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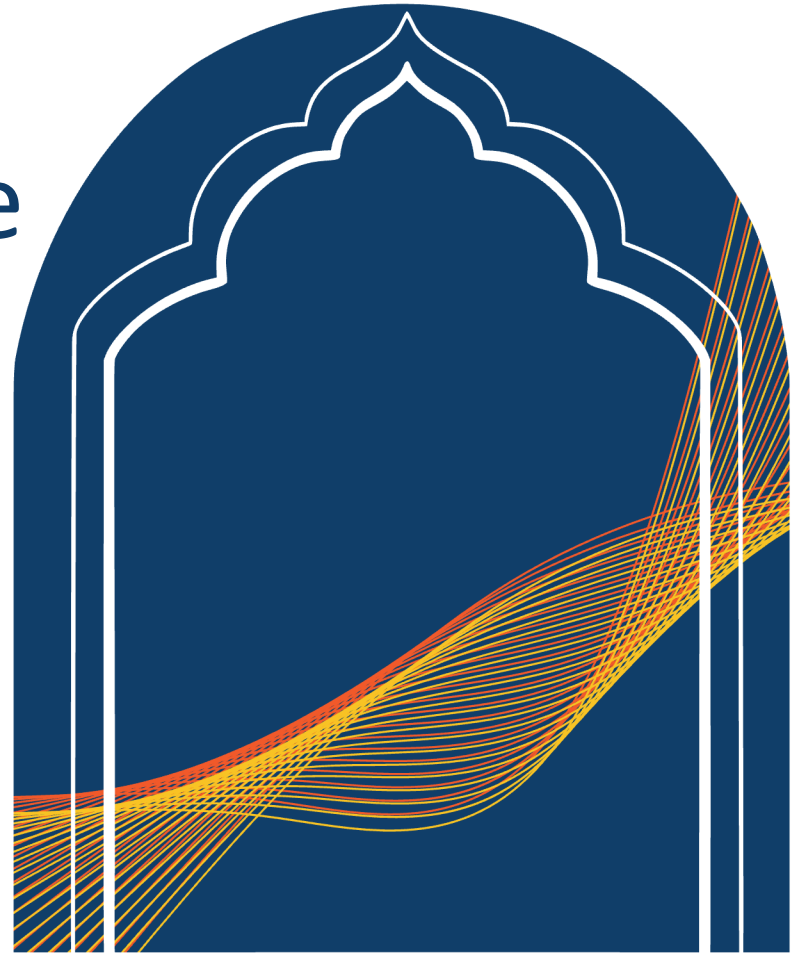
CBET: The European Experience & South Asian Region

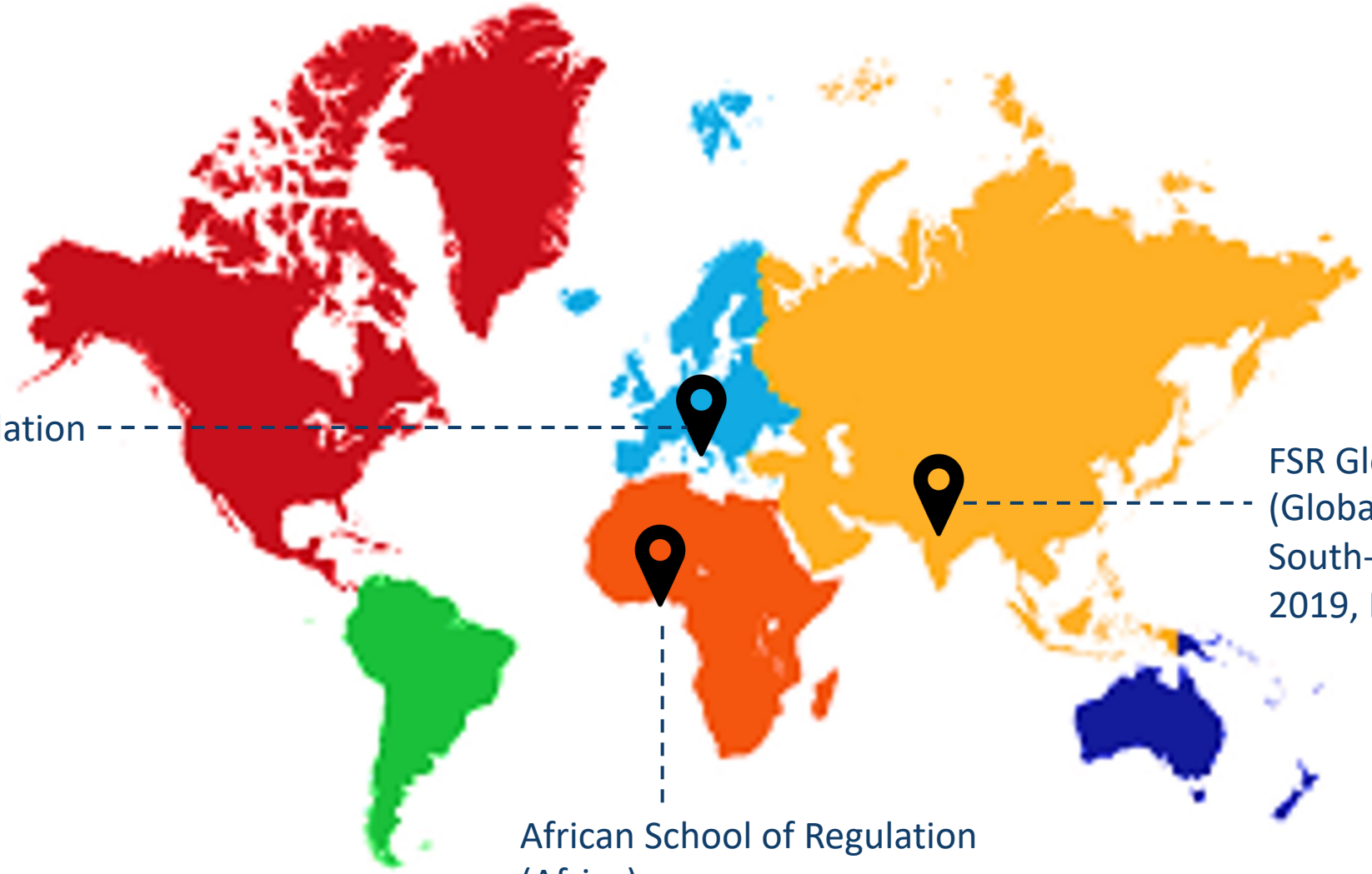


Dr. Parul Bakshi, Research Fellow

For 13th EU-India Smart Energy Workshop, ISUW

March 13, 2024

SISTER SCHOOLS



Florence School of Regulation
(Global North),
2004, Florence, Italy

FSR Global
(Global North-South &
South-South, Asia),
2019, New Delhi, India

African School of Regulation
(Africa),
2022, Accra, Ghana

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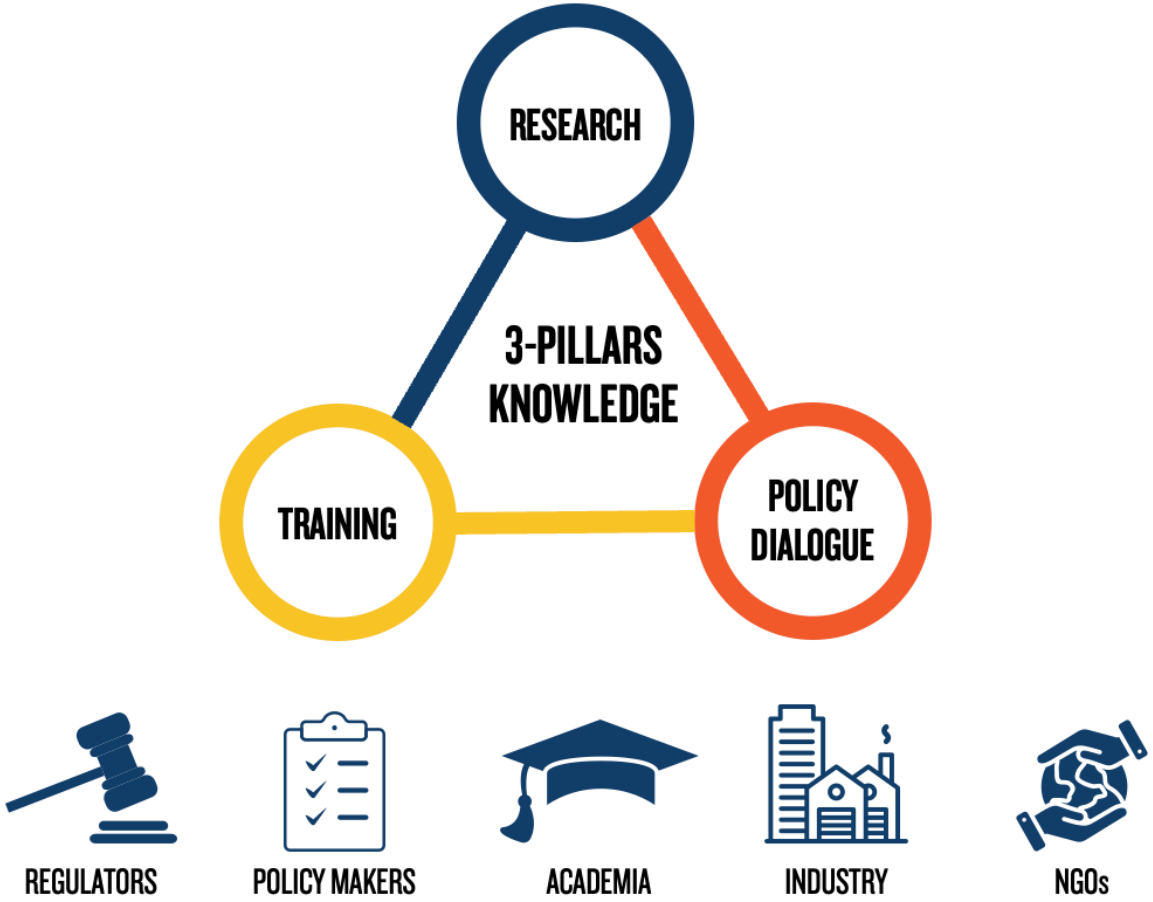
OUR APPROACH



Research organization –

delivering to practitioners (speed and condensed)

with the quality of academic rigor

Knowledge exchange on policy and regulation

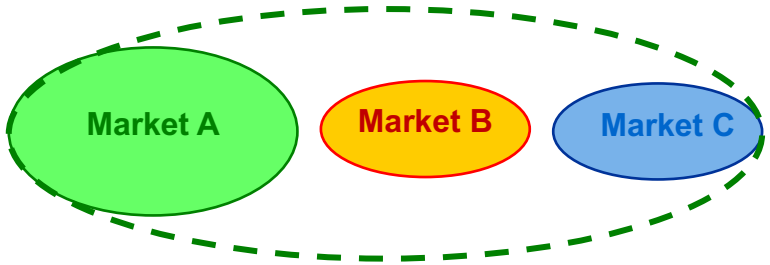
Global North – Global South

Global South – South and to the North

Regional Electricity Market Integration: Many possible models

1) Extension of the market in one jurisdiction to encompass other jurisdictions

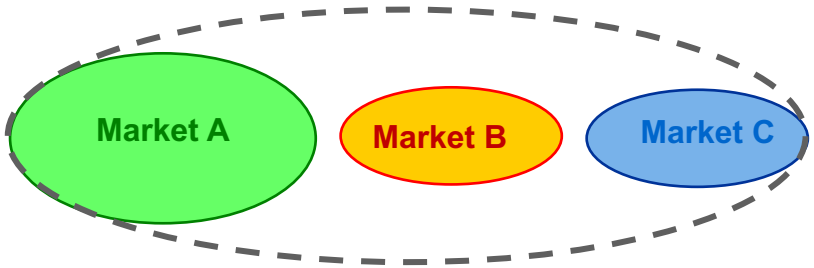
Extension of Market A and its rules to Markets B and C



Example: Italy-Slovenia (2011) in Europe

2) Establishment of a regional market, replacing existing markets, with new rules agreed by all involved jurisdictions

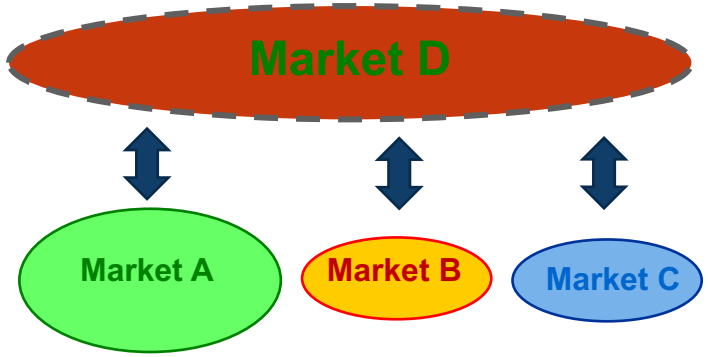
New market and common rules for the regional market



Example: the Internal Electricity Market in Europe

3) Superimposing a regional market on the trading arrangements in the different jurisdictions

Regional market, with its own rules, superimposed to trading arrangements in the different jurisdictions

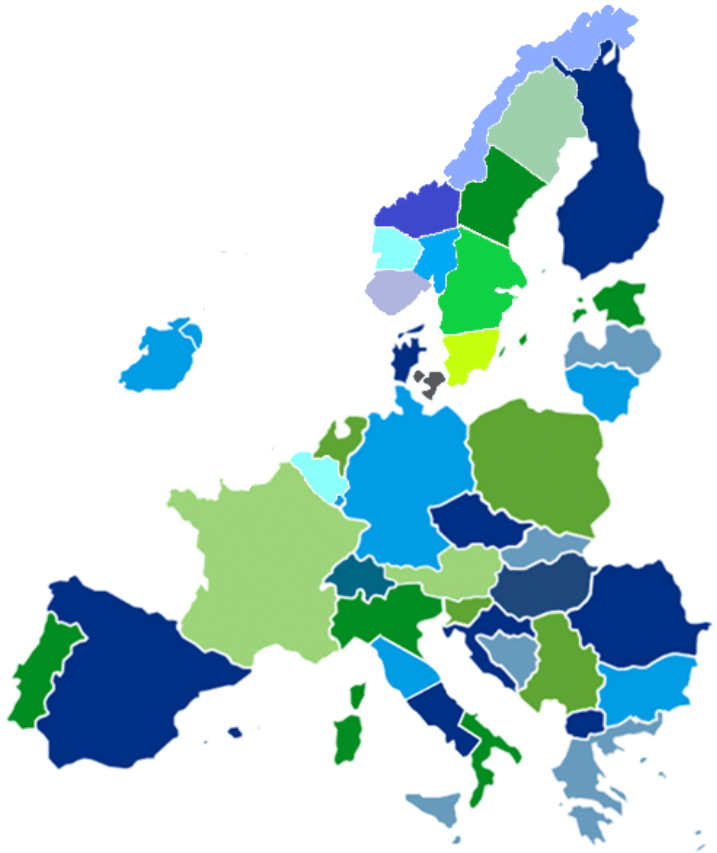


Example: SIEPAC in Central America

The Internal Electricity Market in Europe

- The Internal Electricity Market in Europe is implemented through Market Coupling in the Day-ahead and Intra-day timeframes
- The algorithm for the Day-ahead market coupling (Euphemia) was developed to accommodate most of the features of the previous national/regional markets
- It efficiently couples the different market zones
- … thus delivering benefits to European energy consumers

The zonal market configuration



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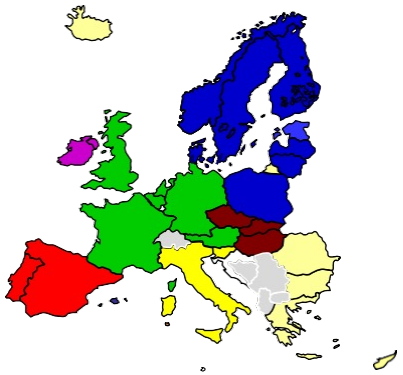
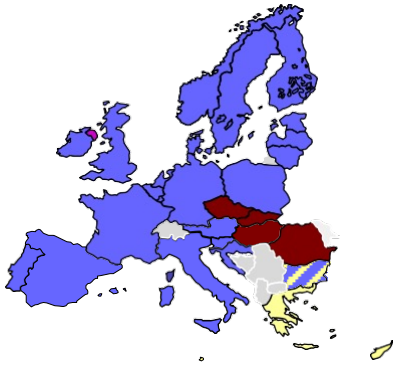
The Internal Electricity Market
Day-ahead Market Coupling

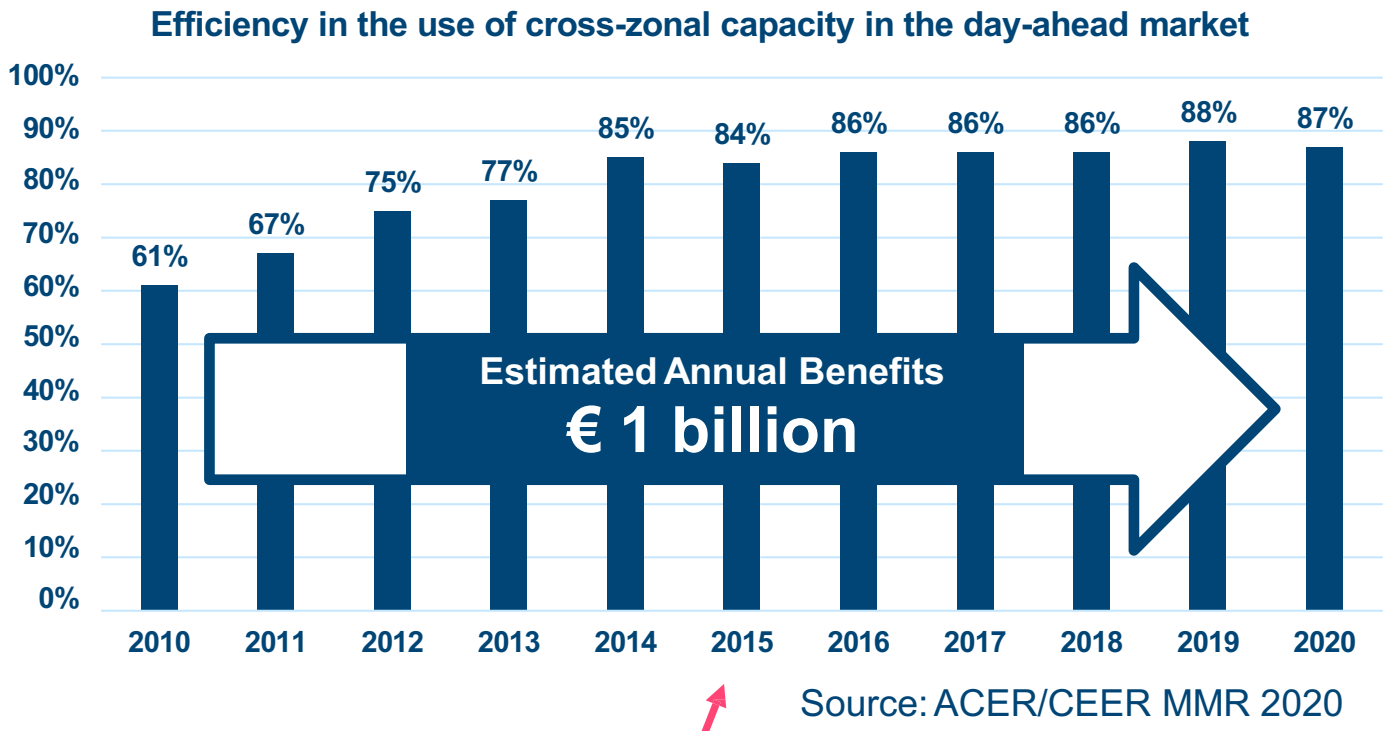
Improving the efficiency in the use of the interconnection capacity

2013



2020





Source: ACER/CEER MMR 2020

EU Regulation on Capacity Allocation and Congestion Management

The EU Experience - Planning

entsoe

- European Network Planning performed over a two-year cycle
  - EU Ten-Year Network Development Plans – EU TYNDP, separate for electricity and gas
    - Developed by the European Networks of Transmission System Operators (ENTSOs)
    - Based on:
      - Common scenarios for electricity and gas defined by the ENTSOs
      - Submission by TSOs and other transmission infrastructure promoters
    - Subject to the opinion of the EU Agency for the Cooperation of Energy Regulators (ACER)
      - Discrepancies (often timing) between the EU TYNDP and the binding national TYNDPs are identified by ACER and investigated
- Projects of Common Interest (PCI)
  - The PCIs are the priority projects for interconnecting the EU energy system infrastructure
  - PCIs are a subset of the projects in the EU TYNDP + PCI lists estb every 2 years

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The EU Experience – TEN-E Regulation

ACER
European Union Agency for the Cooperation of Energy Regulators

- Cross-border Cost Allocation (CBCA)
  - PCIs can apply for Cross-border Cost Allocation (CBCA)
  - CBCA solves the problem of uneven distribution of costs and benefits, which hampered the development of beneficial infrastructure
  - Internal projects in one Member States benefitting other Member States
- CEF – Connecting Europe Facility
  - CEF provide grants to project with the PCI status
    - Grants for studies
    - Grants for works
  - For PCIs to be available for CEF funding, they should have applied and obtained a CBCA decision

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Main dimensions of regional electricity market integration

- Political support – a key factor
  - e.g. EU Electricity Regional Initiatives
- Expected benefits – overall and their distribution
  - Winners and losers?
- Stakeholder involvement – buy-in by stakeholders in the region
- Governance implications – split of power between the national and regional levels (subsidiarity principle)
- Technical complexity – typically not the main obstacle
- Implementation costs and time – ambitious, but realistic planning is key to avoid losing momentum

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Key observations – CBET in SAR

- Shared Vision – Shared Projects : But How?
  - Use existing frameworks such as BIMSTEC, SAARC, SAFIR
  - Develop a new regional institutional body (umbrella) or platforms (connecting same set of stakeholders)
- Shared Vision – Shared Projects : But When?
  - Wait for market to mature – till then bilateral is ok
  - In the meanwhile setup the framework for regional entity
- Commercialization is key – equitable approach needed (social and economical)
  - Transmission corridors will be key to facilitating market interactions
- Economic Development – a key push for G-G willingness
  - Need to present the picture looking beyond electricity to convince policy makers
  - Spill over effects need to be captured – water, trade, transit …

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So far we all know the story…here on we need to accelerate now?

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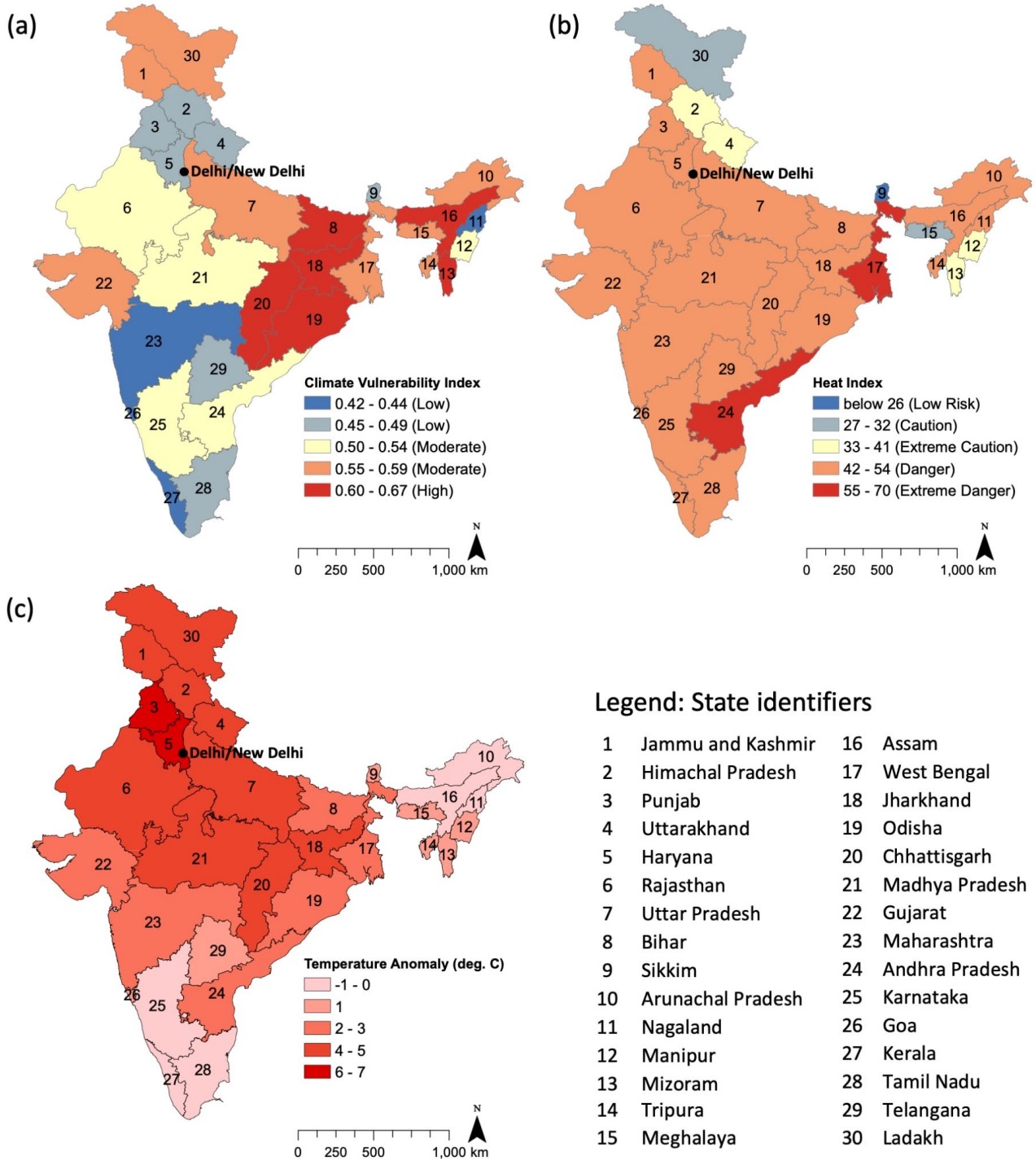
As the reality is this…



Legend: State identifiers

1	Jammu and Kashmir	16	Assam
2	Himachal Pradesh	17	West Bengal
3	Punjab	18	Jharkhand
4	Uttarakhand	19	Odisha
5	Haryana	20	Chhattisgarh
6	Rajasthan	21	Madhya Pradesh
7	Uttar Pradesh	22	Gujarat
8	Bihar	23	Maharashtra
9	Sikkim	24	Andhra Pradesh
10	Arunachal Pradesh	25	Karnataka
11	Nagaland	26	Goa
12	Manipur	27	Kerala
13	Mizoram	28	Tamil Nadu
14	Tripura	29	Telangana
15	Meghalaya	30	Ladakh

Source: Cambridge University

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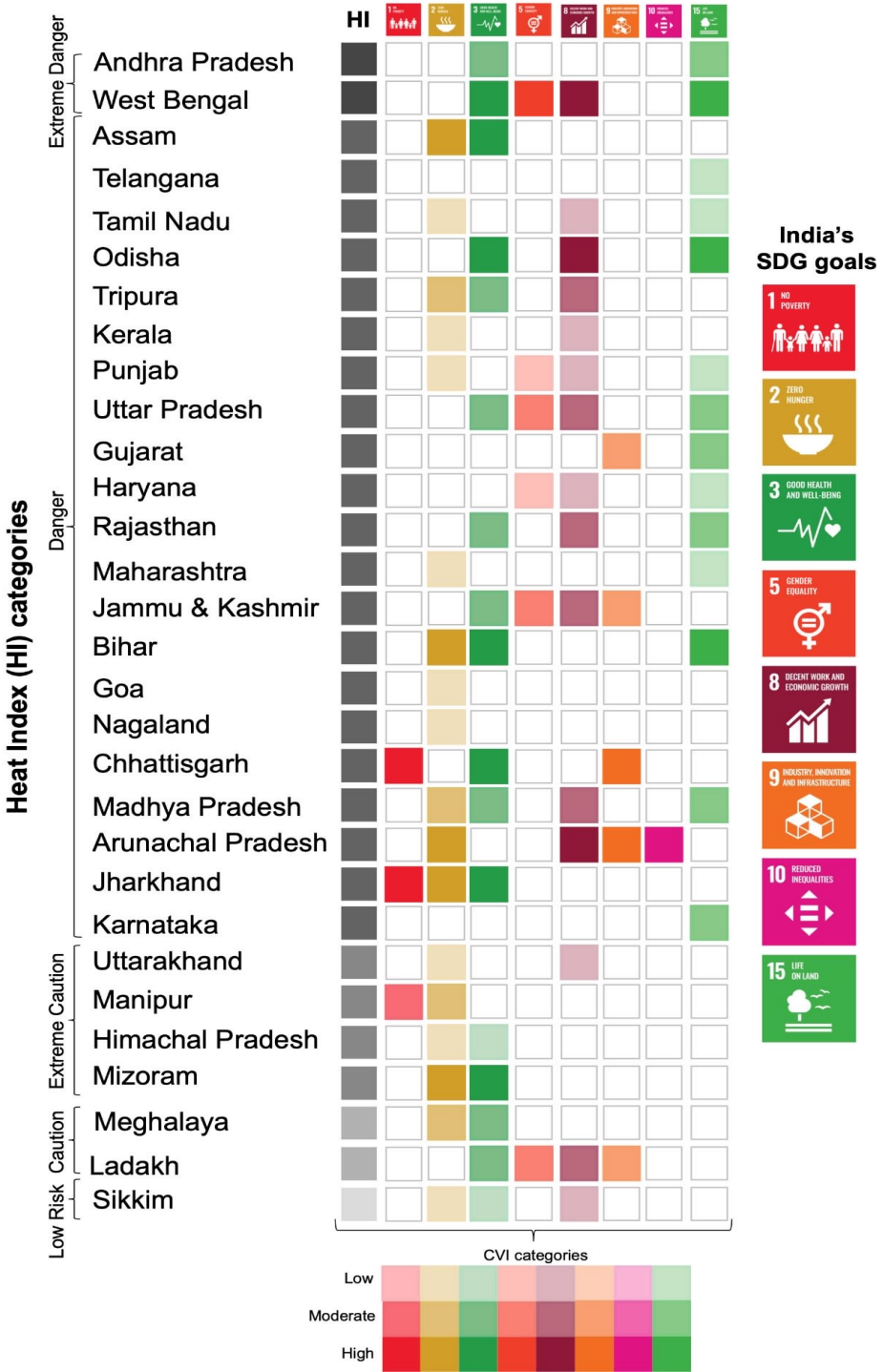
As the reality is this…



Source: Cambridge University

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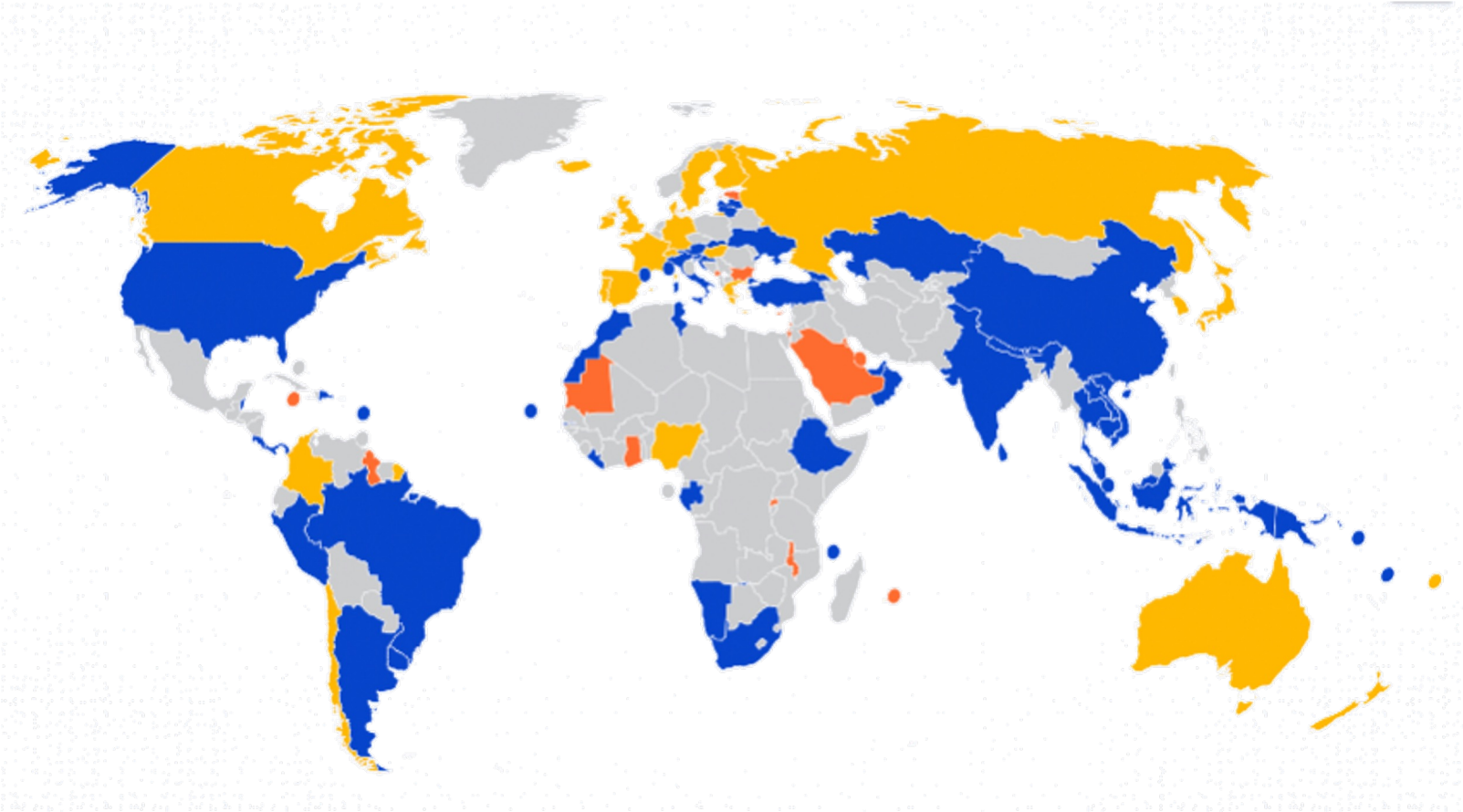
Going forward… Net-Zero Targets



- Net-zero Target in Law — 26 Parties
- Net-zero Target in Policy Document — 54 Parties
- Net-zero Target in Political Pledge — 17 Parties
- No Document Submitted — 115 Parties

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Going forward…

- Energy Transition
  - Decentralization – technology and governance
  - Decarbonization – going beyond electricity, we need to onboard other sectors
  - Digitalization – we need to embrace the new technologies and improve the process
  - Deregulation – how much to do and not to do

Generation Networks Operations Markets

Here is where CBET will help unlock our regional value

Powering the growth of South Asia



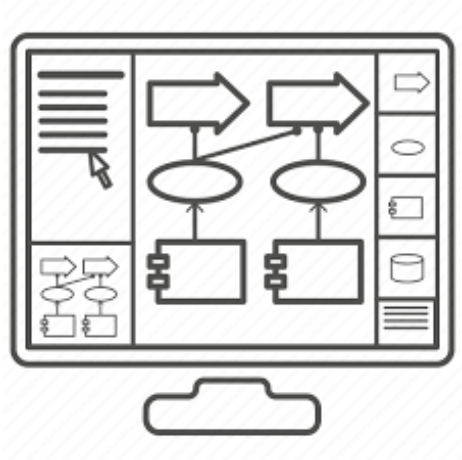


What is coming?

Smart Grid Observatory India

DATA

Make all relevant data open access in a curate easy to access manner



Open access modelling tool to plan 'Resource Adequacy' at

MODELLING TOOL

Utility Level

Aggregated Level – State/Country/Regional

KNOWLEDGE TRANSFER

TRANSITION TO CLEAN ENERGY

Capacity building + Roadmaps

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Thank You

Parul Bakshi
Research Fellow

@ParulBakshi_

/parulbakshi

Parul.bakshi@fsrglobal.org

New Delhi, India