



WUS
2023

ELECRAMA
2023

Distribution Utility of Future- Advance Technology for Business Transformation

Presented By
Engr. Bikash Dewan
Managing Director,
DPDC, Bangladesh

February 2023
Delhi, India

Some challenges for existing Power Distribution Utility

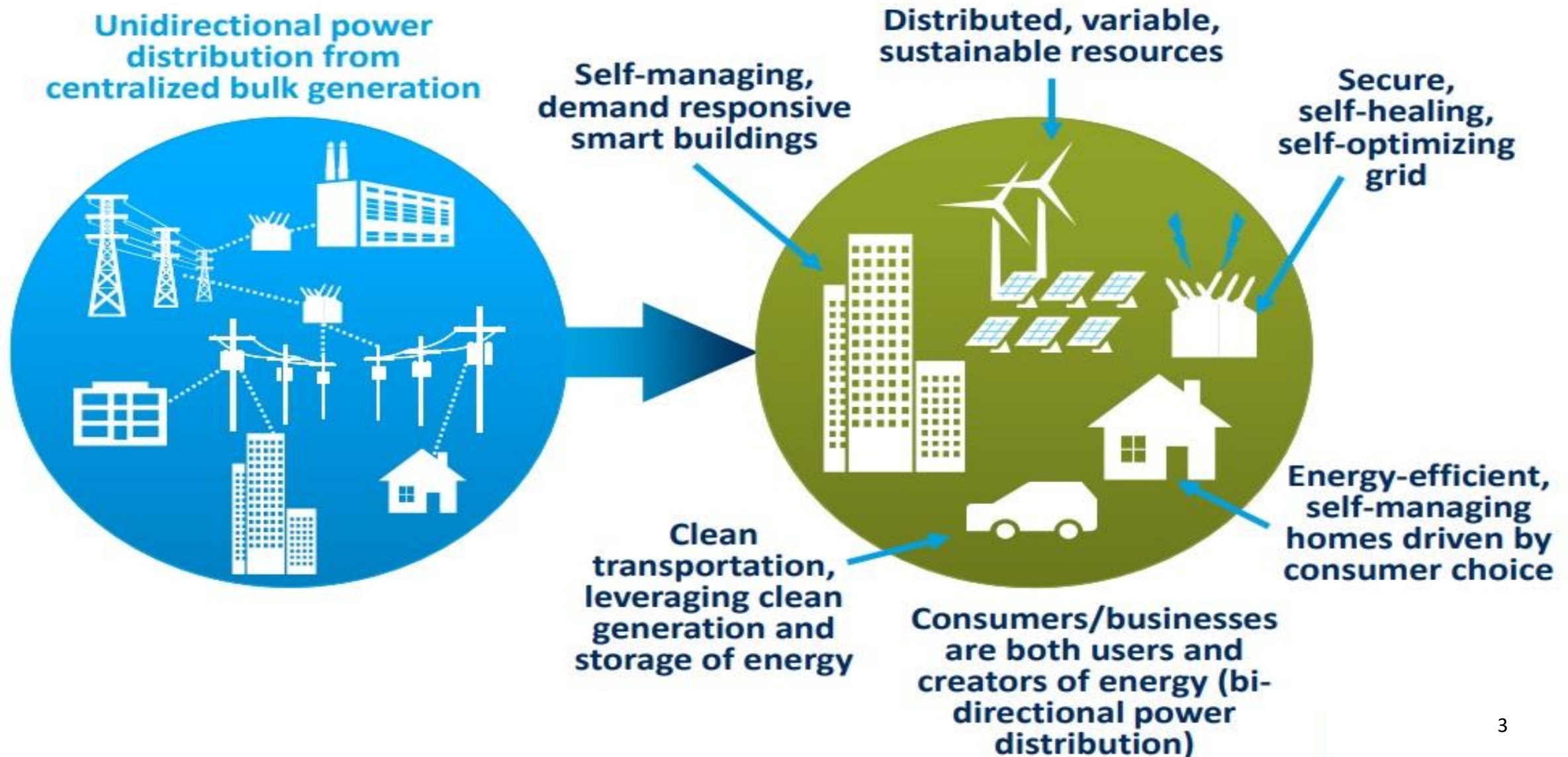
- Demand side management is not fully automated
- Issues of voltage imbalance, transients, and harmonics.
- Poor power factor, revenue pilferage, improper asset management etc.
- Impact of RE Injection and EV penetration.
- Lack of real time monitoring system
- Tariff governed by Regulators.

!!! Change needed !!!

A look into future

- Flexible and efficient operation of network
- Application of modern technology
- High penetration of RE and EV
- Use of sensors through out the network
- Diversified ways of revenue collection for profit maximization
- Customer centric business
- Real time monitoring and decision making application

Existing Distribution Utility vs Future Utility



Key areas of attention for Utilities of Future

Seamless renewables and DER integration

In future, utilities will engage predictive analytics, information rich dashboard and quick decision making tools for seamless integration of renewables and DER.

Improved reliability of power supply

IoT combined with the Machine Learning and data-analytics will provide future utilities with accurate assessment on asset health to enable improved reliability of power supply

Cost efficiency

The utilities of the future would have unprecedented competition, not only from other utilities but from the consumer as well and would need to improve their cost efficiencies

Consumer centric business models

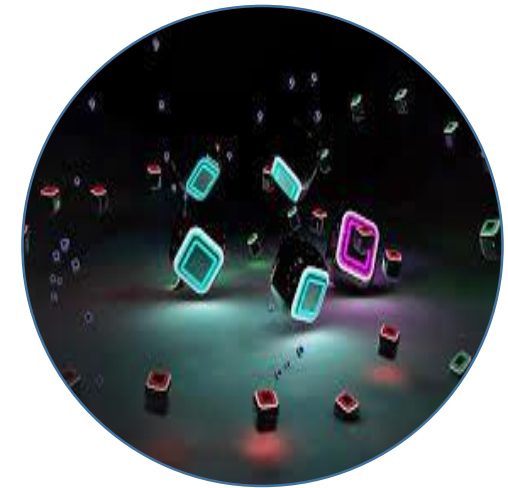
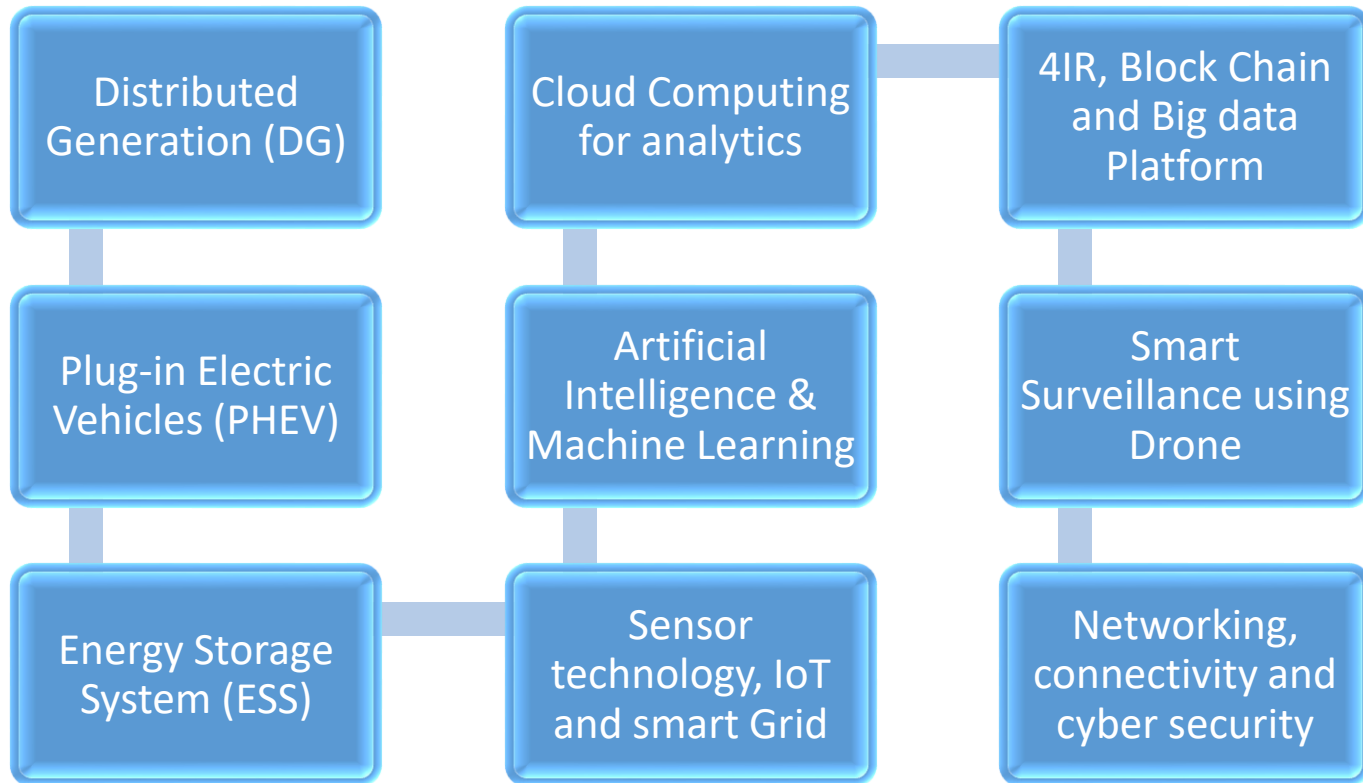
The utilities of future will ensure that their business models revolve around the needs of the consumer such that the consumer would be a partner in their journey

Digital interaction with customers

Digital interaction with the consumers will become prominent. Digital technologies like blockchain and cryptocurrency etc. will be used to achieve customer satisfaction.

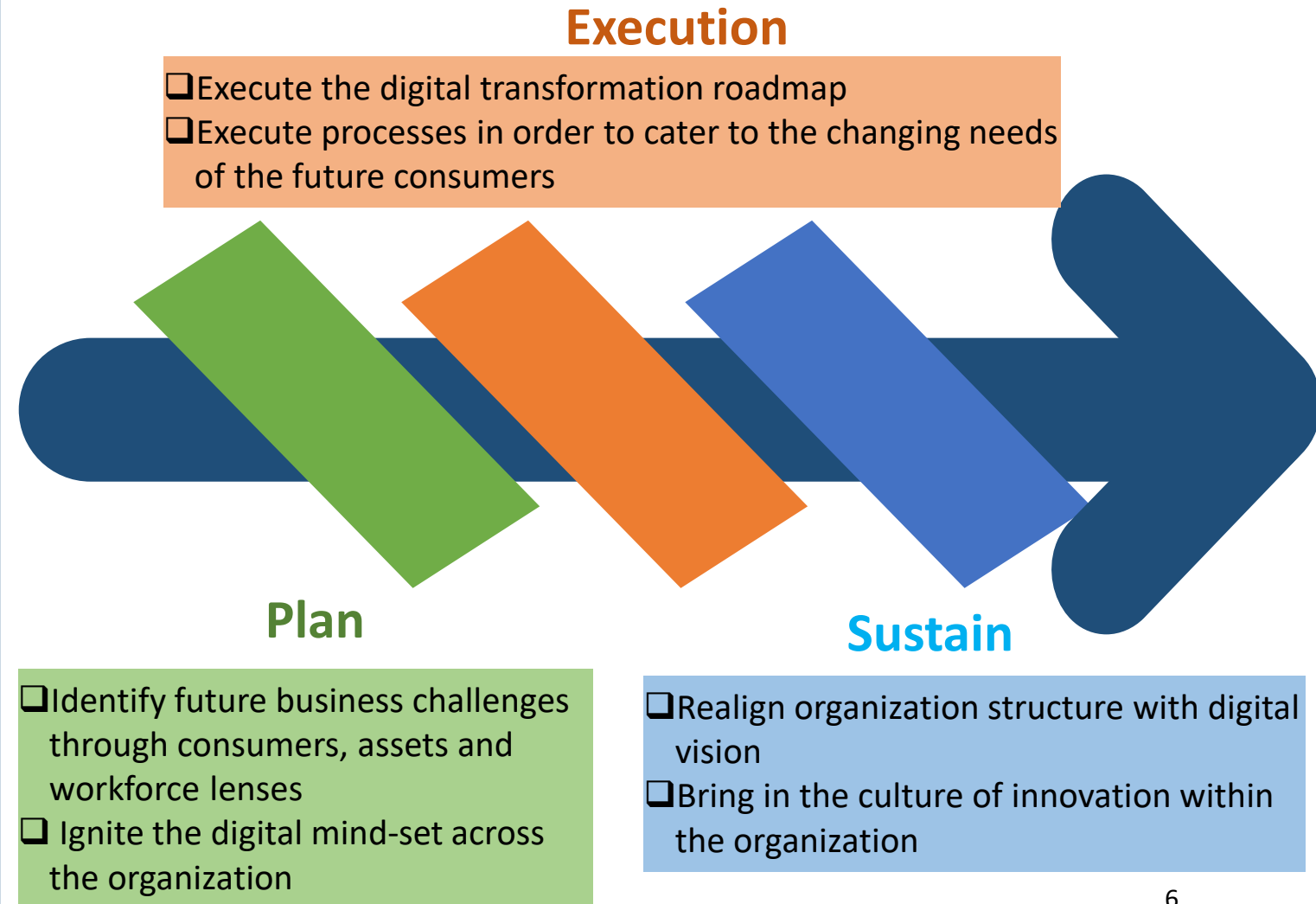
Cyber security

The utilities of the future will pay extensive attention towards enhancing the cyber security and information security protocols in order to protect IT and OT environments.

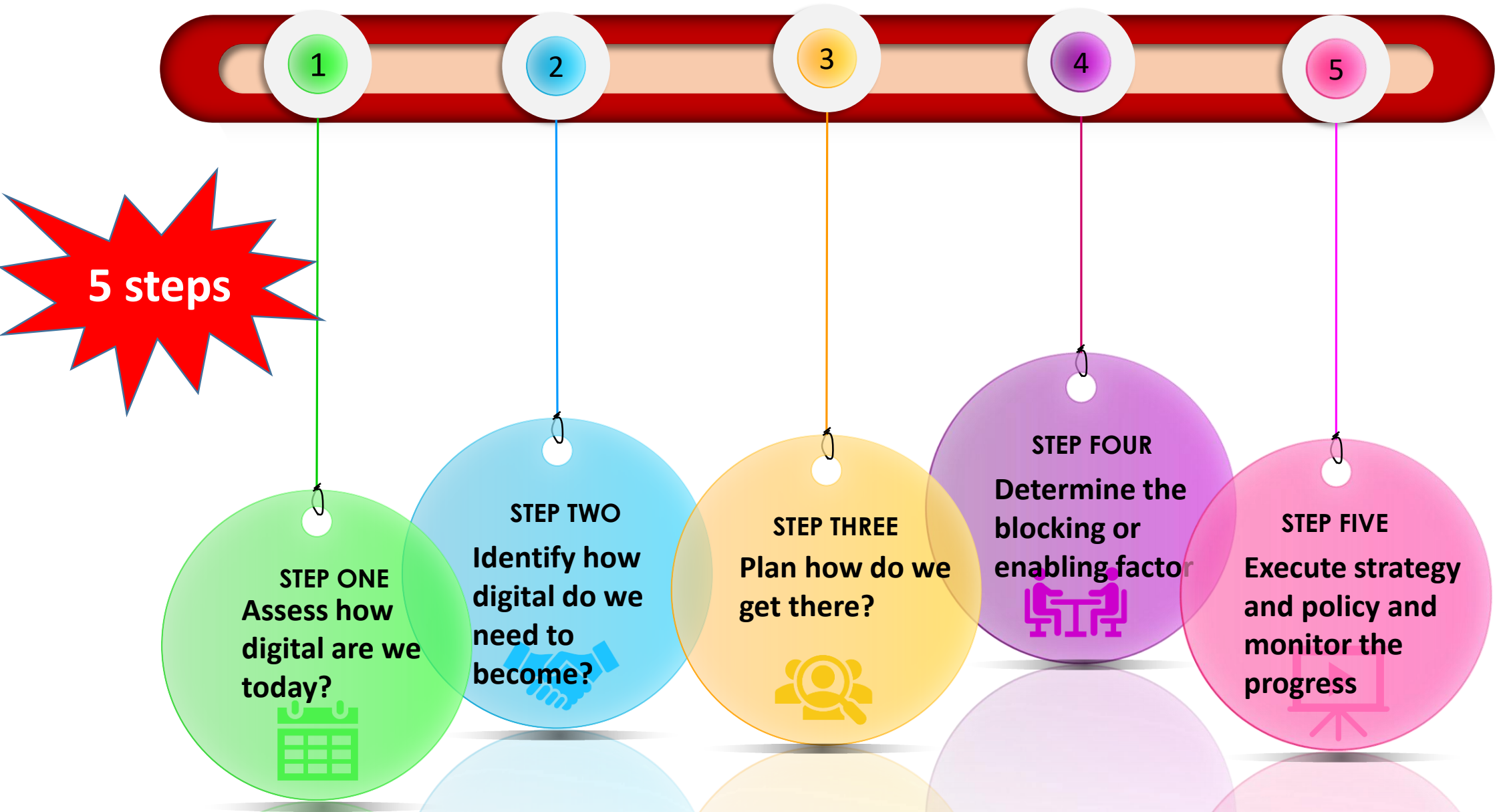


How to become Digital Utility of Future?

- ❑ Becoming a digital utility is neither an instantaneous job nor something that can be achieved in a few steps.
- ❑ It is a continuous process of making a series of business transformations aimed at digitization with customer centricity as a guiding philosophy.
- ❑ For utility of future, it would also be important to identify innovative business models that not only provide new revenue streams, but also help in creating value to the consumers, enterprise and all the other key stakeholders in the power value chain.
- ❑ The most important aspect for any firm in this journey would be to develop paradigm shift in mindset.

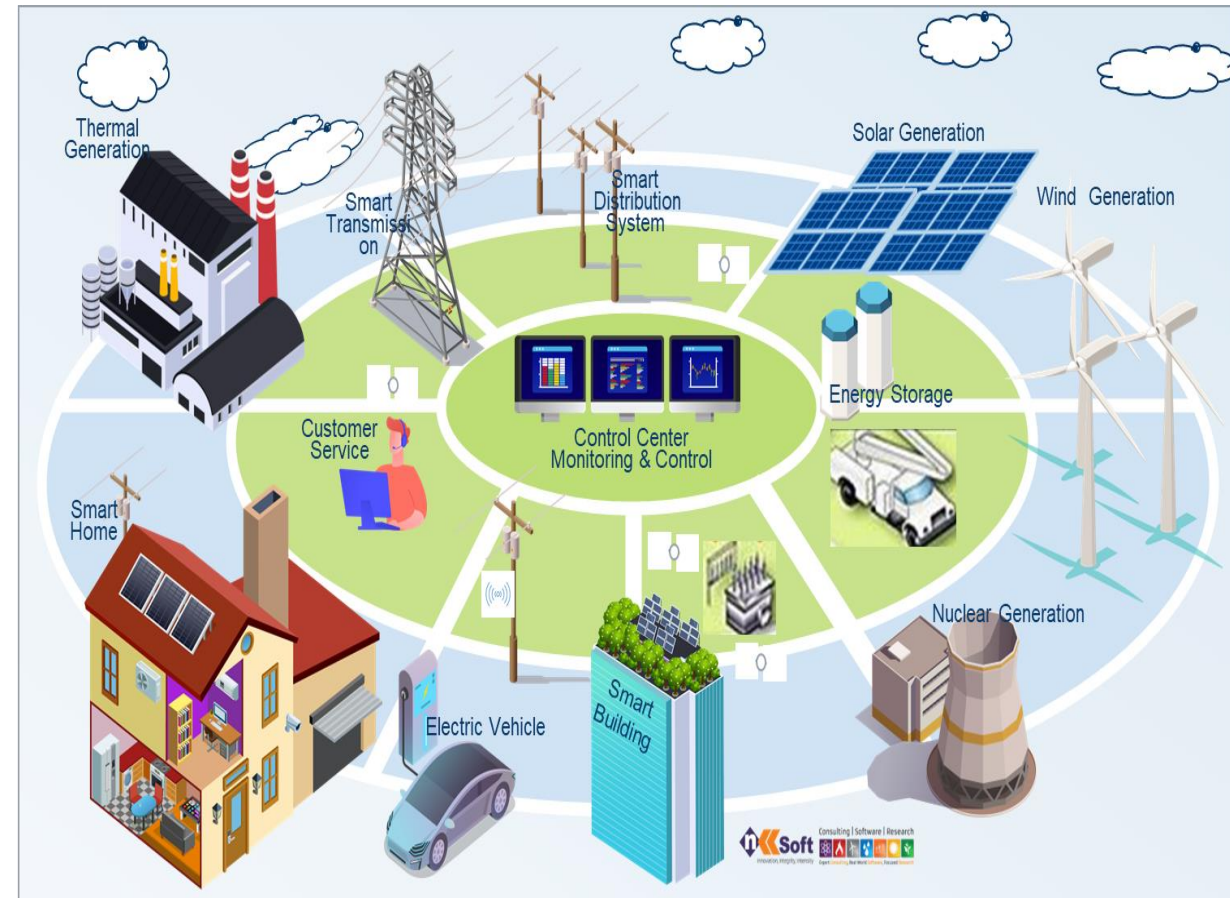


Steps to be followed for digitalization – New rule of the game for future business



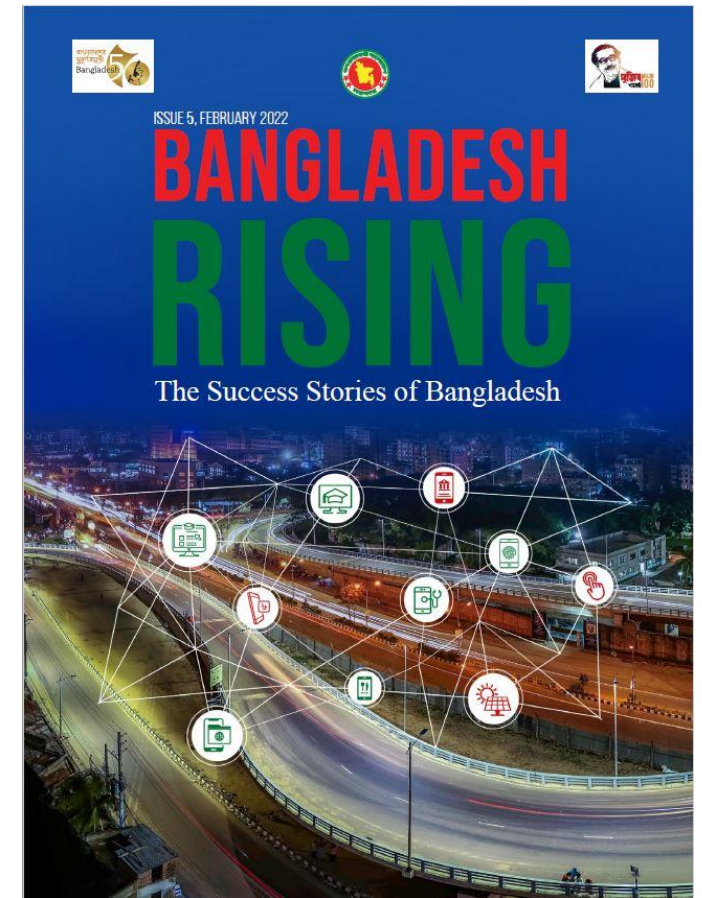
Understanding the customer behavior- Unlocking the success for future utility

- ❑ The expectation of customers regarding electricity would not be same after one decade as it is today. Interruption of electricity even for a minute may change the mind of customer to switch to the competitor.
- ❑ Customers' increasing expectation for comfort, convenience, and speed; and their insatiable appetite for use of more electrical gadgets and appliances would mean that future utility will have to tune itself to the changing needs of the customers.
- ❑ Electricity customers will be becoming more informed, connected, and demanding in the coming years.
- ❑ The future utility must be customer centric and shall address all the needs of customers' at the earliest.



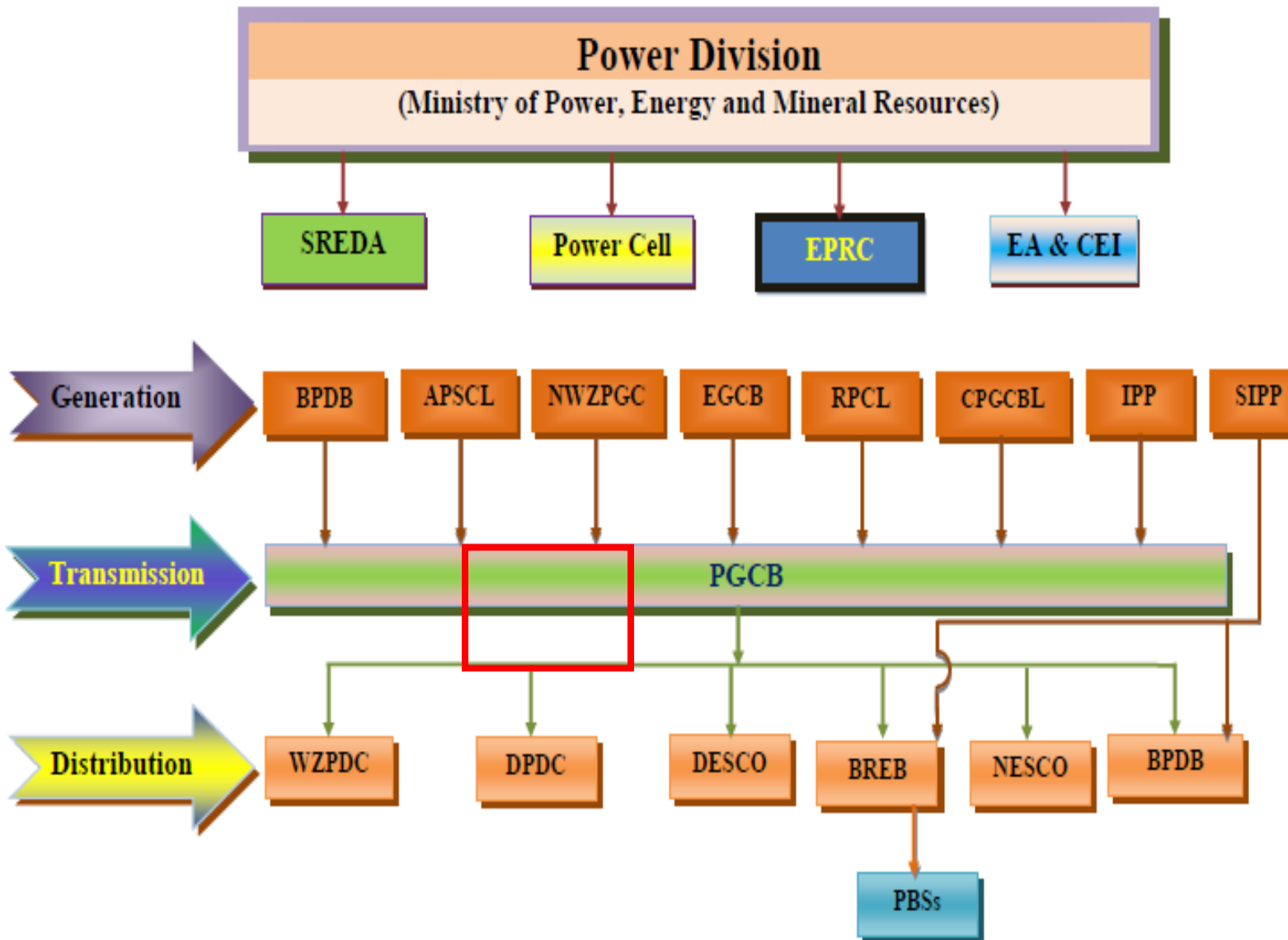
Utility Business- The New Way Forward

Bangladesh's Perspective





Bangladesh Power Sector at a Glance



Generation Capacity	26,700 MW
Highest Generation	14,782 MW (April, 2022)
Total Consumers	44.3 Million
Transmission Line	14,531 km
Grid Sub-station Capacity	58,076 MVA
Distribution Line	6,69,000 km
Distribution Loss	7.74%
Per Capita Generation	609 KWh (Aug 2020)
Access to Electricity	100%



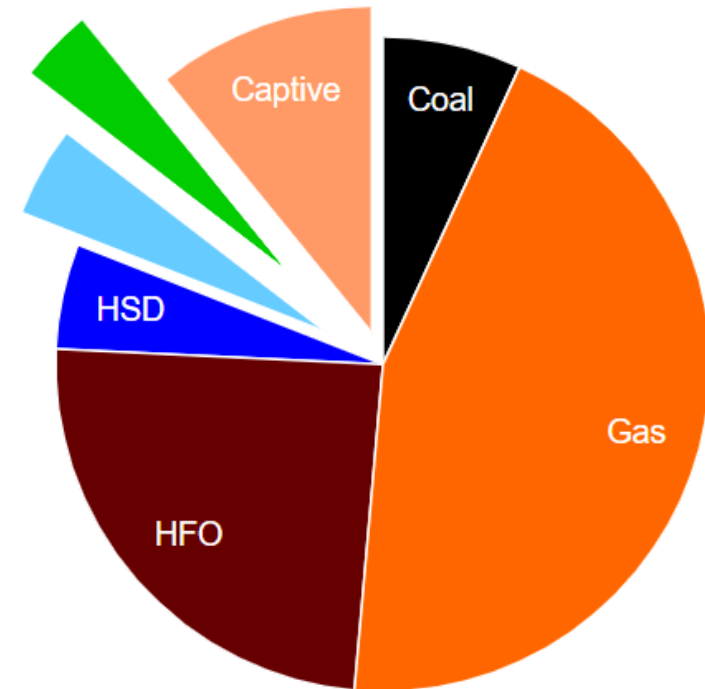
শেখ হাসিনার উদ্যোগ ঘরে ঘরে বিদ্যুৎ

- Under the leadership of Honorable Prime Minister Sheikh Hasina, access to electricity to 100% citizen of the country has been ensured.
- She has set up a vision to turn Bangladesh into a developed country by 2041.
- Energy is a precondition for the socio-economic development of a country. Without energy, not even a single organ of the country can grow – be it industry, trade & investment or health and education.
- Power generation target is 40,000 MW within 2030 and 60,000 MW within 2041 to achieve vision 2041.

Present status of Electricity Generation Mix

Fuel/Resource	Installed Capacity	Share
Coal	1768 MW	6.86 %
Gas	11476 MW	44.53 %
HFO	6278 MW	24.36 %
HSD	1341 MW	5.2 %
Imported	1160 MW	4.5 %
Renewable	950.92 MW	3.69 %
Captive	2800 MW	10.86 %
Total	25774 MW	

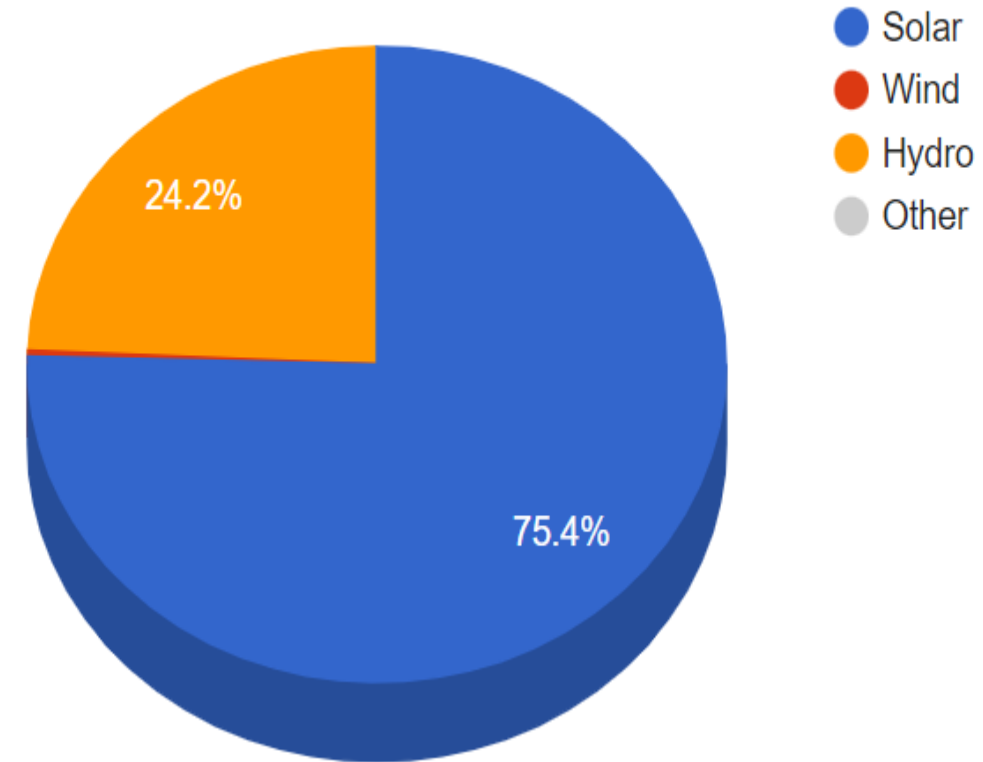
Electricity Generation Mix



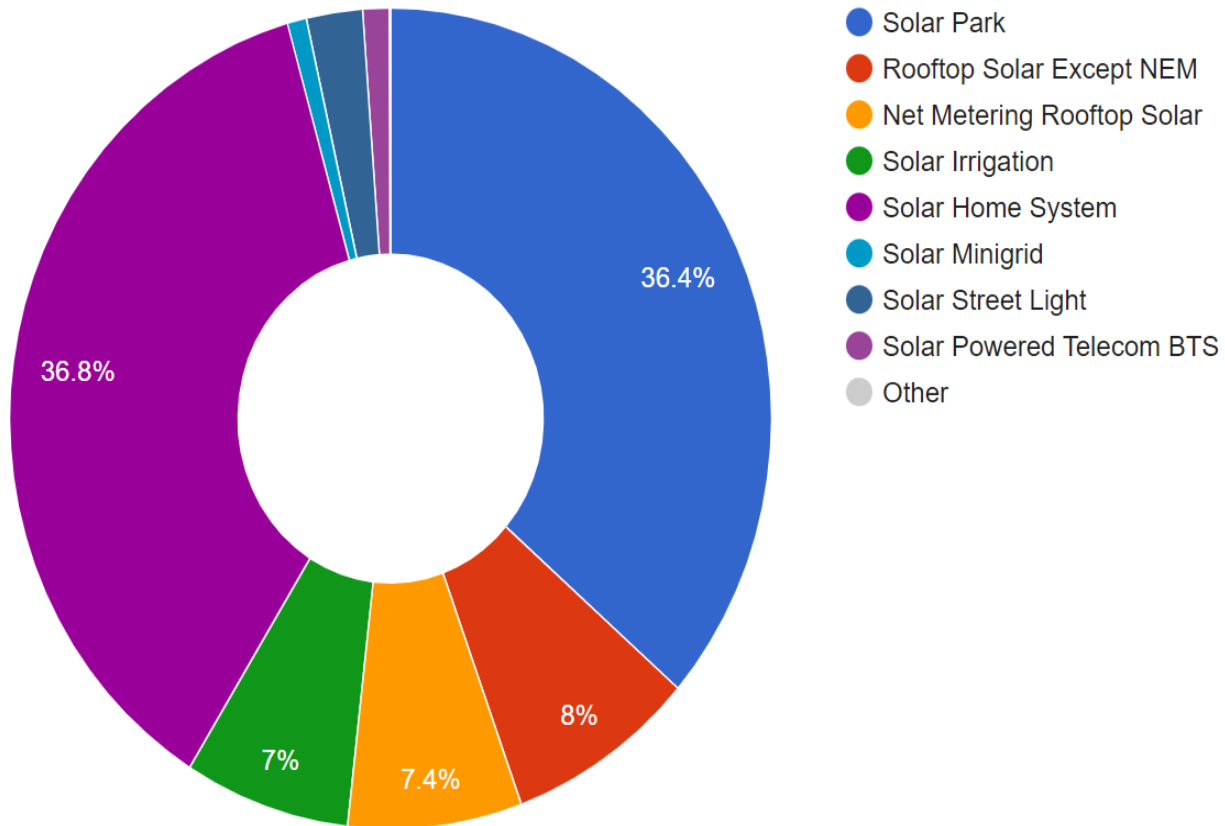
Present status of RE in Bangladesh

Technology	Off-grid (MW)	On-grid (MW)	Total (MW)
Solar	356.55	360.3	716.85
Wind	2	0.9	2.9
Hydro	0	230	230
Biogas to Electricity	0.69	0	0.69
Biomass to Electricity	0.4	0	0.4
Total	359.64	591.2	950.84

Renewable Energy Share



Share of Solar Technologies (MW)



No. of Solar Home System: 6037689



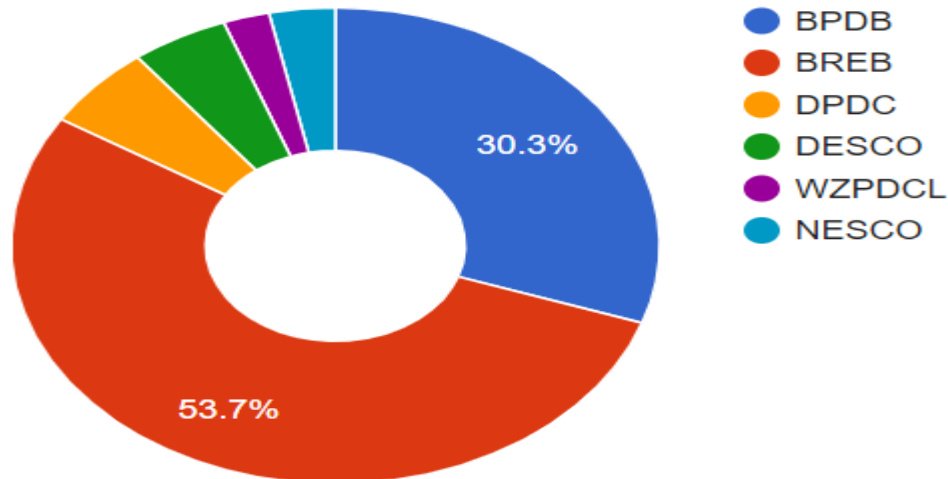
Net Metering

The utility credits customer for energy send into the grid.
Utility will pay to customer @33 kV Bulk rate.



Utility Name	Installed Capacity	Quantity
BPDB	16.194 MWp	377
BREB	28.728 MWp	332
DPDC	3.011 MWp	318
DESCO	2.597 MWp	410
WZPDCL	1.235 MWp	278
NESCO	1.763 MWp	73
TOTAL	53.528 MWp	1788

Share of Installed Net Metering Systems (MW)



No. of Net Metering system: 1788



DPDC Profile



DPDC Serviced Area	225 Sq. Km
132 kv Distribution Line	238.38 km
33 kv Distribution Line	481.66km
0.4 kv, 11 kv and 11/0.4 kv Distribution Line	5088.348 km
132/33 kv Grid Substation	14 Nos.
132/11 kv Grid Substation	01 No.
33/11 kv Substation	59 Nos.
Capacity of Gird Substation (132/33 & 132/11)	3078 MVA
Capacity of 33/11 Substation	3829 MVA
Maximum Demand	1670.5 MW
Number of 11 kv Feeder	697 Nos.
Distribution Transformer	20,543 Nos.
Total Customer (Nov 2020)	1,417,261
System Loss (FY 2019-20)	6.58
Population Serviced in Network Area (approx)	9 Million
Monthly Average Consumption per customer	562 kwh
Number of employees	5,265

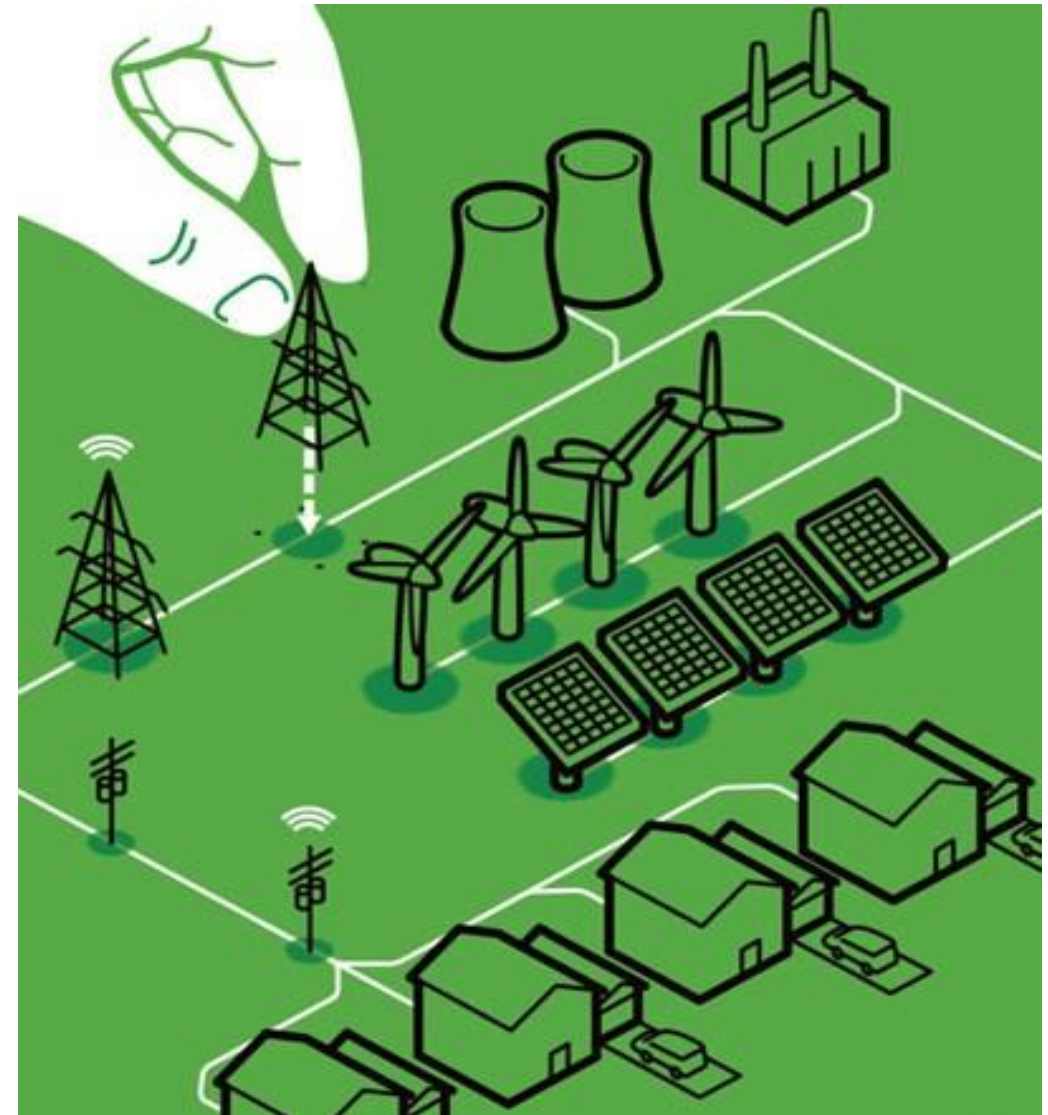
Dhaka City and Narayanganj District (Partly)



Statistics of Prepayment Meter and Solar system

Item	Number / Capacity
No. of Prepayment & Smart Meter	More than 6.5 Lac
No. of solar system	More Than 40,000
Total capacity of Roof Top solar	Approx. 28 MWp
No. of Net Meter	318
Capacity of Net Meter	3.01 MWp

Transforming DPDC into a digital distribution enterprise will not only increase transparency and accountability, but also reduce cost, increase profit & efficiency and bring excellence in customer service.





Some initiatives of DPDC

Under Ground Substation with GIT

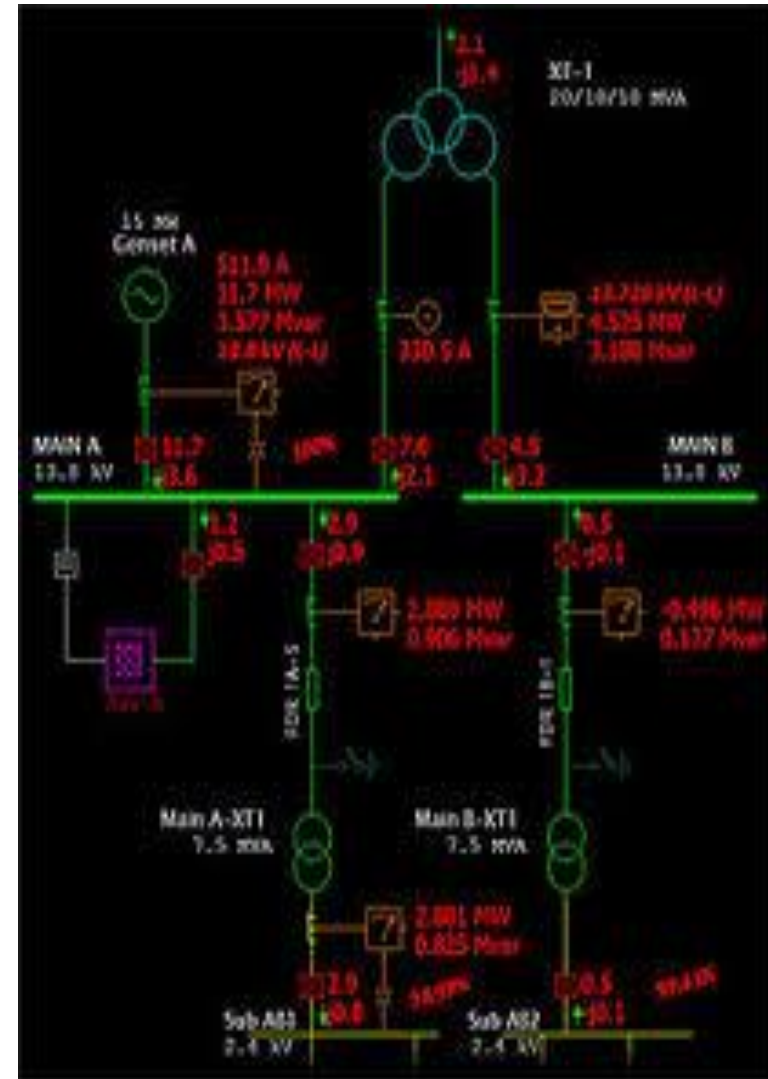
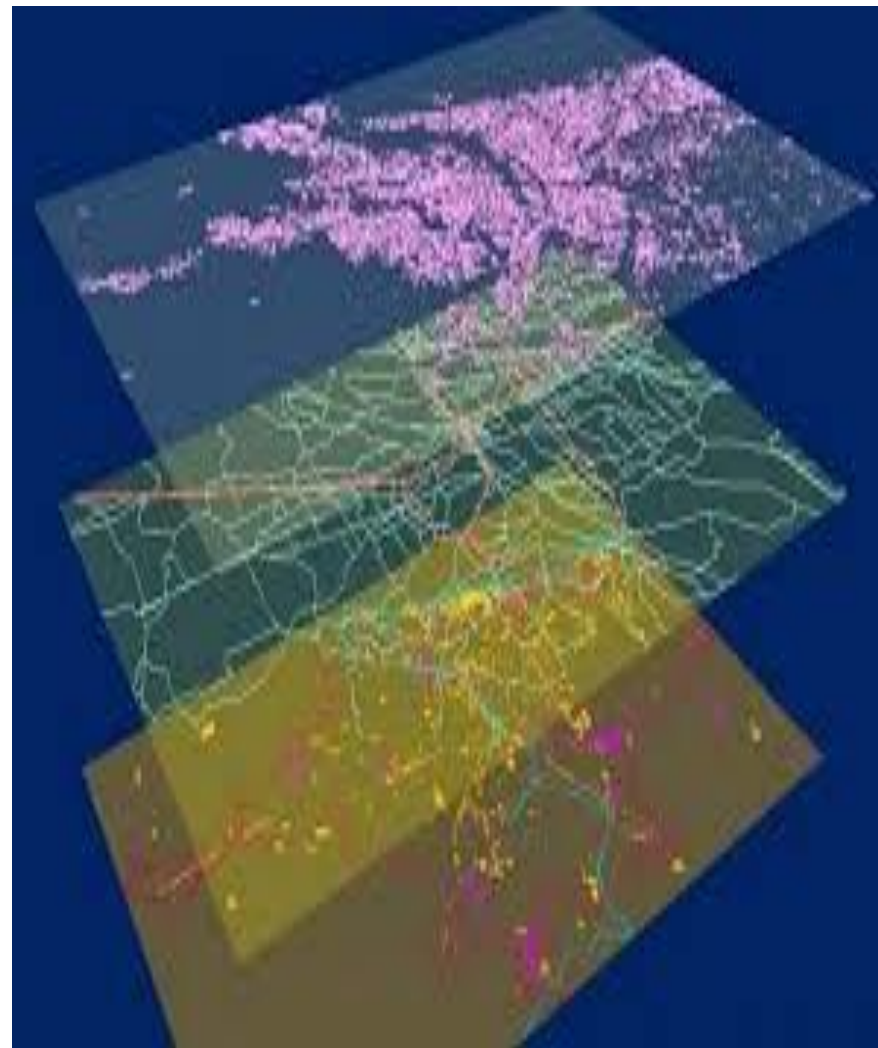


First ever UGSS project in Bangladesh

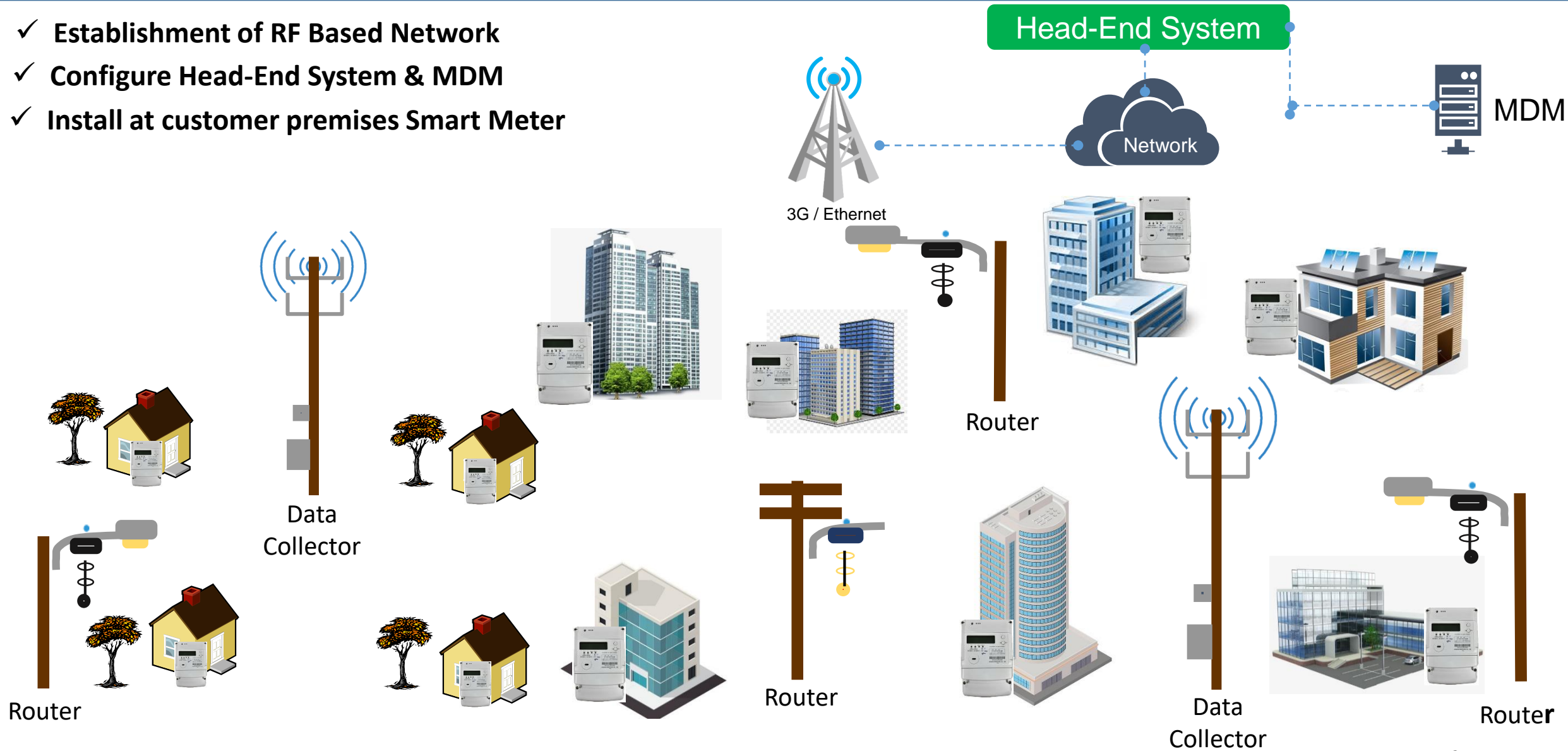
First ever use of GIT in Bangladesh

An innovative solution to a land hungry country

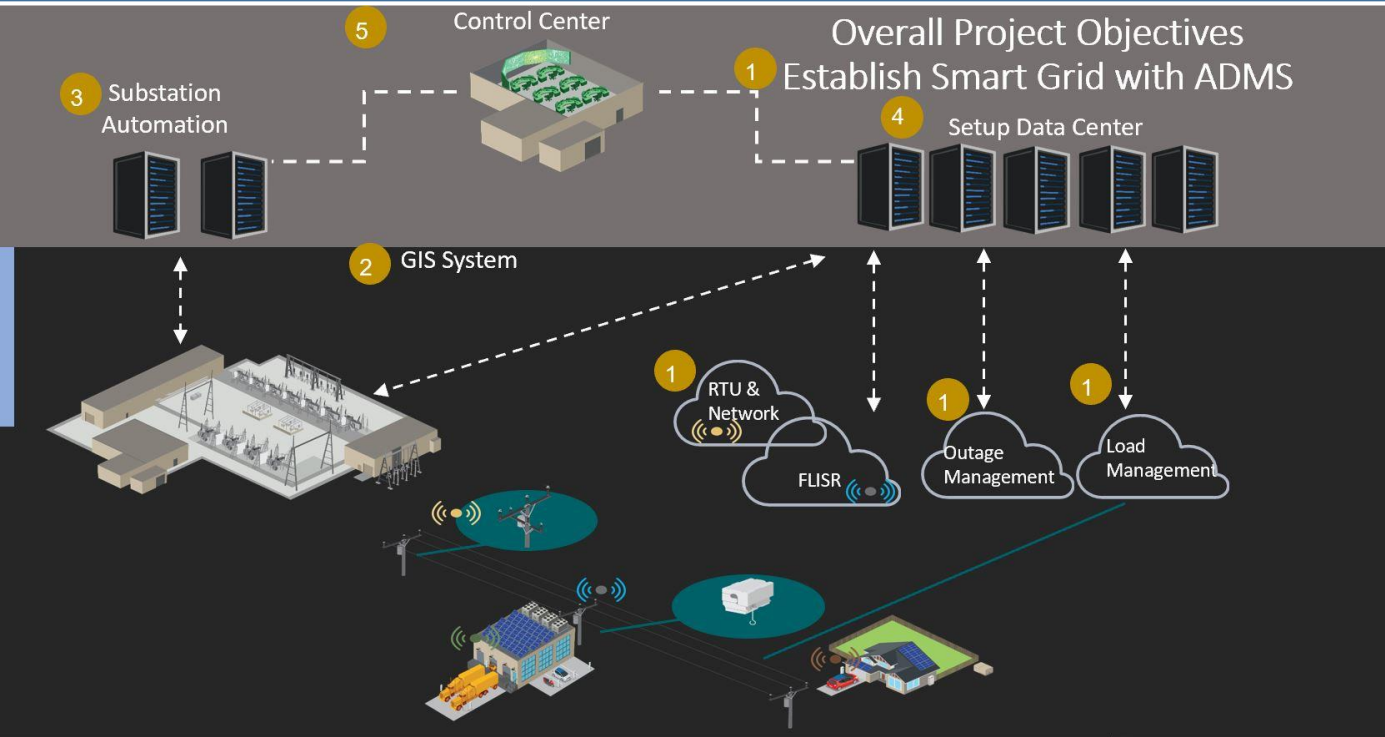
GIS based Planning and ETAP simulation



- ✓ Establishment of RF Based Network
- ✓ Configure Head-End System & MDM
- ✓ Install at customer premises Smart Meter



Some initiatives of DPDC



5S – For Better Efficiency and Productivity of Human resource



DPDC Call Center 16116-Single Point Solution for Customer

Smart Grid and Capacitor Bank installation- Technology adaptation for better management and to improve system efficiency

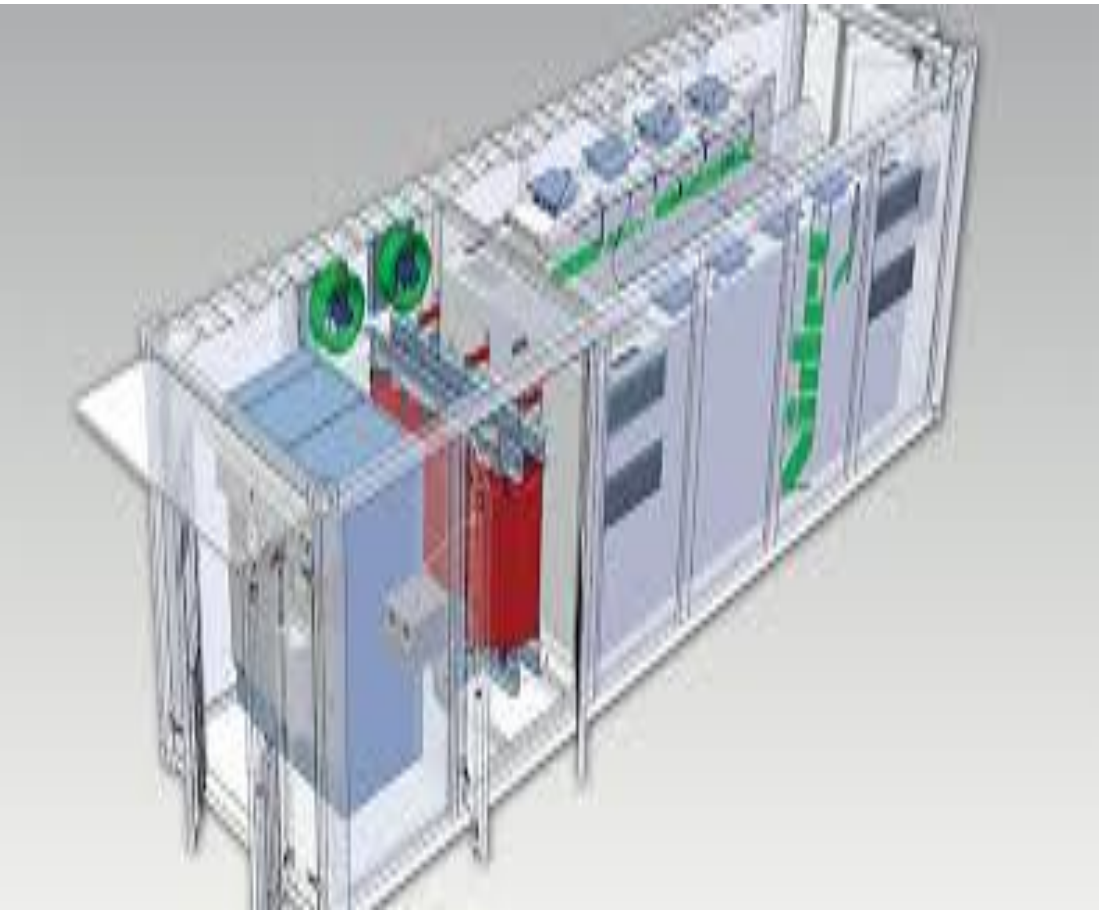


Cyber security



NIFPS for safety of asset

Future initiatives of DPDC



Battery Storage System



EV charging station

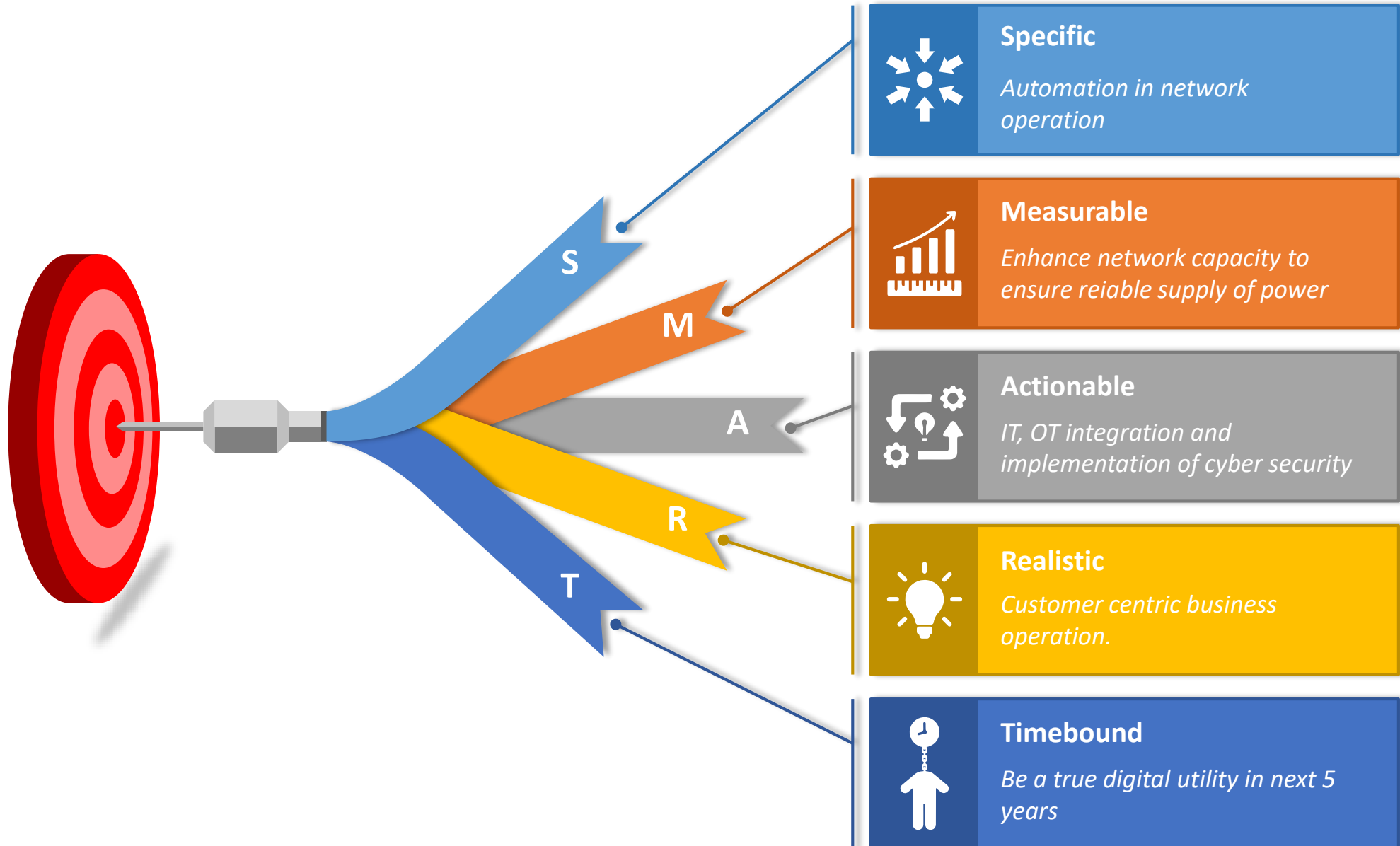


DER Integration

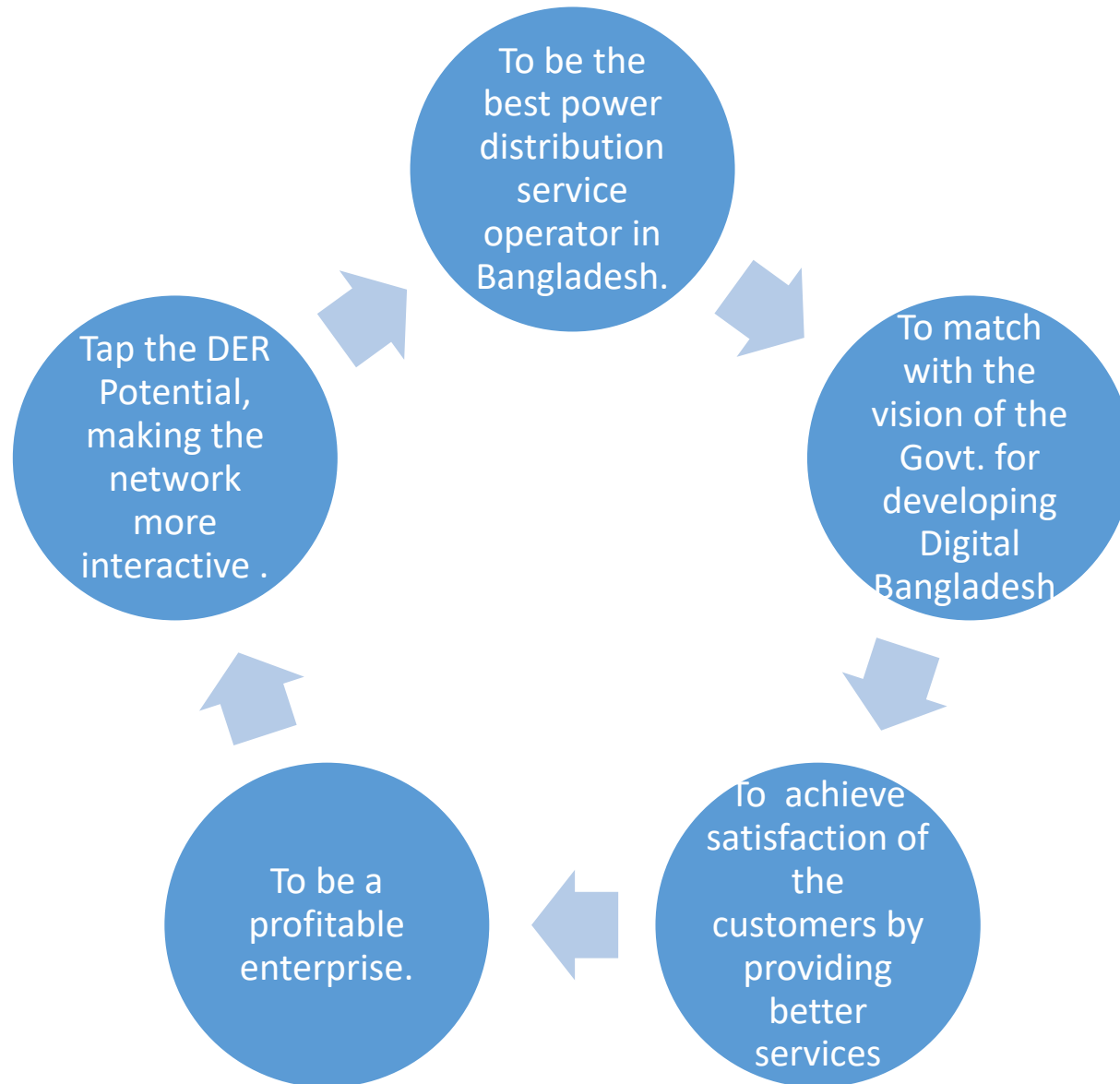


Integrated solutions

SMART GOALS OF DPDC



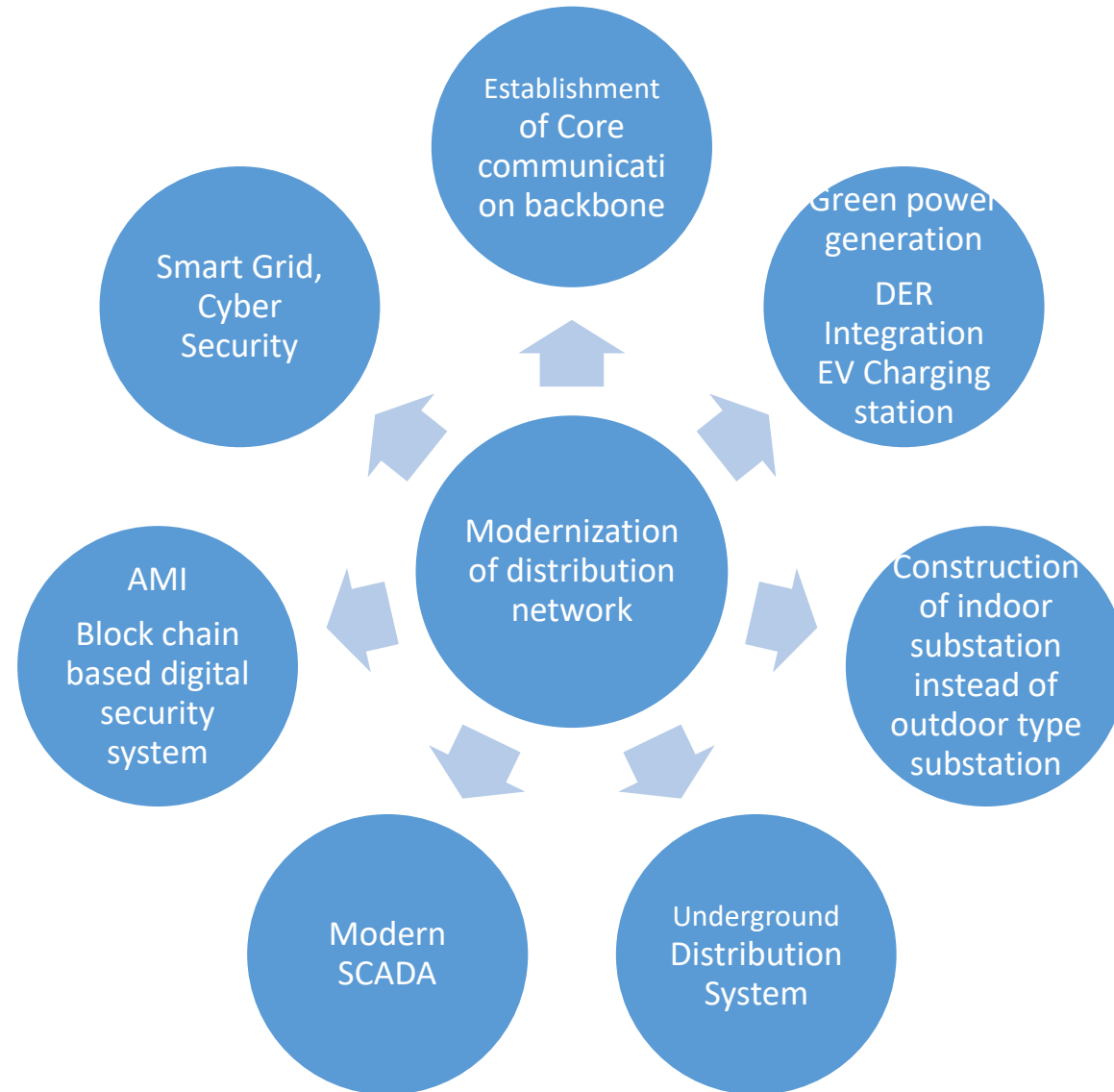
Innovating a fresh business approach for DPDC



The aim is to transform DPDC into a Modern and Digital Distribution Enterprise



Looking into future- Modernization of DPDC's Distribution System



- Activities of Power Distribution Utility will significantly evolve by next decade. New requirement of customers and regulators will expedite the need for new business models for future utilities.
- DER Policy, Network strengthening for EV Charging infrastructure, BESS integration etc. shall be of utmost priority.
- Traditional boundaries will become blur. Operational complexity will cause a transition to increased automation and integrated controls between transmission and distribution network as well as with customers – there will no longer be clear demarcation points.
- Technology adoption risk is rise highly. Managing different technologies, integration among them and transition of technology will become a critical consideration along with cyber security threat.



WUS
2023

ELECRAMA
2023

February 2023
Delhi, India

Presented By
Engr. Bikash Dewan
Managing Director,
DPDC, Bangladesh

Thank You.