

IEC SMART ENERGY SYC COMMITTEE

CNC Proposed Smart Grid Conceptual Model

January 4, 2016

Revision C

BULK GENERATION

G1 Fossil Fuel Generation
G2 Bulk Hydro Generation
G3 Bulk Wind
G4 Bulk Solar/PV

OPERATIONS
O1 EMS
O2 DMS
O3 OMS

SERVICE PROVIDERS
MARKETS
Interfaces Not Shown For Clarity

Utility Domains
Consumer Domains

TI SA
TRANSMISSION SUBSTATION

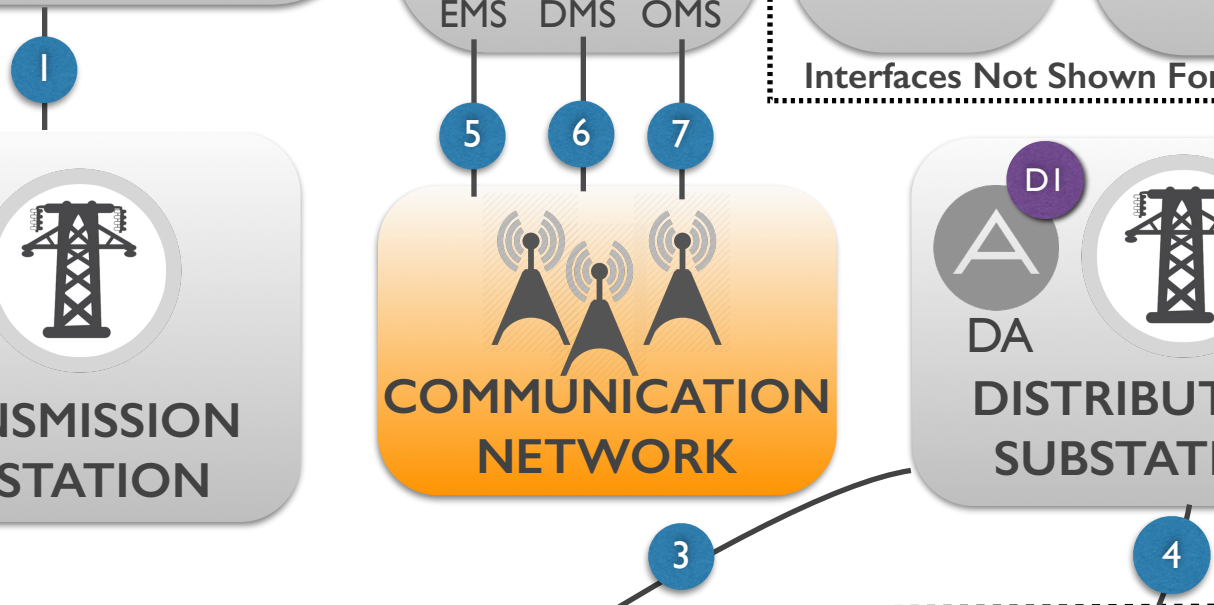
COMMUNICATION NETWORK

DI DA
DISTRIBUTION SUBSTATION

INDUSTRIAL
I1 IAN
I2 CoGen
I3 Wind
I4 Solar/PV
I5 Other
I6 Storage

COMMERCIAL
C2 AMI
C1 BAN
C3 Wind
C4 Solar/PV
C5 Other
C6 Storage

RESIDENTIAL
R2 AMI
R1 HAN
R3 Wind
R4 Solar/PV
R5 Other
R6 EV's



LEGEND

Interface ID	Interface Description
1	Interconnection of bulk generation
2	Interconnection of industrial consumers
3	Interconnection of commercial consumers
4	Interconnection of residential consumers
5	Interconnection of Energy Management System
6	Interconnection of Dist. Management System
7	Interconnection of Outage Management System

App ID	App. Description
G1	Fossil Fuel Based Generation (coal, natural gas, etc)
G2	Bulk Hydro Generation
G3	Bulk Wind Generation
G4	Bulk Solar Generation
O1	Energy Management System
O2	Distribution Management System
O3	Outage Management System
T1	Substation Automation
D1	Distribution Automation (FLISR)
I1	Industrial Automation, Including Process & Building Automation
I2	Industrial Cogeneration Plants
I3	Industrial Wind Generation
I4	Industrial Solar/PV Generation
I5	Other Renewable Energy Sources From Industrial Plants
I6	Industrial Energy Storage

App ID	App. Description
C1	Commercial Building Automation
C2	Commercial Smart Meters/AMI
C3	Commercial Wind Generation
C4	Commercial Solar/PV Generation
C5	Other Renewable Energy Sources From Commercial Facilities
C6	Commercial Energy Storage
R1	Home Automation Including Smart Appliances
R2	Commercial Smart Meters/AMI
R3	Residential Smart Meters/AMI
R4	Residential Solar/PV Generation
R5	Other Renewable Energy Sources From Residential Facilities
R6	Charging Stations, Electric Vehicle and Other Energy Storage

**Virtual
Communication
Network**

**Physical
Utility
Domains**

**Physical
Consumer
Domains**

IEC 62913 ARCHITECTURE

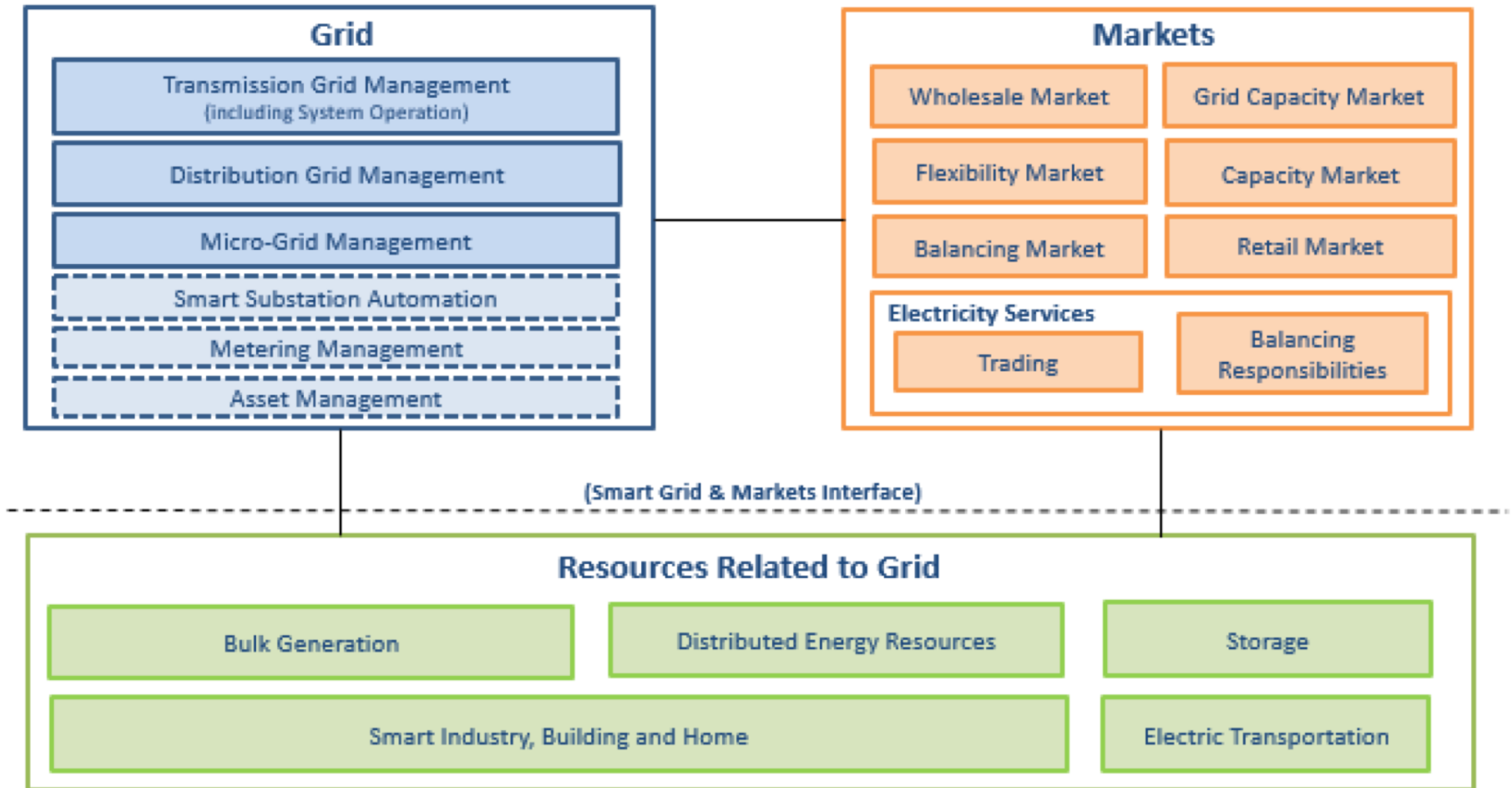


Figure 1 - IEC 62913 Conceptual Model