



South Asia Regional Electricity Market (SAREP Task Force 3 Meeting)

**Department of Energy
Ministry of Energy and Natural Resources
11 October 2023**

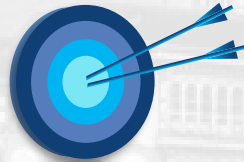
BHUTAN
Believe

DEPARTMENT OF ENERGY



VISION

Energy security for economic prosperity, social progress and the wellbeing of Bhutanese.



MISSION

Achieve energy security by harnessing green energy resources, and adoption of transformative and innovative technological solutions

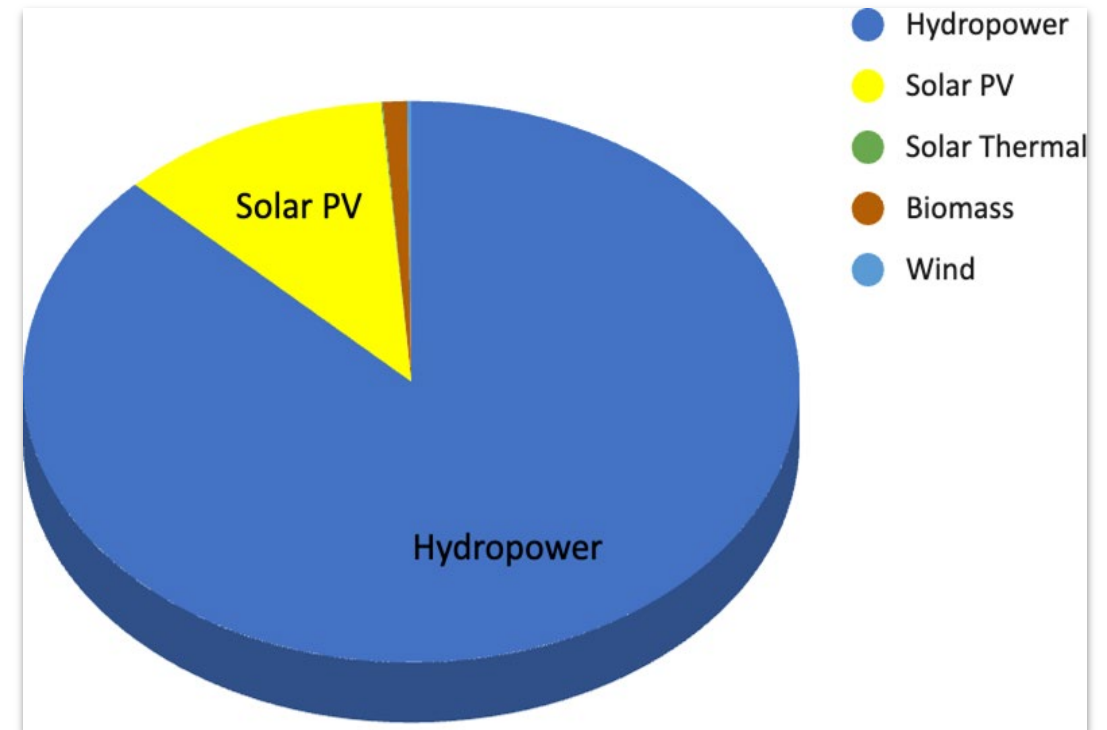
- Overview of Energy Supply
- Transmission Networks
- Demand Projection
- Energy Resource Target
- Challenges
- Benefits and Opportunities

Overview of Energy Supply



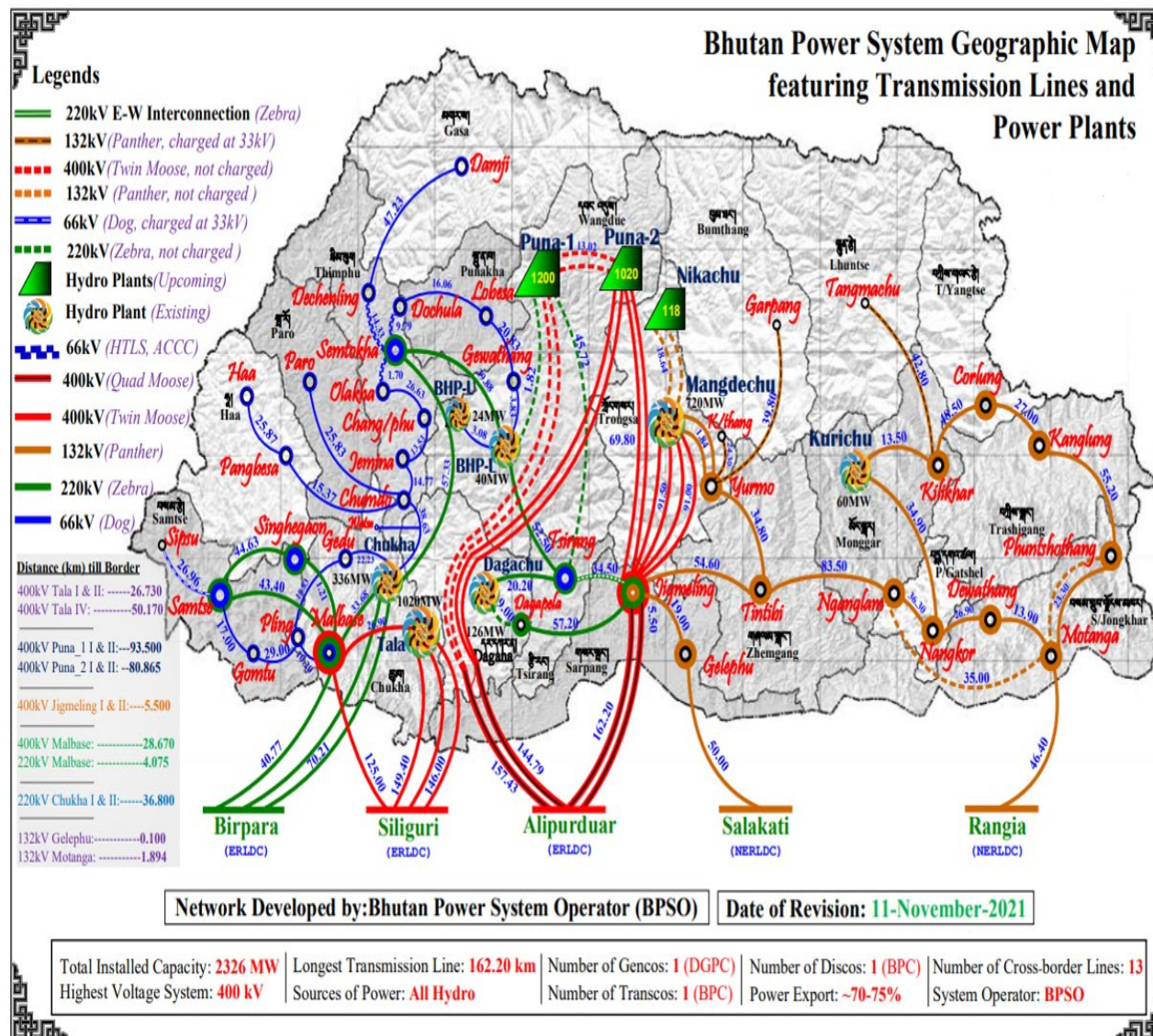
Share of RE resources (Potential)

Hydropower	87.39%
Solar PV	11.35%
Solar Thermal	0.06%
Biomass	1.02%
Wind	0.17%



- ❑ Peak Demand (08 August 2023) – 803.23 MW
- ❑ Electricity contribution to National Revenue (2021-22) – 21%
- ❑ Electricity contribution to GDP (2022) – 13.4%

Existing Transmission Network

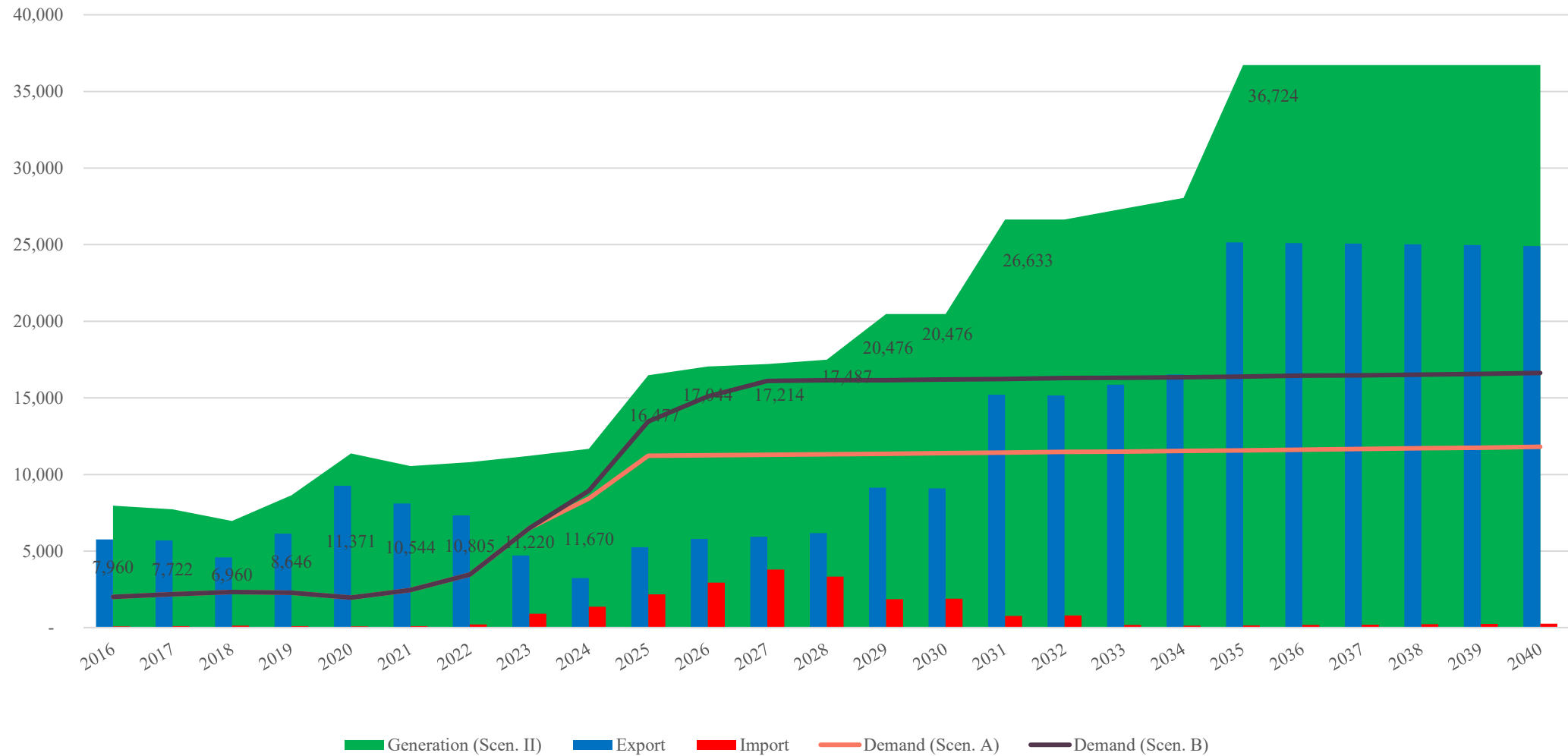


- Transmission network in Bhutan consist of 66kV, 132kV, 220kV, and 400kV.
- There are 13 export feeders as follows:
 - 132kV, Panther, S/C from Motanga- Rangia
 - 132kV, Panther, S/C from Gelephu-Salakati
 - 220kV, Zebra D/C from Chukha-Birpara
 - 220kV S/C from Malbase-Birpara
 - 400kV, Twin Moose, 2xD/C from Tala-Siliguri with one ckt LILOed to Malbase
 - 400kV, Quad Moose, D/C from Lhamozingkha-Alipurduar
 - 400kV, Quad Moose, D/C from Jigmeling to Rangia.



Power Scenario and Forecast

Generation , Demand , Export and Import Projections



- Resource constraints (Capital, skills, technology)
- Forecasting and scheduling
- First time participation in the power exchange
- Market (pricing and competition)
- Bidding process
- Understanding of the DSM



Benefits and Opportunities

- Bilateral, sub-regional and regional energy market entry
 - Bilateral already with India
 - Purchase of power from Indian power exchange market started from 2022
 - Sub-regional and regional energy market mechanisms
 - Market (pricing and competition)
- Opportunities for sale of power from un-contracted power during summer months
- Wider market access for sale of power from upcoming projects
- Sharing of resources within the region for collective achievement of energy security goals as well as climate goals

- ❑ Transition to market-driven trade and realization of premium value of clean and renewable energy, especially from hydropower and its ancillary benefits
- ❑ To purchase in the off peak hours with flexi operation of the dam
- ❑ Importance of monitoring, coordination and need for proper communication
- ❑ Building expertise through engaging experts and creating panel of experts, etc.

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CLEAN ENERGY AFFORDABLE WIND
PEOPLE PROSPERITY GREEN HYDROGEN
INNOVATION PROGRESS

Thank You

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