



5GIA-TSDSI Webinar on “5G Trials and Pilots”

22 September 2021 1100-1300 CET / 1430-1630 IST



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5G and Smart Grid

By

A.K. Mishra

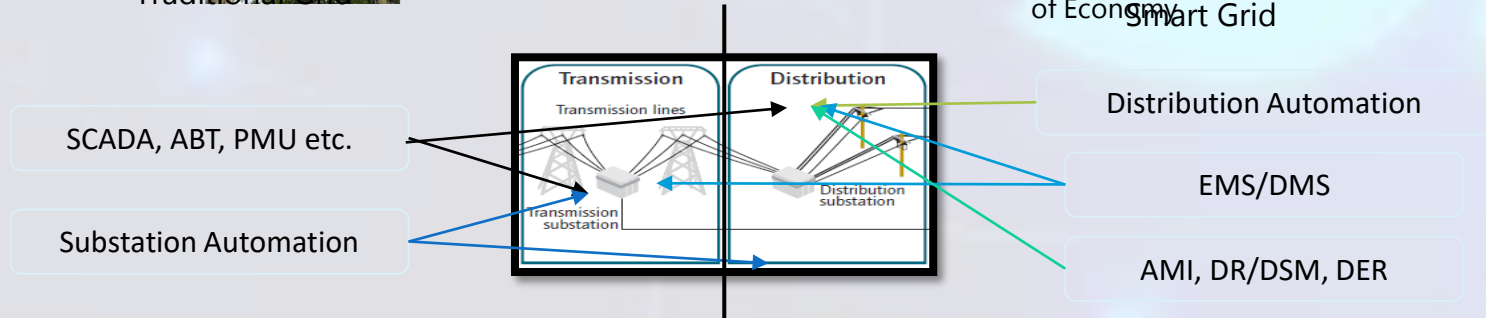
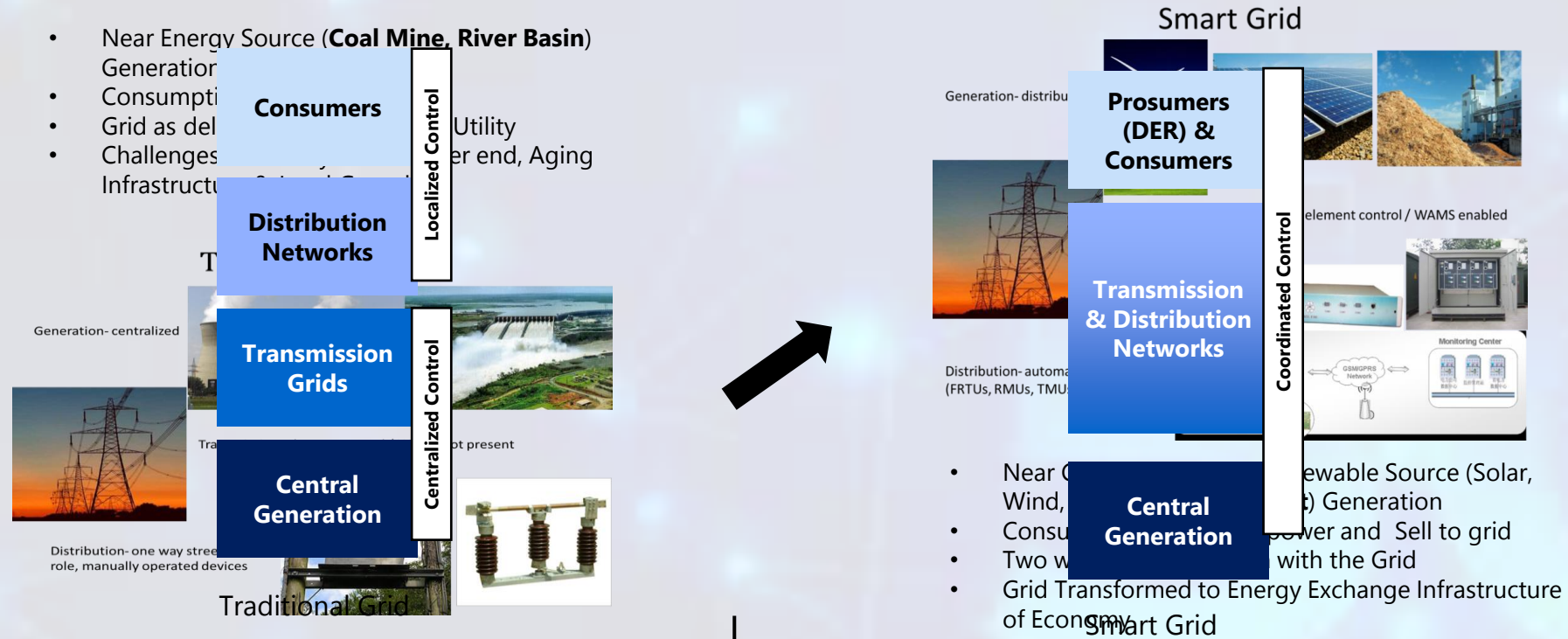
Director

National Smart Grid Mission

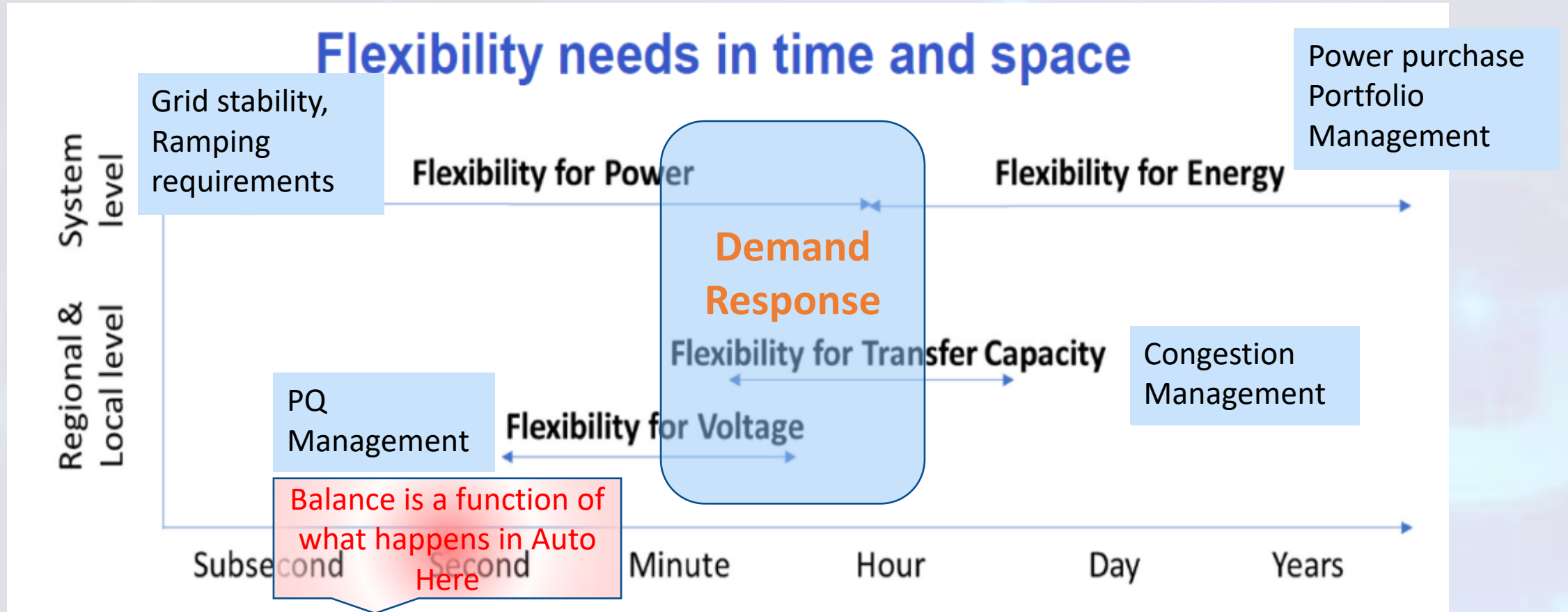
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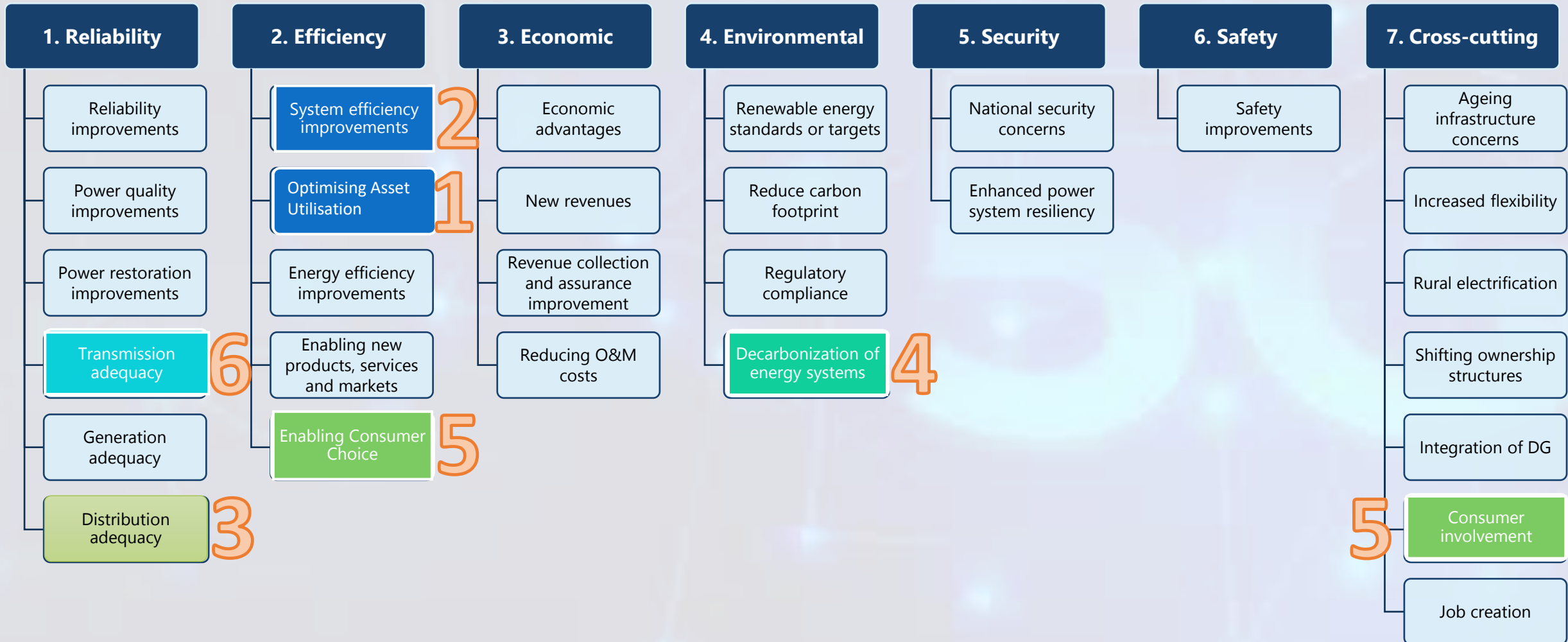
Traditional v/s Smart Grid



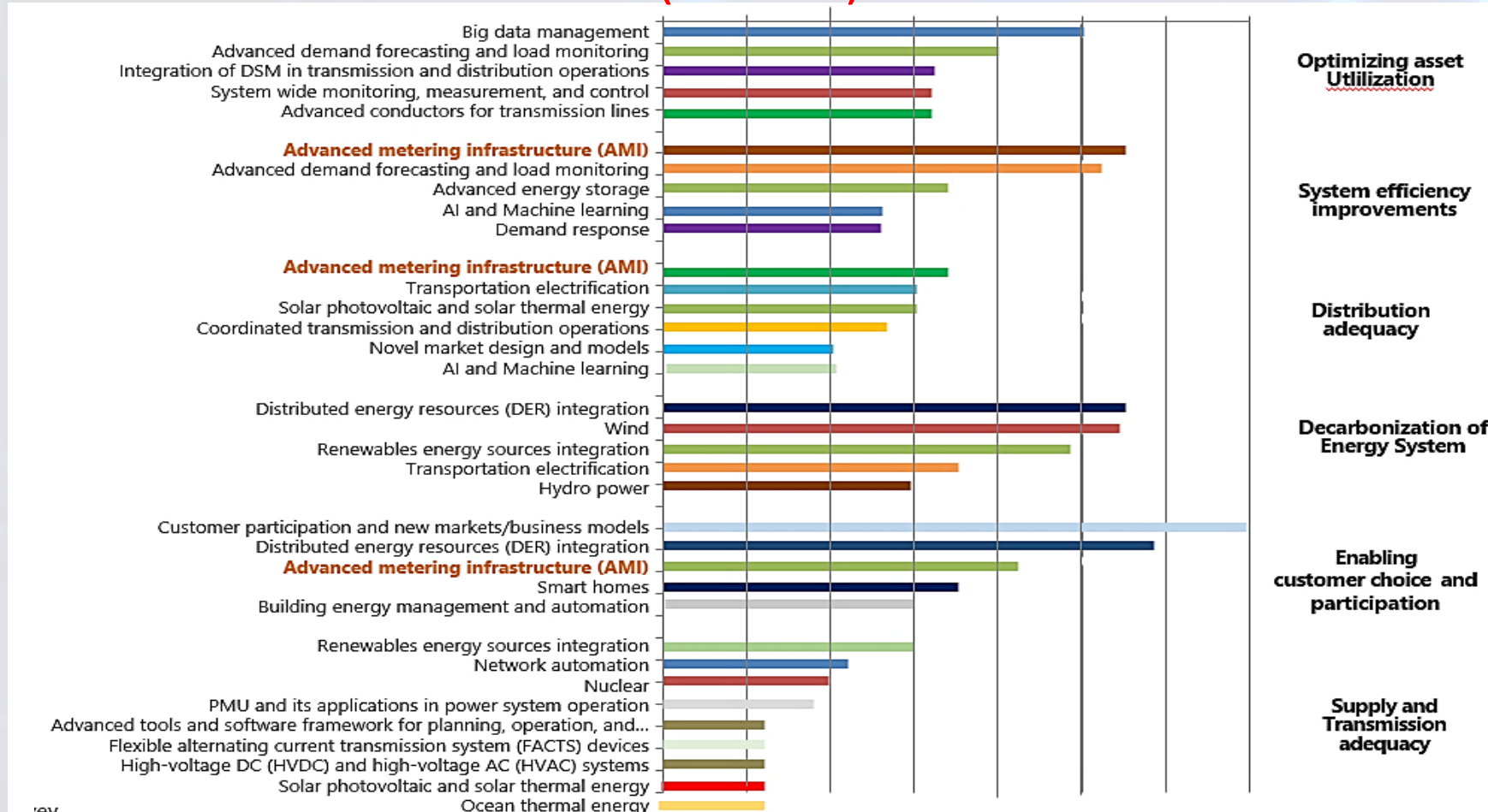
Flexibility Needs for System



SMART GRID DRIVERS – (2021-ISGAN)



TOP-5 RANKED TECHNOLOGIES FOR SG DRIVERS (2021)



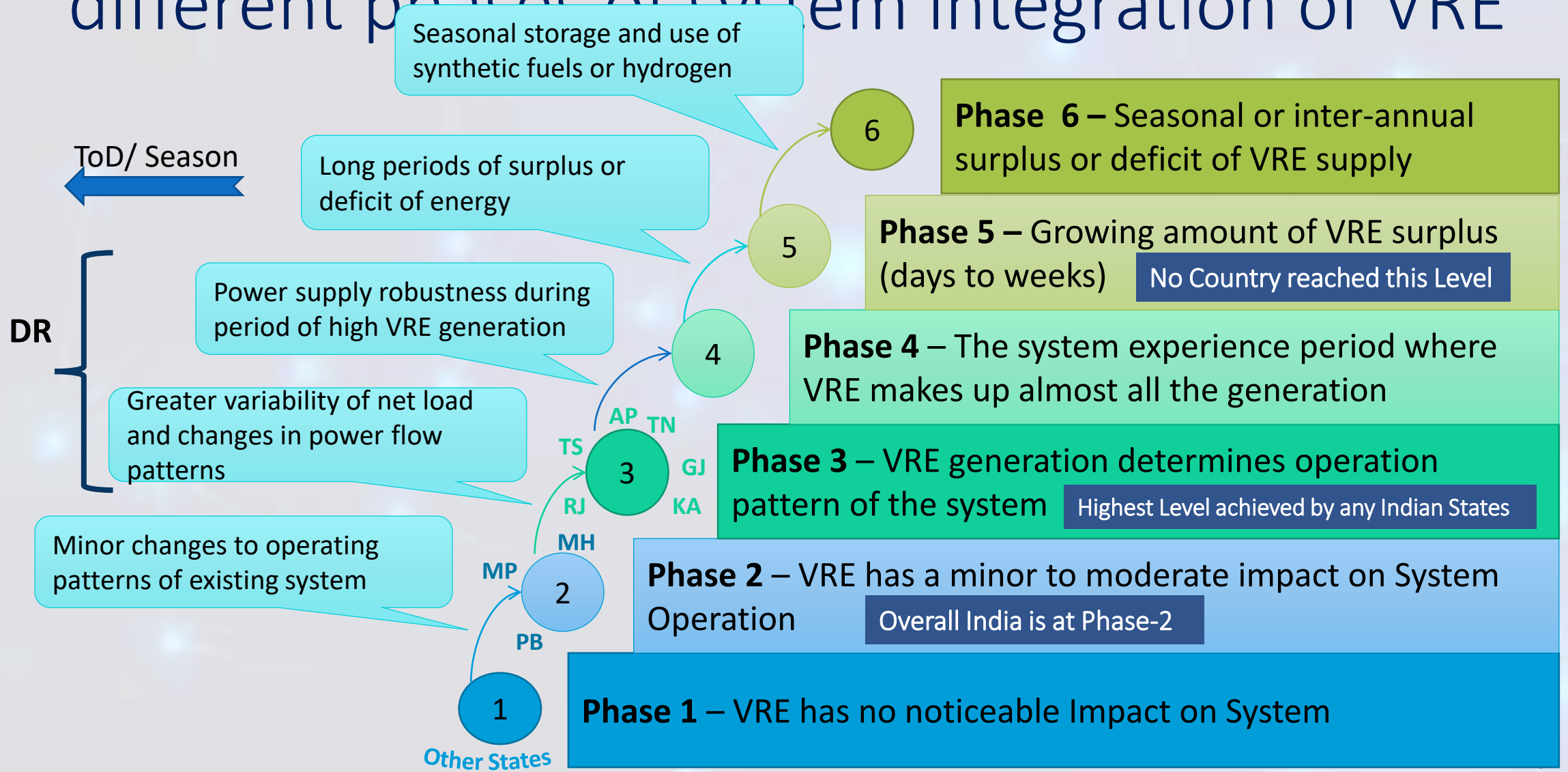
Why Smart Grid ?

- Integration of Large Scale Renewable Generation
- Complex and large Power Network
 - Generation capacity to increase to 890GW by 2031
 - All regions synchronously interconnected
 - Transfer of large block of power across the regions
 - Electricity being traded across region through market
- Efficiency Improvement in Distribution
- Consumer Interactive System
- Requirement of Real Time Monitoring , Communication & Control

How the Numbers Stack-up

- Nodes
 - Transmission and Generation
 - Xxxx
 - End Consumption Points
 - 5% of 250 Million --> 12.5 Million
 - Foot Print – Entire length and Breadth of Country
 - 1000s in place of 1
 - Predictability
 - Enginered v/s Pattern Recognition
- Speed
 - PMUs
 - Microgrid Balancing
 - Milliseonds
- Not feasible to operate dedicated netork by Utilities
 - Network of Operators to be used

Key characteristics and challenges in the different phases of system integration of VRE



Stake Holders – Influencing When

- NSGM
- Smart Grid Knowledge Centre
- DISCOMs
- Battery Energy Suppliers
- Manufacturers
- Utility Consumers
- Regulators

Thank You

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