

Regulatory Menu for Integration of Renewables

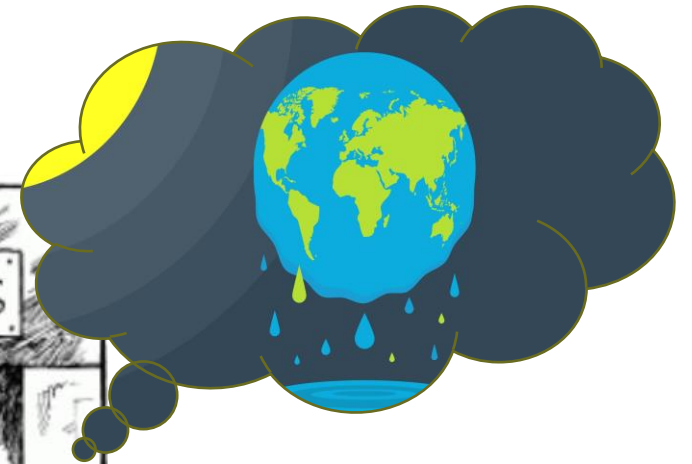
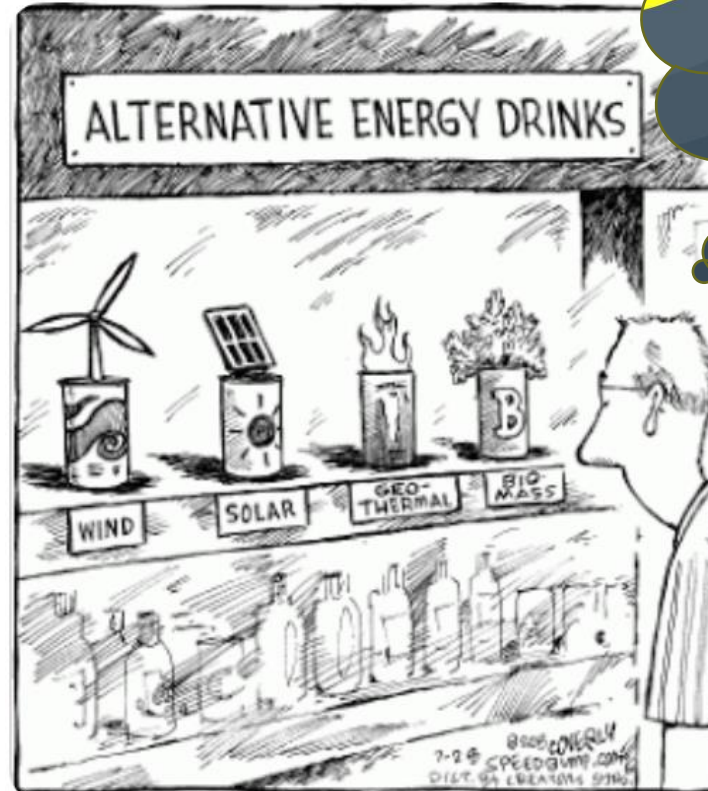
6th EU-India Workshop Series on Energy Regulation
Swetha Ravi Kumar & Ashwitha Tunga
July 20, 2022



Background



India-EU Clean Energy and Climate Partnership



6th EU- India Workshop Series on Energy Regulation

1. Market Design for Integration of RES
2. Energy Imbalance and Ancillary Service Market
3. Scarcity Pricing

Stay tuned and participate 😊

Regulatory Menu for Integration of Renewables

Research Project Report
Issue 2022/05 - July 2022

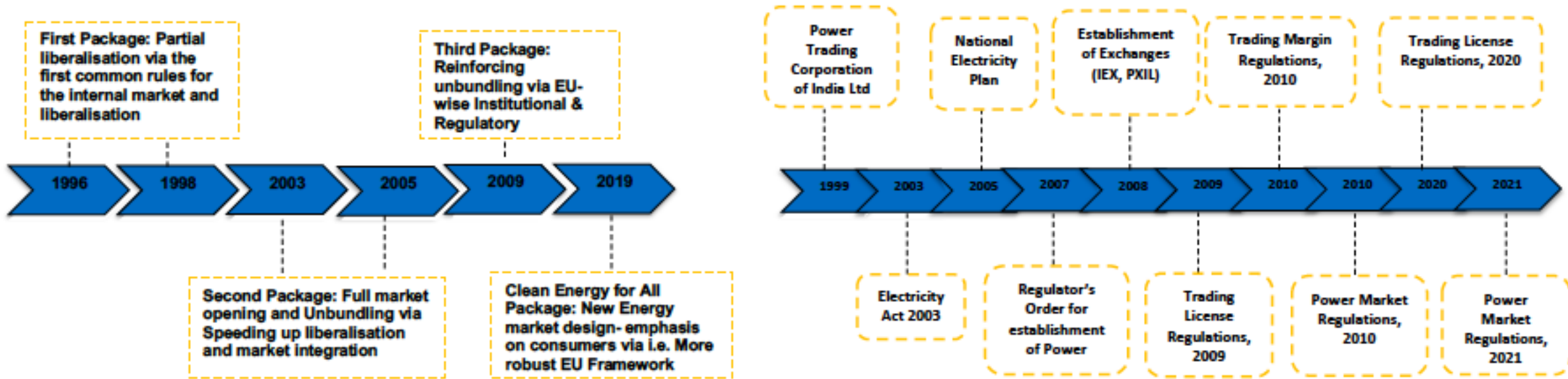


Based on 6 Topics discussed at the 5th EU-India Regulatory Workshop
Series of Energy Regulation

- Electricity Trade through Power Exchange
- Role of Distributed Energy Resources in the Energy Transition
- The Future of Renewable Support Mechanisms
- Efficient Procurement of Ancillary Services
- Retail Electricity Competition
- Electricity Trade beyond Borders

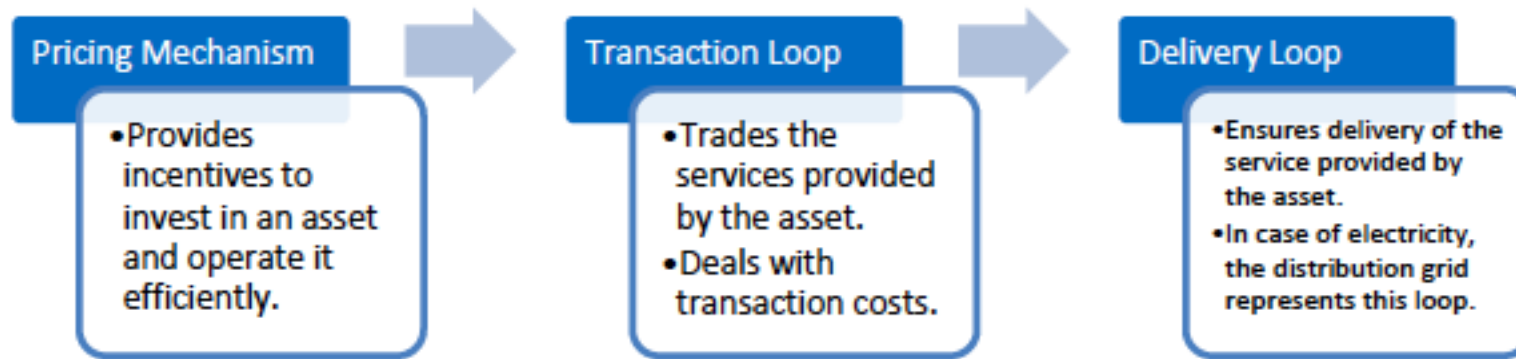
Evolution of the EU and India experiences and focused on some key highlights

Electricity Trade through Power Exchange



High amount of RE ---Market mechanisms are important to coordinate supply and demand in a system --- increased role of power exchanges and their various innovative product offerings (e.g. Contracts for Differences) will not only improve the uptake of RES in electricity systems but also help them operate efficiently ---maximise benefits across geographies.

Role of DERs in the Energy Transition

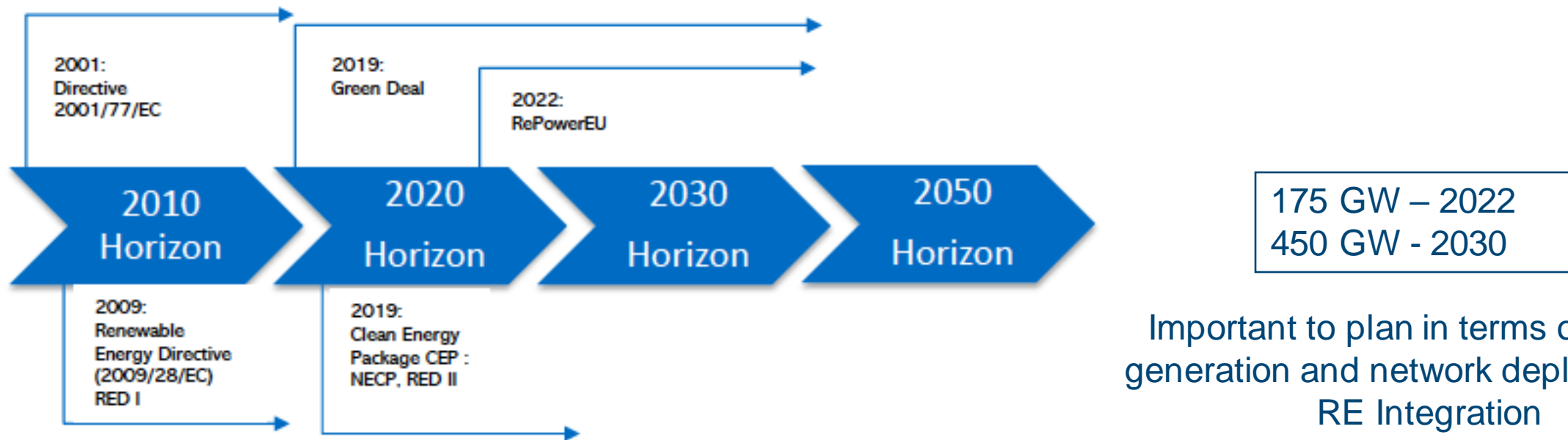


DERs should be included in system planning and operation to achieve deep decarbonisation and low integration costs

Transaction pillars in the energy market

DERs + digitalisation can enable an increased integration of renewables, on a small scale at the local level and across vectors.... crucial in not only enabling access to energy in remote habitats but will also participate as active players in the electricity markets...suitable rules and regulations need to be enforced to induce investors to explore the potential of DERs and enable DERs to play a responsible role in the system.

The Future of Renewable Support Mechanisms



In the past RE were not cost-competitive and therefore needed support to enable market entry...now that we have significant cost-competitive RE in the system, support mechanisms should adapt towards integrating these renewables....new rules are needed for both networks and markets according to the level of maturity of RE technologies.

Efficient Procurement of Ancillary Services



Strongly influences trade in short-term spot markets

High imbalance prices - encourage rebalancing by trading on intraday

High balancing reserves – takes volumes away from other short term markets

The role of balancing is gaining more relevance due to RE in the system.... ensure it is procured in an efficient manner...well-designed market can provide the right incentives to offer balancing services, while ensuring consistency across the various market products...Balancing markets should be open, technology-neutral, unbiased and attract innovators to define new, beneficial ways to deliver these services.

Retail Electricity Competition

Major rationales for societal benefits from retail electricity

- Reducing market imperfections – reveal true cost
- New products and services to meet consumers' needs
- Informed choice among consumers against incumbent offers

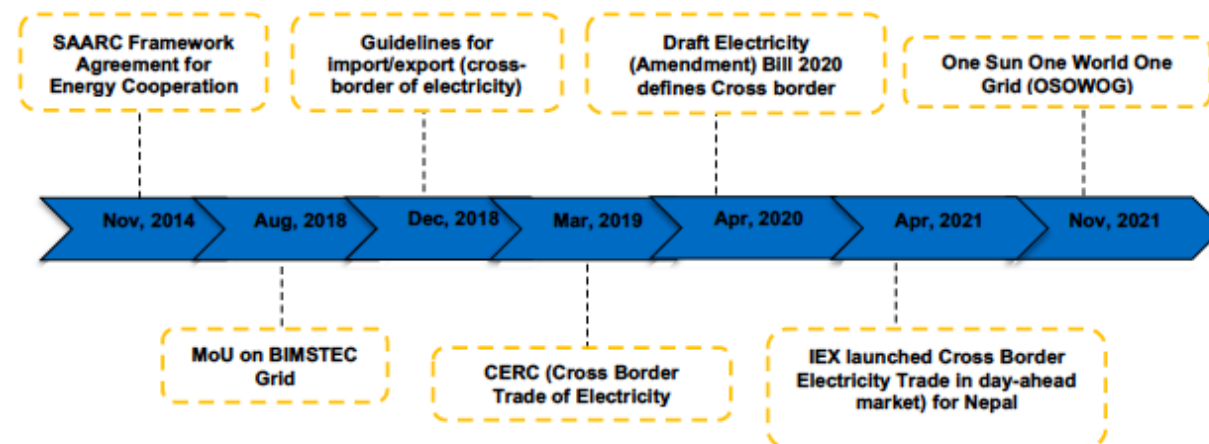
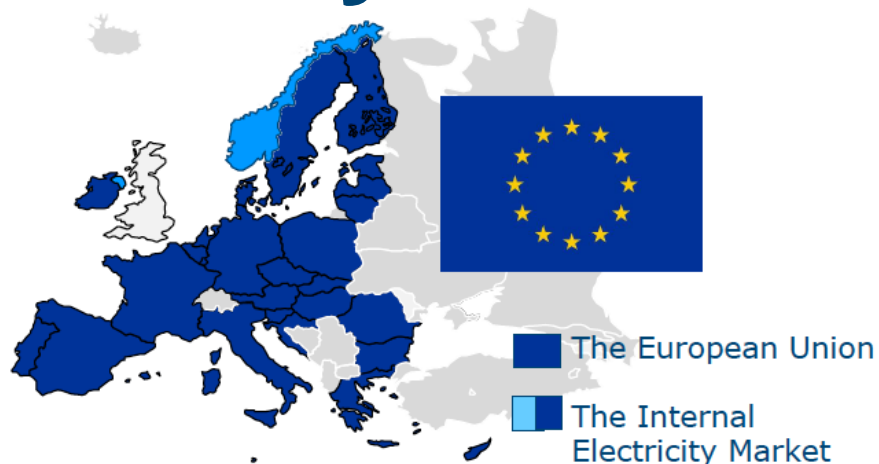
Dynamic Tariffs

- Static Time of Use (ToU) tariff
- Real Time Pricing
- Critical Peak Pricing
- Peak Time Rebates

Dynamic tariffs help retail suppliers differentiate between their products

Introducing competition in the retail electricity marketnew product offerings for the end consumer e.g. only renewables etc...retail competition has proven to be more beneficial for large commercial and industrial consumers and the benefits for small-scale consumers remain unclear....however, retail competition is likely to play an important role in maximising gains from a system with more renewables.

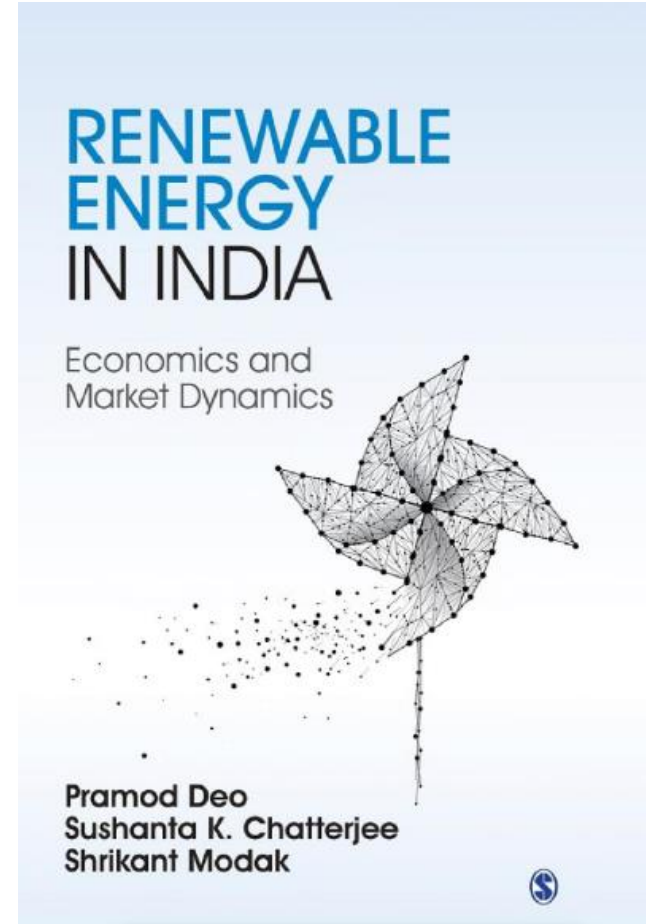
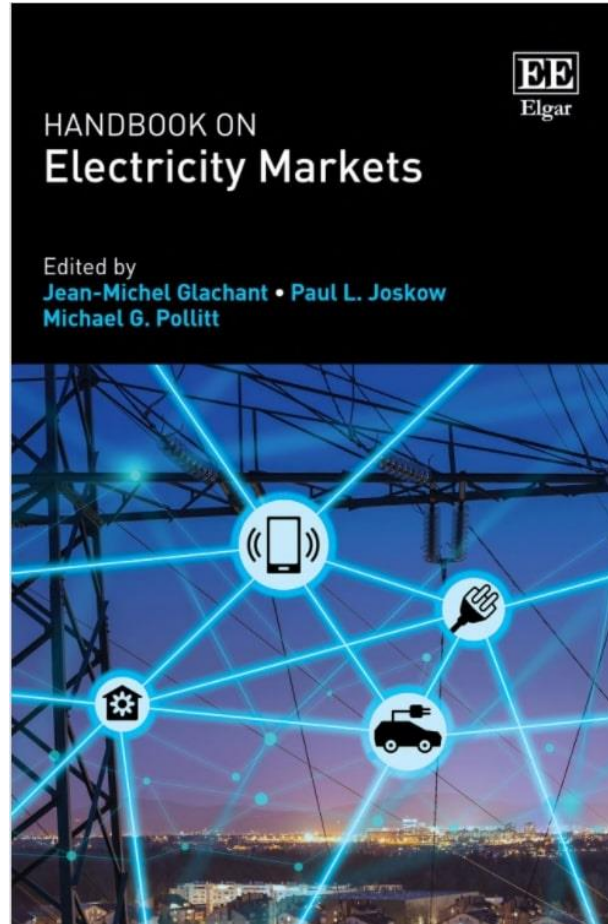
Electricity Trade Beyond Borders



Market Coupling –phased journey – volume..price..flow etc. -
Differ by how price is determined and transmission allocation

As RE sources are not evenly distributed, trade across borders will help tap these resources in a given region. However does not come easy as it requires a harmonised set of rules and regulations on the market, networks, operations and emergencies....requires strong regional governance, coordination and political commitment...Europe cross-border trade has benefited from the political framework of the European Union and its aim to set up an integrated electricity market...South Asian region the challenge is more pronounced as the region does not have a common political framework binding the countries

Handbooks



Thank You

Swetha Ravi Kumar
Head of FSR Global



@swethark



/swethark



swetha.ravikumar@ext.eui.eu



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