SAARC Perspective Workshop on the Past, Present and Future of High Voltage DC (HVDC) Power Transmission

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Electricity in Nepal

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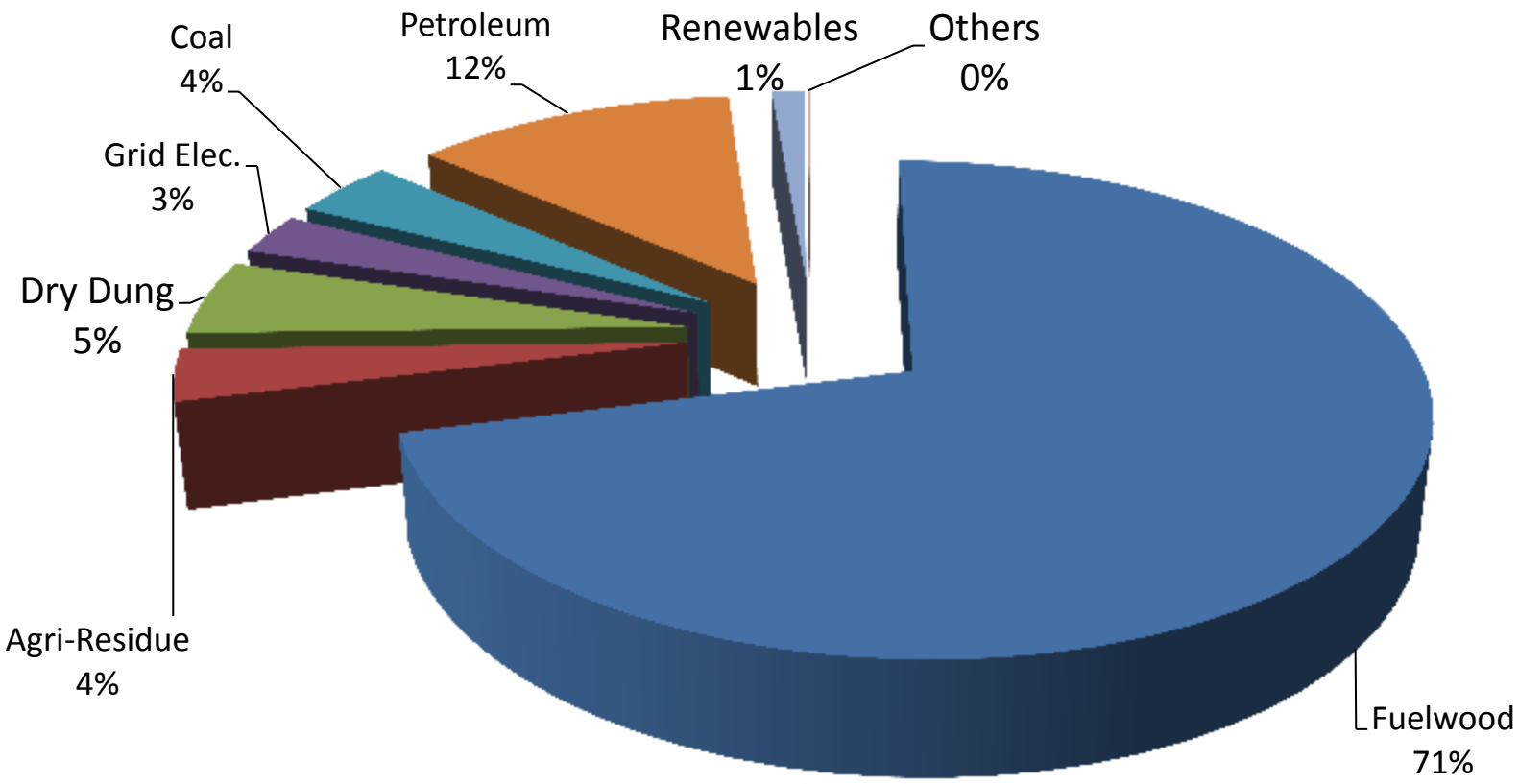
Energy Situation in Nepal

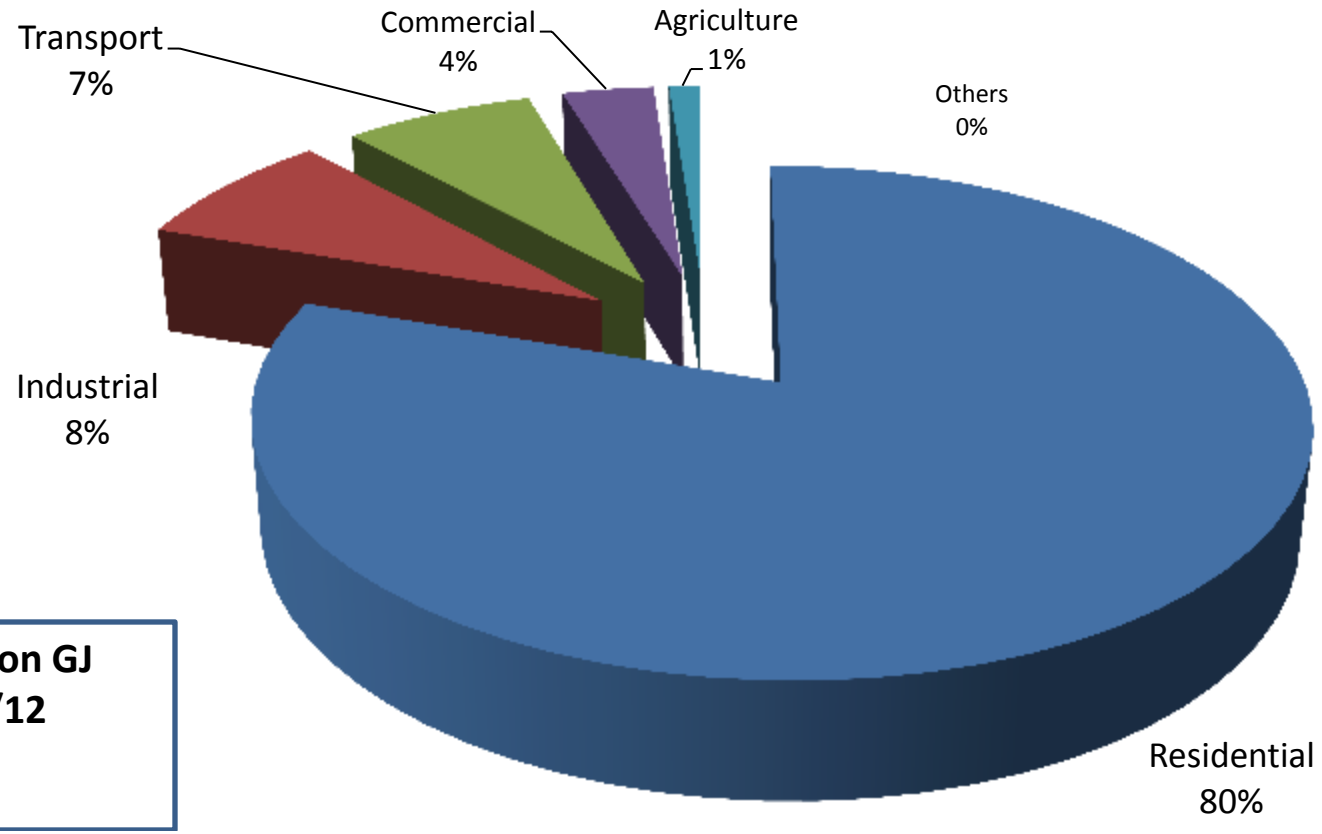
- Low level of per capita energy consumption
- High dependence on biomass resources specially forests and tree resources
- Higher portion of energy resources used in residential sector
- Largest energy consumption in cooking
- Burden in national economy from imported fossil fuel
- Nominal and limited contribution of renewable energy
- Supply of electricity does not meet the increasing demand
- Load shedding/higher electricity leakage
- Limited security of energy resources

Energy Consumption by Fuel Type



376.3 Million GJ
Year 2011/12
WECS

Energy Consumption by Economic Sectors



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Hydro Electricity in Nepal: Huge Potentiality

- Continuous flow of river
- High Slope
- Possible to Construct Reservoirs

Institutional Set Up

- Water and Energy Commission Secretariat
- Department of Electricity Development
- Nepal Electricity Authority
- Jalbidhyut Lagani Tatha Bikash Company Limited

Theoretical Hydropower Potential

River	Potential in MW		Total (MW)
	Major river courses having catchments areas above 1000 km^2	Small river courses having catchments areas 300-1000 km^2	
Sapta Koshi	18750	3600	22350
Sapta Gandaki	17950	2700	20650
Karnali and Mahakali	32680	3500	36180
Southern River	3070	1040	4110
CountryTotal	72450	10840	83290

Source: WECS (2010)

Technical Hydropower Potential

River Basin	Number of Project Sites	Technical Potential Capacity (MW)
Sapta Koshi	53	11400
Sapta Gandaki	18	6660
Karnali	30	25410
Mahakali	4	1160
Southern Rivers	9	980
Country Total	114	45610

Source: WECS (2010)

Generating Facilities in Integrated Nepal Power System

NEA Power Plants	**531.340 MW**	
Hydro	477.930	11 major & small
Thermal	53.41	2 Plants
Solar	0.10	2 Plants
Private Power Plants	**255.647 MW**	26 Plants
Total	**787.087 MW**	

Source: NEA (2014/15)

Kaligandaki Hydro Dam

Upcoming Hydro Power Plants

Under Construction

HPP	Capacity (MW)
Upper Tamakosi Hydropower Project	456
Tanahu Hydropower Project	140
Chameliya HEP	30
Kulekhani III	14
Upper Trisuli 3 A HEP	60
Rahughat HEP	32
Upper Sanjen	14.6
Rasuwagadi	111
Madhya Bhotekoshi	102
Upper Trisuli 3 B	42
Total	1044.1

Planned

HPP	Capacity (MW)
Upper Arun HEP	335
Upper Modi A HEP	42
Upper Modi HEP	18
Dudh Kosi Storage HEP	640
Tamor Storage HEP	530
Uttar Ganga Storage HEP	300
Tamakoshi V HEP	87
Upper Bheri HEP	85
Chainpur Seti HEP	140
Total	2177.2

Existing Substations Capacity in Integrated Nepal Power Station

Voltage	Installed Capacity(MVA)
132/11kV	186.00
132/33kV	470.50
132/66kV	248.40
66/33kV	25.00
66/11kV	485.20
Total Installed Capacity MVA)	1,415.10

Source: NEA (2012)

Supply Demand Gap of Electricity in Nepal

- Nepal is facing acute power shortages at present
- Power purchase from India in 2014 was 1318.75 GWh
- It is projected that there will be a surplus of around 1500 MW during the wet season after 2017
- Conclusion of PDA between Nepal and India in October 2014 is expected to boost investment in hydropower development
- SAARC Framework Agreement for Energy Cooperation (Electricity) in the SAARC Summit in Kathmandu in November 2014 is expected to boost power trade in the region


Thank You!!!