NEPAL'S ELECTRICITY SCENARIO
in FY 2016/2017

Presented by:
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INTRODUCTION

- Country Location: Between China and India
- Latitude: 26° 22' N - 30° 27' N
- Longitude: 80° 04' E - 88° 12' E
- Area: 147,181 km²
- Population: 28.8 millions
- Access to Electricity: 67%
- Per capita Energy Consumption: 14 GJ
- Per capita Elec. Consumption: 132 kWh
- Annual Runoff: 225 Billion Cubic Meter
- Hydropower Potential: 83,290 MW (Theoretical)
- Hydropower Potential: 42,130 MW (Practical)
in FY 2016/2017 -

Availability of Energy : 6257.73 GWhr

Peak demand reached : 1444.10 MW

Total Installed Capacity: 972.50 MW
Deficit in Power Production for supply is met by

- Import from India (around 300 MW)
- 2 hours of Industrial Load shedding
In FY 2016/2017 -

Energy consumed fulfilled by:

Nepal's Generation       65.24 %
(Including IPPs)

Import from India         34.76 %
(from 10 various border points)

System Loss              22.90 %

100.00 %
Energy Utilization by consumer category:

Domestic (Residential consumer)  45.02%
Industrial                  36.32%
Others                      18.66%
About only 3/4 of the population has access to national grid electricity.

Total no. of Household consumer about 3 million
Peak demand now 1444.10 MW

Total Installed Capacity 972.492 MW

Total Installed Capacity – Grid connected 967.856 MW

Isolated – Solar 0.1 MW & small hydro 4.536 MW

ROR Project – 92 MW, Thermal Plant – 53 MW,
<table>
<thead>
<tr>
<th>Project</th>
<th>MW</th>
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<tbody>
<tr>
<td>NEA Under construction hydro projects</td>
<td>1047.100 MW</td>
</tr>
<tr>
<td>(456 MW Upper Tamakoshi to be completed by Dec. 2018)</td>
<td></td>
</tr>
<tr>
<td>IPP's Under construction hydro projects</td>
<td>2043.613 MW</td>
</tr>
<tr>
<td>Total Under Construction hydro Projects</td>
<td>3090.713 MW</td>
</tr>
</tbody>
</table>
NEA Planned and Proposed hydro projects 2770.200 MW

IPPs Planned and Proposed hydro projects 910.311 MW

Total Planned and Proposed hydro Projects 3680.511 MW
Nepal’s Largest Hydroelectric Project in present: Kali Gandaki-A (144 MW)
Nepal’s upcoming Largest Hydroelectric Project under construction and to be completed in near future: Upper Tamakoshi (456 MW)
Major Power Projects in Nepal

- Upper Karnali (900MW)
- Upper Tamakoshi (456 MW)
- Upper (335MW), Arun III (900MW) & Lower Arun (308MW)
- Upper Kali Gandaki (1200MW)
- Nalsingad (410MW)
- Kali Gandaki 2 (660MW)
- Duddh Koshi (300MW)
- Sapta Koshi (3300MW)
- West Seti (750MW)
- Pancheshwar (6480MW)
- Karnali Chisapani (10800MW)
Licensing of Power Projects in Nepal:

- License is required for Survey, Generation, Transmission and Distribution for projects larger than 1 MW.

- License is granted by the Ministry of Energy (MoEn).

- DOED facilitates license procedure by receiving the application, processing application for compliance, issuing public notice and recommending to MoEn.
Energy Market:

1. Domestic Use
   
   Nepal Electricity Authority: 100% government owned company which is responsible for electricity generation, transmission and distribution. NEA buys the electricity from IPPs and sells to the market (households and industries).
   
   Butwal Power Company Limited: Less than 10% government shared private company which is also generating, transmitting and distributing the electricity for the domestic use.

2. Export to India: India is the nearest market for the export of electricity. Export market at present not fully developed.
Major Focus to be given, on Storage hydro Project

- to overcome power crisis challenges that prevail prominently, especially during dry seasons
Pumped storage in a hydro power - Electricity Storage Technology
Pumped storage

- planned for the first time in Nepal
- preparing to carry out DPR by DoED

- Sunkoshi II – 1100 MW
- Sunkoshi III – 536 MW
Rupa-Begnas Tal (Lake)

- NEA plan to construct the project
- in preliminary phase of study
- 100 – 300 MW capacity potential utilizing natural head of 56 m
# Lake Begnas

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<tbody>
<tr>
<td><strong>Location</strong></td>
<td><strong>Pokhara</strong></td>
</tr>
<tr>
<td><strong>Surface Elev</strong></td>
<td><strong>650 m</strong></td>
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<tr>
<td><strong>Average Dept</strong></td>
<td><strong>6.6 m</strong></td>
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<tr>
<td><strong>Surface area</strong></td>
<td><strong>3.28 km²</strong></td>
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<tr>
<td><strong>Catchment area</strong></td>
<td><strong>49 km²</strong></td>
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Lake Rupa

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
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<tr>
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<tr>
<td>Surface area</td>
<td>1.35 km²</td>
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<tr>
<td>Catchment area</td>
<td>30 km²</td>
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