



European Standardization Organizations

Smart Grids

Mayank Sharma

X to Grid Influence and Standardization, Schneider Electric (IEC TC 57 WG 21)

1. CEN-CENELEC

Who we are and what we deliver

1 standard in 34 different countries



<p>Austria AUSTRIAN STANDARDS OVE</p>	<p>Denmark DS</p>	<p>Greece EAOT</p>	<p>Latvia LVS</p>	<p>Poland PKN</p>	<p>Slovenia SIST</p>
<p>Belgium NBN CEB BEC</p>	<p>Estonia EVS</p>	<p>Hungary MSZT</p>	<p>Lithuania LT</p>	<p>Portugal IPO</p>	<p>Spain UNE</p>
<p>Bulgaria BDS</p>	<p>Finland SFS SESKO</p>	<p>Iceland IST</p>	<p>Luxembourg ILNAS</p>	<p>Republic of North Macedonia MCPC TSRS M</p>	<p>Sweden SIS SVENSK ELSTANDARD</p>
<p>Croatia HZN Croatian Standards Institute</p>	<p>France afnor</p>	<p>Ireland IST NSAI</p>	<p>Malta MCCAA MALTA COMPETITION AND CONSUMER AFFAIRS AUTHORITY</p>	<p>Romania asro</p>	<p>Switzerland SNV electro SUISSE</p>
<p>Cyprus CYPRUS ASSOCIATION FOR STANDARDIZATION</p>	<p>Germany DIN DKE VDE GIB</p>	<p>Ireland NSAI</p>	<p>Netherlands NEN NEC</p>	<p>Serbia ISS</p>	<p>Turkey TSE</p>
<p>Czech Republic ÚNMZ</p>	<p>Italy UNI</p>	<p>Ireland NSAI</p>	<p>Norway Standards Norway NEK</p>	<p>Slovakia SLOVAK OFFICE OF STANDARDS, METROLOGY AND TESTING</p>	<p>United Kingdom bsi.</p>

The framework



200.000
Experts



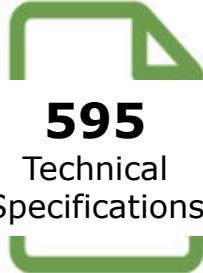
486
Technical
Committees



1.809
Working Groups



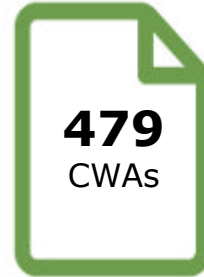
21.596
Standards
(nearly 5.000 HS)



595
Technical
Specifications



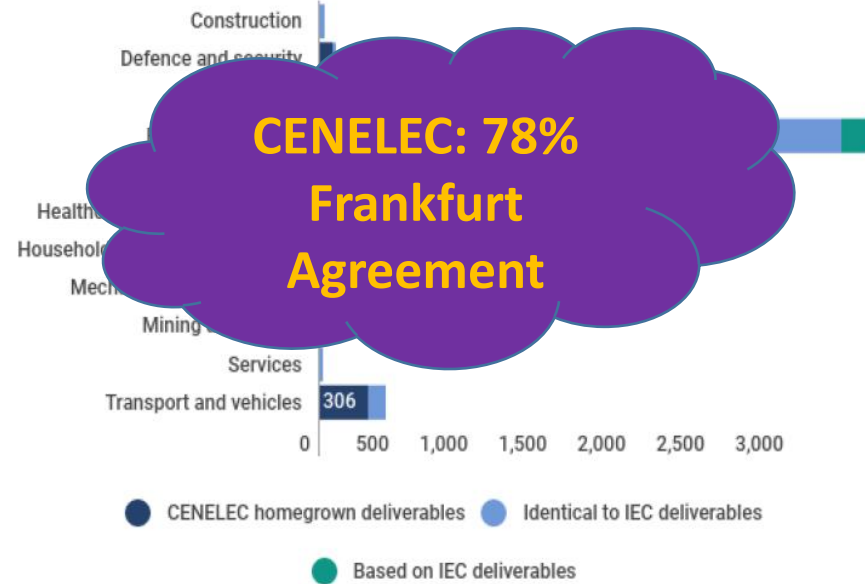
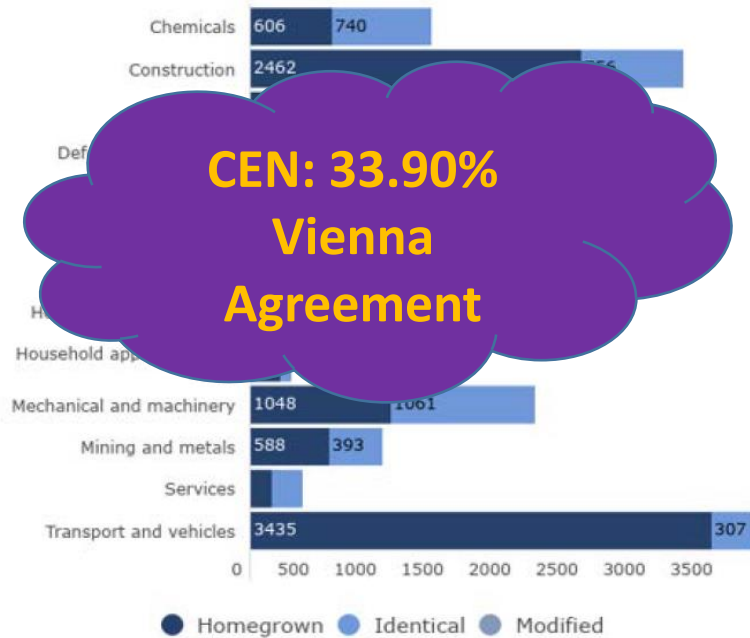
564
Technical Reports



479
CWAs

Statistical pack on www.cencenelec.eu

CEN and CENELEC adoption of international standards





● N/A
 ● CRODQ
 ● AMN/COPANT
 ● EASC/EEC
 ● EASC
 ● GSO
 ● SARSO

● COPANT
 ● ARSO
 ● Cooperation Agreement
 ● ARSO/AFSEC



5 Cooperation Agreements

- JISC (Japanese Industrial Standards Committee)
- KATS (Korean Agency for Technology and Standards)
- Rossstandart (Federal Agency for Technical Regulation and Metrology)
- SAC (Standardization Administration of the People's Republic of China)
- SCC (Standards Council of Canada)



12 MoUs

- CEN-CENELEC-ETSI**
- AMN (MERCOSUR Association for Standardization)
 - COPANT (Pan American Standards Commission)
 - CRODQ (CARICOM Regional Organization for Standards and Quality)
 - EASC (Euro-Asian Interstate Council for Standardization, Metrology and Certification)
 - GSO (Standardization Organization of the Cooperation Council for the Arab States of the Gulf)
- CEN-CENELEC**
- EEC (European Economic Commission)
 - SARSO (the South Asian Regional Standards Organization)
- CEN**
- ARSO (African Organization for Standardization)
 - SADCSTAN (Southern African Development Community Cooperation in Standardization)
 - AIDMO (Arab Industrial Development and Mining Organization)
- CENELEC**
- AFSEC (African Electrotechnical Standardization Commission)
 - AIDMO (Arab Industrial Development and Mining Organization)
 - CANENA (Council for Harmonization of Electrotechnical Standards of the Nations of the Americas)

TP ENDA

20 February 2021



1.809

Working Groups

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Standards
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595
Technical
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Tec

Bureau of Indian Standards adoptions of international standards



Division	Published Standards	Identical standards					Modified standards					IND/ISO
		IEC	ISO	ISO	Others	TOTAL IET (IND)	IEC	ISO	Others	TOTAL MOD		
Electronics and Information Technology Department (A10)	2172	440	242	71	15	768	229	10	0	253	056	
Electrotechnical Department (E1)	2152	887	0	0	0	887	0	0	0	178	888	
Civil Engineering Department (C1)	2169	0	0	0	0	0	0	0	0	88	2742	
Metallurgical Engineering Department (M1)	2165	0	0	0	0	0	0	0	0	87	888	
Chemical Department (C2)	2161	0	0	0	0	0	0	0	0	0	1396	
Food and Agriculture Department (F1)	2069	0	0	0	0	0	0	0	0	0	1747	
Management and Business Department (B1)	201	0	0	0	0	0	0	0	0	1	182	
Technical Engineering Department (T1)	2169	0	0	0	0	0	0	0	0	2	1335	
Medical, Pharmaceutical and Hospital Planning Department (M2)	1007	89	0	0	0	89	0	0	0	2	954	
Metallurgical Engineering Department (M3)	2168	0	0	0	0	0	0	0	0	0	1475	
Metallurgical, Coal and Inorganic Products Department (M4)	2173	0	0	0	0	0	0	0	10	14	1133	
Production and General Engineering Department (G1)	2167	0	0	0	0	0	0	0	0	0	2365	
Textile Department (T2)	1005	0	0	0	0	0	0	0	0	0	1040	
Water Resources Department (W1)	202	0	0	0	0	0	0	0	2	0	109	
Service Sector Department (S1)	21	0	0	0	0	0	0	0	0	0	0	
Service Sector Department (S2)	21	0	0	0	0	0	0	0	0	0	0	
Total	20013	1118	269	71	15	1513	229	10	0	274	1436	

India ≈ 26%

IET: Identical Standard - Standard adopted by national standards body which is equivalent to the International standard with no technical deviations.
 MOD: Modified Standard - Standard adopted by national standards body which is equivalent to the International standard with technical deviations. A national standard may include an International Standard in its entirety together with additional technical provisions that are not part of the International Standard.
 IND: Indigenous Standard - Standard developed by national standards body and no international provisions remain in the national standard.
 IET/IND: Indian Equivalent - A national standard found equivalent to the International Standard in technical content and structure and which has not been clearly identified. This also can include the case where only a minority in number or significance of the International provisions remain in the national standard.

2. Smart Grids for Europe

In response to M/490, the European Standardization Organizations (ESOs) combined their strategic approach and established the Coordination Group on Smart Energy Grids



Objectives

- ▶ Ensure the European Standardisation Bodies offer to all stakeholders the appropriate and consistent **set of standards**, fulfilling both existing uses and expected future uses
- ▶ Support the deployment of the EC's proposals for new rules for **consumer-centred** clean energy transition

3. Smart Grids for India

To evolve into a one grid vision

- ▶ **Electrical Grid architecture:**
 - ▶ Underground, Overhead
 - ▶ Type of network: Antena, Ring
 - ▶ Voltage, type of equipment
 - ▶ From historical BS standards to Advanced BIS proposal
- ▶ **For Public to Private Networks**
 - ▶ Investors, Private smart Cities, municipalities
- ▶ **Level of smart grid maturity: Automation & Software**
 - ▶ Beginner, Mature, Advanced

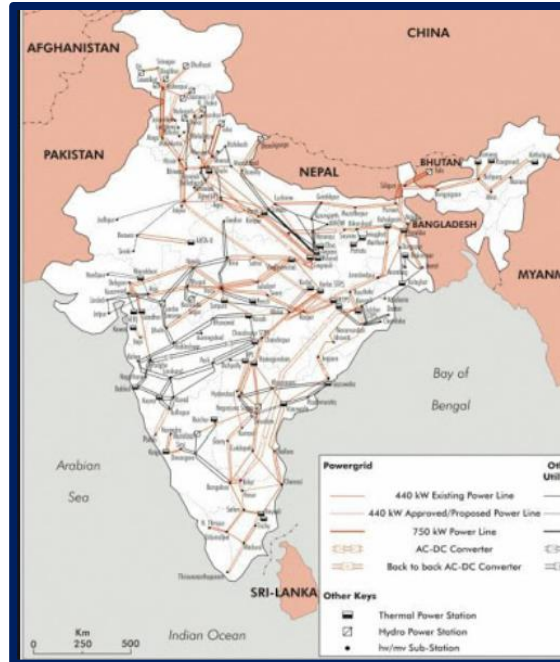
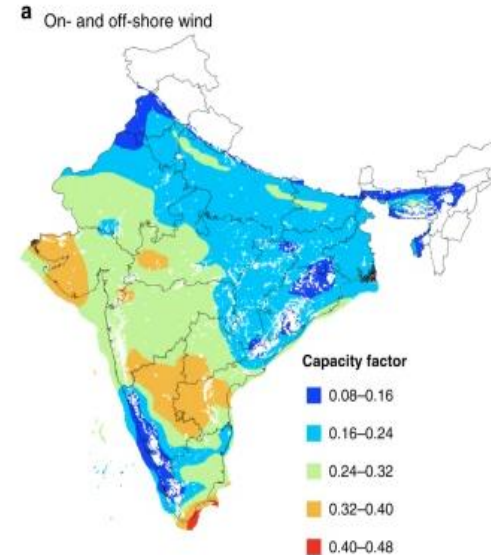



Fig. 1: Renewable capacity factors.



The new Grid equation

3 drivers + accelerators **3**

Growing electricity demand 

Technology availability 

Need to reduce CO2 emissions 

Active government & regulators 

Constraints on existing networks 

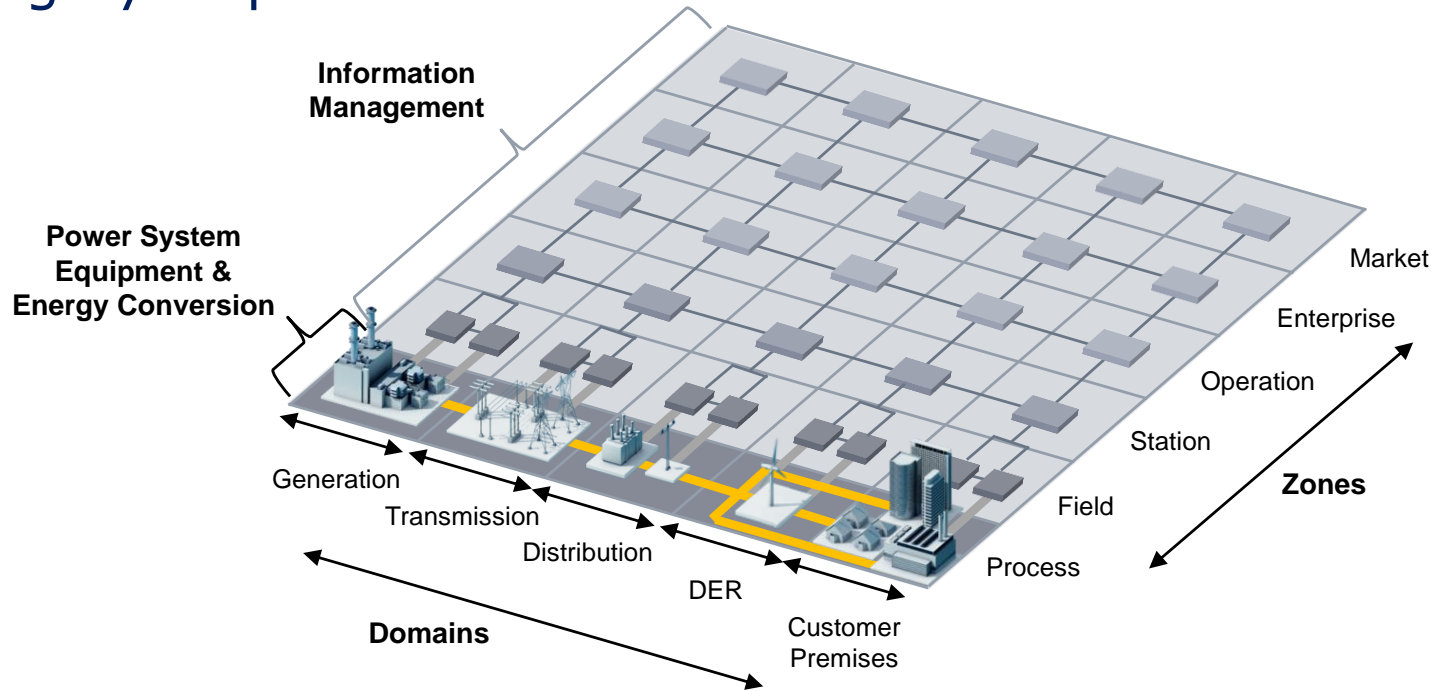
Active end-users 



Realising the Smart Grid

What is the Smart Grid Model?

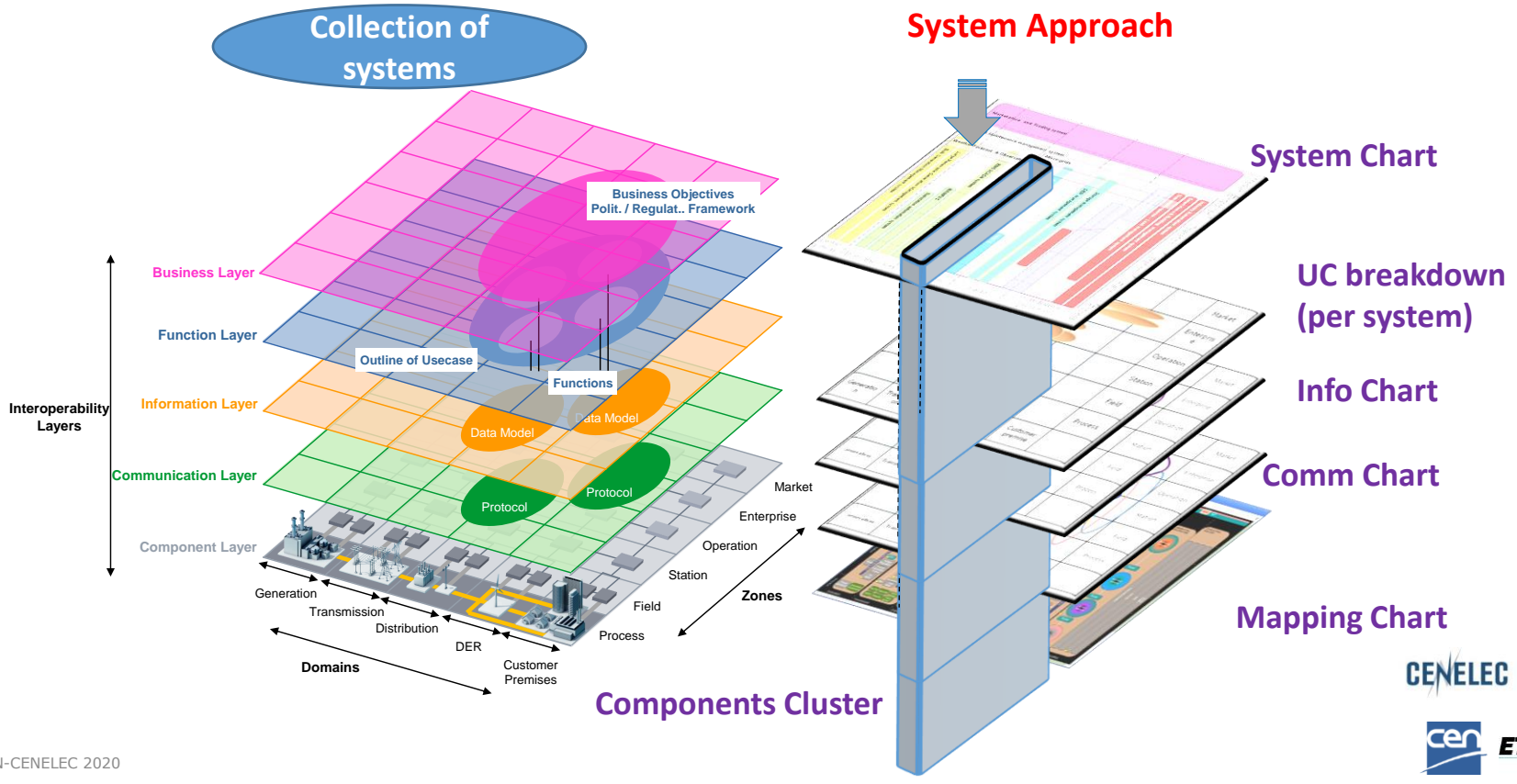
Starting by a "plane"



DER : Distributed Energy Resources (Photovoltaic, Wind farm, Hydro powerplants, Storage, Combined Heat-Power producer, Flexible loads)

Introducing systems IEC 63097

The global roadmap for smart grid standards



Need for local adaptations



- ▶ A step-by-step approach from

Smart Grid to Active Grid

with Hardware, motorisation, automation to software
and Data management for better renewable
& *prosumer* integration

With support from IEC, ISO, CEN and CENELEC