Dissemination Workshop on
The Study for Development of Potential Regional Hydropower Plant in South Asia
(09-10 May 2016)
Kathmandu

Presented by:

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Ministry of Energy, Nepal
1. Introduction
2. Energy Sector Status
3. Organizations for Energy Policy and Development
4. Policy, Acts and Regulations
5. Energy Market
6. Study and Development Models
8. Major Issues to be Focused
Location of Nepal
# 1. Introduction

<table>
<thead>
<tr>
<th><strong>Country Location</strong></th>
<th>Between China and India</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Latitude</strong></td>
<td>26° 22' N - 30° 27' N</td>
</tr>
<tr>
<td><strong>Longitude</strong></td>
<td>80° 04' E - 88° 12' E</td>
</tr>
<tr>
<td><strong>Area</strong></td>
<td>147,181 km²</td>
</tr>
<tr>
<td><strong>Population</strong></td>
<td>28.8 millions</td>
</tr>
<tr>
<td><strong>Access to Electricity</strong></td>
<td>67%</td>
</tr>
<tr>
<td><strong>Per capita Energy Consumption</strong></td>
<td>14 GJ</td>
</tr>
<tr>
<td><strong>Per capita Elec. Consumption</strong></td>
<td>132 kWh</td>
</tr>
<tr>
<td><strong>Annual Runoff</strong></td>
<td>225 Billion Cubic Meter</td>
</tr>
<tr>
<td><strong>Hydropower Potential</strong></td>
<td>83,290 MW (Theoretical)</td>
</tr>
<tr>
<td></td>
<td>42,130 MW (Practical)</td>
</tr>
</tbody>
</table>
2. Energy Consumption: Sector Wise

Traditional (Firewood, Agricultural Residues and Animal Waste): 87.1%
Petroleum Products: 8.3%
Hydropower: 2.0%
Coal: 1.9%
Renewal (Micro Hydro, Solar, Wind and Biogas): 0.7%
# Present Status of Power

## Installed Capacity in Nepal

<table>
<thead>
<tr>
<th>Type</th>
<th>Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydro</td>
<td>776 MW</td>
</tr>
<tr>
<td>Thermal</td>
<td>53 MW</td>
</tr>
<tr>
<td>Total</td>
<td>829 MW</td>
</tr>
</tbody>
</table>

## Dry Season Production

- Dry Season Production: 350 MW
- Imported from India (max.): 315 MW
- Power Available in Dry Season: 665 MW

## Peak Demand

- Peak Demand: 1340 MW
- Power Shortage (Load Shedding): 675 MW (About 50%)
Nepal’s Largest Hydroelectric Project: Kali Gandaki-A (144 MW)
Major Power Projects in Nepal

- Pancheshwar (6480MW)
- Karnali Chisapani (10800MW)
- Upper Karnali (900MW)
- Upper Tamakoshi (456 MW)
- Upper (335MW), Arun III (900MW) & Lower Arun (308MW)
- Upper (335MW), Arun III (900MW) & Lower Arun (308MW)
- Kali Gandaki 2 (660MW)
- Budhi Gandaki (1200MW)
- Nalsingad (410MW)
- Upper (335MW), Arun III (900MW) & Lower Arun (308MW)
- Sapta Koshi (3300MW)
- Dudh Koshi (300MW)
3. Organizations for Energy Policy and Development in Nepal

1. Nepal Investment Board (>500 MW)

2. Ministry of Energy
   - Department of Electricity Development (DoED)
   - Nepal Electricity Authority (NEA)
   - Water and Energy Commission’s Secretariat (WECS)
   - Hydropower Investment and Development Company
   - Budhigandaki Hydropower Project Development Committee
   - Nalsingad Hydropower Project Development Committee

3. Ministry of Population and Environment (<1MW)
   - Alternative Energy Promotional Center (AEPC)
4. Policy, Acts and Regulations

- Hydropower Development Policy - 1992,
- New Hydropower Development Policy - 2001
- Electricity Act - 1992 (Regulations - 1993)
- Industrial Policy – 1992
- Foreign Investment & One-Window Policy - 1992
- Industrial Enterprises Act – 1992
- Foreign Investment and Technology Transfer Act – 1992
- Environment Protection Act - 1996 (Regulation-1997)
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.
Survey License Application Process

Proponent submits application to DOED

- Does the proposed project overlap with other projects in the area?
  - YES
  - NO

- Are documents adequate & complete?
  - YES
  - NO

  - DOED asks the proponent to complete all required documents and resubmit within specific time (normally 35 days)

- Are documents acceptable?
  - YES
  - NO

  - DOED requests revisions from the proponent

  - MoEn reviews and examines documents

  - MoEn sends the application back to DOED for comments

- MoEn issues the Survey License to the proponent through DOED

  - DOED rejects application and informs the proponent in writing
Generation License Application Process

Proponent submits application to DOED

DOED reviews documents

Are documents adequate & complete?

YES

DOED asks the proponent to complete all required documents and resubmit within 30 days

NO

A Public Notice is published inviting comments from concerned parties within 35 days

Comments received within 35 days?

YES

Upon consideration of comments, the terms and conditions that should be followed by the proponent shall be mentioned in the license

NO

MoEn issues the Survey License to the proponent through DOED

DOED approves application and forwards to MoEn with a draft license

MoEn reviews and examines documents

Are documents acceptable?

YES

DOED addresses concerns of MoEn and requests revisions from the proponent

NO

Proponent submits revised application to DOED revisions from the proponent

MoEn sends the application back to DOED for comments
## Status of License and PPA of Hydropower Projects

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Type</th>
<th>Amount (No.)</th>
<th>Installed Capacity (MW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Hydro Projects under Operation</td>
<td>48</td>
<td>776</td>
</tr>
<tr>
<td>2</td>
<td>Projects under Construction after getting Generation License</td>
<td>99</td>
<td>2382</td>
</tr>
<tr>
<td>3</td>
<td>Projects having Survey License</td>
<td>79</td>
<td>5128</td>
</tr>
<tr>
<td>4</td>
<td>Projects with PPA Concluded</td>
<td>174</td>
<td>2568</td>
</tr>
<tr>
<td>5</td>
<td>Projects with Grid Impact Study under Take and Pay Condition</td>
<td>53</td>
<td>1100</td>
</tr>
</tbody>
</table>
5. 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. Not fully developed the export market. The cross-boarder transmission line is the bottleneck for exporting and importing the electricity.
6. Study and Development Models

1911 to 1984 Time Period
- Government of Nepal (GoN) was only responsible using National, Bilateral and Multilaterals Grants and Loans for Mega Projects

1984-1992 Time Period
- Nepal Electricity Authority (NEA) was responsible for the study and development of hydropower projects

1992 to till date
- Highly dependent to Independent Power Producers (IPPs) in the beginning
- In parallel way,
  - GoN and undertaking companies/committees
  - NEA and subsidiary companies
  - Jointly study (Nepal-India Government) for Pancheshwor and Saptakoshi High Dam Projects

- Concepts are being developed as:
  - Co-operatives
  - Nepal Army
  - Remit Hydro
  - Janatako Vidyut Janatakai Lagani (Projects development in the leadership of GoN also using Peoples’ Fund)

Development of 10,000 MW within 10 years applying following measures:

- Intra and Inter Institutional Co-ordinations
- Policy Reforms
- Improvement on Legal hurdles
- Administrative Reforms
- Institutional Reforms
- Simplicity in the Approval of Environmental Study
- Fast Tracks on the Transmission Line Construction
8. Major Issues to be Focused

- Focus on Storage Projects to Minimize the Load-shedding
- Development of Multipurpose Projects
- Cross Border Transmission Line
- SAARC Grid
- Synergize the Resources of SAARC Member States with Establishing Various Interconnections
- Environment for Foreign Investments
Thank You

NAMASTE