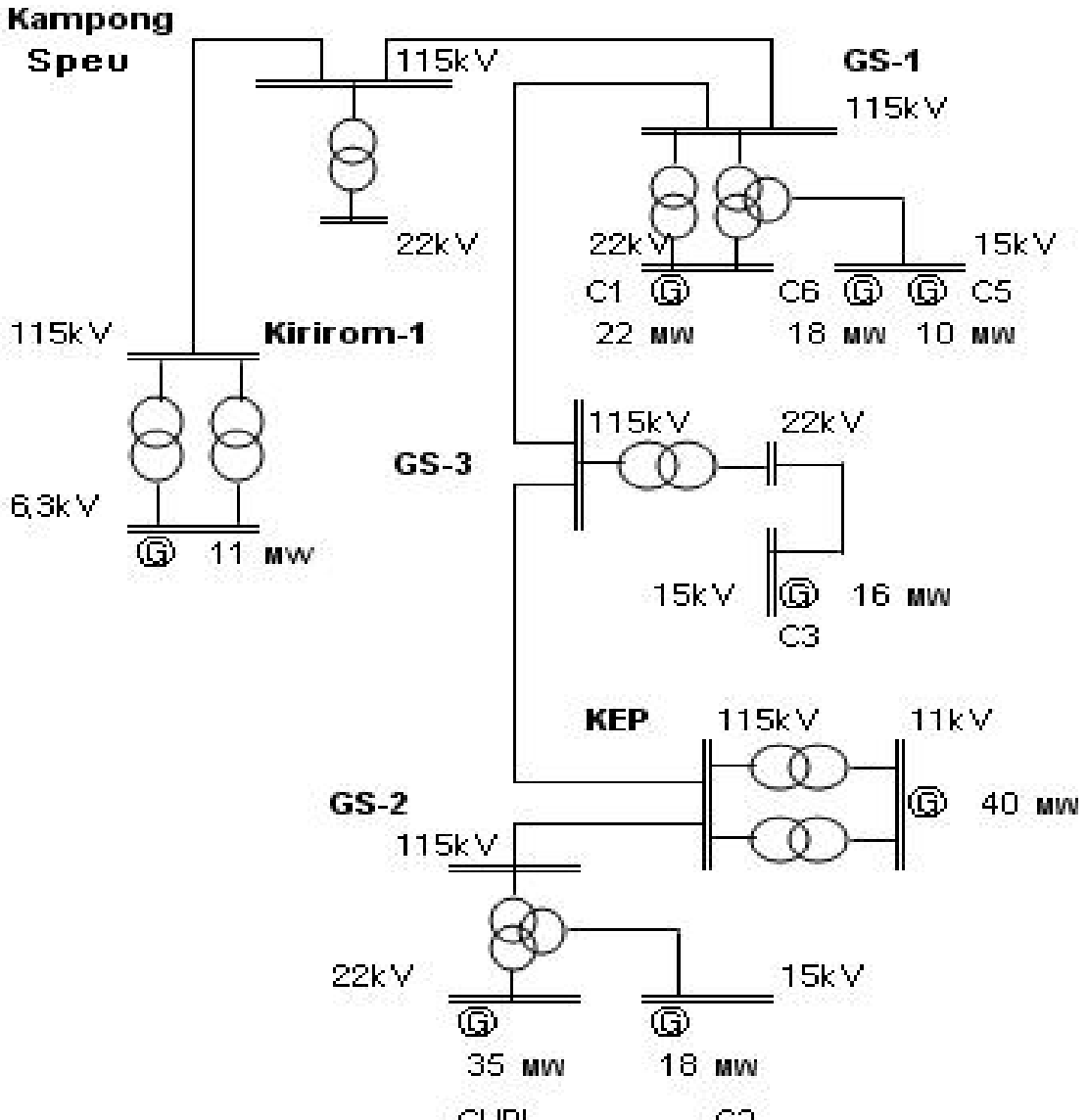
- At present, only 20% of households has access to electricity (60% of Urban HH and 13% of Rural HH). Annual energy consumption per capita: 60kWh
- Problems of Cambodia power system
  - No national grid
  - No scale of economies
  - No fuel diversity(only imported oil)
  - High import tax on imported oil

High production cost
& Low reliability
➔ Low demand growth
➔ Low investment

- Regional power grid construction in near future
  - Phnom Penh & Southern area
    : Takeo, Kampot(Kep), Sihanoukville
  - North-Western
    : Siem Reap, Battambang, Banteay Meanchey
  - North-Eastern
    : Kampong Cham, Kratie, Stung Treng
  - Other provinces

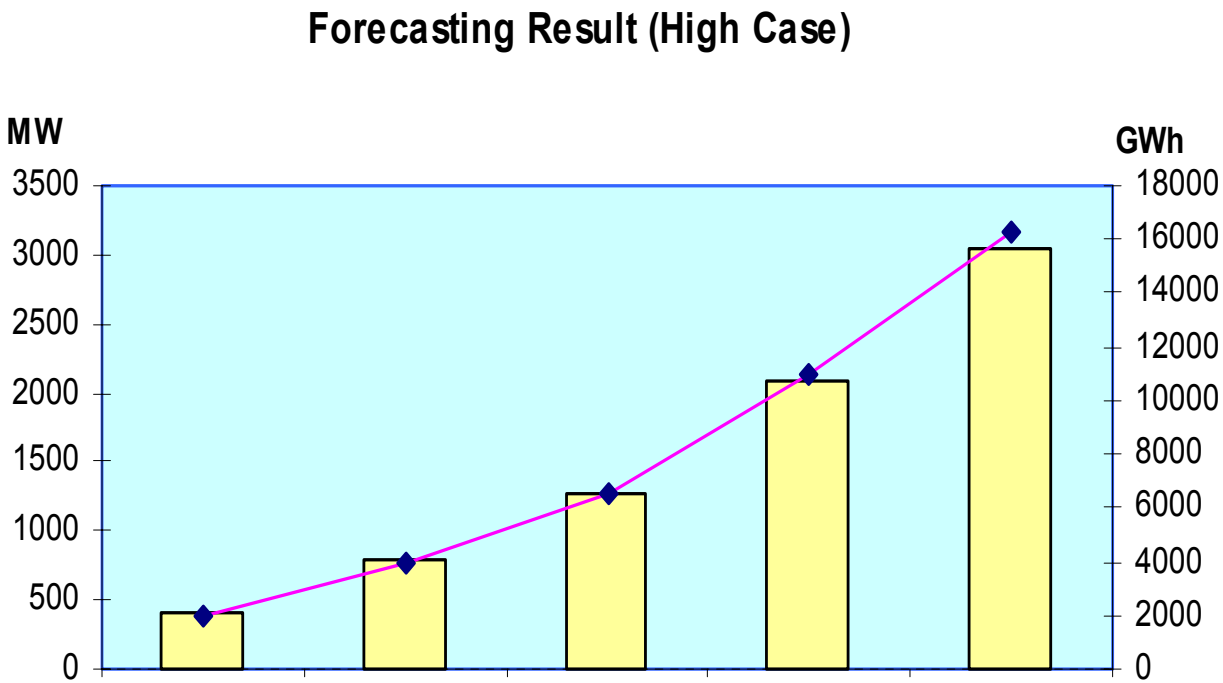
Current Status of Cambodia Power Sector (Cont.)

2- Existing Facilities



The Transmission Line connecting Phnom Penh – Kampong Speu – Kirirom I is the only transmission grid in Cambodia.

Future Trends on Power and Energy Demand



Year	2005	2010	2015	2020	2024
Peak Demand (MW)	402.58	793.28	1276.95	2084.80	3045.40
Production (GWh)	1984.63	3895.91	6570.31	11024.88	16244.93

Development of Supply System

- Generation growth from 402.58 MW and 1,984.63 GWh in year 2005 to 3,045.4MW and 16,244.93 GWh in year 2024
- The highest demand & highest growth in Cambodia

Development of Supply System (Cont..)

Expansion Power Source Development from 2007 to 2022				
No	**Expansion of Power Source**	**Type**	**Size (MW)**	**Operation Year**
1	Import from Thailand via Banteay Meanchey Battambang and Sieam Reap	Import	20	2007
2	Import from Vietnam to Phnom Penh	Import	80	2008
3	Import from Vietnam to Kampong Cham	Import	20	2009
4	Import from Laos to Stung Treng	Import	20	2009
5	Expansion Import from Vietnam to Phnom Penh	Import	120	2010
6	Kirirom III hydro generator	Hydro	18	2010
7	Kamchay hydro generator	Hydro	193	2010
8	Coal Power Plant in Sihanouk Ville	Coal	200	2010
9	Expansion Import from Thailand via Banteay Meanchey	Import	60	2010
10	Stung Atay hydro generator	Hydro	120	2012

Development of Supply System (Cont..)

11	Coal Power Plant at Coastal Area	Coal	400	2013
12	Lower Russey Chrum hydro generator	Hydro	235	2014
13	Chay Araing hydro generator	Hydro	260	2015
14	Sambo hydro generator	Hydro	467	2016
15	Sesan & Lower Srepok II hydro generator	Hydro	420	2016
16	Stung Battambang I hydro generator	Hydro	24	2017
17	Upper Russey Chrum hydro generator	Hydro	32	2017
18	Middle Russey Chrum hydro generator	Hydro	125	2018
19	Stung Tatay hydro generator	Hydro	80	2018
20	Stung Battambang II hydro generator	Hydro	36	2019
21	Gas generator	Gas	450	2020
22	Gas generator	Gas	450	2022
	TOTAL		**3,830**	

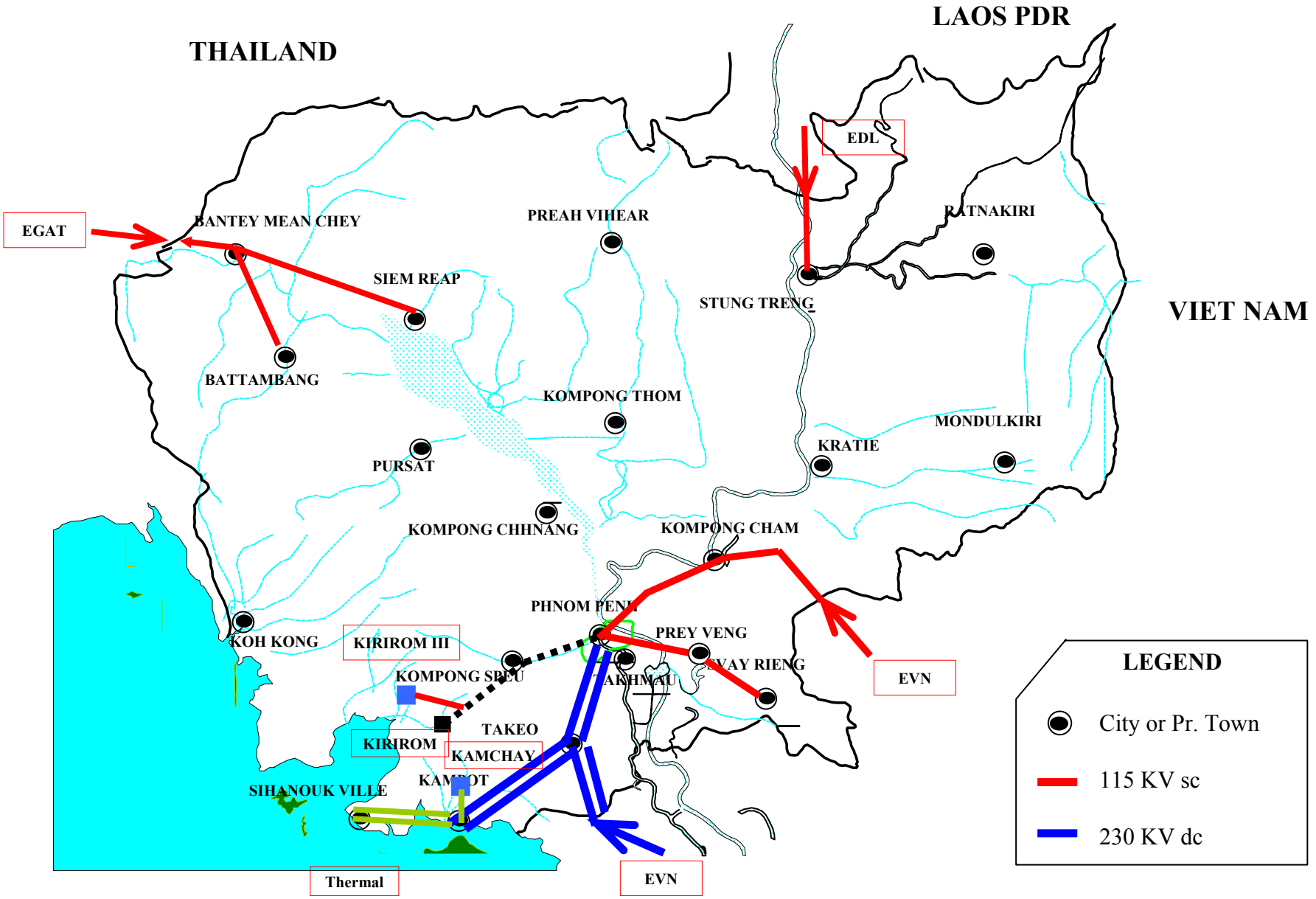
Development of Supply System (Cont..)

National Transmission Line Development Plan from 2007 to 2020		
No	**Name of Transmission Line**	**Commissioning Year**
1	115 kV Transmission line from Thailand to Banteay Meanchey-Battambang and Sieam Reap	2007
2	230 kV Transmission line from Phnom Penh-Takeo to Vietnam	2008
3	115 kV Transmission line from Kampong Cham-Sourng-Ponheakrek to Vietnam	2009
4	115 kV Transmission line from Stung Treng to Laos	2009
5	230 kV Transmission line from Takeo to Kampot, and Substation at Kampot Town	2009
6	230 kV Transmission line from Kampot to Sihanouk Ville, and Substation at Sihanouk Ville	2010
7	230 kV Transmission line from Phnom Penh-Kampong Chhnang-Posat-Battambang, and Substation	2012

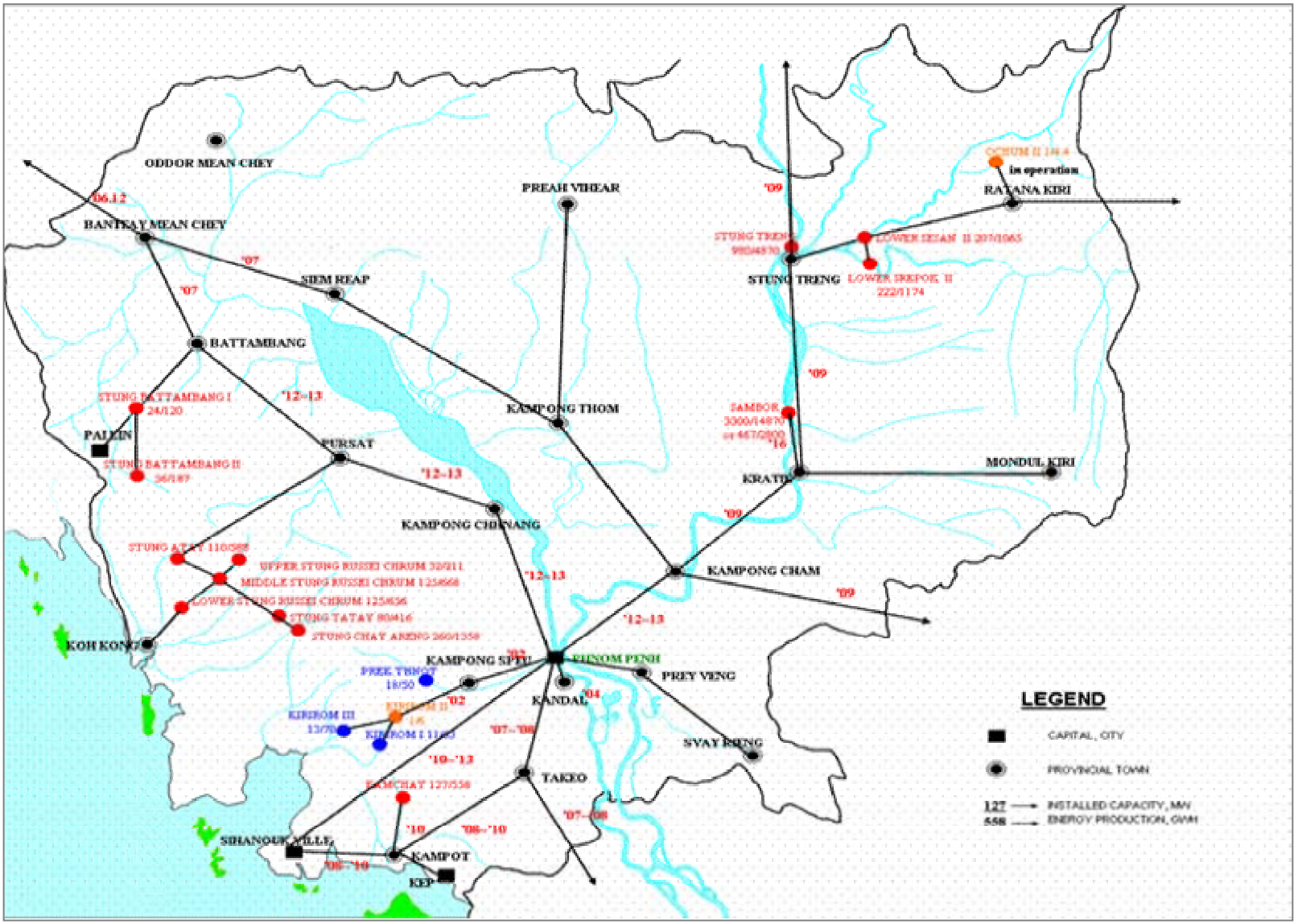
Development of Supply System

8	230 kV Transmission line from Stung Atay to O Saom Substation and to Posat Substation	2012
9	230 kV Transmission line from Phnom Penh to Kampong Cham and Skun Substation	2012
10	115 kV Transmission line from Phnom Penh-Nak Leong-Prey Veng-Svay Rieng to Vietnam	2013
11	230 kV Transmission line from Phnom Penh to Veal Rinh Substation	2013
12	230 kV Sambo Substation and 230 kV Transmission line from Kampong Cham Substation to Sambo Substation	2015
13	230 kV Transmission line from Sambo Substation to Se San II hydro generator	2016
14	115 kV Transmission line from Stung Treng Substation to Sambo Substation	2017
15	230/115 kV Transmission line from Kampong Cham-Kampong Thom-Sieam Reap, and Substation at Kampong Thom	2020

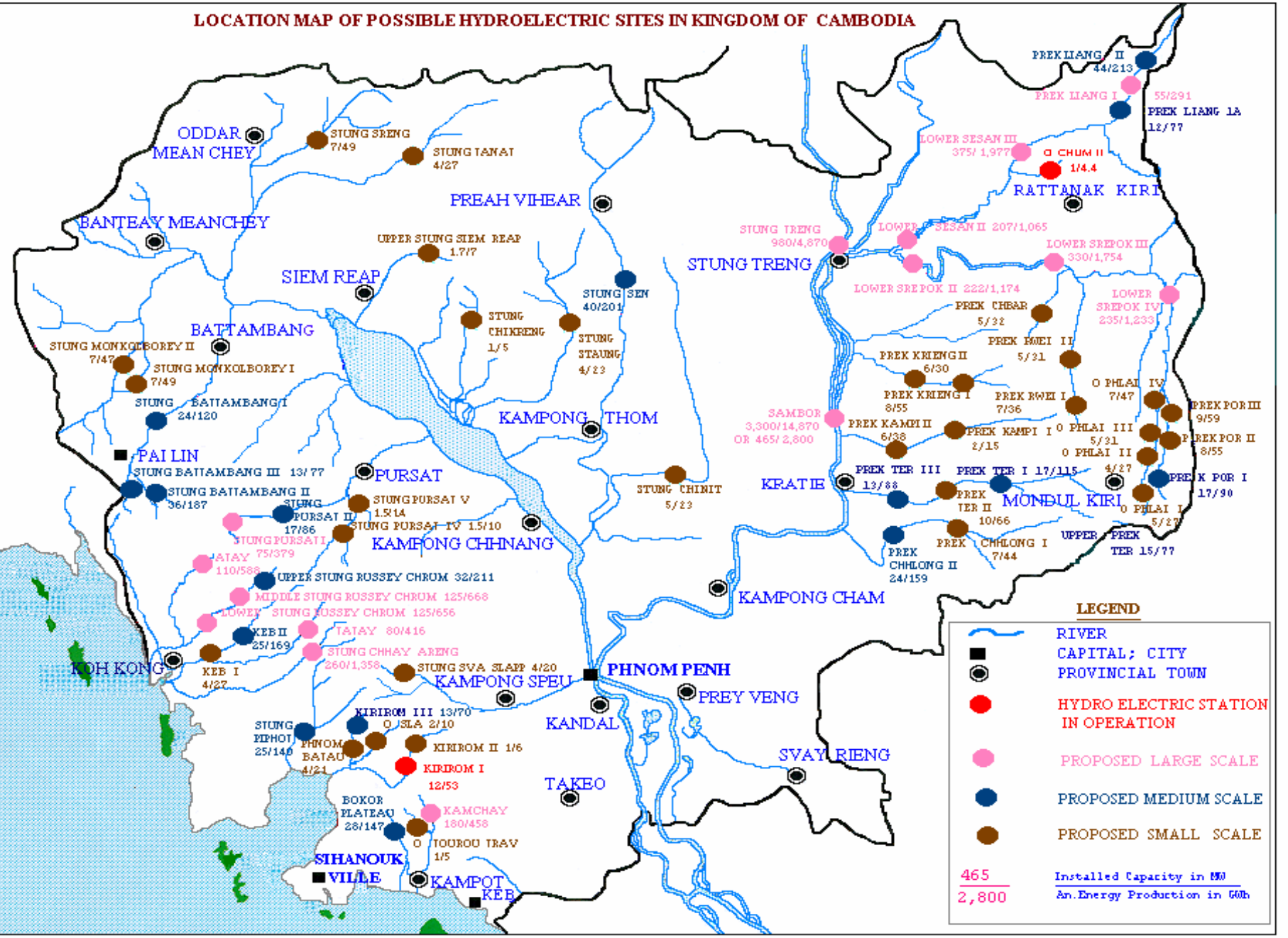
Power Supply Development Plan (2004-2010)



Power Transmission Line Development



LOCATION MAP OF POSSIBLE HYDROELECTRIC SITES IN KINGDOM OF CAMBODIA



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CONCLUSION AND RECOMMENDATION

- To achieve this Development Plan require huge capital
- National Grid will bring down electricity cost

- Private investment for generation and grid
- Donor support for other transmission lines and
- Need for Rural Electrification
- Create competitive economic environment in provinces for industries

ngkor Templ in Seam Reap Province