

An Overview of Nepalese Energy and Power System

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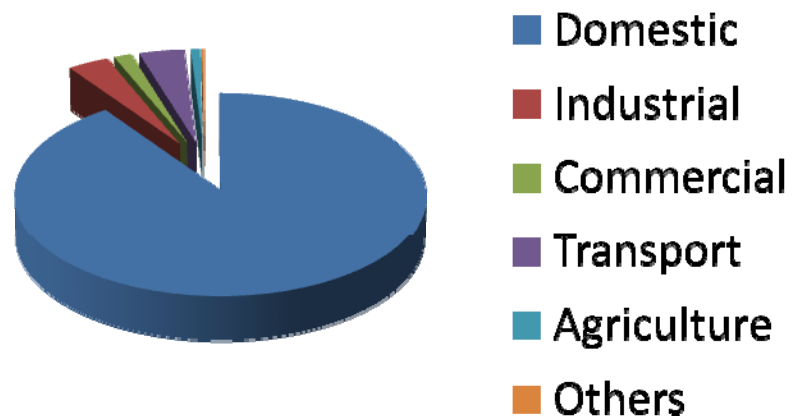
COMPARISION

Source	Consumption	Expenditure
Traditional	322,105 TJ; 87.69%	3.65 BNR; 7%
Petroleum	30,12 TJ ; 8.2%	33.31 BNR; 64%
Electricity	6,673 TJ; 1.82 %	14.31 BNR; 27%
Coal	6,459 TJ; 1.75%	0.79 BNR; 2%
Renewable	1,955 TJ; 0.53 %	

SECTOR WISE CONSUMPTION

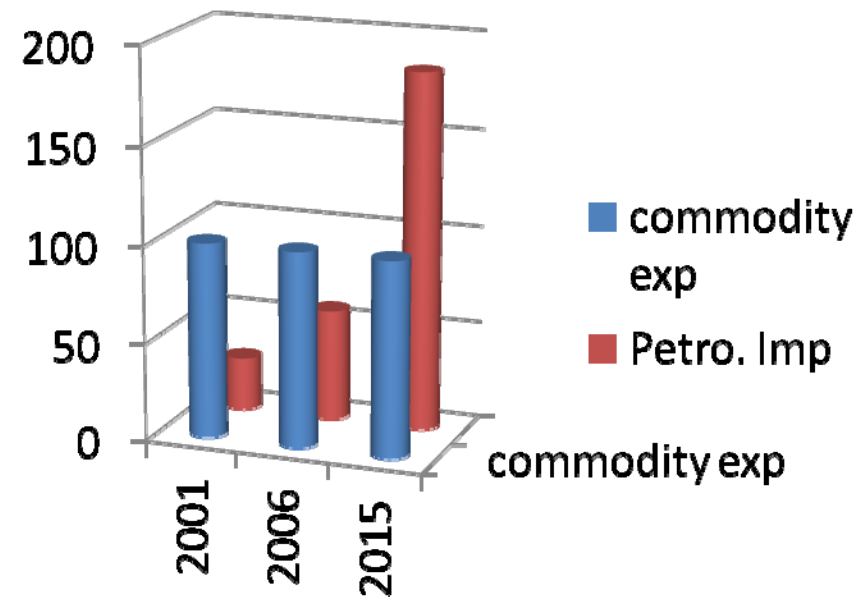
Sector	Consumption
Domestic	331,567 TJ; 90.3%
Industrial	12,817 TJ; 3.5%
Commercial	5,335 TJ; 1.5%
Transport	13,895 TJ; 3.8%
Agriculture	3,085 TJ; 0.8%
Others	612 TJ; 0.2%

Consumption

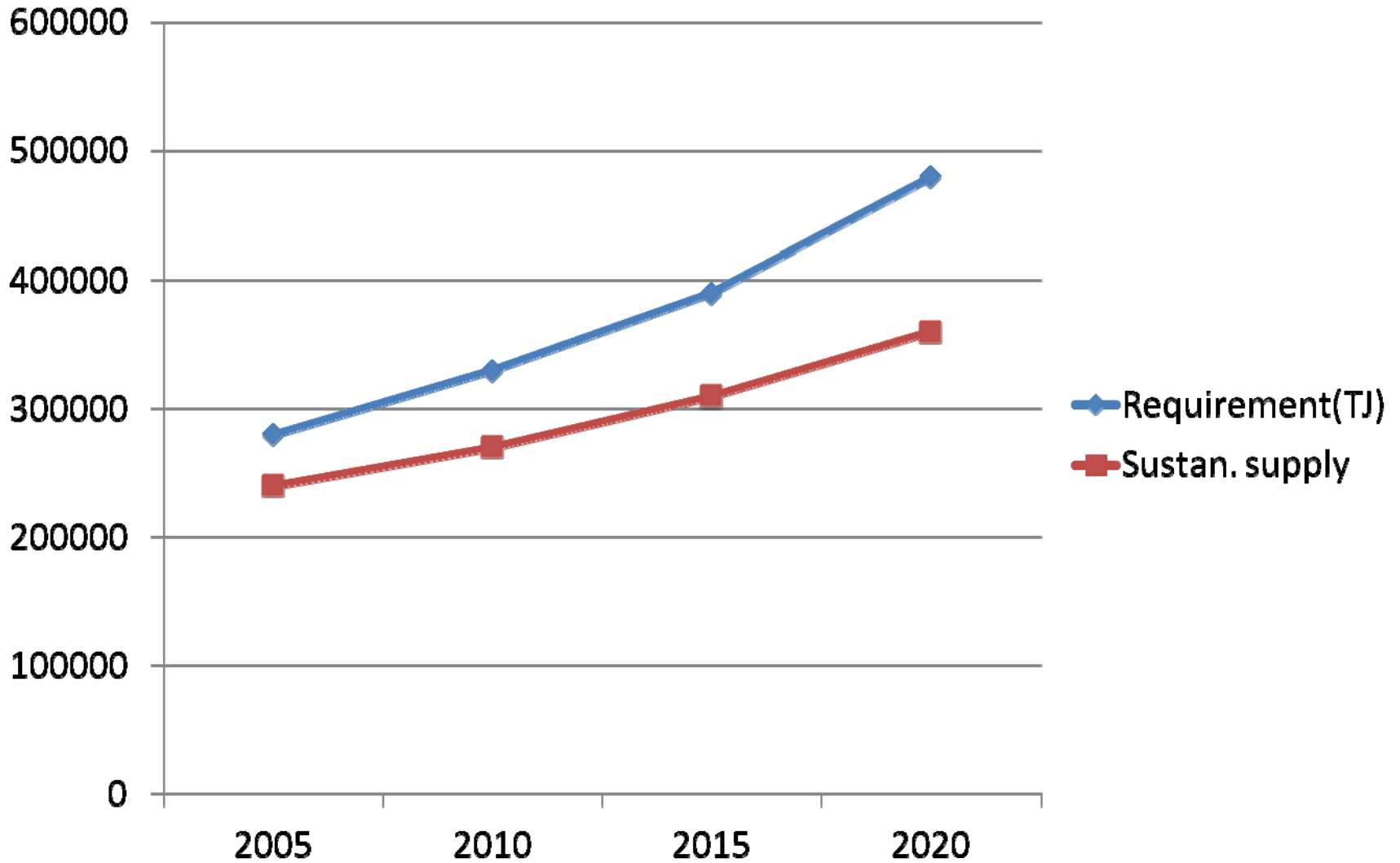


PETROLEUM IMP vs. COMODITY EXP

- 2000/2001: 27%
- 2006/07: 57%
(34.7 BNR against 61 BNR)
- 2010/11: 130%
(80 BNR against 60 BNR)
- 2015/16: 183%
- **Also planned to import 150 MW Electricity worth 8 BNR with contractual tie up**



FUEL WOOD SUSTAINABILITY



NEPAL AND ENERGY

A study by UN in 2007 in 24 countries of Asia Pacific Region has shown Nepal as one of the most oil price vulnerable countries owing to:

- a. 100% dependence on import and**
- b. low GDP compared to other Asian countries.**

NEPAL AND ELECTRICITY

**Nepal may face
huge load shedding
during next few years**

HYDRO SOURCES

S. No.	NEA Plants	Installed	Lowest available
1	Kaligandaki	144	44
2	Marsyangdi	69	21
3	M.Marsyangdi	70	22
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Total NEA ROR		380	122
	IPP Plants		
1	Khimti	60	18
2	Bhotekoshi	36	12
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Total IPP ROR		174	58.5
All Total ROR		554	180.5

Capacity Balance: Wet and Dry

SOURCE	DETAILS	MW
ROR	Installed	554
	Dependable	500
STORAGE	KL 1 +KL2	92
THERMAL	Installed	54
	Dependable	25
IMPORT	Total	75
	Treaties	25
	PEX	50
	Trading	0
Total Available	Dependable	692
DEMAND	Off Peak	530
	Peak	930
Deficit	Off Peak	0
	Peak	248
Load shedding	Per day	2 hrs

SOURCE	DETAILS	MW
ROR		180
STORAGE	KL 1 +KL2	92
THERMAL	Installed	54
	Dependable	25
IMPORT	Total	95
	Treaties	25
	PEX	50
	Trading	20
Total Available	Dependable	392
DEMAND	Off Peak	550
	Peak	1057
Deficit	Off Peak	250
	Peak	665
Load shedding	Hrs/day	17 -18

NEAR FUTURE

Year	2009/10	10/11	11/12	12/13
Capacity demand (MW)	893	980	1057	1185
Energy demand/day (dry) kWh	12400000	13640000	15004000	16504000
Energy Supply/day (dry) kWh	8200000	8300000	8600000	9000000
Deficit/day MWh	4200000	5340000	6504000	7504000
Load shedding hrs/day	12	14 (16)	17 (19)	????

FORESEEN FUTURE DEVELOPMENT (NEA)

Category	Type	Project	Capacity	Commissioning
NEA Own	ROR	Chameliya	30	2013
		Up. Trishuli 3A	60	2014 (2015)
		Rahughat	30	2014 (2015)
	Storage	Kulekhani 3	14	2014
			Upper Seti	127*
Subsidiaries	ROR	Up. Tamakoshi	456	Before 2017
		Rasuwagadhi	111	Before 2017
		Mid. Bhotekoshi	102	Before 2017
		Upper Sanjen	14	Before 2017
		Sanjen	42	Before 2017
		Up Trishuli 3B	30	
	Total	ROR /Storage	875/ 14	Before 2017

FUTURE DEMAND

YEAR	PEAK MW	OFF PEAK MW	LOWEST MW	MWh /DAY
2010	950	500	400	14200
2015	1510	795	635	21800
2017	1770	950	745	25000
2020	2206	1160	930	33000

ANALYSIS 2017 (Wet Season)

Particulars	Details	Quantum
ROR Available	MW	2040
Peak Demand	For 4 hrs	1770
Peak Balance	Surplus for 4 hours	270
Off peak Demand	For 20 hrs	950
Off peak balance	Surplus for 20 hrs (MW)	1000
Off peak surplus	MW h/day	20,000
Off peak surplus	GW h/season	4000
Av purchase rate	Rs/unit	5.00
Surplus Value	BNR	20

NEA is already exposed to this risk of market and if not really marketed, this is net loss to NEA per Wet season.

ANALYSIS 2017 (Dry Season)

Particulars	Details	Quantum
ROR Available	MW	500
Energy from ROR	From 24 hrs (MWh)	120000
Storage Available	MW	233
Energy from Storage	Strategic operation (MWh)	30 000
Total Energy Available	Domestic sources (MWh)	150,000
Energy Demand	MW h/day	250,000
Energy deficit	MW h/day	100,000
Import	Average MWh/day	36,000
Net Deficit	MWh/day	74,000
Load shedding	W O / With Import	12/ 8 hrs per day

Very contradictory situation. A 400 MW i.e. 1500 GWh additional storage volume to be ready by 2017.

Key Concern on Energy Security

- Low energy access
- Limited diversification of energy resources
- High dependence on traditional fuels
- Increasing gap between demand and supply
- Over dependence on imported energy
- Lack of adequate energy infrastructure.

Thank you