

School of Electrical, Electronics and Communication Engineering

Course Code : BEEE4001

Course Name: Smart Grid and Energy Mngement

UNIT 1

National Initiative to Smart Grid

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Contents

1. Introduction of Smart Grid
2. **National Initiatives in Smart Grid**
3. **MoP Funded Smart Grid Pilot Projects**
4. **CESC Mysore Smart Grid Pilot Project**
5. **Smart Grid R&D Pilot Project at IIT Kanpur**
6. **Few Smart Grid Projects Funded by DST**
7. **Recent Major Smart Grid Projects Funded by DST under International Collaboration**
8. References

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National Initiatives in Smart Grid

- **Indian Smart Grid Task Force (ISGTF) set up in 2010:**
 - An inter-ministerial group to advise ministry on Smart Grid domain
- **Indian Smart Grid Forum (ISGF) set up in 2010:**
 - A public-private partnership initiative to act as advisory to ministry of power regarding smart grids.
- **National Smart Grid Mission (NSGM) set up in 2015:**
 - To plan and monitor the implementation of policies related to smart grids.
 - Responsible for development of smart grids under smart cities mission.
 - NSGM-PMU located in Powergrid for project approval and monitoring.

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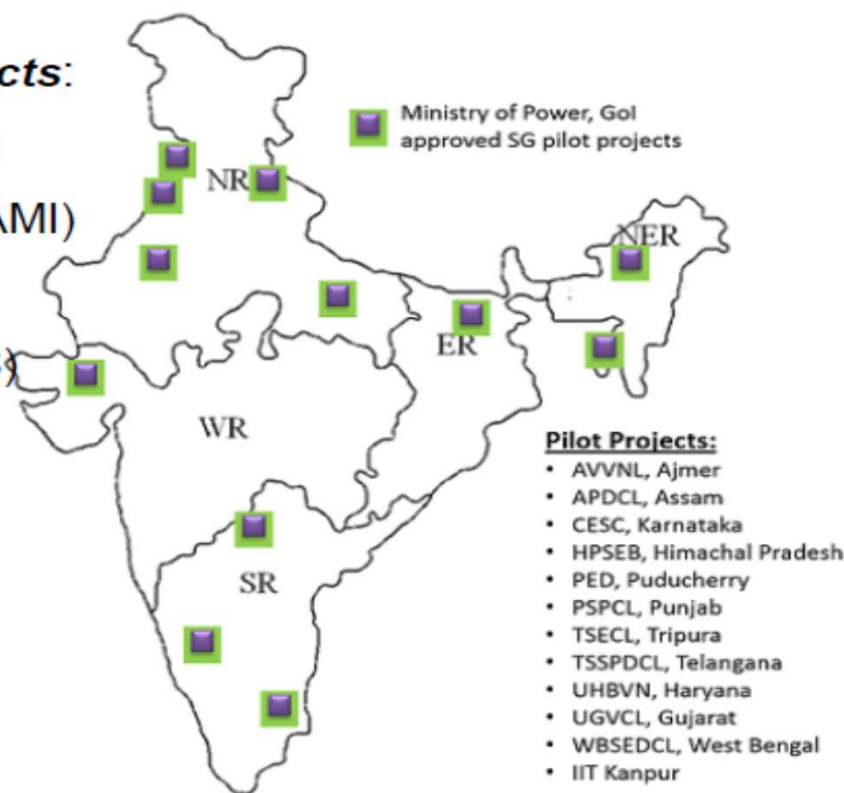
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MoP Funded Smart Grid Pilot Projects

The primary goals of the Pilot Projects:

To incorporate distribution system with

- Advanced metering infrastructure (AMI)
- Power Quality Management (PQM)
- Outage Management System (OMS)
- Peak load Management (PLM)
- Distributed Generation (DG)
- Smart Home Solution (SHS)
- Smart Analytics (SA)



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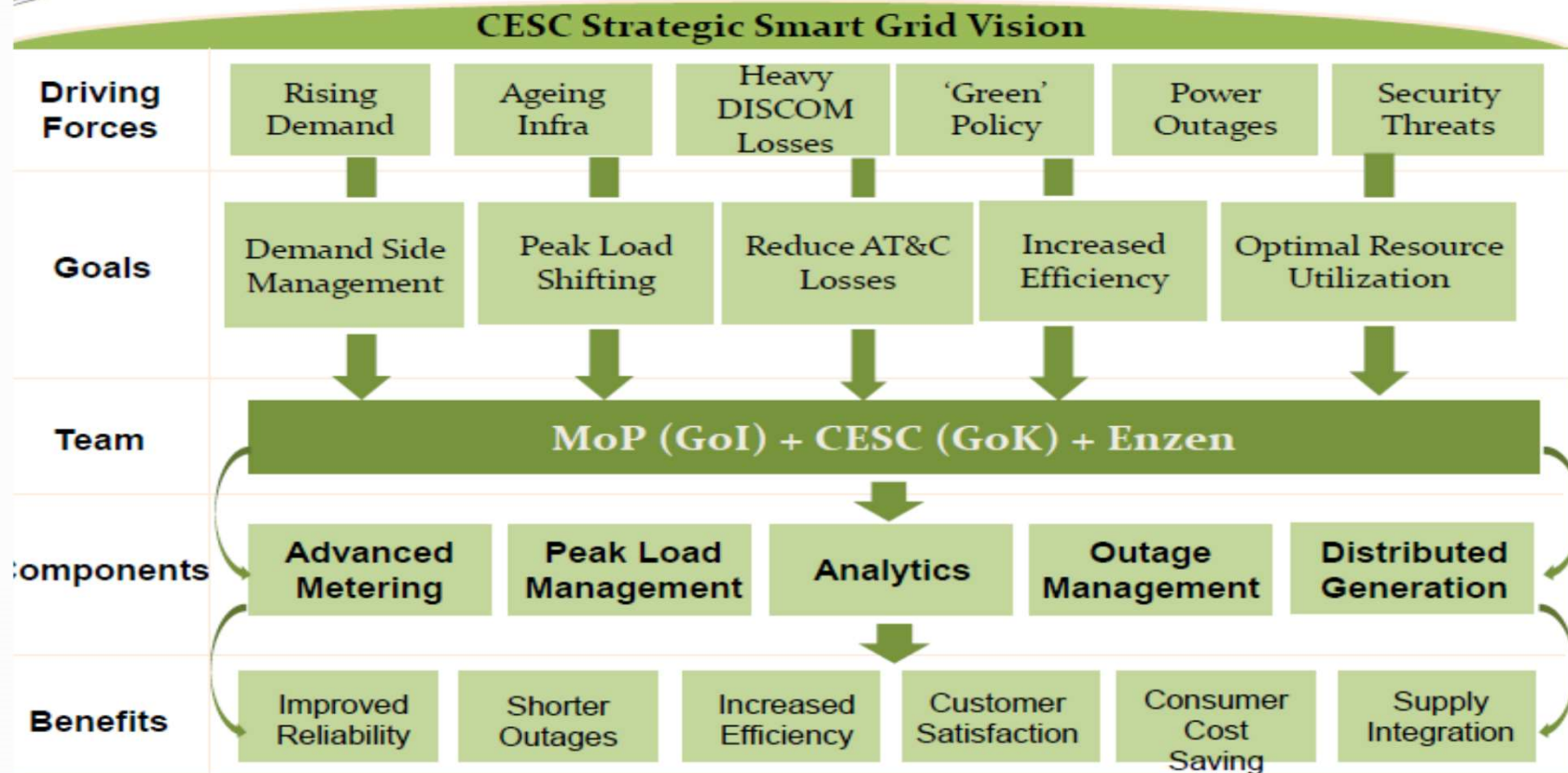
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CESC Mysore Smart Grid Pilot Project



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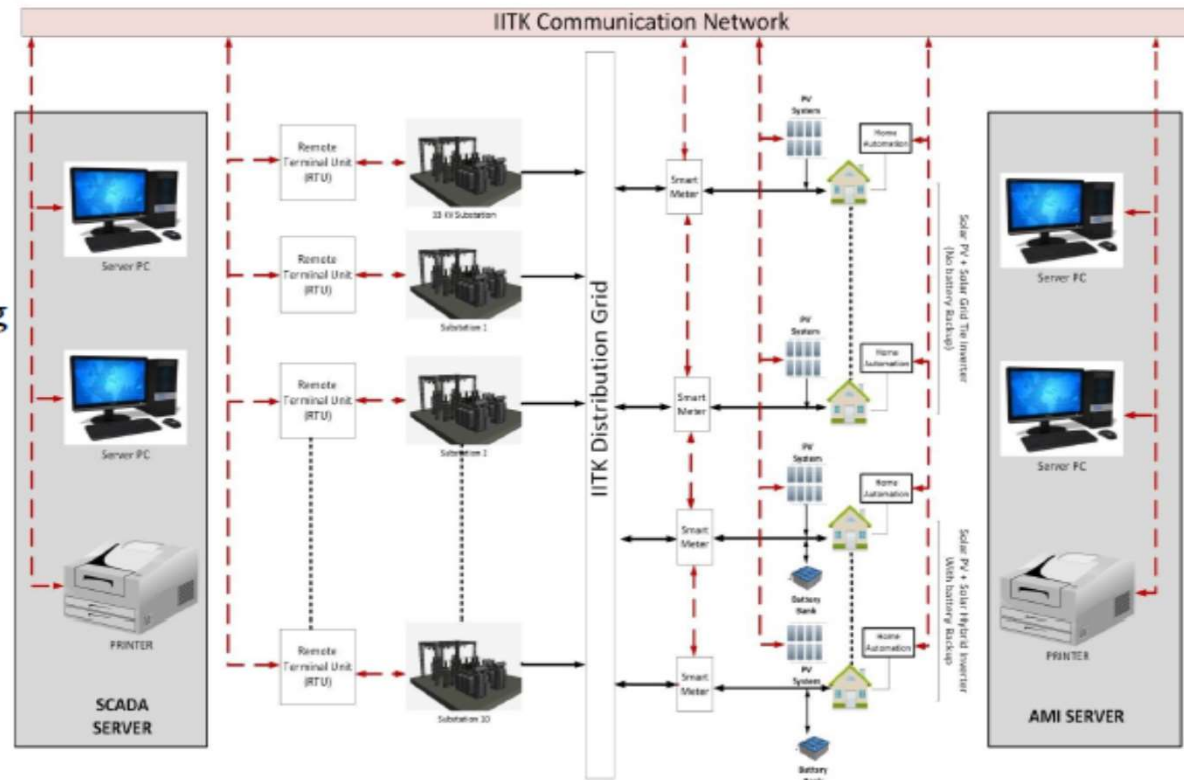
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Smart Grid R&D Pilot Project at IIT Kanpur: Functionalities

- ❑ Smart city substation
- ❑ Smart homes, Home automation
- ❑ Renewable integration
- ❑ Advanced Metering Infrastructure (AMI)
- ❑ Smart city control centre
- ❑ Advanced IT infrastructure
- ❑ Battery storage management



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Few Smart Grid Projects Funded by DST



Advanced Communication And Control For The Prevention Of Blackouts (ACCEPT)



High Energy and Power Density (HEAPD) solutions for large energy deficits



Reliable and Efficient System for Community Energy Solutions (RESCUES)



Intelligent Microgrids with Appropriate storage for Energy (IMASE)



Reconfigurable Distribution Networks

SC Srivastava/OID/IITK

9 May 2019

Smart Grid overview

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Recent Major Smart Grid Projects Funded by DST under International Collaboration



UK India Clean Energy Research Institute (UKICERI) under JVCCE



India-UK Centre for Education and Research in Clean Energy (IUCERCE) under JVCCE

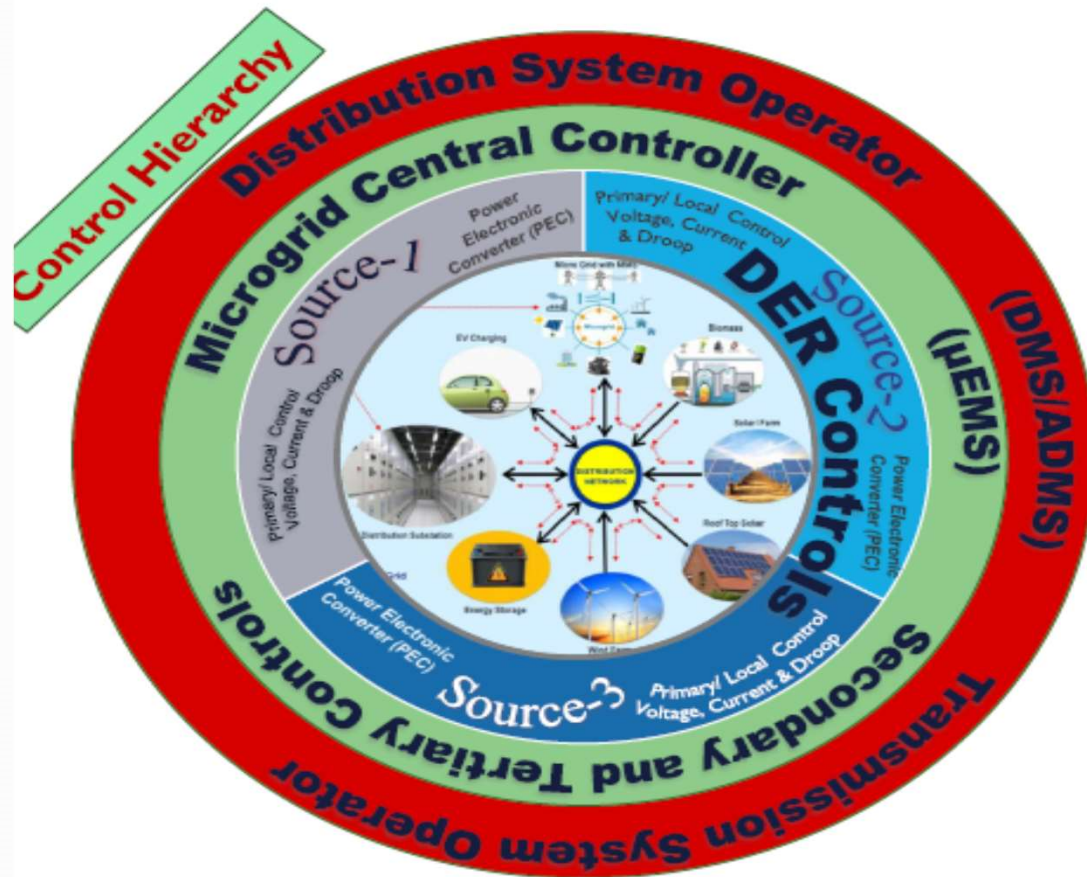


US-India collAborative for smart diStribution System wth SStorage (UI-ASSIST) under JCERDC PACE-R

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Project Objectives

- ★ To evolve future distribution grids that will allow the continuing increase of Distributed Energy Resources (DER) penetration towards a carbon-free electricity system.
- ★ To develop and demonstrate the DSO functions for optimal utilization and management of DER by interfacing with DER control and microgrid control system with high penetration of energy storage.

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