Country Report Nepal

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- General Information
- Energy Reserves
- Current Energy Policy and measures
- Past Energy Demand and Supply
- Energy outlook
- Energy Related Investment
- Major Difficulties and bottlenecks

Location


KAZAKHSTAN
MONGOLIA
UZBEKISTAN
GEORGIA
ARMENIA
AZERBAIJAN
TURKMENISTAN
KYRGYZSTAN
TAJIKISTAN
NORTH KOREA
SOUTH KOREA
JAPAN
CHINA
AFGHANISTAN
IRAN
NEPAL
PAKISTAN
BHUTAN
BANGLADESH
TAIWAN
HONG KONG
INDIA
MYANMAR (BURMA)
LAOS
THAILAND
PHILIPPINES
VIETNAM
CAMBODIA
SRI LANKA
MALDIVES
BRUNEI
MALAYSIA
SINGAPORE
INDONESIA

Facts about Nepal

- Total area 147,181 square km.
- Population around 28.51 million
- Lowest land 80 meters above sea level
- Highest 8994 m Mount Everest
- Mountain 35％
- Hills 42％
- Tarai plane 23％

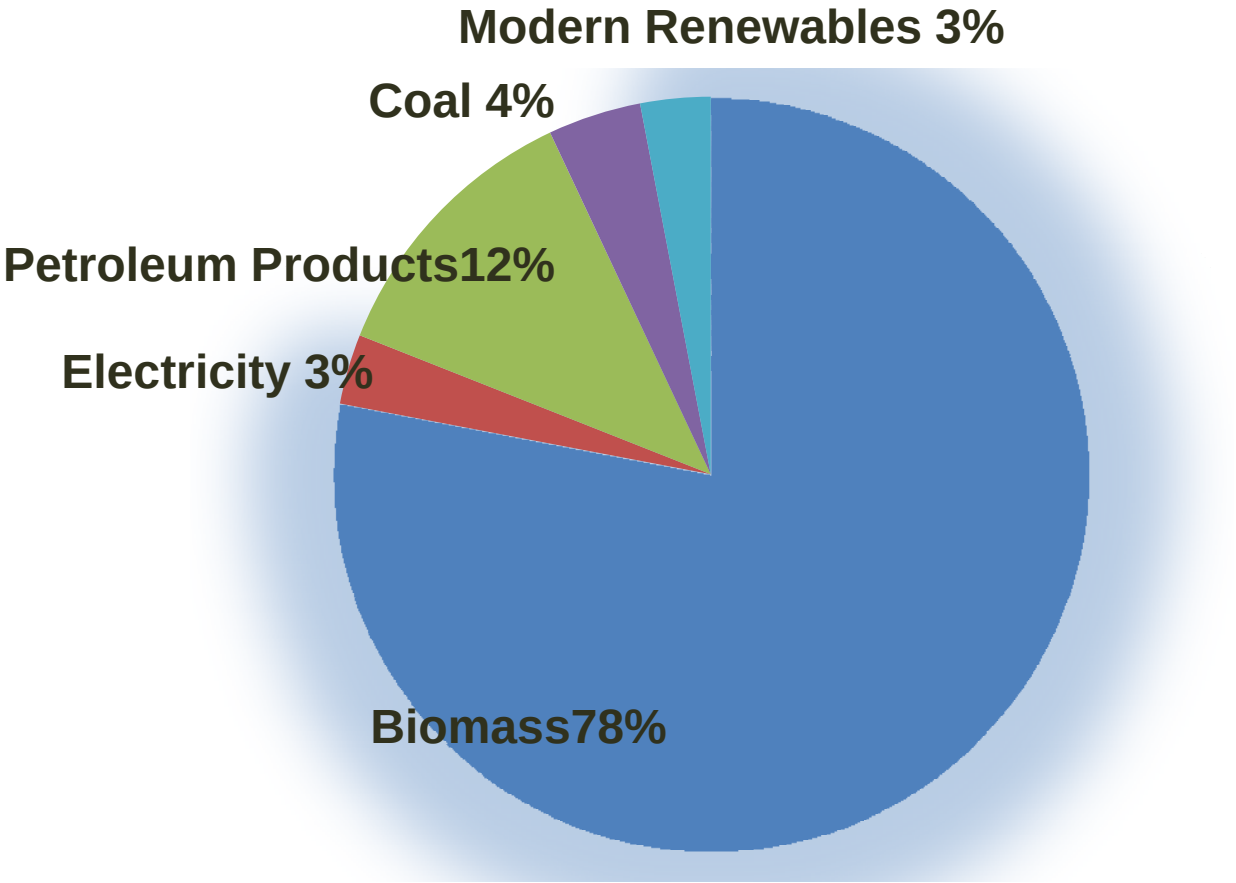
Population and Household

Number of household : 5,423,297(2)

GDP and Growth

Nepal GDP	Last	Previous	Highest	Lowest	Unit
GDP Annual Growth Rate	7.50	0.40	8.60	0.10	percent
GDP	21.20	19.80	21.20	0.50	USD Billion
GDP per capita	689.50	679.30	689.50	267.23	USD

Energy Mix



Economic Survey, 2014/2015
475 PJ (11.3 mtoe)

Energy Reserves

- Nepal's economic and social development is being hampered by its inadequate energy supply.
- The country till now does not have its own reserves of gas, coal or oil. Some investigation work is going on.
- Its most significant energy resource is water or hydropower, just more than one percent of its potential 84,000 megawatts of hydropower is currently harnessed.

The Hydropower Development Policy, 2001

1. To generate electricity at low cost by utilizing the water resources available in the country.
2. To extend reliable and qualitative electric service throughout the Kingdom of Nepal at a reasonable price.
3. To tie-up electrification with the economic activities.
4. To render support to the development of rural economy by extending the rural electrification.
5. To develop hydropower as an exportable commodity.

ELECTRICITY ACT, 2049 (1992)

1. Competitive environment and invite private sector
2. Build own operate and transfer (BOOT) for private sector
3. One window policy and subsidy for private sector

Action Plan

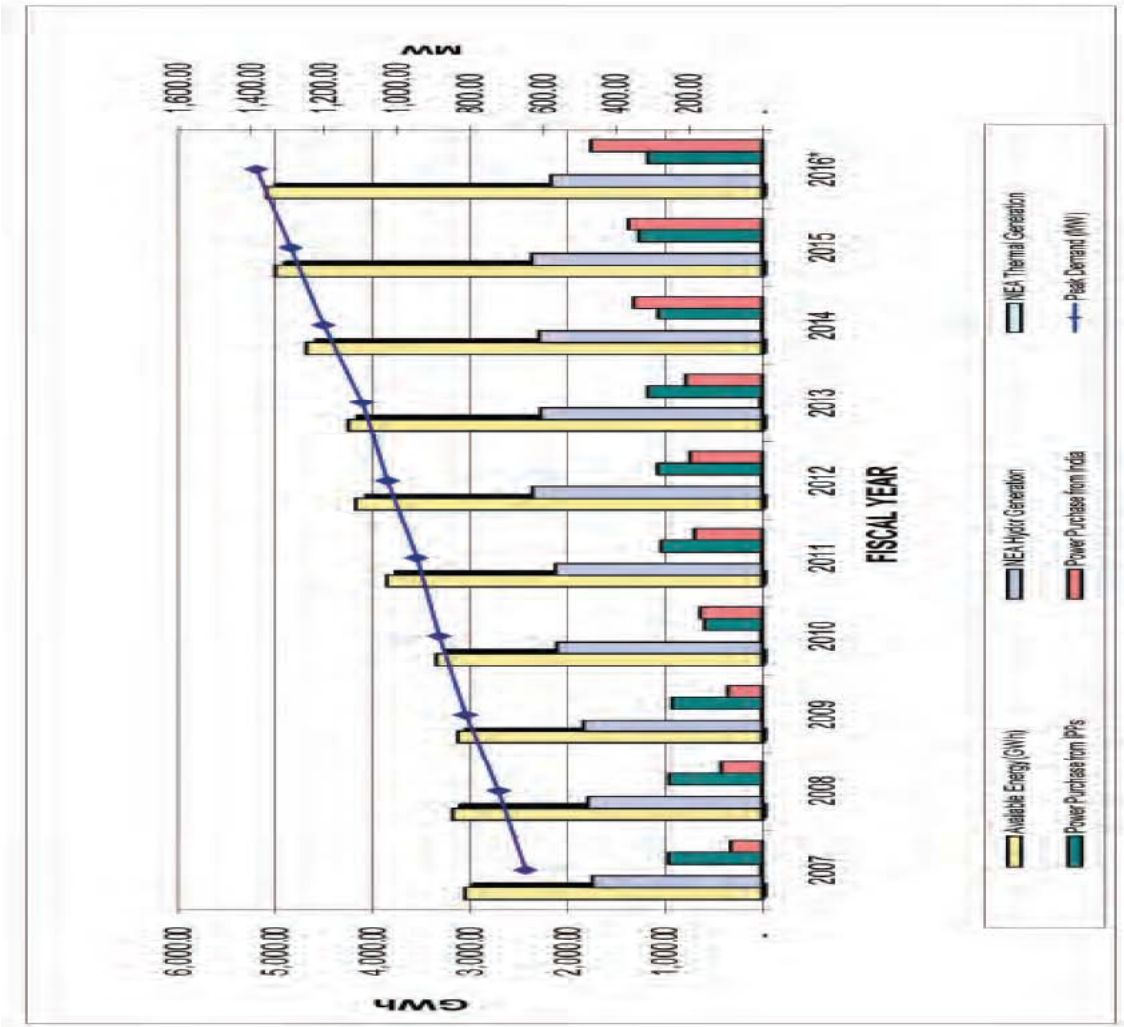
- "Action Plan on National Energy Crisis Prevention and Electricity Development Decade, 2016"
- To end the load shedding going on in the country and make the country able to export the power to its neighboring countries to its optimum capacity. Load shading has ended in Kathmandu with the increase in import of electricity from India for now.

Facts about the hydro potential

- Total length of rivers and streams more than 45,000 km.
- Average rain fall 1500-2500 mm.
- Theoretical hydro potential 84,000 MW
- Economical hydro potential 43,000 MW
- Installed capacity around 900 MW

Major rivers of Nepal

Peak Demand Electricity

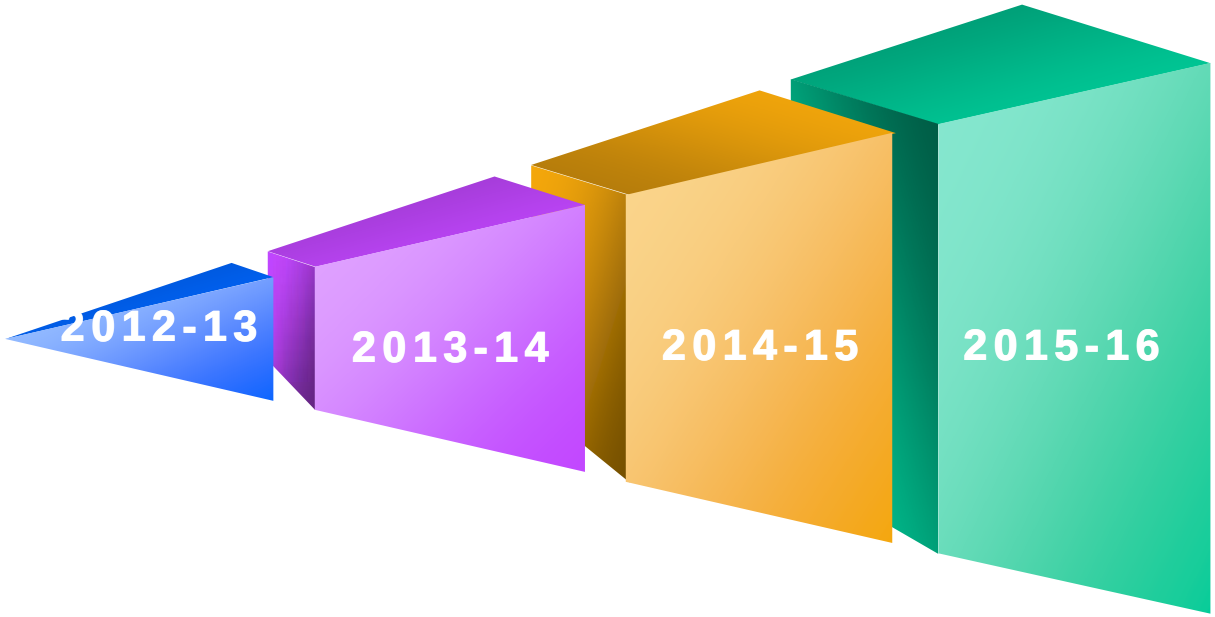


Particulars	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016*
Peak Demand (MW)	648.39	721.73	812.50	885.28	946.10	1,026.65	1,094.62	1,200.98	1,291.10	1,385.30
NEA Hydor Generation	1,747.42	1,793.14	1,839.53	2,108.65	2,122.08	2,357.43	2,273.11	2,288.23	2,366.64	2,168.49
NEA Thermal Generation	13.31	9.17	9.06	13.01	3.40	1.56	18.85	9.65	1.24	0.07
NEA Generation Total (GWh)	**1,760.73**	**1,802.31**	**1,848.59**	**2,121.66**	**2,125.48**	**2,358.99**	**2,291.96**	**2,297.88**	**2,366.88**	**2,168.56**
Power Purchase from India	328.83	425.22	356.46	638.68	694.05	746.07	790.14	1,318.75	1,369.89	1,758.41
Power Purchase from IPPs	962.26	958.42	925.74	591.43	1,038.84	1,073.57	1,175.98	1,070.47	1,269.93	1,173.14
Power Purchase Total (GWh)	**1,291.09**	**1,383.64**	**1,282.20**	**1,230.11**	**1,732.89**	**1,819.64**	**1,966.12**	**2,389.21**	**2,639.82**	**2,931.55**
Available Energy (GWh)	**3,051.82**	**3,185.95**	**3,130.79**	**3,351.77**	**3,858.37**	**4,178.63**	**4,258.08**	**4,687.09**	**5,005.70**	**5,100.11**

Note :- Peak demand is for all areas covered by integrated system including supply to India

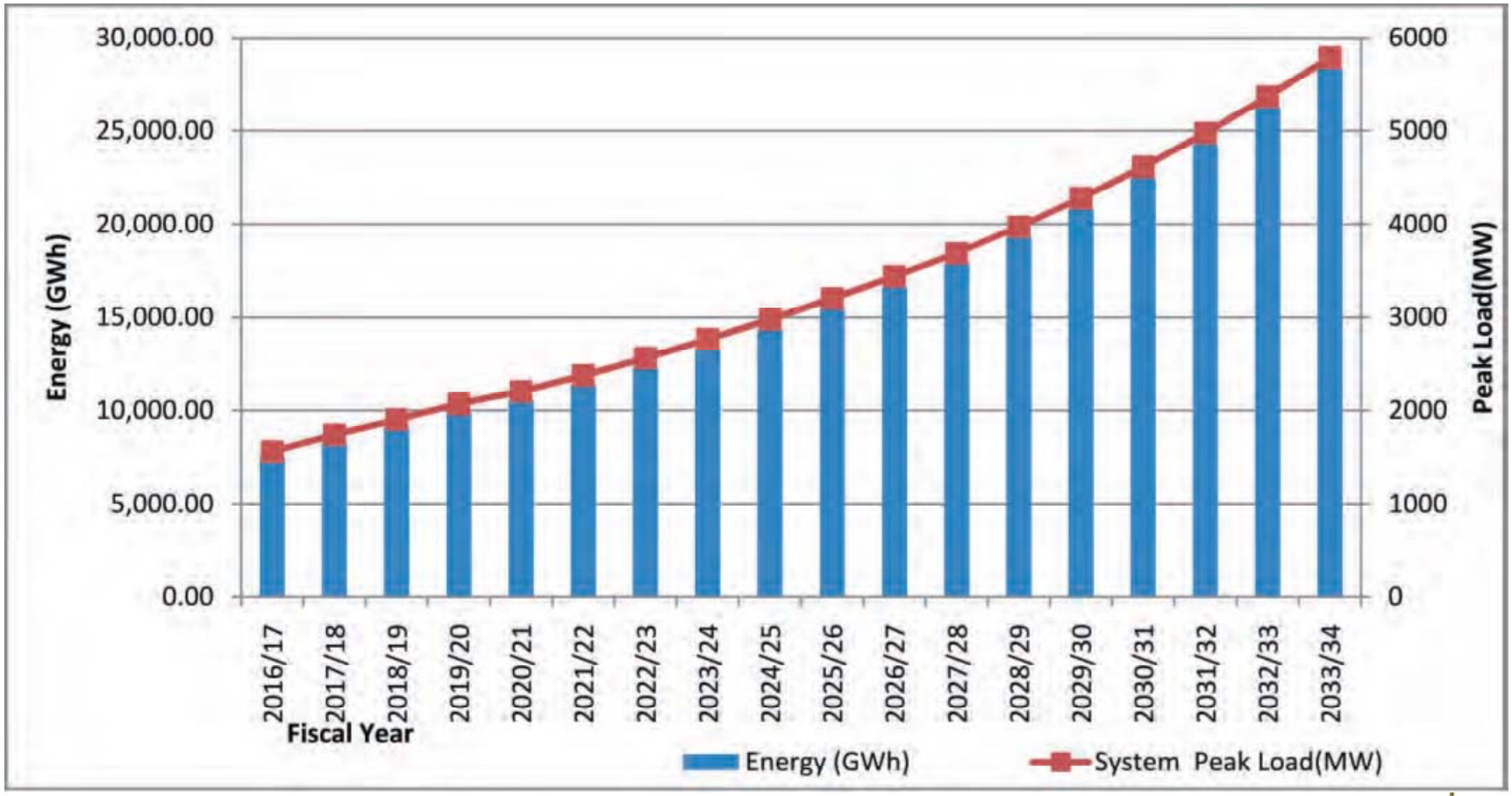
* Provisional figures

Peak Demand of Electricity

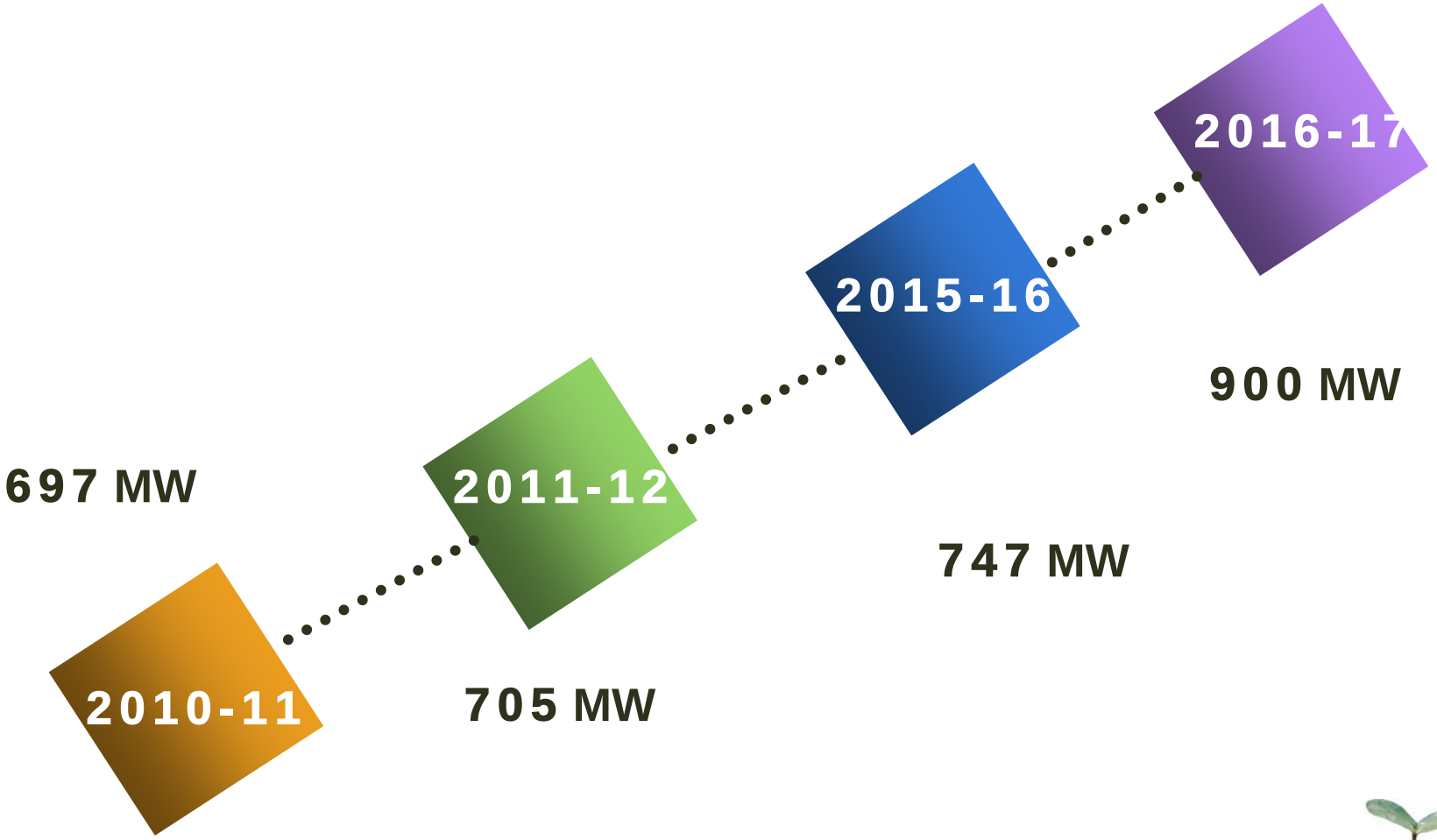


1094.62 MW	1200.98MW	1291.1 MW	1385.3 MW

Load Forecast



Generation trend



Upcoming Hydropower Projects

- Within 3 months about 45 Mega Watts
- Next year about 200 Mega Watts
- Upper Tamakoshi 456 Megawatts expected next year

Source DoED

Import of Petroleum Products

Petroleum Products in K.L.

SN	Fiscal Year	Petrol	Diesel	Kerosene	Aviation Turbine Fuel	Furnace Oil	LPG IN MT
1	2071/72 (2014-15)	287,473	921,714	19,653	141,404	883	258,299
2	2070/71 (2013-14)	253,381	808,567	18,409	125,678	2172	232,660
3	2069/2070 (2012-2013)	223,087	721,203	24065	115,896	2456	207,038
4	2068/069(2011-2012)	202,467	653,560	41609	109,904	440	181,411
5	2067/068 (2010-2011)	188,082	652,764	43,399	99,990	228	159,286

Petroleum Issues

- Nepali is increasingly dependent on petroleum product for its energy requirement
- May be due to the increase in construction activities
- Should focus more on biofuels and in-house available hydropower for energy.

Energy Sector of Nepal

Energy Sector of Nepal

- Ministry of Energy
- Department of Electricity Development
- Nepal Electricity Authority
- Nepal oil corporation
- Private sector
- Electricity Tariff Fixation Commission
- Water and Energy commission Secretariat
- Ministry of Supply
- Other line Ministry
  - Ministry of Forest and soil conservation
  - Ministry of Agrculture Development
  - Ministry of Livestock Development
  - National Planning commission
  - Investment board Nepal
  - District Development Committee, Village Development Committee and Municipalities
  - Others
- Other Organization
  - Donors
  - Consumer right group
  - Cooperatives
  - Community Electricity Group
  - Others
- Alternate energy Promotion Center

IPPs' Hydropower Projects (Under Construction)

	Developers	Projects	Location	Capacity(KW)	PPA Date
1	Upper Tamakoshi Hydropower Ltd.	Upper Tamakoshi	Dolkha	456000	2067.09.14
2	Green Ventures Pvt. Ltd.	Likhu-IV	Ramechhap	52400	2067.10.19
3	Robust Energy Ltd.	Mistri Khola	Myagdi	42000	2067.10.20
					2073.01.15
4	Manang Trade Link Pvt. Ltd.	Lower Modi	Parbat	20000	2068.05.20
5	Middle Bhotekoshi Jalbidhyut Company Ltd.	Middle Bhotekoshi	Sindhupalchowk	102000	2068.07.28
6	Chilime Hydro Power Company Ltd.	Rasuwagadhi	Rasuwa	111000	2068.07.28
7	Sanjen Hydropower Company Limited	Sanjen	Rasuwa	42500	2068.08.19
8	Himalayan Power Partner Pvt. Ltd.	Dordi Khola	Lamjung	27000	2069.03.01
9	Sasa Engingeering Hydropower (P). Ltd	Khani Khola	Dolakha	30000	2069.03.25
10	Arun Kabeli Power Ltd.	Kabeli B-1	Taplejung and Panchthar	25000	2069.03.29
11	Liberty Hydropower Pvt. Ltd.	Upper Dordi A	Lamjung	25000	2069.06.02
12	Essel-Clean Solu Hydropower Pvt. Ltd.	Lower Solu	Solu Solukhumbu	82000	2070.07.15
13	Peoples' Hydropower Company Pvt. Ltd.	Super Dordi 'Kha'	Lamjung	49600	2071.11.13
14	Nyadi Hydropower Limited	Nyadi	Lamjung	30000	2072.02.12
15	Kabeli Energy Limited	Kabeli-A	Panchthar and Taplejung	37600	2072.06.07

Around 1132 Megawatts

Major Difficulties and bottlenecks

❖ Technical and environmental

1. Sedimentation carrying rivers flowing through the young and fragile mountain.
2. Huge difference of flow in river between the rainy and dry season
3. Effect of climate change and global warming. Mountains snow quantity is decreasing and will hamper the river flow of snow fed rivers

❖ Economic and Financial

1. Return on investment for the investor of hydropower is low
2. Time required to build the infrastructure like roads and transmission line leads to long project building time
3. Developer should be responsible for the roads and transmission line and as there is only one buyer NEA with whom developer should do the PPA

Major Difficulties and bottlenecks contd.

❖ Political and Regulatory

1. A lack of political stability, good governance and law and order issues are important factors hindering progress and economic growth.
2. Frequent changes of ministers and the government, lack of inter-governmental agency co-ordination, prolonged processes and procedures for environmental clearances from the government.
3. Long list of local demands to be fulfilled by hydropower developers.

Priority

- How to formulate energy policy
- Best energy policy for Nepal
- Nepal needs a good policy and apply it in order to develop the country so that people who are now forced to go and work outside the country for thei living can get work within the country.

Thank You !

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