



# **Investment Opportunities in Power Sector in Nepal**

**Regional Meeting on Sustainable Energy For Asia-  
Pacific Least Developed Countries  
Kathmandu, Nepal**

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Ministry of Energy  
Government of Nepal

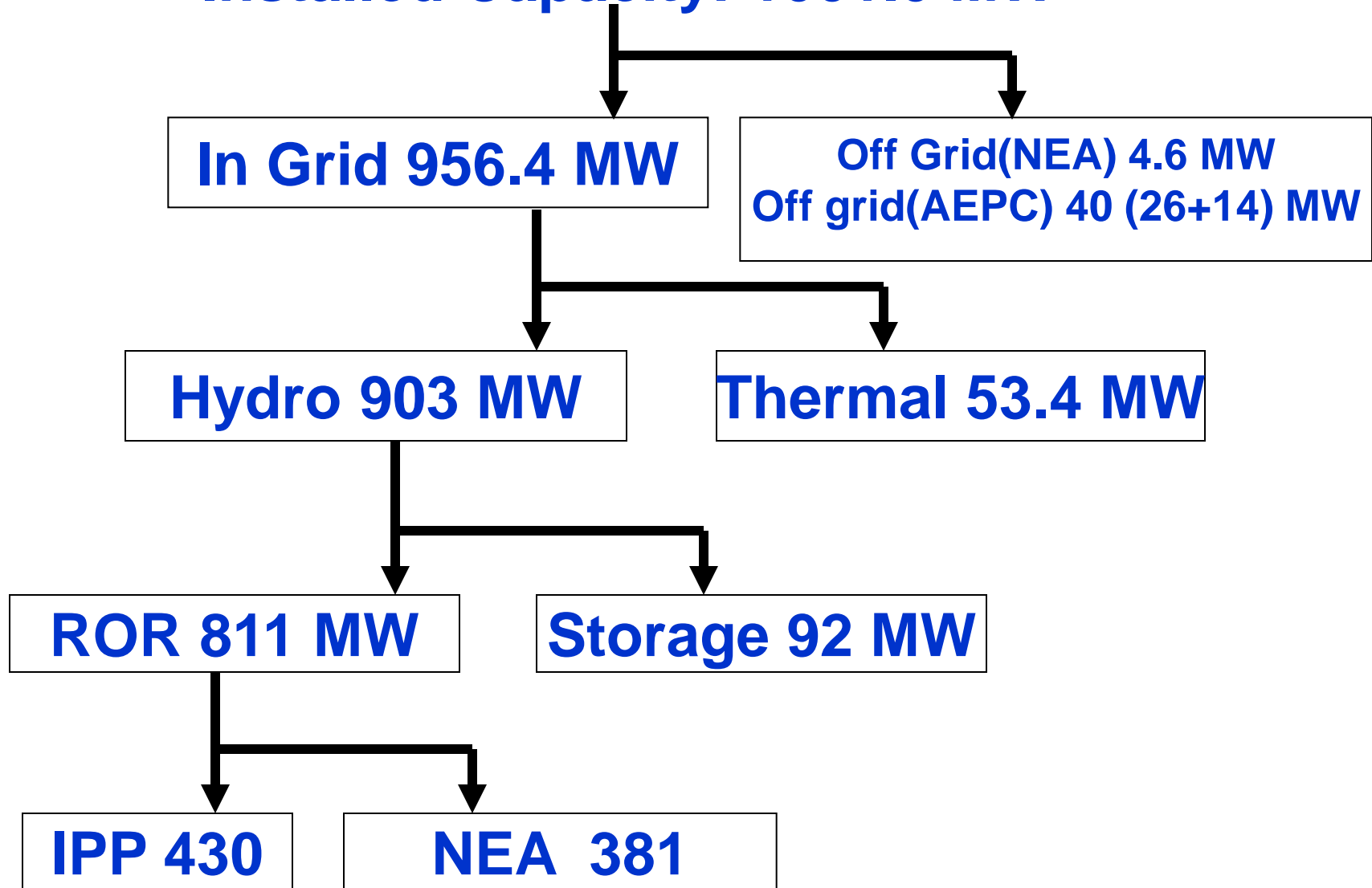


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# 2. Demand Supply Scenario(1)

**Installed Capacity: 1001.0 MW**



# Demand Supply Scenario(2)

Owner	ROR	Storage	Thermal	Other renewables	Total
NEA	385.6	92	53.4		531
IPPs	430	0	0		430
AEPC				40	40
<b>Total Installed</b>	<b>841.6</b>	<b>92</b>	<b>53.4</b>	<b>40</b>	<b>1001</b>
<b>Available in Wet</b>	<b>750</b>	<b>92</b>	<b>30</b>		<b>872</b>
<b>Available in Dry</b>	<b>340</b>	<b>92</b>	<b>30</b>		<b>462</b>
<b>Import from India</b>					<b>400</b>
<b>Demand</b>					<b>1230</b>
<b>Load Shedding</b>					<b>368</b>

# 3.Resource Base and Potentials(1)

Map 7: IMPORTANT RIVER BASINS OF NEPAL



# Resource Base and Potentials(3)

- Theoretically Possible: **83290 MW**,
- Technically and Economically Viable : **42,130 MW**,
- Total Installed Capacity (hydro): **908 MW**

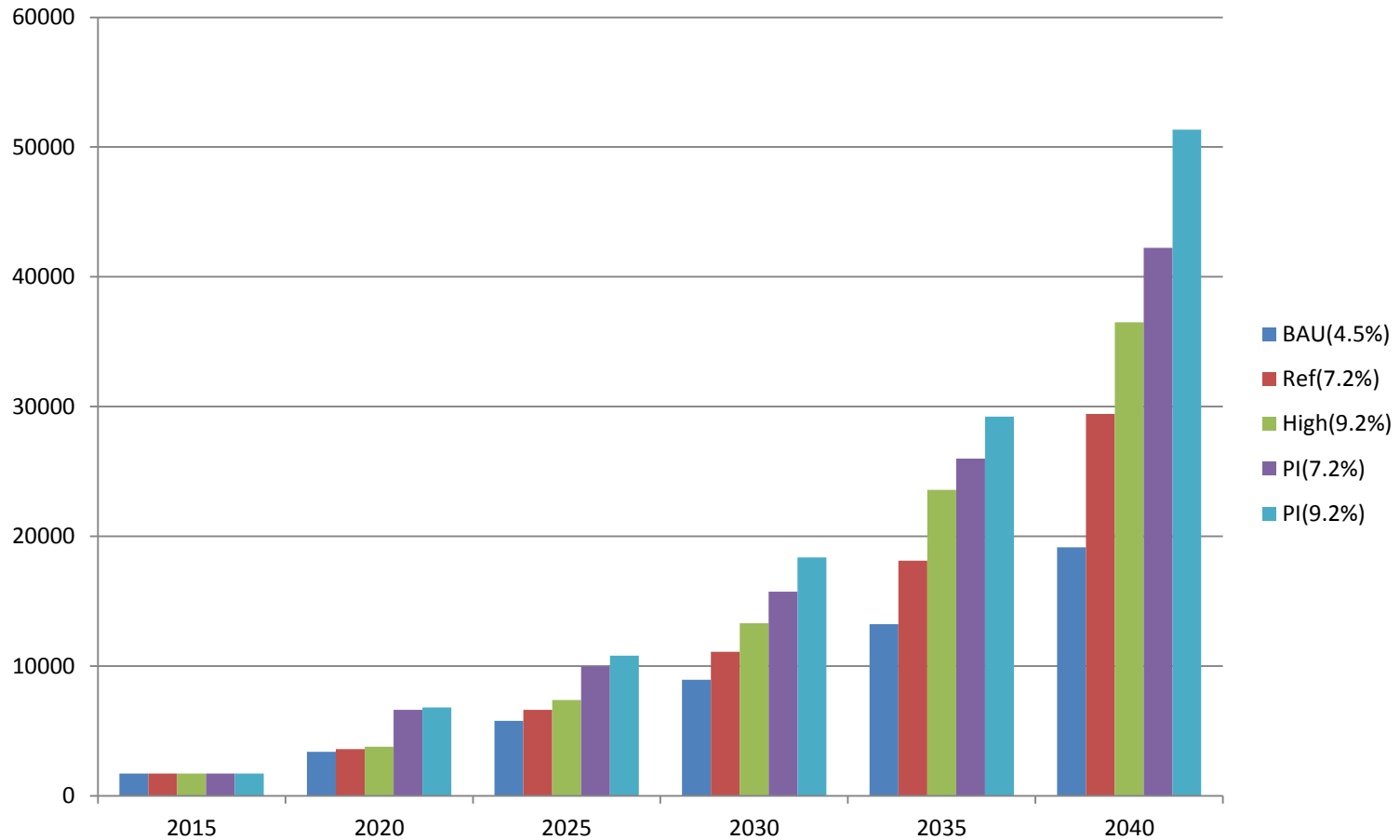
Name of basin	Theoretical Potential (MW)	Technically Feasible (MW)
Sapta Koshi	22,350	10,860
Sapta Gandaki	20,650	5,270
Karnali-Mahakali	36,180	25,100
Southern Rivers	4,110	880
<b>Total</b>	<b>83,290</b>	<b>42,130</b>

# 1. Energy Mix: Low Contribution of electricity

S. No consumption	Fuel type	Qty(Million GJ)	%age share
1	Fuel wood	352	70.47
2	Agriculture- residue	18	3.48
3	Animal dung	18	3.68
4	Coal	20	3.97
5	Petroleum	63	12.53
6	Electricity	17	3.39
7	Renewables	8	2.49
	Total	500	

Energy strategy is to gradually replace (1) to (5) by electricity

# Demand Projections(1)





# Demand Projections(2)

Year	BAU(4.5 %)	Ref(7.2%)	High(9.2%)	P.I.(7.2%)	P.I.(9.2%)
2015	1721	1721	1721	1721	1721
2020	3384	3611	3794	6621	6814
2025	5787	6617	7366	9987	10803
2030	8937	11111	13296	15731	18371
2035	13242	18124	23588	23049	29231
2040	19151	29427	36489	42228	51330

# 4. Modes of Project Development

- Government/Government owned institution
  - BOOT model
    - Private sectors through licensing
    - Private sectors through competitive bidding
    - Private sector through agreement with government (clause 35 of the electricity act).
- In any of the private sector models, project development agreement (concession agreement) can be done for the comfort of the developers***

# Existing legal frameworks(1)

## 1. Electricity Act, 1992 governs:

- Government Agency like DOED/ NEA / Development Committees
- Private sector developers on “request” basis / direct contract with prospective developer through licensing

## 2. Investment Board Act, 2010 governs:

Investment Board of Nepal for projects greater than 500 MW to be developed from private sector

# Existing legal frameworks(2)

## Two Stage Licensing:

### Survey License

- Term: maximum 5 years
- Feasibility study, IEE/EIA,
- Connection agreement
- PPA
- Financial Closure
- Industry registration

### Construction License

- Terms: 30 years for export projects  
and 35 years for domestic projects
- Prerequisites:
  - Public hearing
  - PPA / connection agreement
  - EIA/IEE required
- Industry registration
- FC :provisional (1+2 years)

# Existing legal frameworks(3)

## HDP 2001- Key provisions:

- **BOOT model for private investment**
- **Sole or JV investment**
- **Royalty to be paid to government**
- **Water rights guaranteed**
- **Government land provided on lease**
- **No nationalization**
- **Foreign currency exchange facility and repatriation**

# Existing legal frameworks(4)

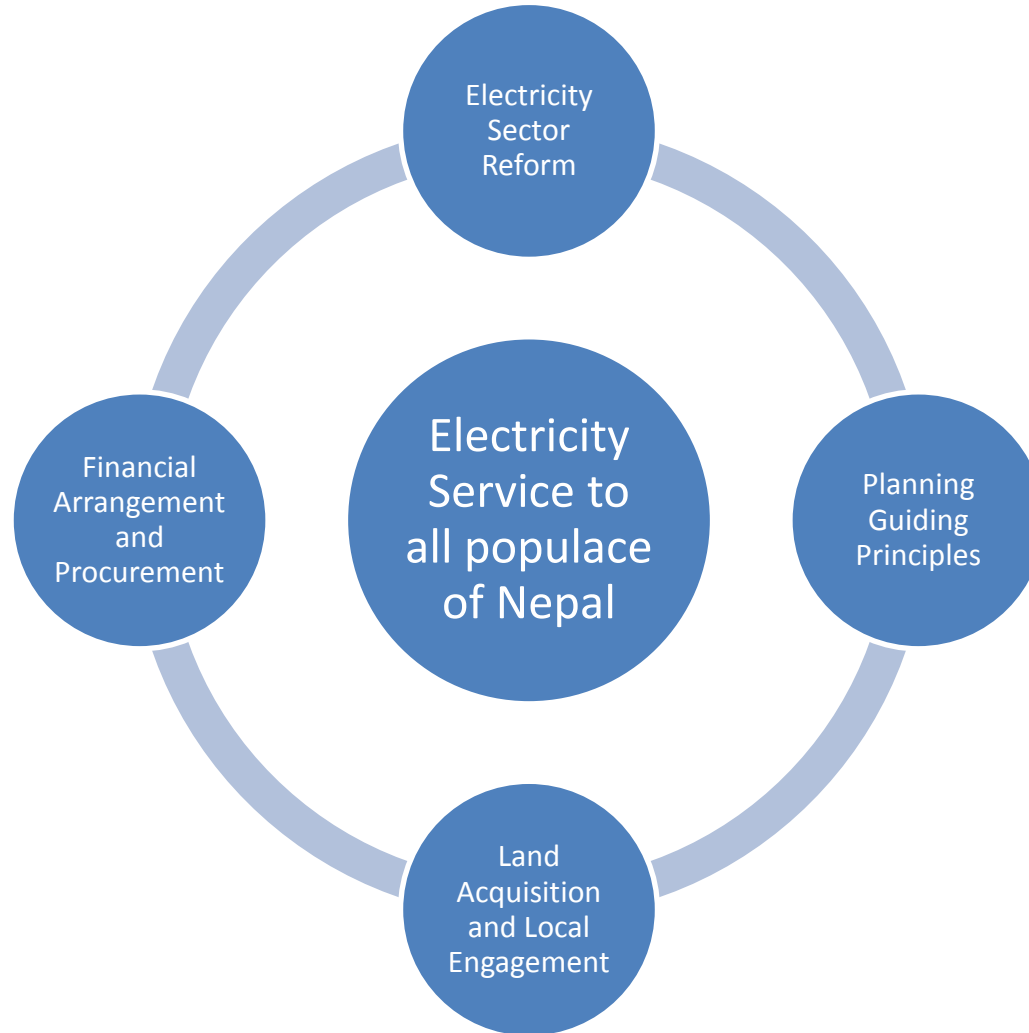
## Environment Protection Act / Regulation, 1997

**Environmental Impact Assessment needed for:**

- **More than 50 MW capacity**
- **Conservation, reserved, national park area and its buffer zone and heritage area**
- **More than 5 hectares of forest land**
- **Inter-basin transfer**
- **More than 100 people displaced**

**Initial Environment Examination is enough for all other cases except above**

# 7. Policy Initiatives



# Electricity Sector Reform (1)

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- NERC Act approved by the cabinet
- National Transmission Grid Company Ltd.
- Electricity Generation Company : established
- National Power Trade Company , Holding companies of NEA on generation and distribution side to be established
- Institutionalize Rural Electrification and energy efficiency program to be institutionalized.
- Competent engineering consulting firm to be established.



# Electricity Sector Reform (2)

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- PPA rate of PROR and Storage projects is fixed
- Payment in lieu of power purchase by NEA to be guaranteed
- Principle of “Take or Pay” instead of “Take and Pay” in PPA has been adopted, Take or Pay upto 70% wet energy only.
- Dollar PPA to the extent of foreign loan recovery periods or 10 years whichever is earlier
- Amendment in land ownership ceiling for hydropower and transmission line projects-in process
- Income tax exemption for the projects to be realized within 10 years

# Planning Guiding Principles(1)

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- Adoption of specific generation mix in Nepal Power System (Storage : 40-50 %, PROR : 15-20%, ROR : 25-30%, Other Sources : 5-10%)
- Actual electricity demand projected by WECS
- Development of storage projects on EPCF model
- Transmission Line Master Plan approved
- East West Transmission Highway and Cross border Transmission lines Prioritized

# Planning Guiding Principles

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- Development of plan to extend and strengthen electricity distribution system in Kathmandu Valley.
- NEA to buy electricity generated from solar and wind resources on competitive basis.
- PPA for electricity from solar and wind resource would be for 25 years based on “Take or Pay” principle.

# Land Acquisition and Local Engagement

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- Preparation of additional compensation mechanism for the loss of land under the ROW of transmission line.
- Mandatory arrangement to allocate resources for community support program in EIA/IEE document.
- While providing forest area on lease, “land for land” or “monetary compensation for land” will be employed

# Financial Resource Mobilization

- FDI: Sole or JV
- Remittance
- Domestic Finance Institution
- peoples resources by the way of distributing shares to public

# Prospective Projects For Investment: Generation

S.No.	Project Name	Location(Region, District)	Type	Capacity, MW
1	Budhigandaki	Central, Dhading and Gorkha	Storage	1200
2	Nalsinghgad	Mid-western, Jajarkot	Storage	410
3	Kimathanka Arun	Eastern, Sankhuwasabha	PRoR	434
4	Arun-4	Eastern, Sankhuwasabha	PRoR	300
5	Lower Arun	Eastern, Sankhuwasabha	PRoR	400
6	Tamakoshi-III	Central, Dolakha	Storage	600
7	Sunkoshi-III	Central,Kavre/Ramechhap	Storage	536
8	Bheri	Mid-Western, Rukum/Jajarkot	Storage	833
9	Naumure	Mid-Western	Storage	245

# Prospective Projects For Investment: Transmission

S.No.	Project Name	Location(Region, District)	Voltage Level, kV
1	Lekhnath-Damauli	Pokhara, Tanahun	220
2	Balephi Corridor	Sindhupalchok	132
3	Dhalkebar-Loharpatti	Dhanusha	132
4	Bheri Corridor	Banke	400
5	Rupalgad-West Seti	Doti	400
6	Rasuwagadi-Chileme-Galchhi	Rasuwa, Nuwakot,Dhading	400
7	Hetauda-Birgang	Makawanpur, Bara	400/220
8	Trishuli 3B-Ratmate	Nuwakot, Dhading	220
9	Trishuli 3B-Jharlang-Malekhu	Nuwakot, Dhading	220



**Thank You !**