

**International Seminar on
Global Renewable Energy Support Programme,
with Particular Focus on Globally Funded Feed-in Tariffs**
Organized by
Centre for Science and Environment (CSE) and What Next Forum
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100% RENEWABLES
– Making a Reality –
THE CONCEPT

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OVERALL APPROACH

- ❑ Stable population of around 23 million people, transformed to energy conscious society
 - ❑ Developed, knowledge based economy→18000MW demand
 - ✓ Lowered to 15,000MW due to low energy intensity of economy
 - ✓ Further lowered by EE gains to 10,000MW (\equiv 10 kWh/person/day)
 - ❑ A transformed society
 - ✓ With full digital convergence
 - ✓ Integrated mostly electronically
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- ❑ Electricity system
 - ✓ Taken over the most aspects of the energy industry through an Internet Protocol (IP) based smart grid
 - ✓ Powered, mostly by centralized wind parks and distributed solar PV, assisted by storage hydro
 - ✓ Biomass, agro and municipal waste streams supporting firm power
 - ✓ EV batteries & pumped storage developed to support the RE fed grid
 - ✓ Hence size of the grid increased to 25,000MW

SECTORAL APPROACHES

TRANSPORT

□ Complete electrification of transport realized

- ✓ Most major cities will be predominantly pedestrian in character and will have only electric bicycles, scooters, E3Ws and E-taxis to support
- ✓ Passenger transport dominated by electric trains and electric BRT supported by a fleet of EV taxis
- ✓ Storage capacity of EVs used as a grid balancer
- ✓ Hydrogen Fuel cell vehicles, Compressed air vehicles
- ✓ Algae based biofuels and compressed biogas powering long haul transport

RESIDENTIAL

□ Almost all homes defected from central grid

- ✓ Own roof top solar PV with advanced battery solutions
- ✓ Energy efficient appliances, mostly connected to DC micro grids
- ✓ Cooking energy, a combination of modern biomass and induction stoves
- ✓ Solar water heaters
- ✓ Waste converter (including biogas digester), a household appliance

SECTORAL APPROACHES

INDUSTRY

- ❑ Industries are resource efficient low energy demand types
- ✓ Thermal energy from improved biomass, biogas and RDF
- ✓ Geothermal, Ocean thermal for low temperature thermal energy
- ✓ Solar water pumping for lift-irrigation
- ✓ Electricity from local grids, and assisted by central grid
- ✓ DC motors taking over the role of preferred motive power source

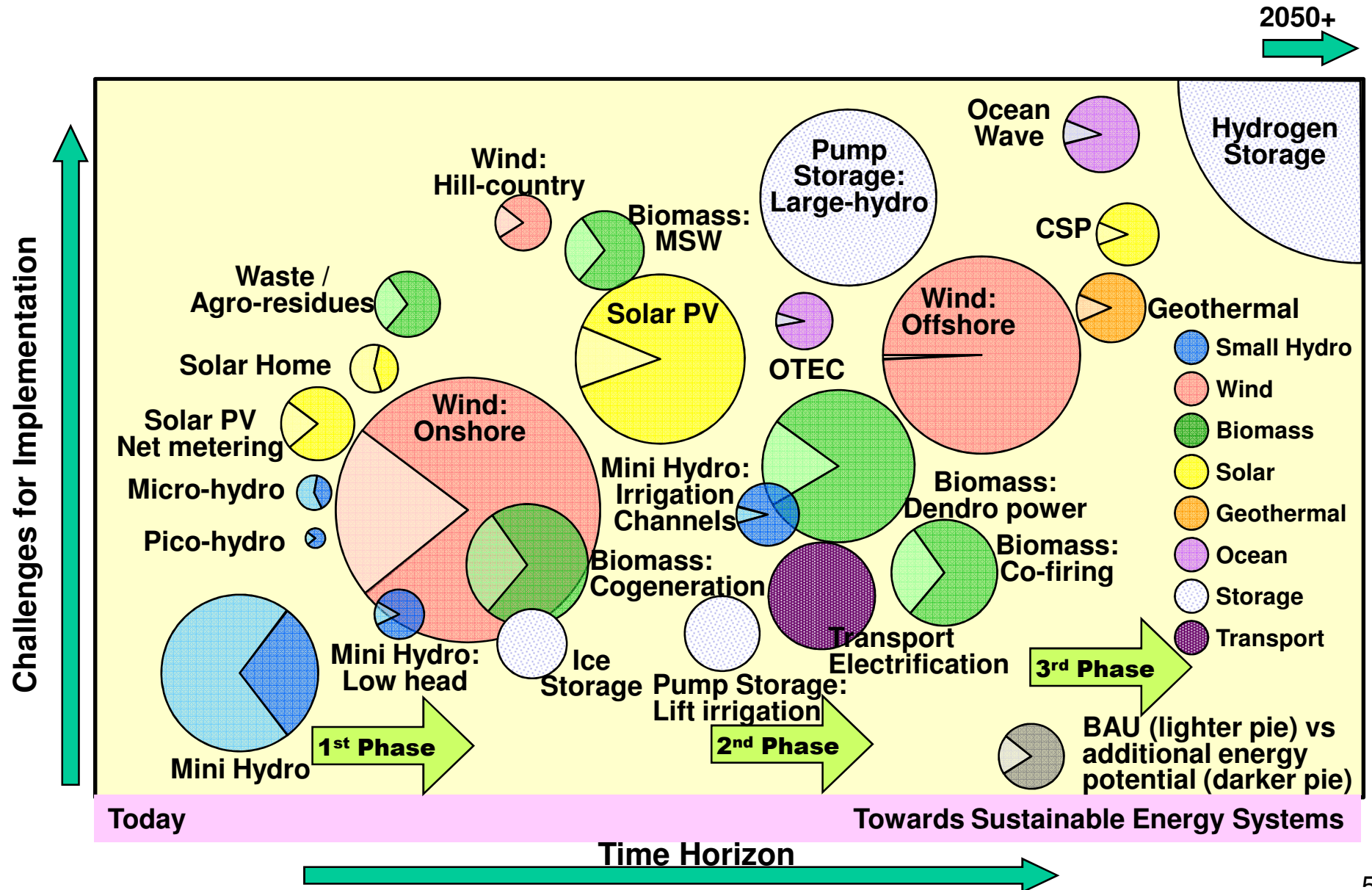
COMMERCIAL

- ❑ Building innovations driven commercial sector
- ✓ Most commercial centres cooled by district ocean thermal and geothermal assisted by ice storage
- ✓ Most buildings energy efficient - zero / positive energy buildings
- ✓ All buildings with advanced BMS systems and Building-Integrated Photovoltaic (BiPV) envelopes
- ✓ Advanced technologies such as co-generation and tri-generation
- ✓ Waste to Energy - fully materialized.

This is assisted by RE and EE Technology Roadmaps

RENEWABLE ENERGY TECHNOLOGY ROADMAP

RE Technology Roadmap for Electricity Generation



Thank You