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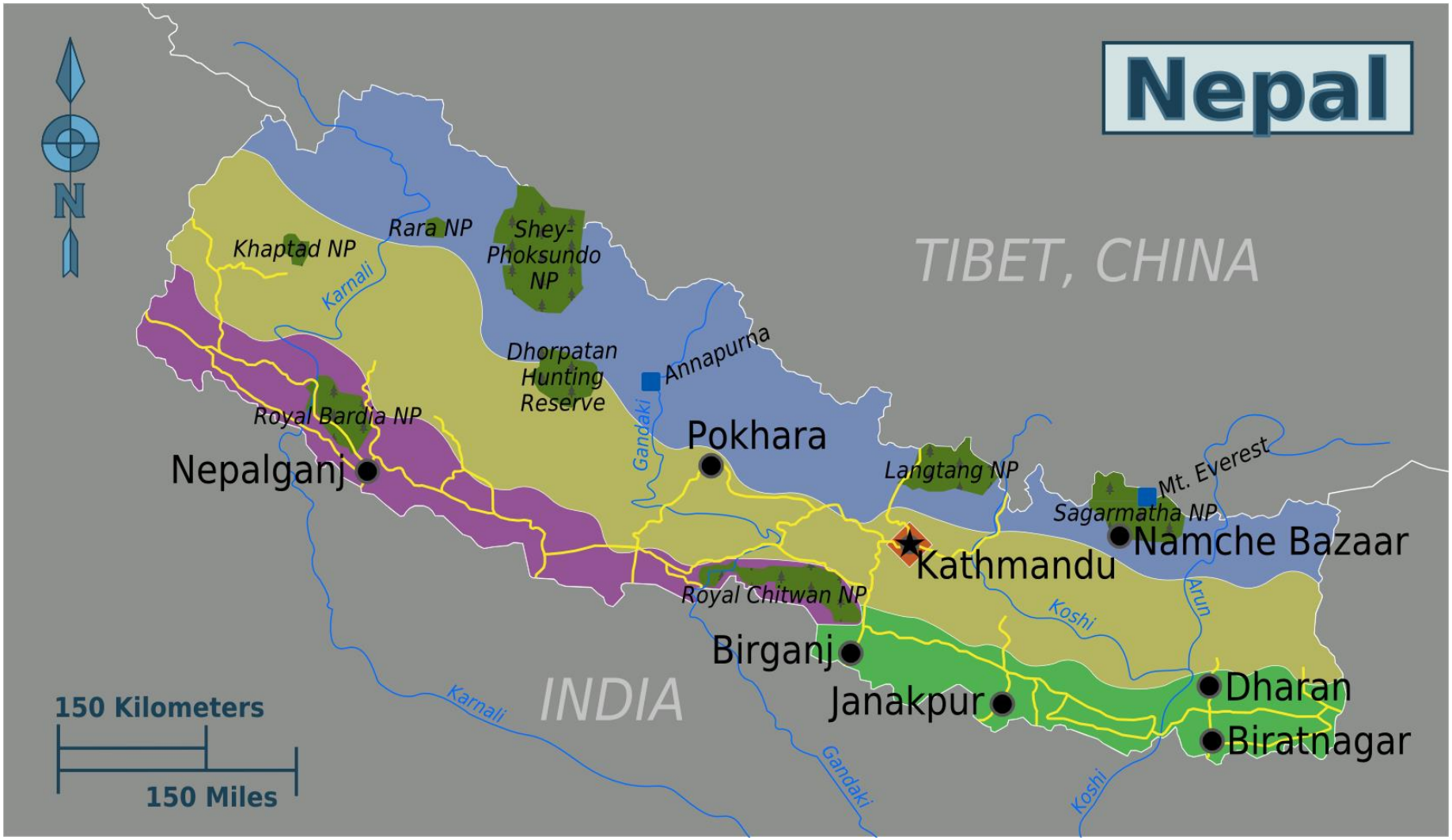
Nepal

Mount Everest- Highest Mountain –8848m

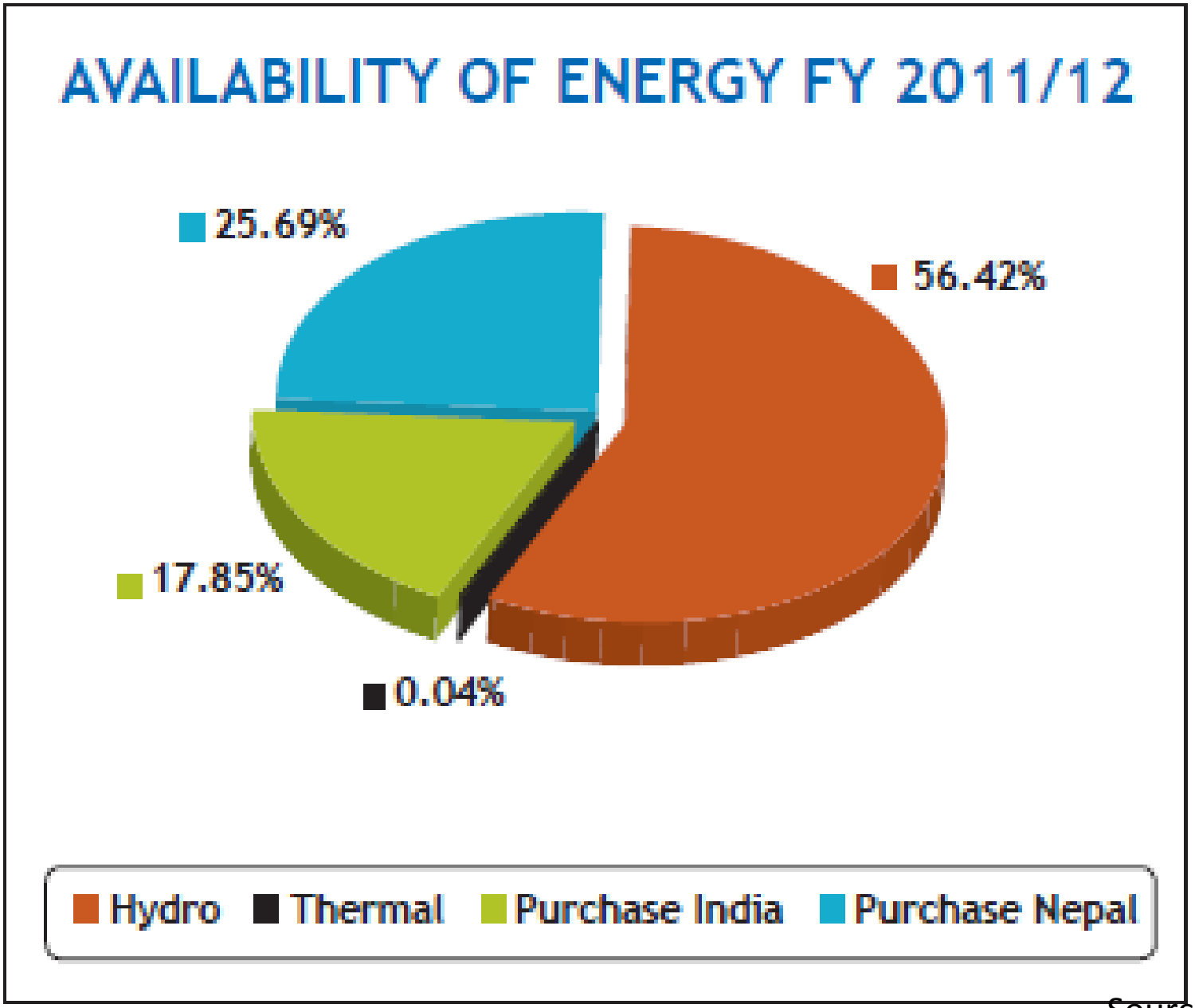
Pashupati Nath Temple- Holy place for Hindu

Birth place of Lord Buddha - Lumbini


Nepal
N
TIBET, CHINA
INDIA
Khaptad NP
Rara NP
Shey-Phoksundo NP
Karnali
Dhorpatan Hunting Reserve
Annapurna
Gandaki
Royal Bardia NP
Nepalganj
Pokhara
Langtang NP
Mt. Everest
Sagarmatha NP
Namche Bazaar
Kathmandu
Royal Chitwan NP
Koshi
Arun
Birganj
Janakpur
Dharan
Biratnagar
Karnali
Gandaki
Koshi
150 Kilometers
150 Miles

History- Nepal

Pharping, the first Hydroelectric Power Plant of Nepal(500kW), started generating electricity in 1911 and Distribution within Kathmandu Valley


AVAILABILITY OF ENERGY FY 2011/12
25.69%
56.42%
17.85%
0.04%
Hydro
Thermal
Purchase India
Purchase Nepal

Source: NEA

Introduction

Nepalese Power generation and Distribution system

- Two Furnace oil/Diesel based pant-14.41 MW, is located at Hetauda, 39 MW in Biratnagar.
- Nepal Electricity Authority (NEA)- Generation, Transmission & distribution – National Grid
- Butwal Power Company(BPC)- Three districts- IPP with power plants
- Off grid Micro hydro's- More than 22 MW

Hydro Power Generation

Total Major Hydro (NEA) - Grid Connected	472,994	kW
Total Small Hydro (NEA) - Isolated	4,536	kW
Total Hydro (NEA)	477,530	kW
Total Hydro (IPP)	187,581	kW
Total Hydro (Nepal)	477,530	kW
Total Thermal (NEA)	53,410	kW
Total Solar (NEA)	100	kW
Total Installed Capacity (Including Private & Others)	718,621	kW

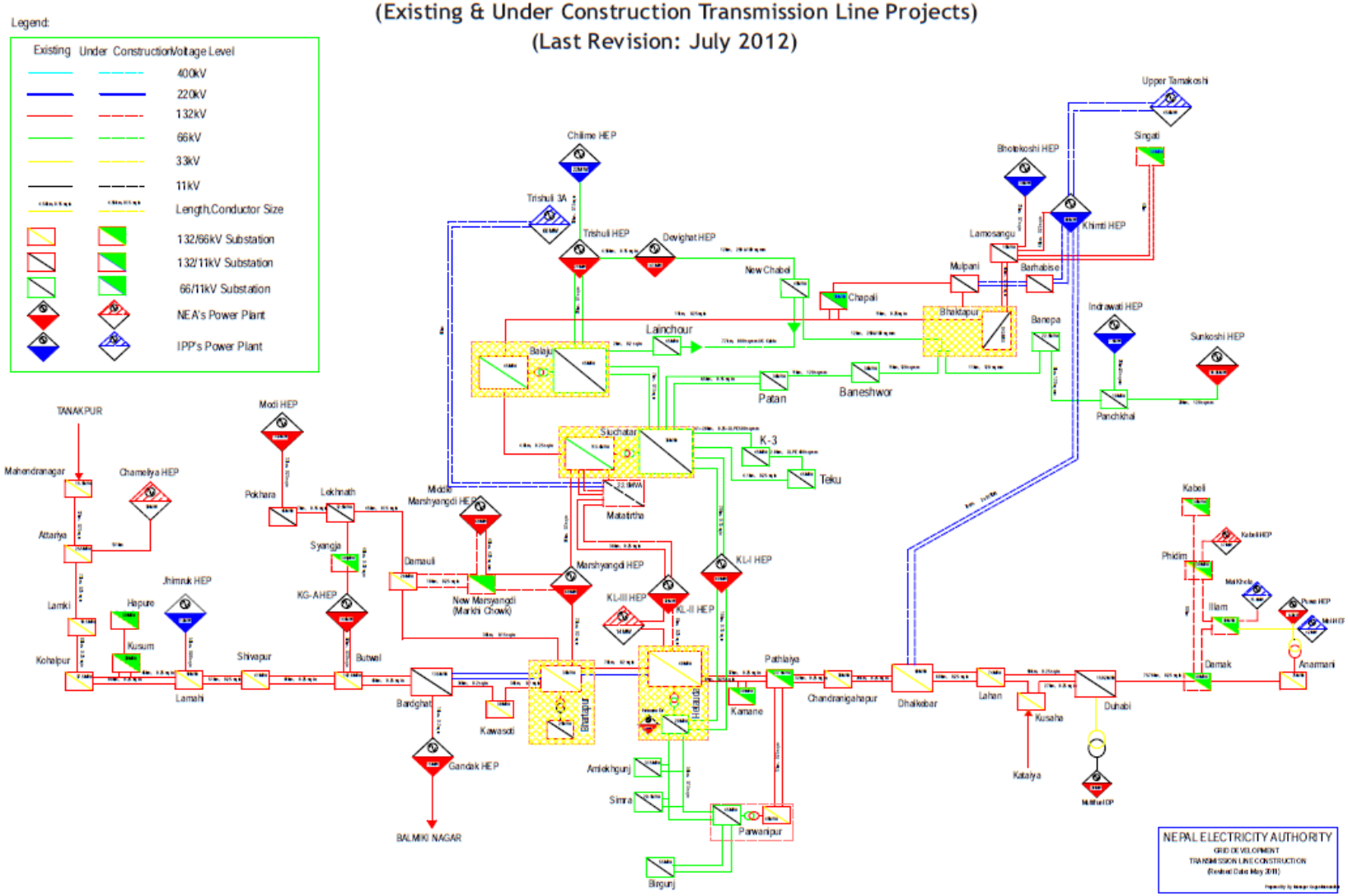
Source: NEA

	Under Construction			
1	Upper Tamakoshi		456,000	kW
2	Chamelia		30,000	kW
3	Kulekhani III		14,000	kW
4	Upper Trishuli 3"A"		60000	kW
5	Rahughat		32000	kW
6	Gamgad		400	kW
		Total	592,400	kW

INTEGRETED NEPAL POWER SYSTEM

(Existing & Under Construction Transmission Line Projects)

(Last Revision: July 2012)

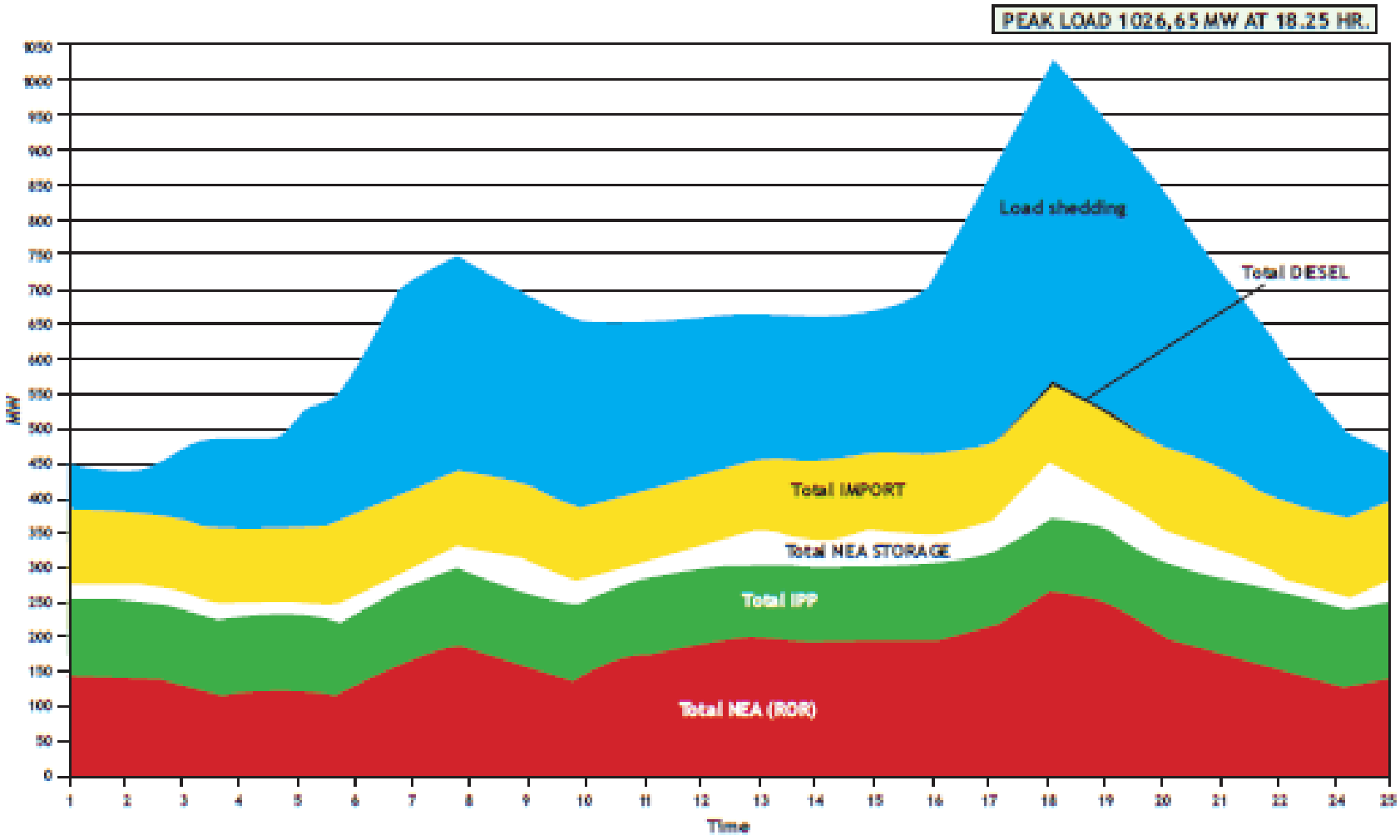


Transmission system

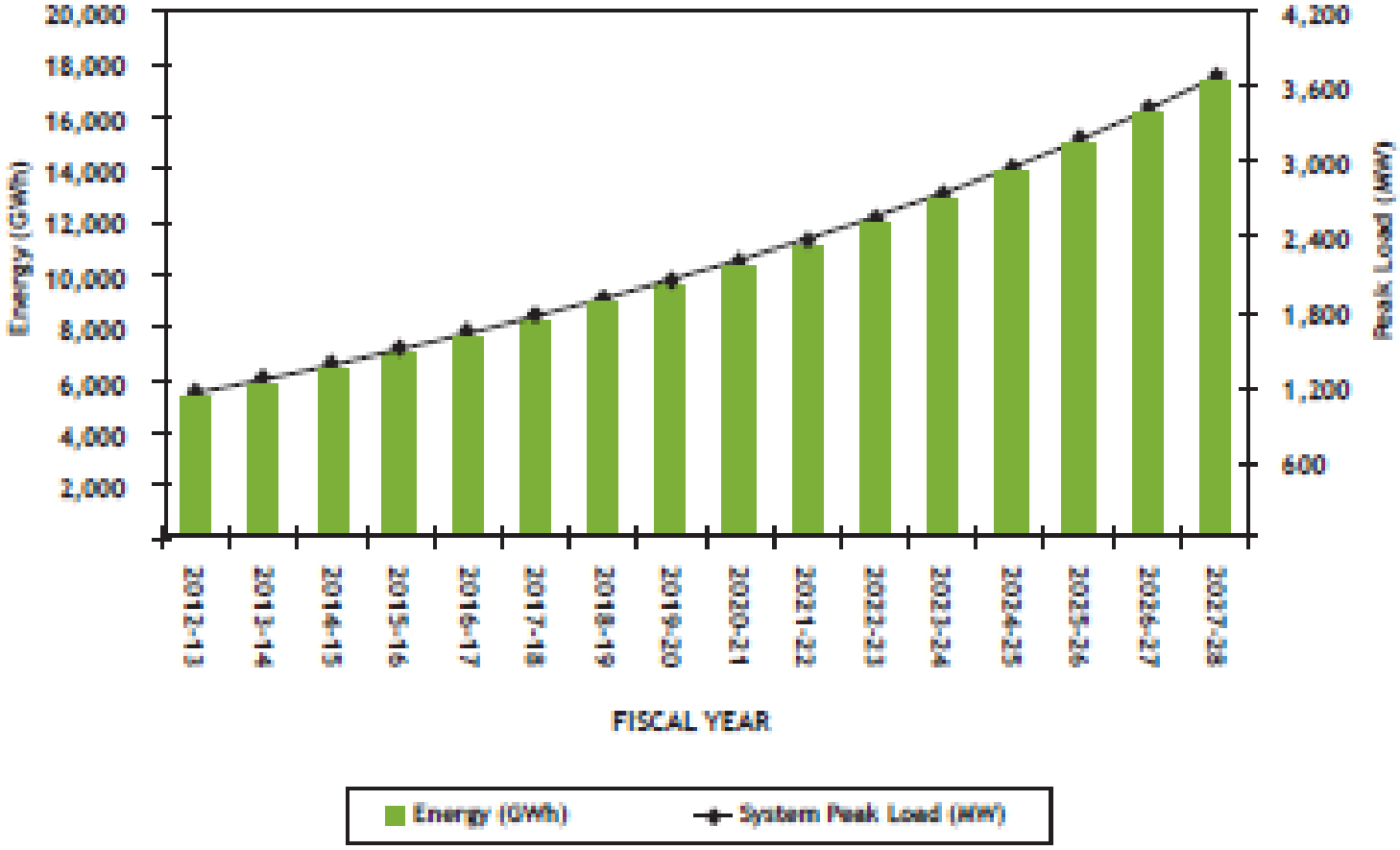
- 220 kV –Double ckts- 446km
- 132 kV- Double/Single ckts- 2922 km
- 66 kV- 511.16 km
- 132 kV substations – 463.75 MVA

System Load Curve of Peak Load Day

Poush 29, 2068 (Jan 13, 2012 Friday)



Load Forecast



Historical Background

- **EE Interventions:**
  - World bank: Energy Efficiency Project- 1993-98
  - UNIDO : 5 pilot industrial sector 1993-97
  - ESPS-DANIDA: 1999-2005
  - NEA Energy Efficiency- ADB
  - Demand Side, NEA- ADB
  - FINIDA: Eastern Development Regions
    - 2000 -2011 Phase I and II, Phase – III under preparation.
  - GIZ, Nepal Energy Efficiency Programme- 2010

Nepalese Industrial scenario

CONTEXT

- Nepalese Industries – Security Issue & employment issues
- Electricity reliability – productivity loss by 40%
- Expensive fuel ~ over Rs.26/unit cost- Diesel generating sets(DGs)
- Aged technology
- Limited technical knowledge- world technology

Context of Energy Efficiency in Industries

- Industrial level awareness bandwidth is wide.
- Resistance to change
- Policy & Enforcement!!
- Lack of local suppliers- supplier knowledge
- Poor Instrumentation and measurements
- Lack of standardization and labeling on equipments/ devices
- Break Down maintenance- No preventive maintenance
- Incentives!!
- Low EE : loss of market competitive edge.

EE context in the Household level

- No leveling in household appliances- Rice cookers, Refrigerators, water pumps and other electronics devices.
- High number of inverters(low cost- low efficiency)- due to unreliable power.
- CFL being widely used.. Health issues- LED is coming on
- LPG operated cooking

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