

POWER EVACUATION FACILITY AND TRANSMISSION FROM SEB

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OUTLINE OF PRESENTATION

- POWER FROM RE SOURCES AND ITS IMPLICATION TO ENVIRONMENT
- NEED FOR INTEGRATING INTO POWER SYSTEM
- GRID INTEGRATION ISSUES OF RE POWER PLANTS
- EXPERIENCE
- WAY FORWARD

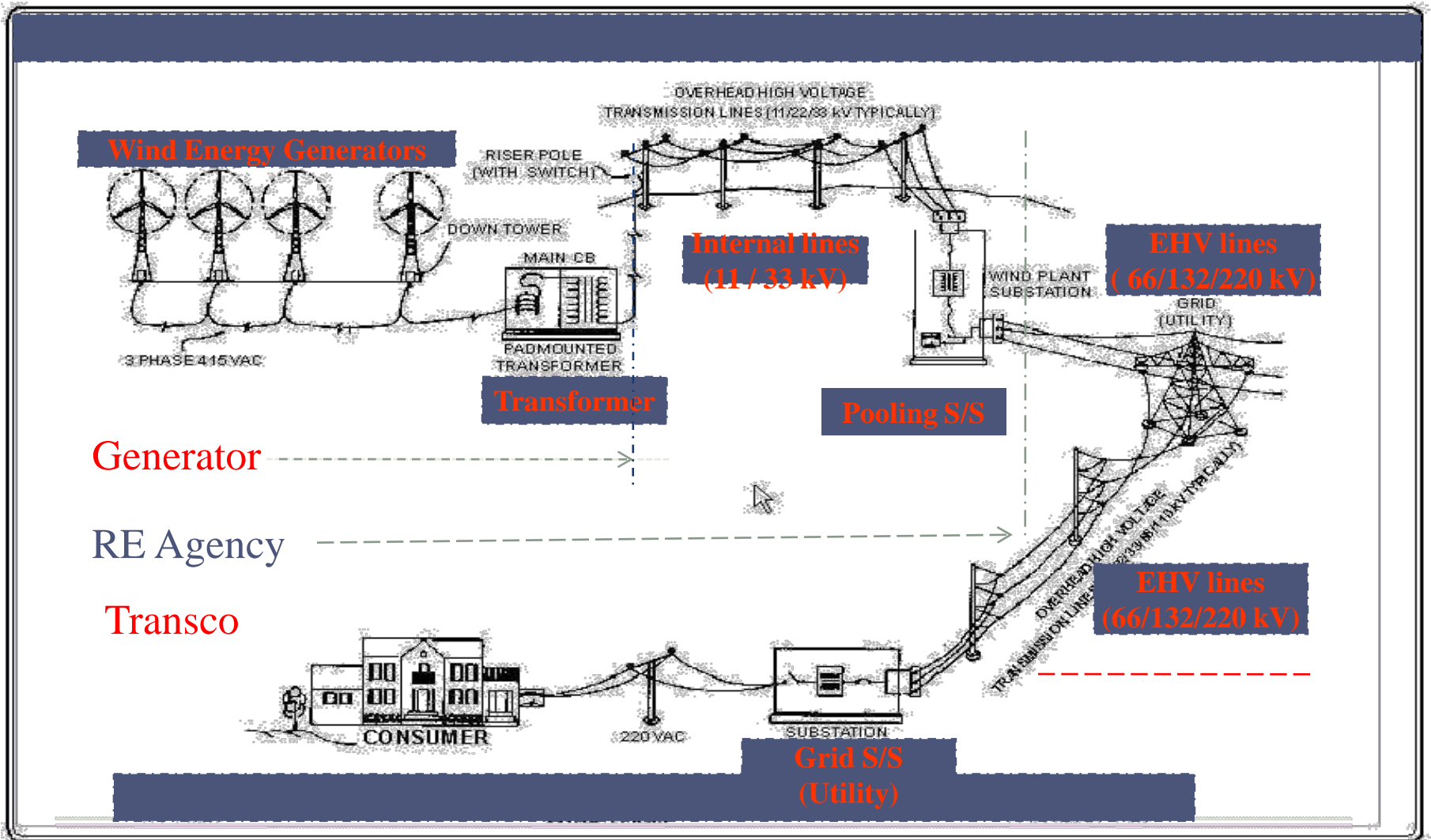
NEED FOR INTEGRATING WIND POWER INTO POWER SYSTEM

- Stochastic availability
- To be absorbed as and when available
- Maximum output can be taped with grid support

RE POWER PLANTS INTER CONNECTION WITH MAIN SYSTEMS

- GRID CONNECTIVITY
- GRID OPERATION
- ENERGY ACCOUNTING

RE POWER EVACUATION



Generator

RE Agency

Transco

Grid S/S
(Utility)

GRID CONNECTIVITY

- TRANSMISSION PLANNING
- TRANSMISSION FUNDING
- TRANSMISSION PRICING
- SCADA AND METERING
- RE TRANSMISSION AGENCY
- IEGC & STATE GRID CODE

RE POWER TRANSMISSION PLANNING

- Responsibility for Transmission Planning
 - CTU , STU
- Transmission plan criteria
 - Redundancy criteria , Line loading etc.
- Transmission long term optimal plan
- Detailed Transmission Capacity addition Schemes

Responsibility of development of RE Power Evacuation

Gujarat

- Developer is responsible for evacuation infrastructure up to nearest GETCO S sub-station
- Considered Rs 30 L/MW towards evacuation cost

Maharashtra

- Developer is responsible for evacuation infrastructure up to nearest MSETCL/MSEDCL Sub-station up to interconnection point
- Developer to provide 50% of cost as interest free advance
- Recent Order recognises STUs responsibility to develop evacuation

Rajasthan

- Developer is responsible for evacuation infrastructure up to nearest RVPN Sub-station
- Considered Rs 20 Lakh/MW evacuation cost

Tamil Nadu

- Evacuation system to be developed by the STU/Discom but the associated cost to be borne by project developer

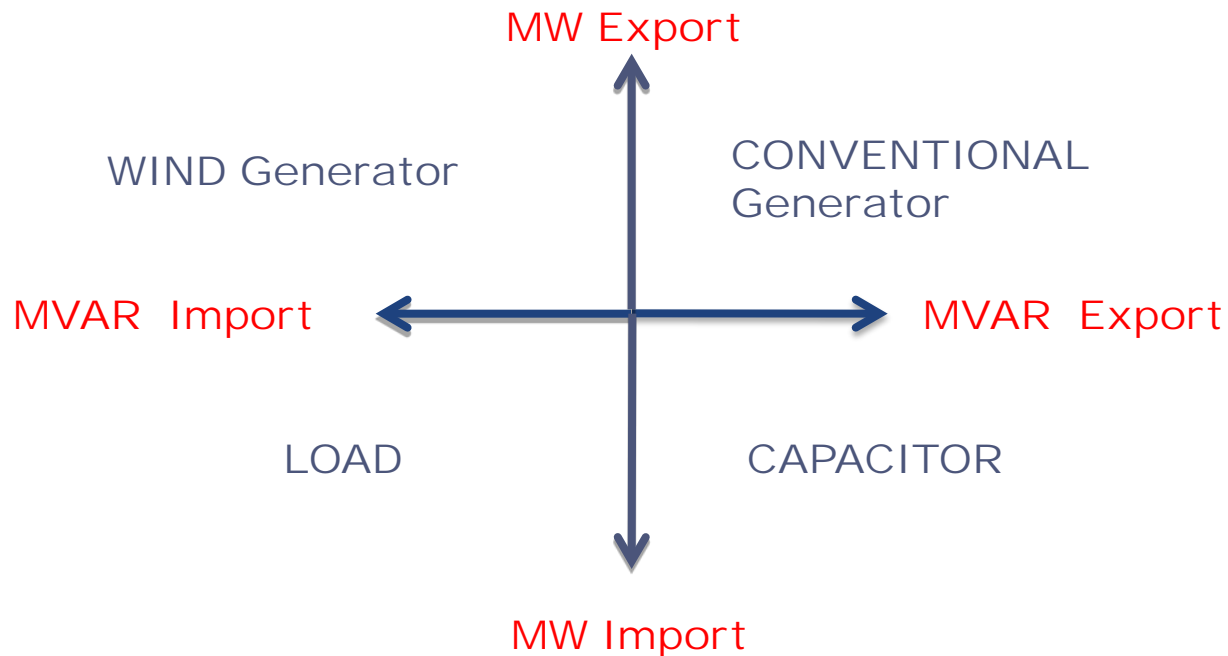
GRID OPERATION WITH RE POWER

- SPECIAL NATURE OF RE GENERATORS
- GENERATION & ABSORPTION OF RE POWER
- INFLUENCE OF RE POWER ON GRID OPERATION

Special nature of RE Generators

- Small sized
- Synchronous Generators
- Asynchronous Generators
- Asynchronous converted synchronous Generators
- DC converted AC

GENERATION & ABSORPTION OF POWER BY SYSTEM ELEMENTS



INFLUENCE OF RE POWER ON GRID OPERATION

- GRID STABILITY
- FREQUENCY CONTROL
- VOLTAGE PROFILE
- GRID PROTECTION

SCADA AND METERING

- SCADA TO ENABLE GRID CONTROL
- INDIVIDUAL GENERATOR METERING
- SUB-STATION CONNECTING GROUP OF RE UNITS
- TRANSMISSION RE SS INTERFACE METERING

WAY FORWARD AND SUGGESTIONS

- EVACUATION INFRASTRUCTURE
 - CTU,STU & RE Transmission Agency
- GRID CODE : IEGC & State Grid Code
- TRANSMISSION PLANNING CRITERIA
 - CEA,CTU & STU
- SLDC
 - to include RE POWER PLANTS as CONVENTIONAL POWER PLANTS related to operation & balancing code

THANK YOU