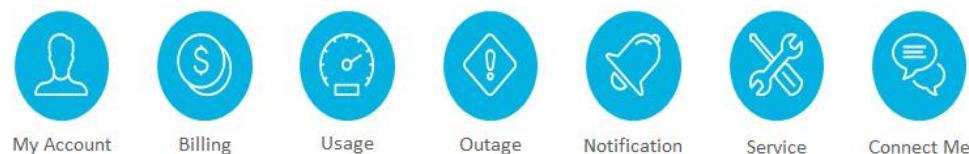


250 MILLION SMART METERS

Digital Transformation for Better Customer Service Through Smart Meter



Digital Customer Engagement Platform



Presented by
Bikash Dewan
Managing Director
DPDC, Bangladesh

VISION - 2021 & 2041 and Power Sector Growth

- Honorable Prime Minister Sheikh Hasina wants to turn Bangladesh into a middle income country by 2021 and developed country by 2041. By now, Bangladesh has already stepped to the lower middle income status and will be able to become a middle income country even before 2021.
- Power is essential for driving economic growth, especially in emerging markets. Achieving Sustainable Development Goal (SDG) 7—Ensure access to affordable, reliable, sustainable and modern energy for all—is a necessary precondition for progress on many other SDGs, including those concerning health, education, industry, sustainable cities, and more.
- Power generation target of 24,000 MW within 2021 to fulfill Vision 2021, 40,000 MW power within 2030 MW and 60,000 MW to achieve vision 2041.



Every house to have power in 'Mujib Borsho' (Mujib Year)



- The government has been making all out strides to light up the country's all households as well as ensure uninterrupted, quality and affordable electricity supply for the people by “Mujib Borsho” (Mujib Year), marking the birth centenary of Father of the Nation Bangabandhu Sheikh Mujibur Rahman.

Bangladesh Power Sector at a Glance

Key Item	2009	2019	Achievements in the last 11 years (FY 2019-20)
Number of power plants	27	138	(+) 111
Generation Capacity (MW)	4,942	23,548	(+) 18,606
Highest Generation (MW)	3,268 (6 Jun 2019)	12,893 (29 May 2019)	(+) 9625
Transmission Line (C.KM)	8,000	12,379	(+) 4,379
Grid Substation Capacity (MVA)	15,870	47,304	(+) 31,434
Distribution Line (Km)	260,000	5,88,000	(+) 3,28,000
Access to Electricity (%)	47	98	(+) 51
Per Capita Generation (KWh)	220	512	(+) 292
Total Consumers (Million)	10.8	38.7	(+) 27.9
System Loss	14.33 (2008-09 FY)	8.73 (2019-20 FY)	(-) 5.60

Digital Transformation of Bangladesh

Bangladesh has shown significant progress in terms of digital transformation over the past few years. The Bangladesh government's a2i (Access to Information) program has paved the path for further mobilization. Government initiatives like smart meter reading, online utility bill pay and e-governance has brought the country a step closer to becoming a digitalized nation

Digital Bangladesh



e-Services for all



Access to Information (a2i) Programme
Prime Minister's Office



DPDC supplies electricity to majority of households in Dhaka and its adjacent Naraynaganj city. DPDC has taken up the challenge of supplying electricity to the world's most densely populated city. DPDC commercially started work from July 2008.



DPDC Profile

Total DPDC Serviced Area	250 Sq. Km
132 kv Distribution Line	234.26 km
33 kv Distribution Line	470.88 km
0.4 kv, 11 kv and 11/0.4 kv Distribution Line	5056.42 km
132/33 kv Grid Substation	15 Nos.
132/11 kv Grid Substation	01 No.
33/11 kv Substation	59 Nos.
Capacity of Grid Substation (132/33 & 132/11)	3078 MVA
Capacity of 33/11 Substation	3829 MVA
Maximum Demand (26-Jun-2019)	1670.50 MW
Distribution Transformer	20,407 nos.
Total Customer (Oct-2020)	14,10,853
System Loss (FY 2019-20)	6.58
Population Serviced in Network Area (approx.)	9 Million
Monthly Average Consumption per customer	607 kwh
Number of employees	5,343

Digital Transformation of DPDC

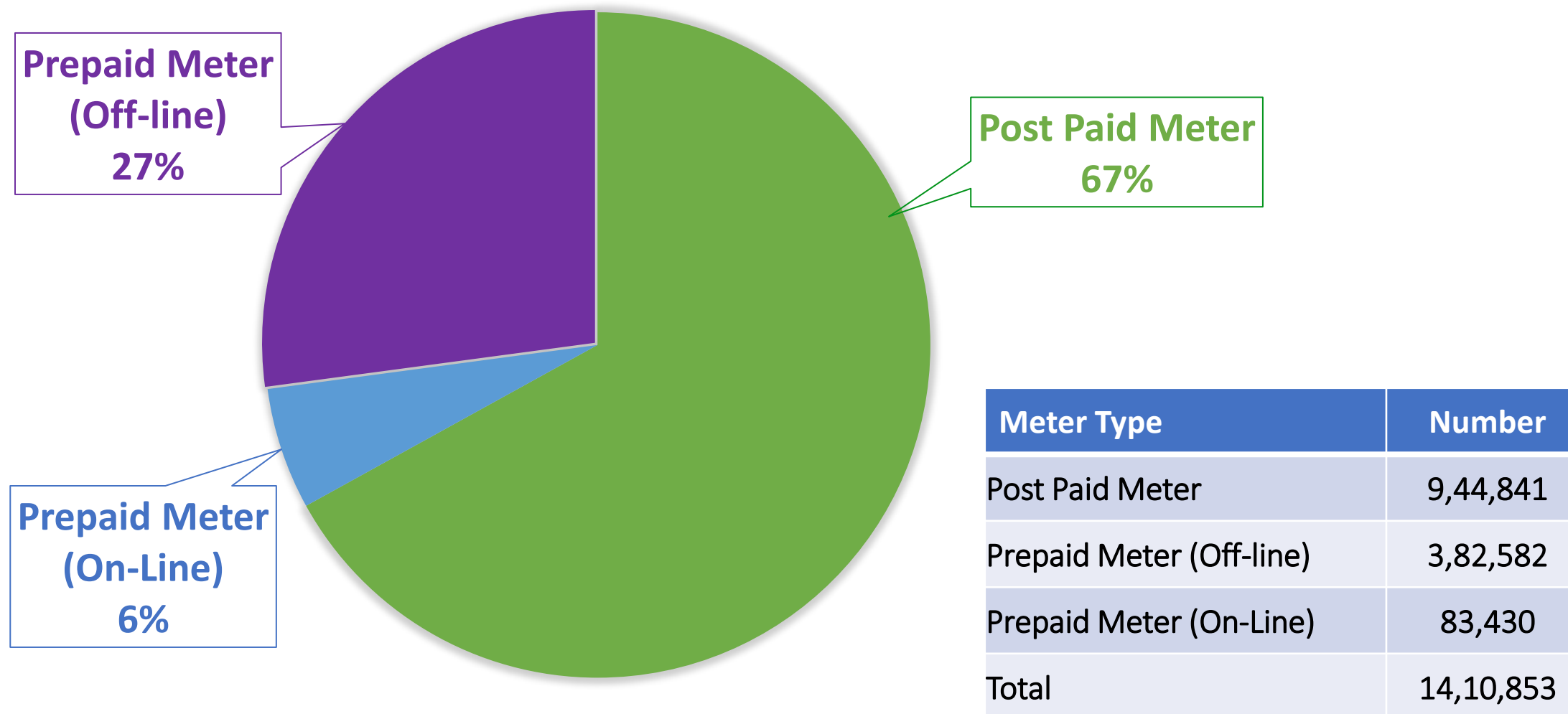
To Transform DPDC as a Digital Utility for better customer service and to increase organizational performance through -

- **Keep improving existing business processes introduce ICT,**
- **Supply of quality electricity with service excellence by adhering Big Data centric infrastructure**
- **Enhance new business**
- **Employ innovation and technology**
- **IT-OT integration and**
- **Develop IT oriented human resources.**

Covid-19 Accelerated Digital Transformation in Bangladesh

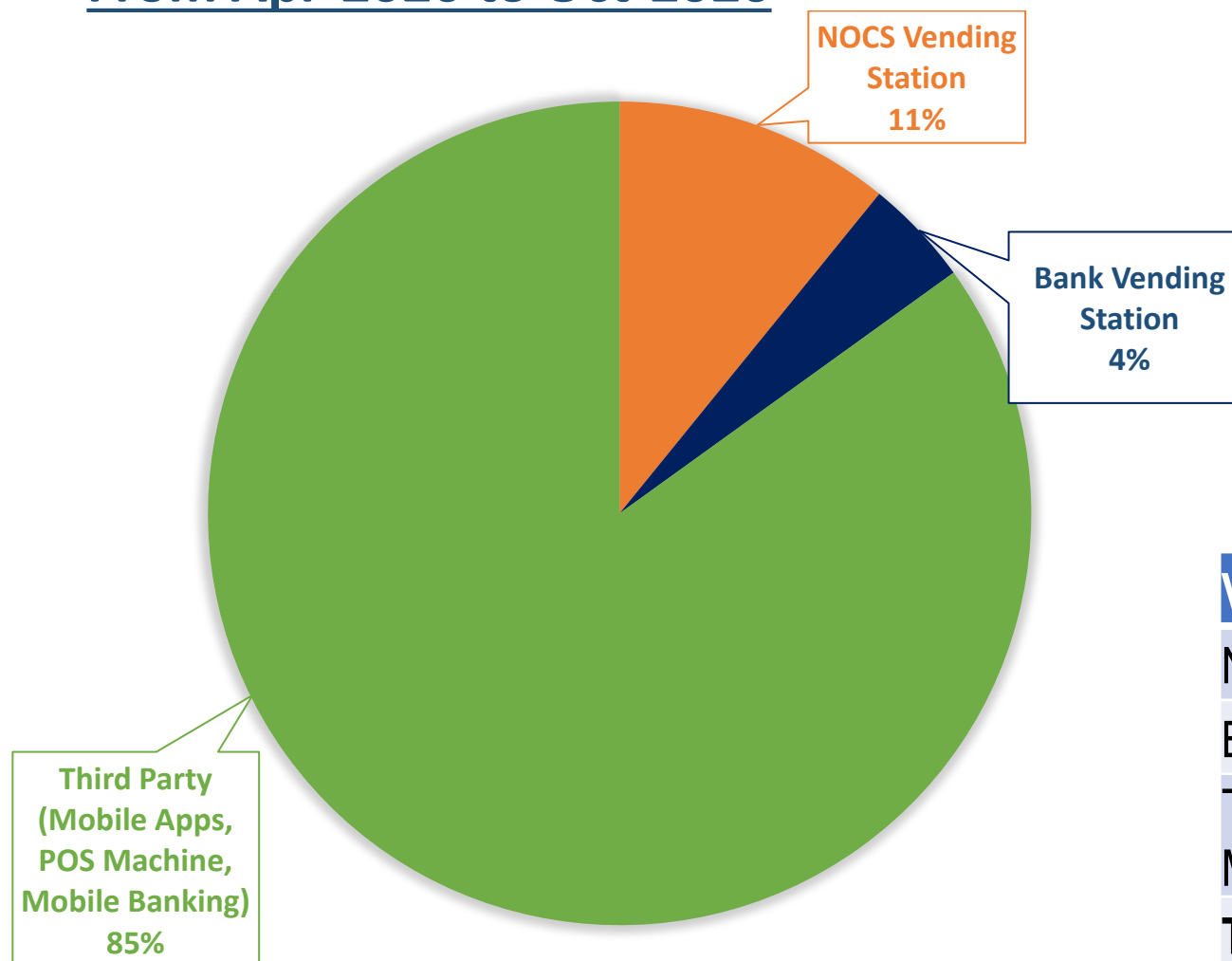
- Covid-19 is playing a crucial role in pushing for this digital transformation in the whole world, and Bangladesh is no exception.
- Digital transformation is the process of using digital technologies to create new or modify the existing business process, culture, and customer experiences.
- Because of the pandemic, people are now bound to think differently as they need to shift their businesses to the digital platforms to avoid physical interaction.
- Digital transformation is not just a prospect but an essential action for many business entities and the economy to survive.
- Covid-19 is acting as a catalyst for digital transformation by dint of forcing the utilization of digital technology.

DPDC Customer Metering Mix at Present



Prepaid Meter Vending Summary

From Apr-2020 to Oct-2020



Third Party Vending like Mobile Apps, POS, Mobile Banking are becoming more popular during Covid-19.

Vending Medium	Total no of recharge
NOCS Vending Station	4,97,000
Bank Vending	1,92,000
Third Party (Mobile Apps, POS, Mobile Banking)	38,85,000
Total	45,74,000

Smart Application Of DPDC for better Service

- **E-Connection System:** Citizen in DPDC area is able to get new connection for electricity very quickly through the online application system. Customer no need to physically come to DPDC office.
- **AMR Meter:** All HT customer meters operate & monitor through AMR system.
- **SMS & email to Postpaid Customer:** Customer get SMS when electricity Bill is generated.
- **Bill in Website:** All customer gets Bill, Ledger and Clearance Certificate from DPDC's website.
- **Online Payment:** DPDC open a lot of online payment channel for postpaid bill payment. At present about 90% customer pay their bill through online. DPDC also implemented **Blockchain** Technology in online payment system for the customer. For Prepaid customers, in addition to utility vending station Bank and third party PoS recharging facilities developed.
- **ERP:** ERP on Payroll HR, Finance, Procurement, Asset etc. has been introduced.
- **GIS for Distribution Network:** DPDC has already developed GIS for quick and efficient distribution network management and customer services.
- **Call Center (16116):** DPDC introduced a Call Center easy and quick customer service.

DPDC's on going important projects

- **G2G Mega Project:** Under this project, 52 new modern substations will be set up. As a result, the capacity of the DPDC's distribution system will be increased to around 5000 MVA. About 1350 km New distribution lines will be established. The Distribution System of Dhanmondi area will be underground. Under this project a SCADA system also be established.
- **Underground Sub-Station Project:** In Bangladesh this is the first of such project. It will be increased at 132 KV level 360 MV and at 33 KV level 150 MVA.
- **Smart Metering System:** Under this project, all areas of the DPDC will be created through the RF Mesh Network, the AMI (Advance Metering Infrastructure) and 8,50,00 smart meters will be installed under this AMI. This will increase customer service and strengthen the monitoring system and reduce system loss. This AMI will be part of the smart grid later.
- **GIS for Distribution Network:** DPDC has already developed GIS for quick and efficient distribution network management and customer services.
- **Smart Grid Pilot Project:** Smart grid system will be launched in 5 sub-stations. There will be automation system with SCADA, DMS, OMS. Later, all other stations will be covered under this SCADA

DPDC's Smart Prepaid Meter Roll-out Plan

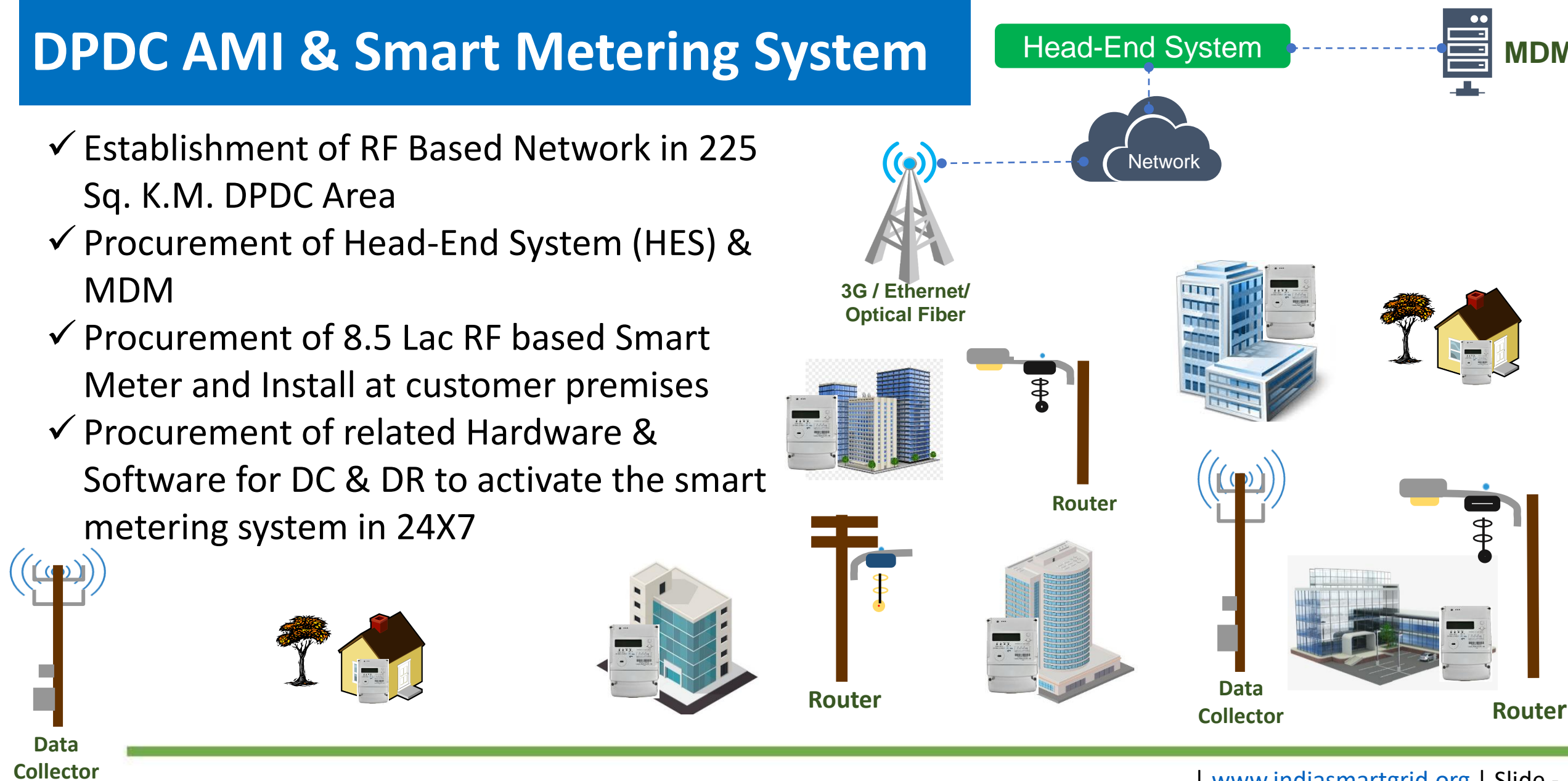
Year	Number
Already Installed Prepaid (Online/Off-line) Upto Jun'2020	4,70,000
FY 2020-21 (Prepaid Smart Meter)	80,000
FY 2021-22 (Prepaid Smart Meter)	2,00,000
FY 2022-23 (Prepaid Smart Meter)	7,00,000
Total	14,50,000

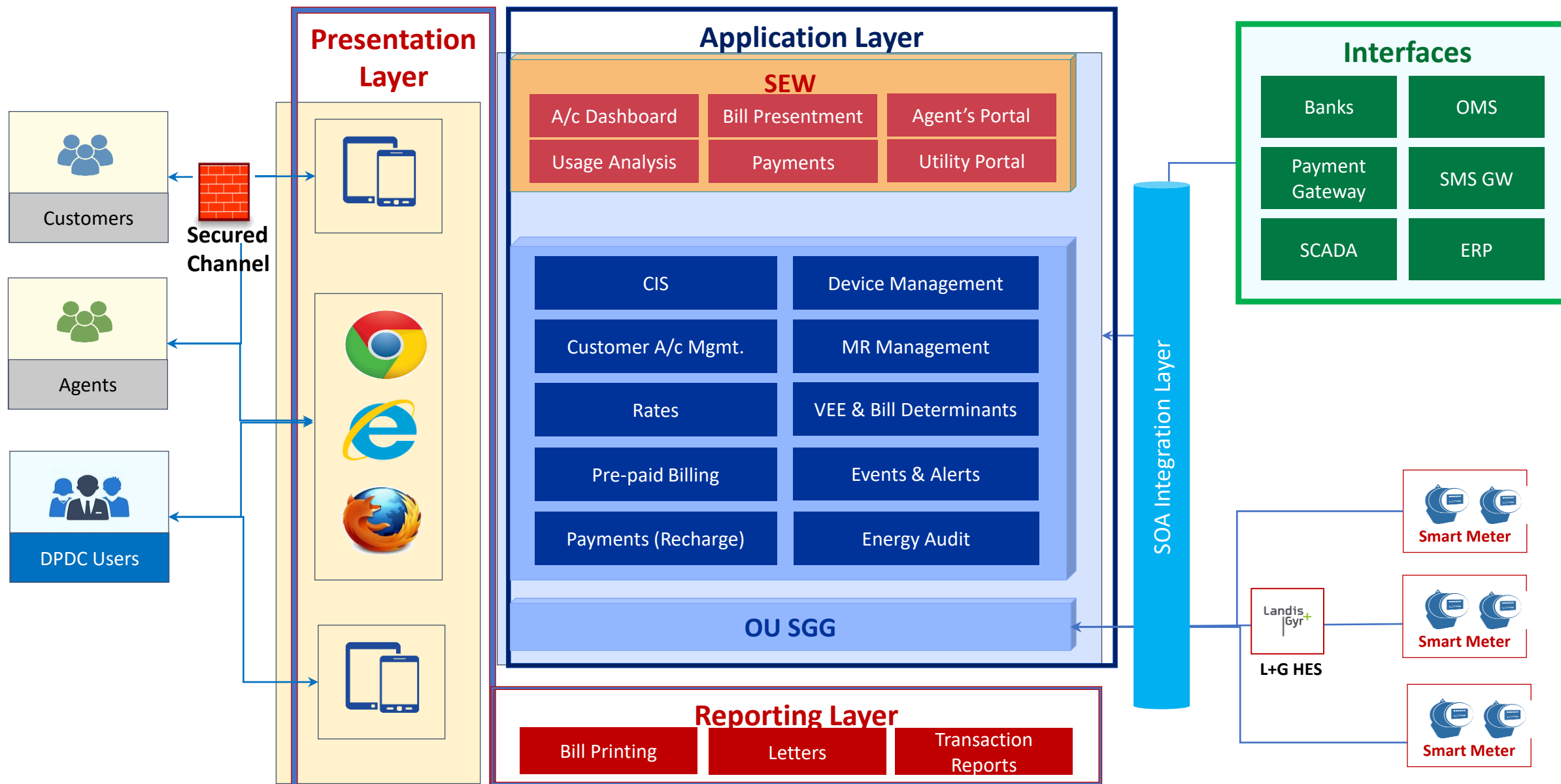
Next three years all postpaid meter will be replaced by Smart Meter (Prepaid & Postpaid)

DPDC started AMI Project to Install Smart Meter

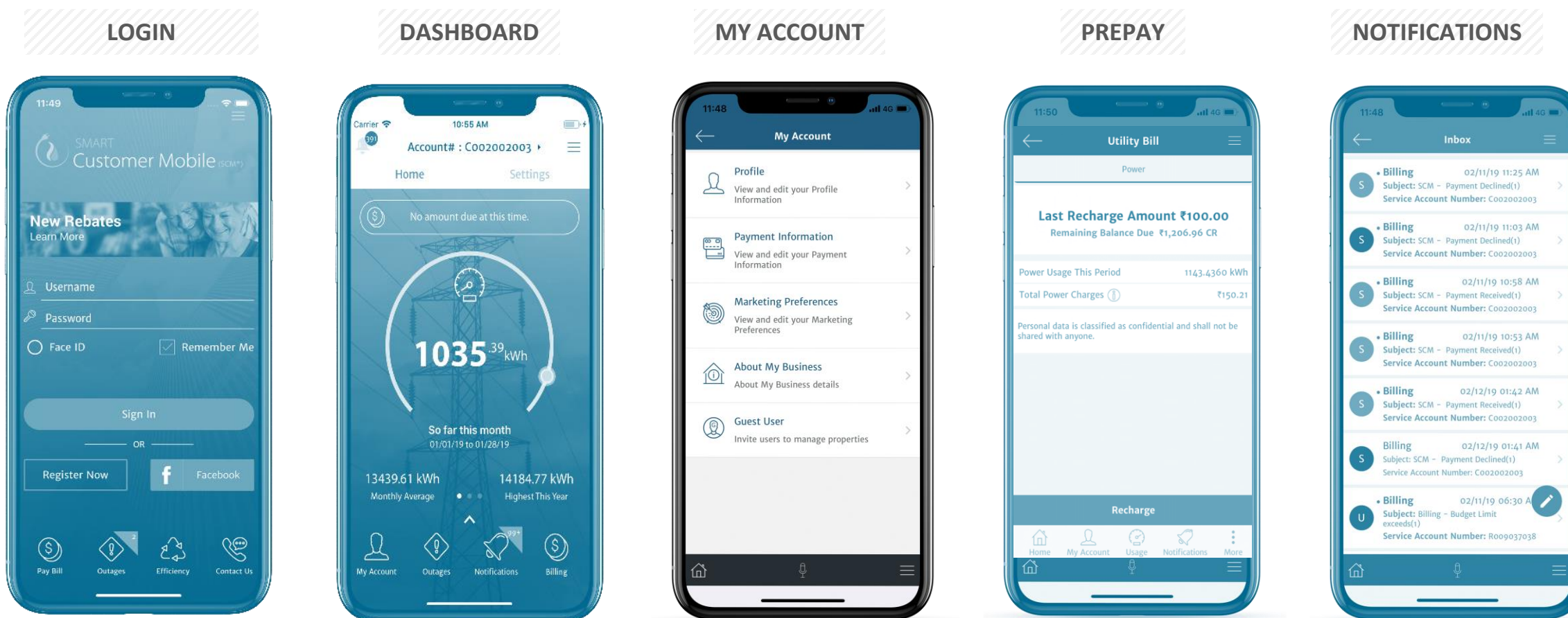
DPDC AMI & Smart Metering System

- ✓ Establishment of RF Based Network in 225 Sq. K.M. DPDC Area
- ✓ Procurement of Head-End System (HES) & MDM
- ✓ Procurement of 8.5 Lac RF based Smart Meter and Install at customer premises
- ✓ Procurement of related Hardware & Software for DC & DR to activate the smart metering system in 24X7





Mobile App will be the key tool for Smart Metering System Management & Operation



Methods



Single Recharge



Automatic Scheduled
Recharges



Channels



DBBL Nexus Cards

BKASH

DBBL Rocket



Credit Cards (Master, Visa)

DPDC specific Payment GW



Types



Mobile Payments

Web payments
(registered/ unregistered)



Smart Meter Customer Mobile App



Customer Mobile App

- 1 Customer receives an offer and enrolls in prepayment plan and notifications
- 2 Customer receives welcome email with program details
- 3 App bill calculator updates customer account balance based on hourly meter usage data



Customer's balance drops below minimum requirement

4

Customer receives Low Balance Alert! with option to pay via mobile app or web portal



5

Customer makes payment via mobile or enters a token confirming payment



6

Payment confirmed – customer receives a notification with updated balance

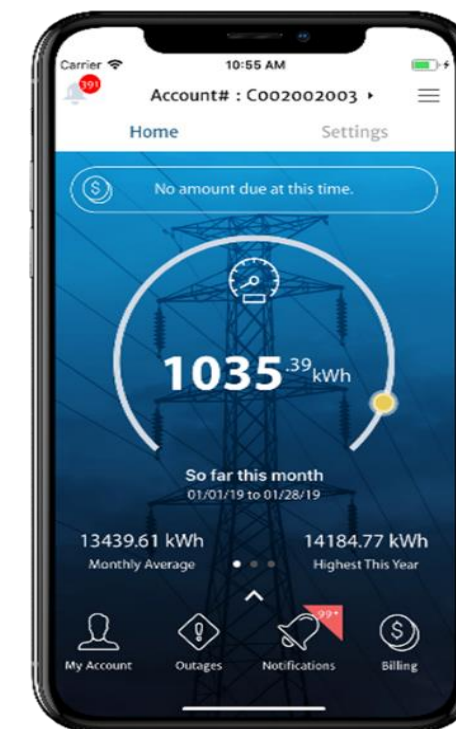
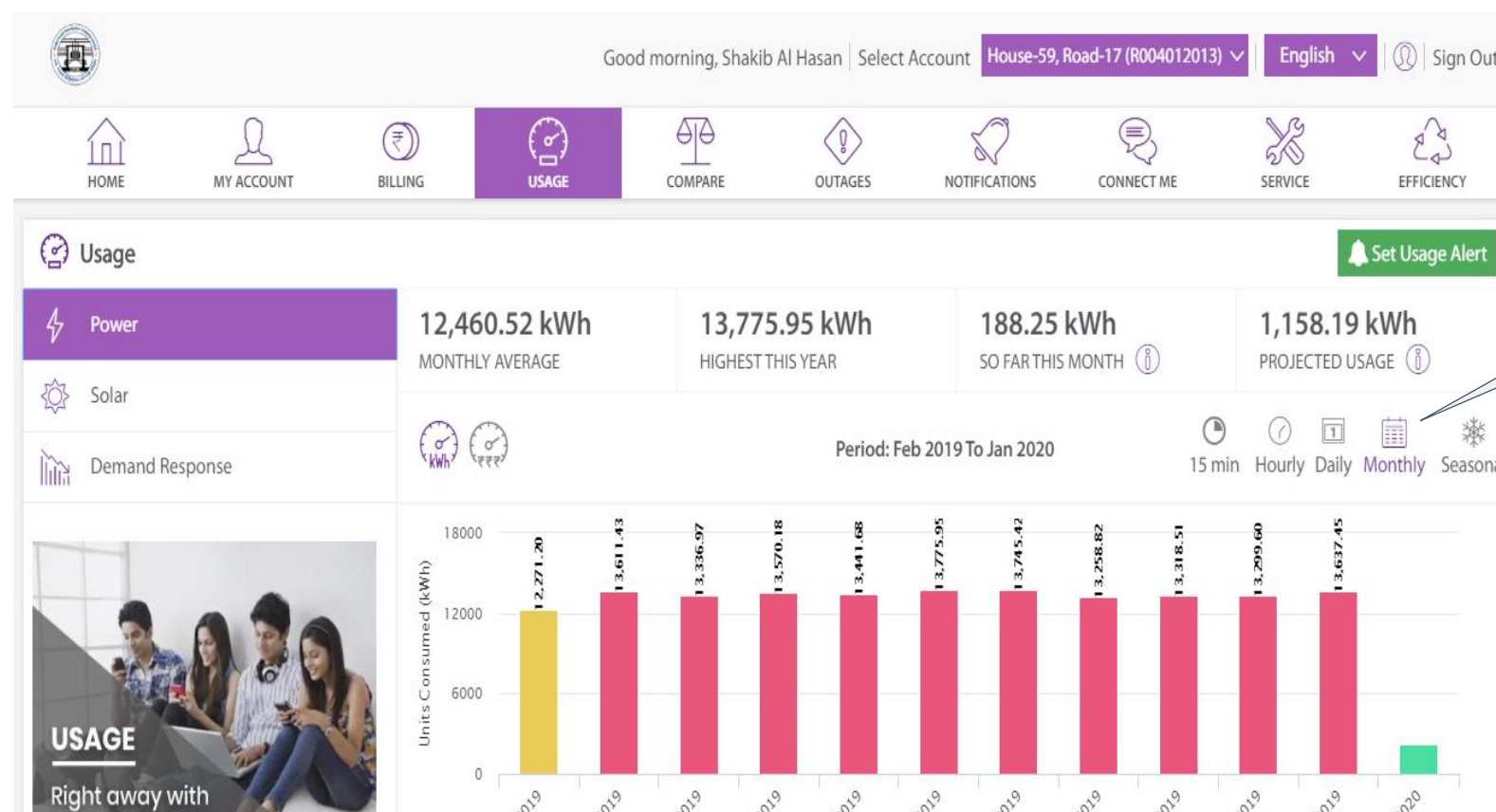
7

Payment posted and confirmed in utility billing system





8

Utility CSRs view reporting on real time updated balance and payment status

Customer Check the Usage

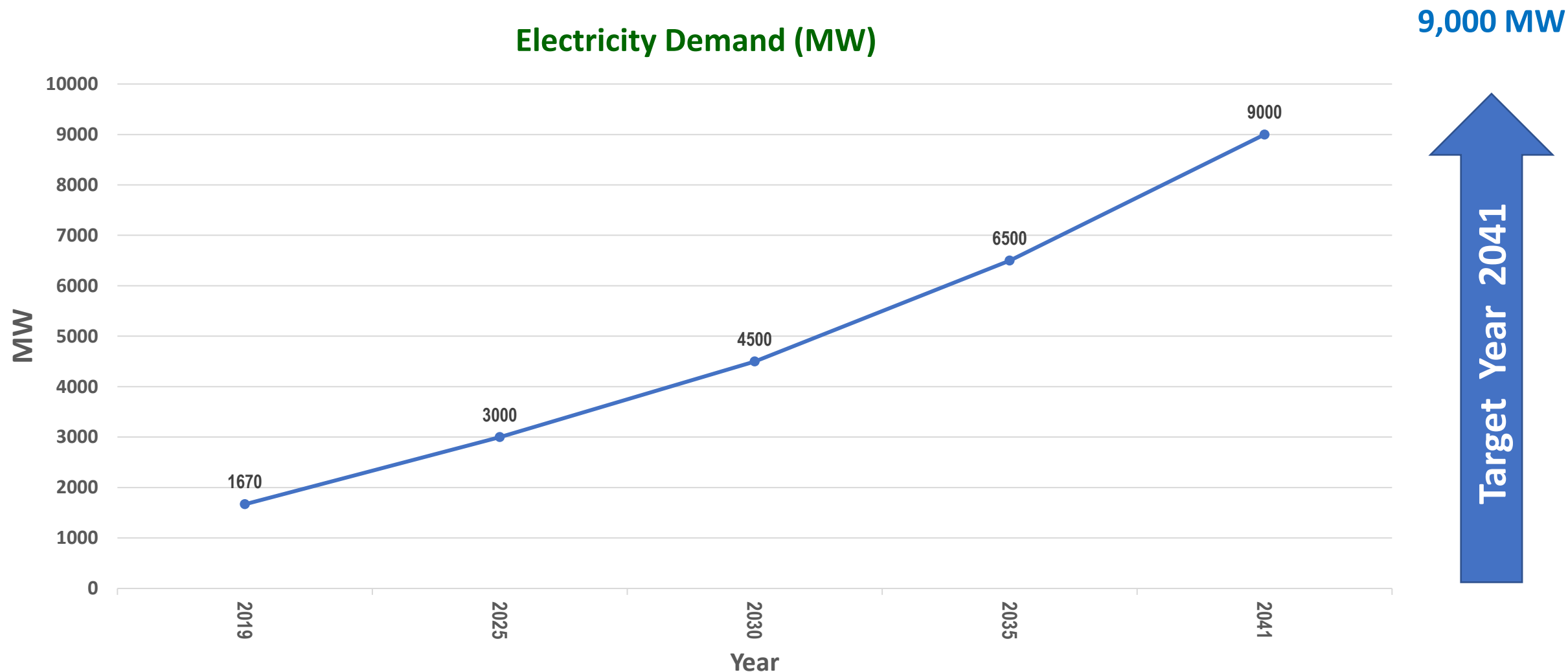


User Notifications

Types		Messages
		
Text		C2M Pushed Notifications
Email		Customer defined Notifications
Mobile Push notifications		<ul style="list-style-type: none">• Recharge reminder• Automatic payment deduction alerts• Budget alerts•

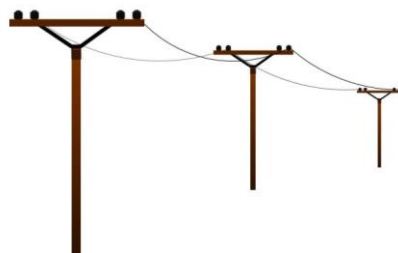
Massive Development in Distribution Network

Projected Future Electricity Demand in DPDC Area as per PSMP



To achieve the target DPDC needs following major infrastructure development:

0.4 KV Line (km)



3321 km to 5431 km

11 KV Line (km)



1735 km to 2923 km

33 KV Line (km)



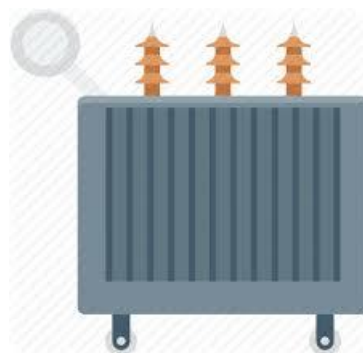
471 km to 1204 km

132 KV Line (km)



234 km to 1008 km

Distribution Transformer



20407 nos. to 50667 nos.

33/11 KV Substation



59 Nos (3829 MVA) to 185
Nos (19230 MVA)

132/33 KV Substation

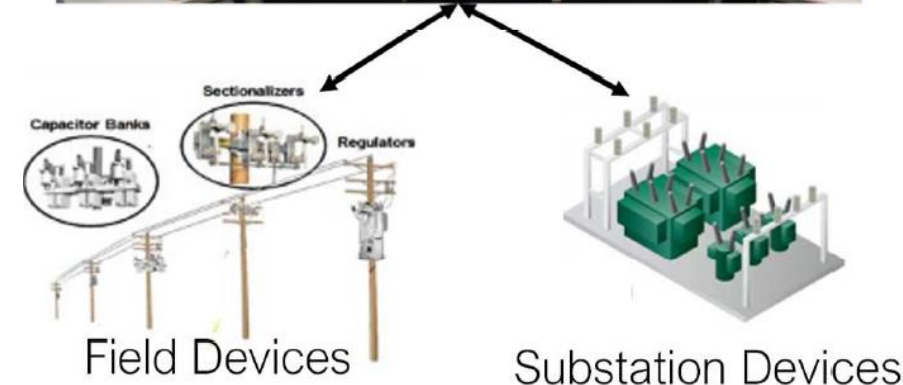


15 Nos (3078 MVA) to 59
Nos (20433 MVA)

DPDC's Smart Grid Pilot Project

Smart Grid Pilot Project

DPDC will be launched Smart grid system in 5 sub-stations. There will be automation system with SCADA, DMS, OMS. Later, all other stations will be covered under this SCADA.



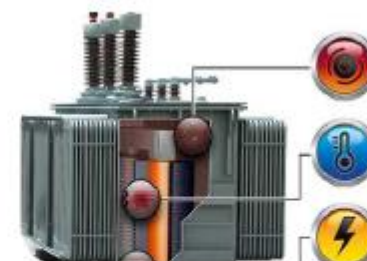
Online DMS Software



Substation Adaptation and automation



Feeder Automation



Distribution Transformer Monitoring



Redundant Telecommunications

Thank You

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