

Business Model for Rollout of Smart Metering & Smart Grid Projects

Presented By



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PFCCL's Experience in Smart Grid Projects

- ❑ PFCCL providing consultancy services (DPR preparation, Bid Process Management for selection of Smart Grid Implementing Agency (SGIA), Project Management Activities) in implementation of Smart Grids in the following Smart Cities:

❑ Rourkela, Odisha

- ❑ DPR approved by NSGM Empowered Committee (Approved Cost ~ Rs. 100 Cr)
- ❑ Tender Documents for selection of SGIA is finalized and NIT to be issued shortly

❑ Ranchi, Jharkhand

- ❑ DPR approved by NSGM Empowered Committee (Approved Cost ~ Rs. 250 Cr)
- ❑ Tender Documents for selection of SGIA already issued.

❑ Raipur & Bilaspur, Chhattisgarh

- ❑ DPRs approved by NSGM Technical Committee (Approved Cost ~ Rs. 160 Cr)
- ❑ Approval of Empowered Committee awaited

❑ In above four Smart Cities, AMI is planned for approx. 10 lakhs consumers

- ❑ In Review, Planning and Monitoring (RPM) Meeting of MoP held on 29.11.2018, it was decided that States may use services of PFCCL as one of the Aggregators for early rollout of Smart Metering projects

Partnership for Long Term Sustainable Reforms



- ❑ PFC Consulting Limited (a wholly owned subsidiary of Power Finance Corporation limited (PFC) a GOI Undertaking), is a premier consulting organization dedicated to power sector.
- ❑ Working over 70 assignments for 39 Clients spread across 21 States of India
- ❑ Working as Project Management Consultant under IPDS and RAPDRP for many states including West Bengal, Madhya Pradesh, Andhra Pradesh, Goa etc.
- ❑ Consultancy partner for Smart Grid implementation in Smart Cities i.e. Rourkela, Ranchi, Raipur and Bilaspur.



TATA POWER-DDL

- ❑ More than 16 years of Power Distribution experience from its North and North West Delhi Licensed Business and successfully reducing AT&C Losses from 53.1% to 8.4%.
- ❑ Carries distinction of successful adopting and maintain technologies like SCADA, ADMS, GIS, ERP, CRM, AMR, AMI etc. All these are seamlessly integrated with each other.
- ❑ Working with more than 30 DISCOMs in their reforms journey under R-APDRP / IPDS / NSGM / DDUGJY or schemes funding agencies like World Bank, ADB, etc.
- ❑ Implementing AMI for all its 1.7 Million Consumers in phased manner. 50,000 meters already installed with complete IT & RF Communication. First 2 lac meters are expected to be rolled out by March 2019.

PFCCL and Tata Power-DDL collaborated and signed MoU for Jointly working in Power Distribution Sector for Smart Grid, Smart Metering and other distribution sector projects

PFCCL's Role as Aggregator

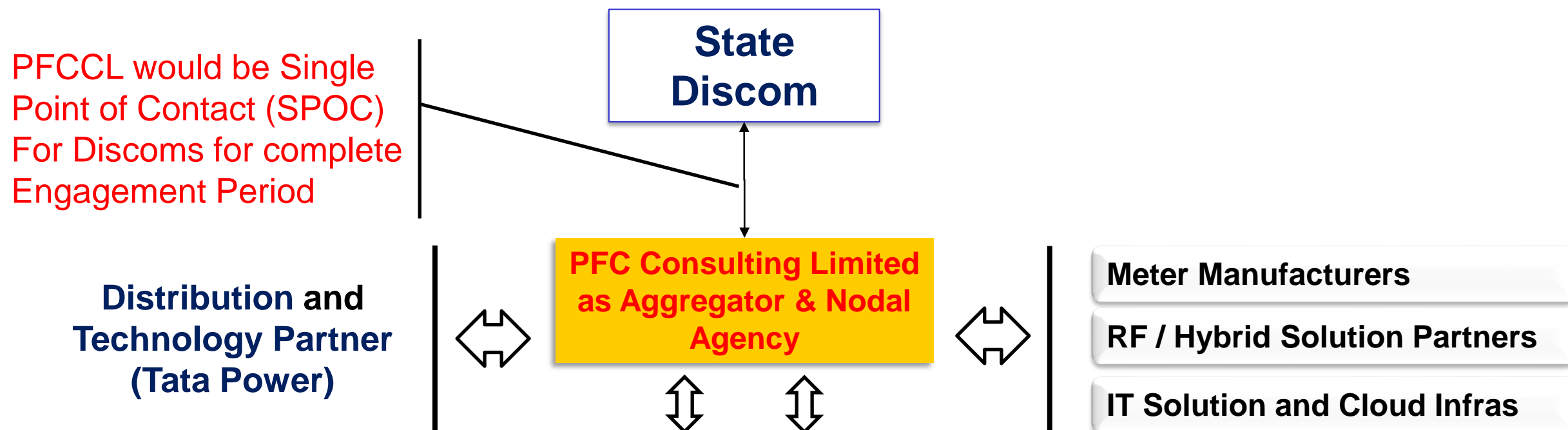
1. **PFCCL as an Aggregator would be the Nodal Agency for Smart Metering Assignment to interact & coordinate with Discom(s) for all activities right from receipt of Lol till handover of the AMI System**
2. Would undertake all needful activities to appoint AMI-Solutions Partners (AMI-SPs) through transparent & open competitive bidding process with due consultation with Discom to procure:
 - a. Smart Meters **(with Pre-Paid Provision)** and AMI Communication System **(Hybrid)**
 - b. Back-End IT System on Cloud / On Premises (Servers, Storage, HES, MDM, etc.)
 - c. Any other procurement activity
3. Would integrate existing Discom applications of Billing & Revenue Collection Software etc with proposed IT System.
4. Capacity Building of Manpower Deployed by Discom(s) to independently run the applications
5. O&M of the complete system as per agreed Service Level Agreements (SLA)
6. Handover of the System to Discoms
7. Assistance in arrangement of funds for Discom's Contribution

PFCCL's Proposal on OPEX Model

1. PFCCL offers **Service Oriented OPEX Model** to State Discoms for mass rollout of smart metering in their discoms.
2. **In OPEX Model, Discoms to invest 20% of CAPEX (plus payment of PMA charges) to PFCCL** which can be arranged as per the following:
 - ☐ 60% Grant from PFC @ Rs 2000 per node for Smart Metering or 30% Grant from NSGM
 - ☐ Balance fund to be arranged by Discom through loan from PFC / FIs
3. **Remaining 80% of Capex (including the O&M Cost and Finance Charges)** would be recovered as Meter Rent on per meter per month basis.
4. All the material and associated services will be procured by PFCCL through Open tendering and Discoms would need to pay to PFCCL on Actual cost discovered.
5. Above is applicable for Smart Meters planned under IPDS Scheme and also for remaining R-APDRP towns, Smart Cities and other areas.

PFCCL's Proposal on OPEX Model (cont..)

PFCCL's end-to-end integrated services for Smart Metering

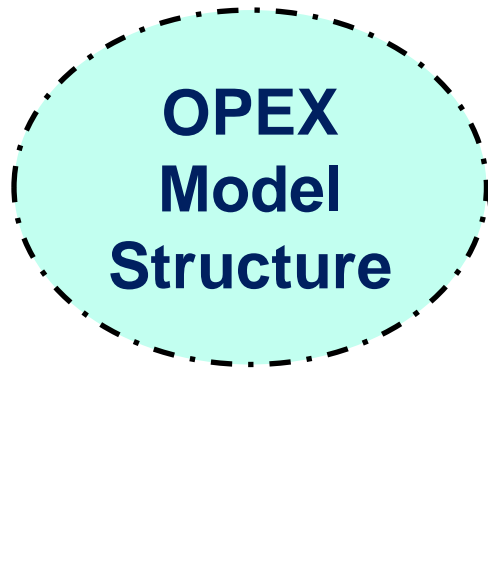


End to End AMI Services with 9 Years of engagement

OPEX BUSINESS MODEL (upto 20% CAPEX Investment by the Discoms)

Integration with Existing Billing and Other Applications And Capacity Building of Discom Staff

PFCCCL's Proposal on OPEX Model (cont..)



Implementation Phase

Discom to invest 20% of the project capital cost (net of PFC Grant) in Implementation phase on following milestones

1. Selection of AMI Solution Providers – 5%
2. Setup of IT Infras with MDM and Head End System and Integration with 5000 Smart meters – 5%
3. Installation and Commissioning of 50% of the selected consumer base – 5%
4. Operational Acceptance of the System – 5%

During O&M Phase

Balance Amount of the Project is to be paid by Discom during the O&M Phase in the form of Meter Rent. Meter Rent shall comprise of

1. 80% of the Project Capex Amount
2. Finance Charges on the Capex Amount (9% per annum)
3. O&M and FMS Charges

Estimated Meter Rent is Rs. 68/- Per consumer Per Month (Taxes Extra)

Estimated Capex for 10 Lakh Meters will be Rs. 340 Crores (Based on recent market price of Rs. 3399 per AMI Node (Taxes extra))

PFCCCL will procure the material and associated services through Open Tendering and will charge the CAPEX and FMS Charges Amount from the Discoms on actual price discovered.

Business Proposal – Assumptions

PARTICULARS	ASSUMPTIONS
Total No. of Consumers	10 Lakh
AMI Implementation period	2 Years
O&M Period	7 years + extendable for another 2 years (on mutually agreed terms)
Capital Expenditure (CAPEX)	<p><input type="checkbox"/> <u>Components of CAPEX: (Rs 3399 per AMI Node (Taxes extra)).</u></p> <ul style="list-style-type: none"> a) Smart Meter Cost b) IT Infrastructure (with ATS of MDM and HES for 7 Years) Cost c) AMI network Cost d) Commissioning and System Integration Cost (15% of above three elements)
Facility Management Services Cost Components	<p><input type="checkbox"/> <u>Components of the FMS Fees are as follows</u></p> <ul style="list-style-type: none"> a) Cloud Infrastructure Fees b) GPRS (10%-15% consumers) & Internet c) Hardware, System Software and Application Software Maintenance Fees d) Post Implementation System Maintenance Fees and warranty support

OPEX Model Financial - Illustration

S.No	Particulars	Value
1	No. of Consumers (Base Year)	10 Lakh
2	Total Estimated CAPEX #	Rs. 340 Cr
3	Project Funding by Discom	Rs 68 Cr (20%)
4	Project Funding by PFCCL & Solution Partners	Rs. 272 Cr (80%)
5	Finance Charges (@ 9% per annum)	Rs. 188 Cr
6	Total Estimated O&M Cost (for 7 Years)	Rs. 132 Cr
7	Total Project Cost to DISCOM payable to PFCCL (including Finance Charges)	Rs. 660 Cr
8	Meter Rent / Consumer (based on item 4, 5 & 6)	Rs. 68 per Month

Considering 90% Single Phase, 8% Three Phase and 2% LT-CT meters

Exclusive of PFCCL Project Development fees and applicable taxes

* Above mentioned estimate are based on recent prices discovered in the market, however PFCCL will charge the CAPEX and OPEX charges from discom on actual price discovered through open tendering

PFCCL's Project Development fees shall be 2% - 2.5% of Project Capex Amount per Annum based on Region Profile and Volume

Service Level Agreement







99% System Uptime

Improvement in Billing Efficiency as per Mutual Agreement based on area profile



Consumer

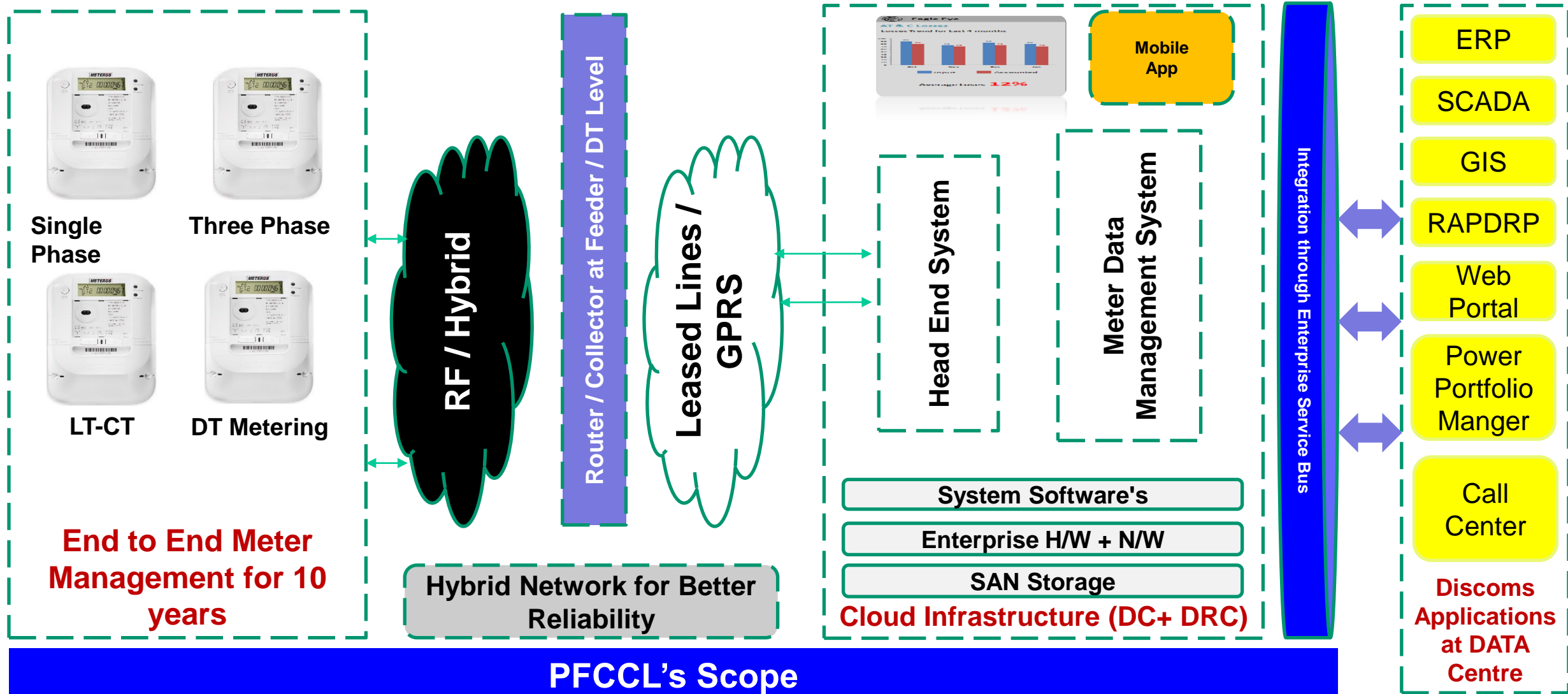




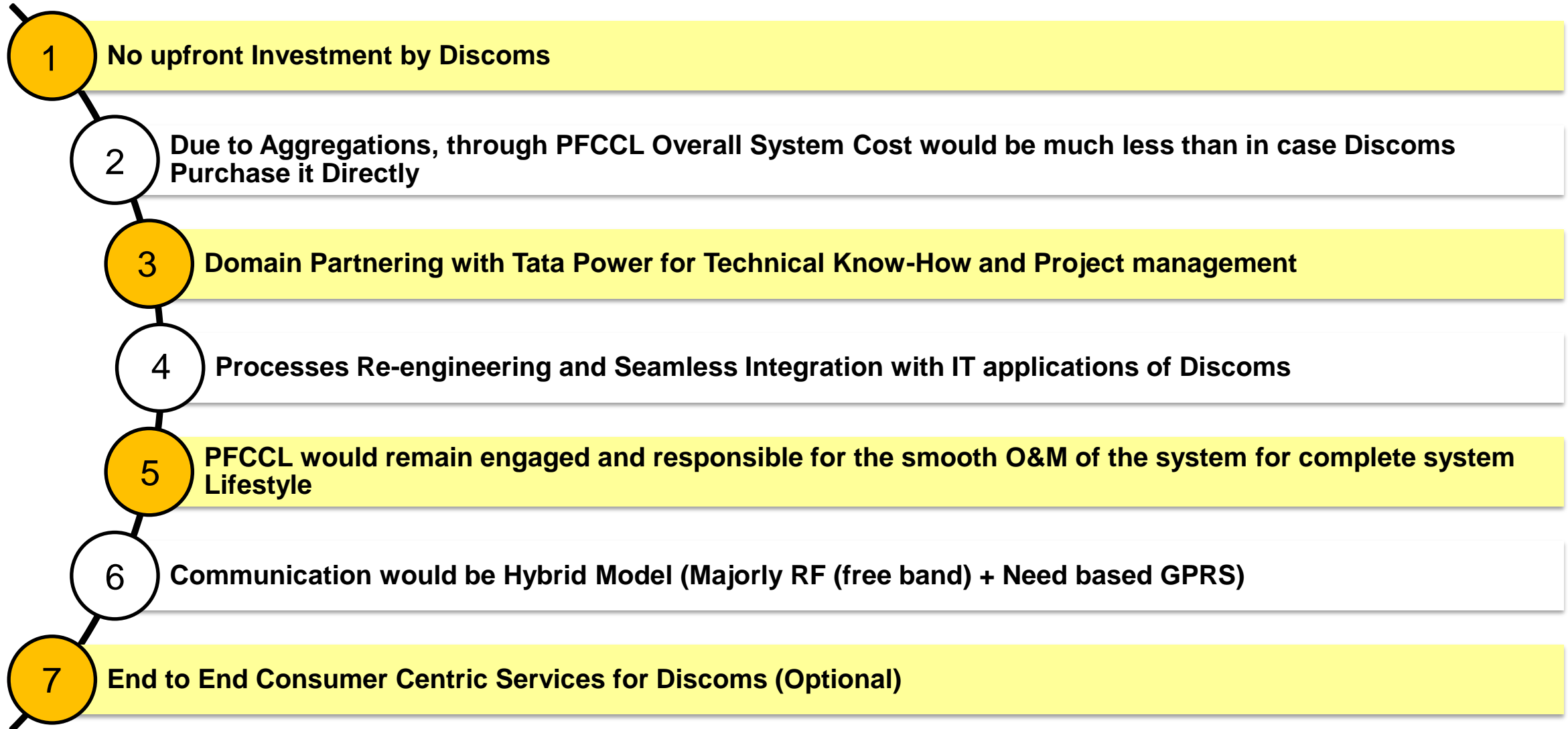
Consumer Care Services



Technical Architecture



PFCCL's Advantage as Aggregator



Way Forward

State Discoms are recommended to target the Smart Cities, R-APDRP Towns and IPDS towns for smart metering in first phase that normally covers only 25%-35% of state consumer population.

1

Discoms to provide the Target Areas Details

2

PFCCL will submit Business Proposal in one week

3

Discom to engage the PFCCL as PIA on Nomination basis

4

PFCCL will aggregate requirement of Smart Meters

THANK YOU

For queries or detailed presentation, state discoms can contact / write to

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