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# **Roll-out models**

## **With POWER NET Optic Fibres**

31 August 2015

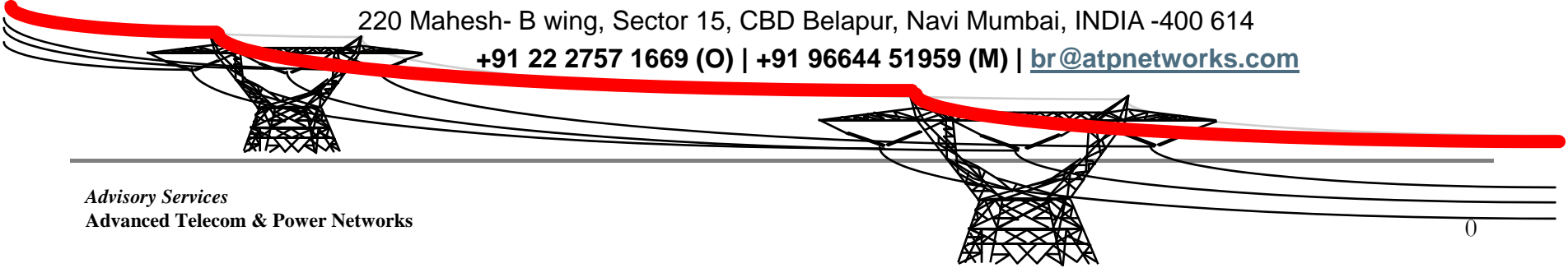
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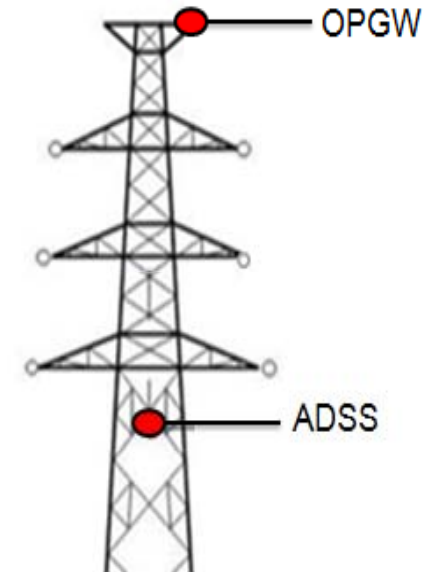
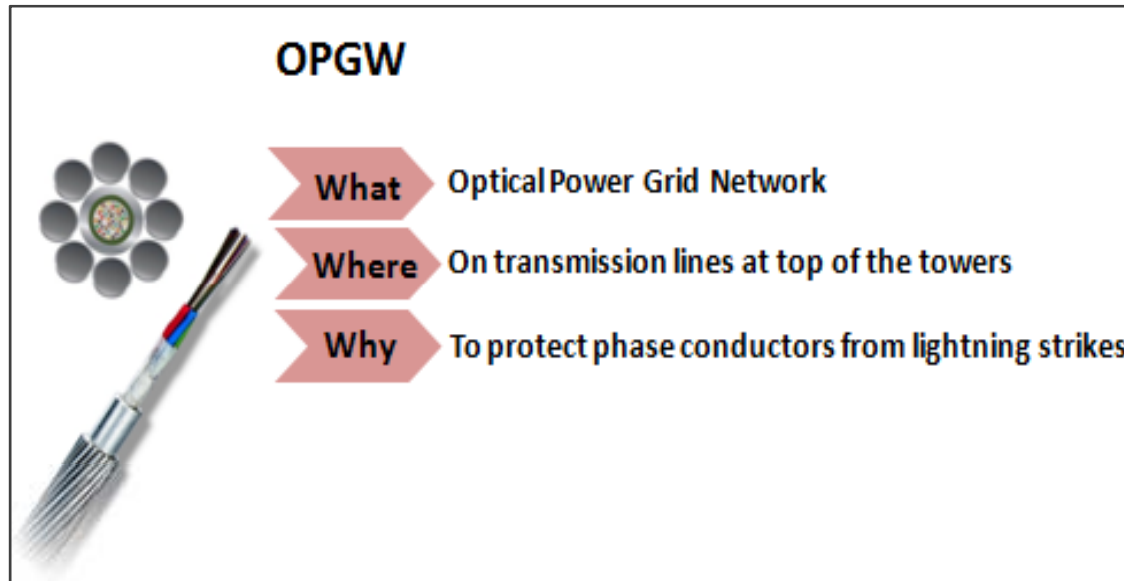
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# Agenda

- **Proposed OPGW / ADSS network**
- Technology overview
- Indian scenario
  - Case studies
- Challenges
- Cost-benefit analysis
- Way Forward

**Process Innovation with Three pronged approach for Fibre Roll-out  
Time to market | Financing | Implementation**

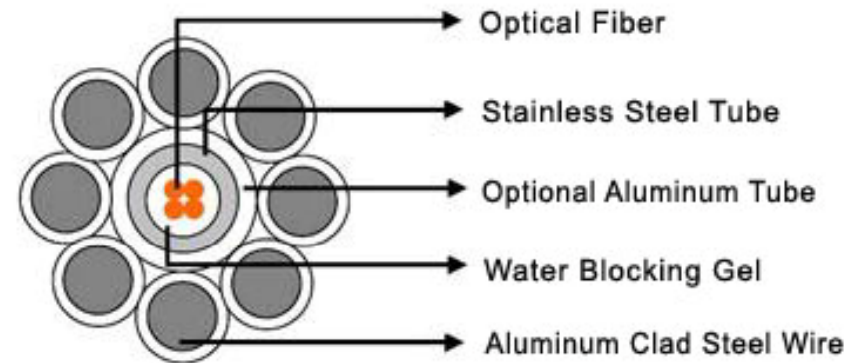
# Power Net architecture



- **OPGW cable** proposed on EHV lines of 132 KV or higher, very high reliability and less Repair & Maintenance cost;
- **ADSS cable** proposed on LT lines, high fibre count, light weight, less expensive and more suited on intra-city short routes.

# OPGW - Optical Fiber Composite Overhead Ground Wire

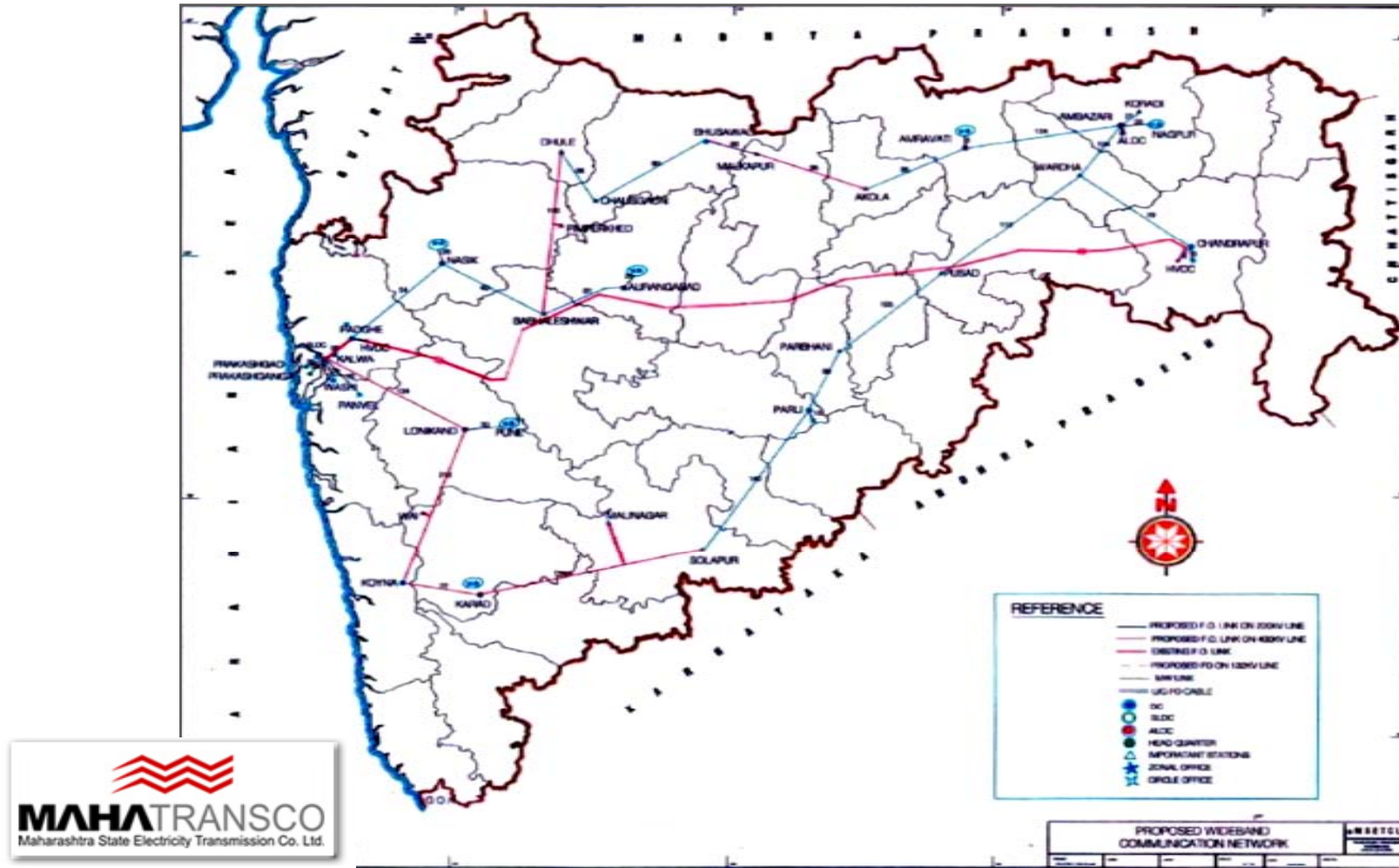
- Conventionally used in the construction of electric power transmission and distribution lines.
- It combines the functions of **Grounding** and **Communications**.
- The OPGW cable is run between the tops of high-voltage electricity pylons.
- It can be installed in live line conditions (without outages).
- Considered to be more safe and requires less R&M



Central Loose Tube Type

# INTEGRATED POWER & TELECOM

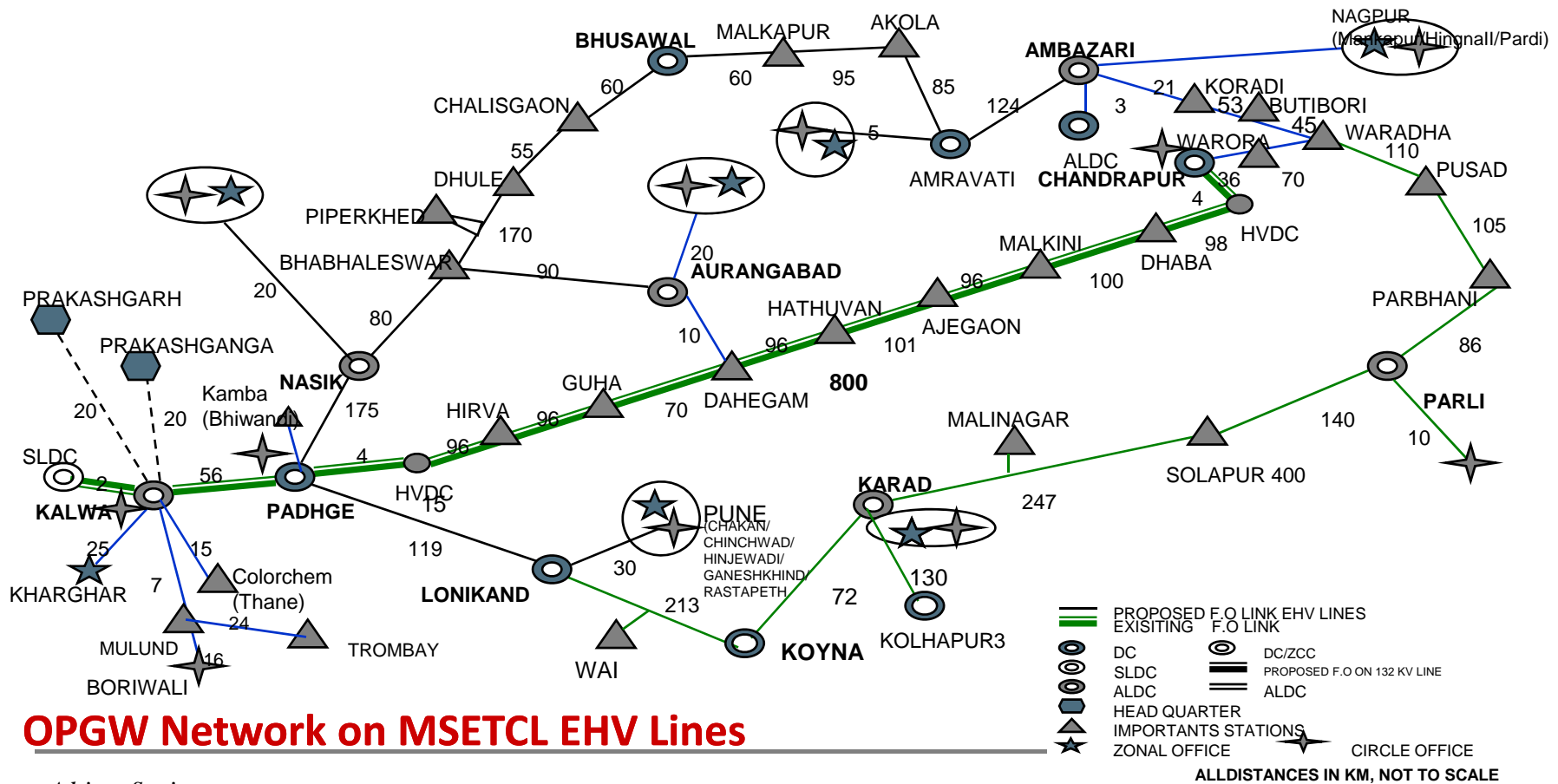
## Case Study: MSETCL OPGW network



# PPP model through Joint Venture Co:

1. Installation of 48 Fibres, OPGW Cable - **2801 Kms**, in 3 phases
2. Installation of SDH & MUX Equipments
3. Installation of Network Management System

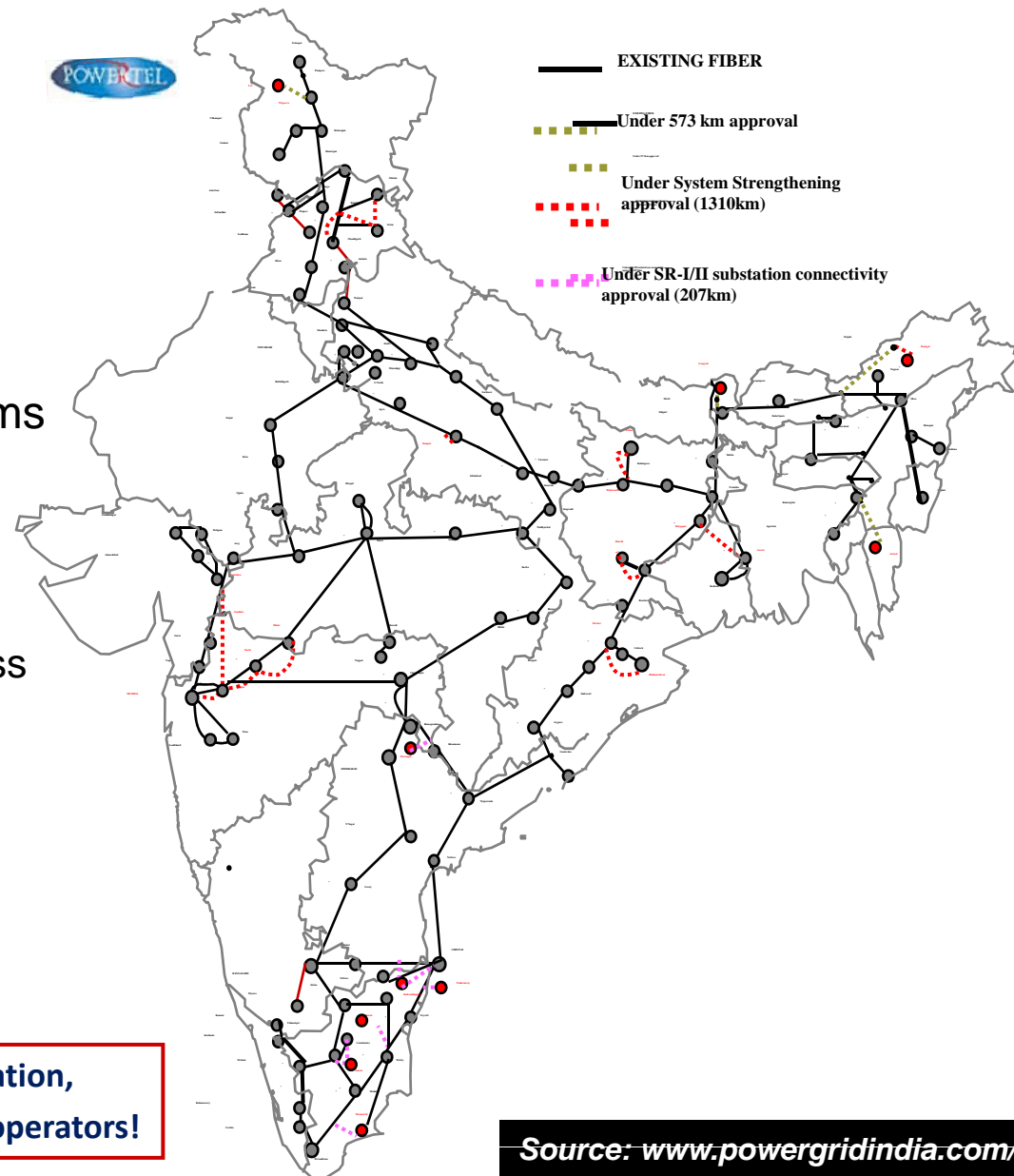
**Estimated cost: Rs 165 Crores, completion time 2 years**



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# Case study: Powertel - PGCIL

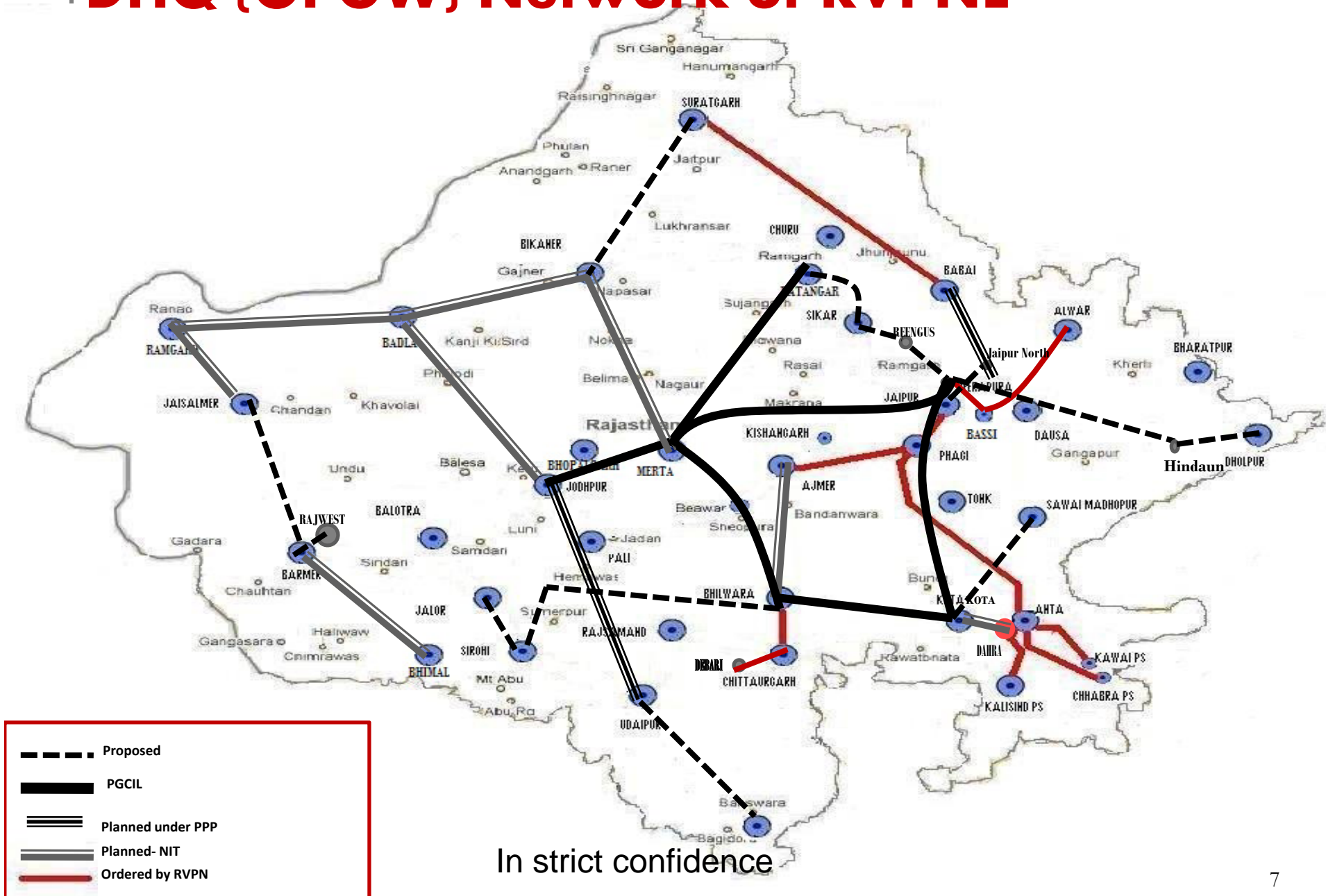
- Countrywide network ~25,000 kms
  - OPGW >15,000 kms
- Availability >99%
- Utility network
  - Operational with Last mile access



**Apart from fast & reliable grid communication,  
also becoming a preferred choice of telecom operators!**



# DHQ (OPGW) Network of RVPNL

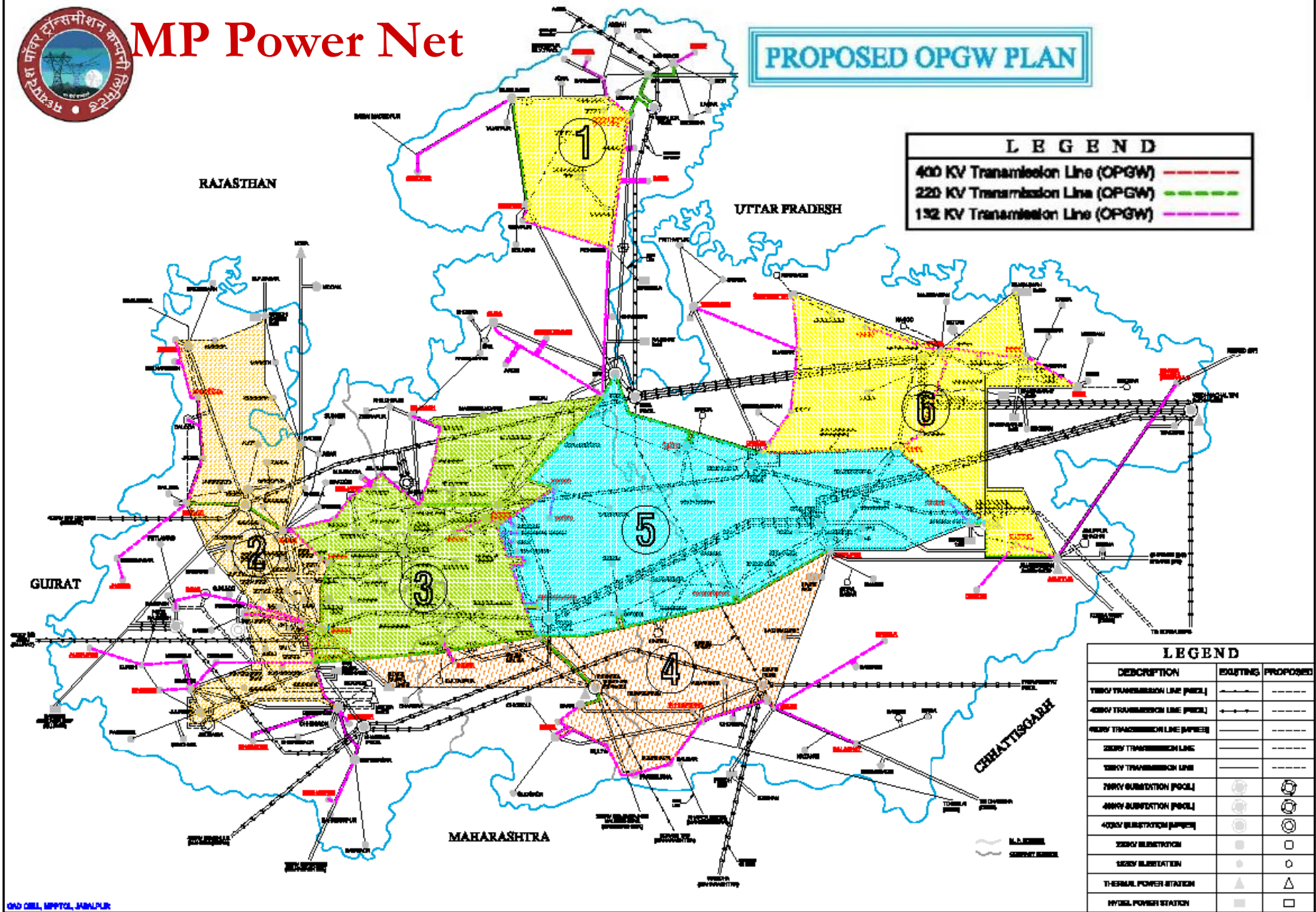




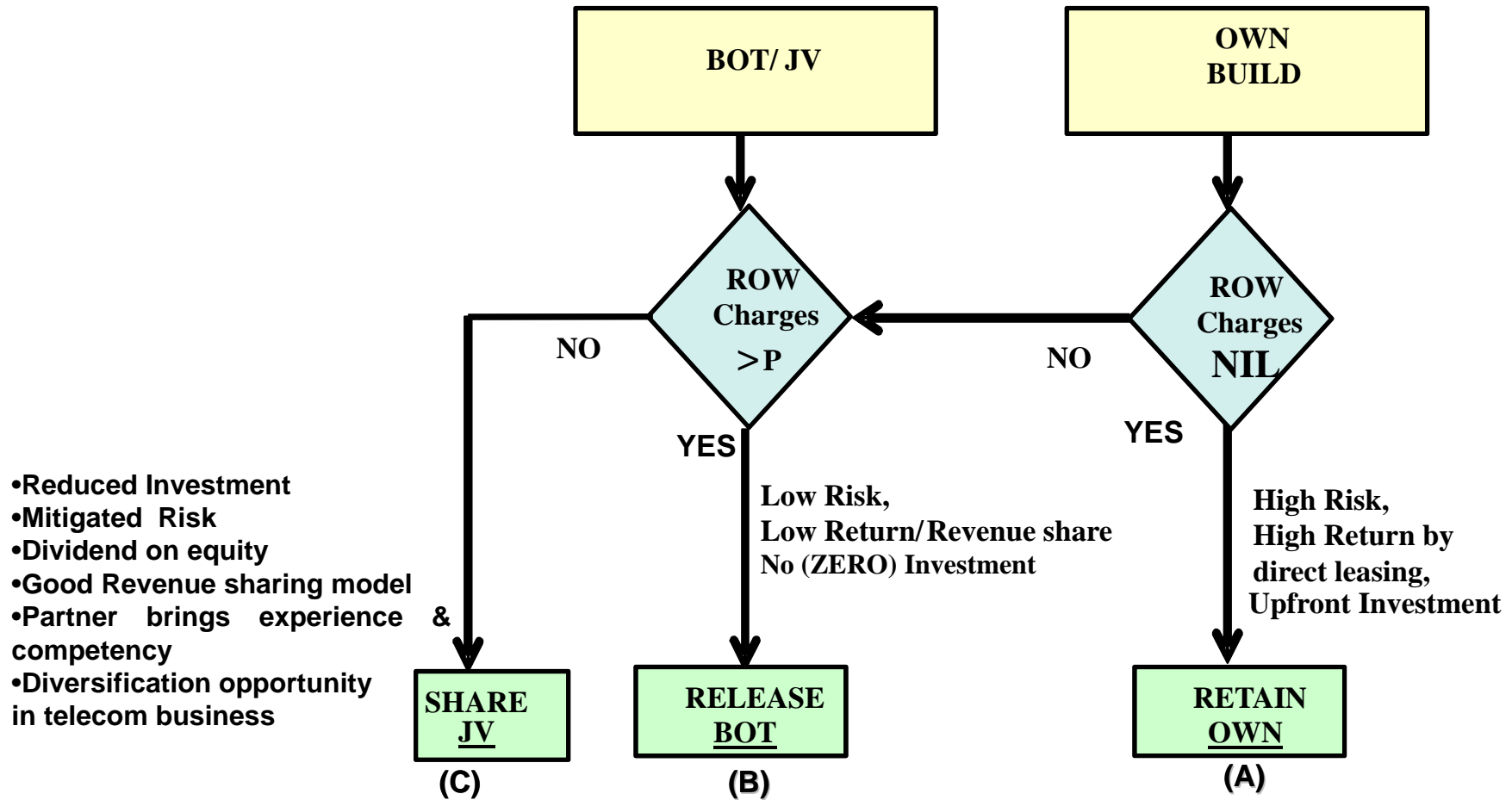


# MP Power Net

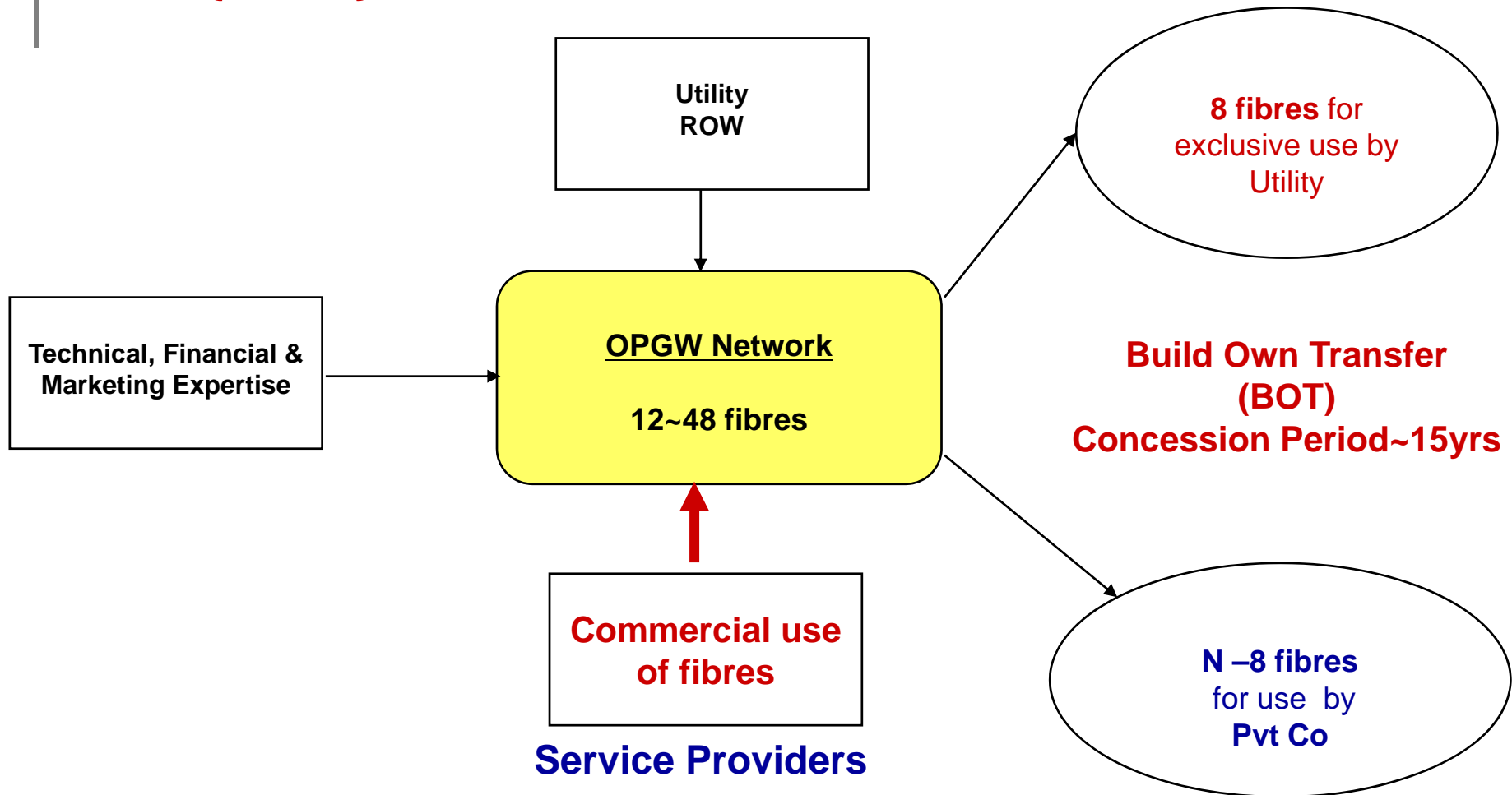
## PROPOSED OPGW PLAN



# ROW options for Roll out

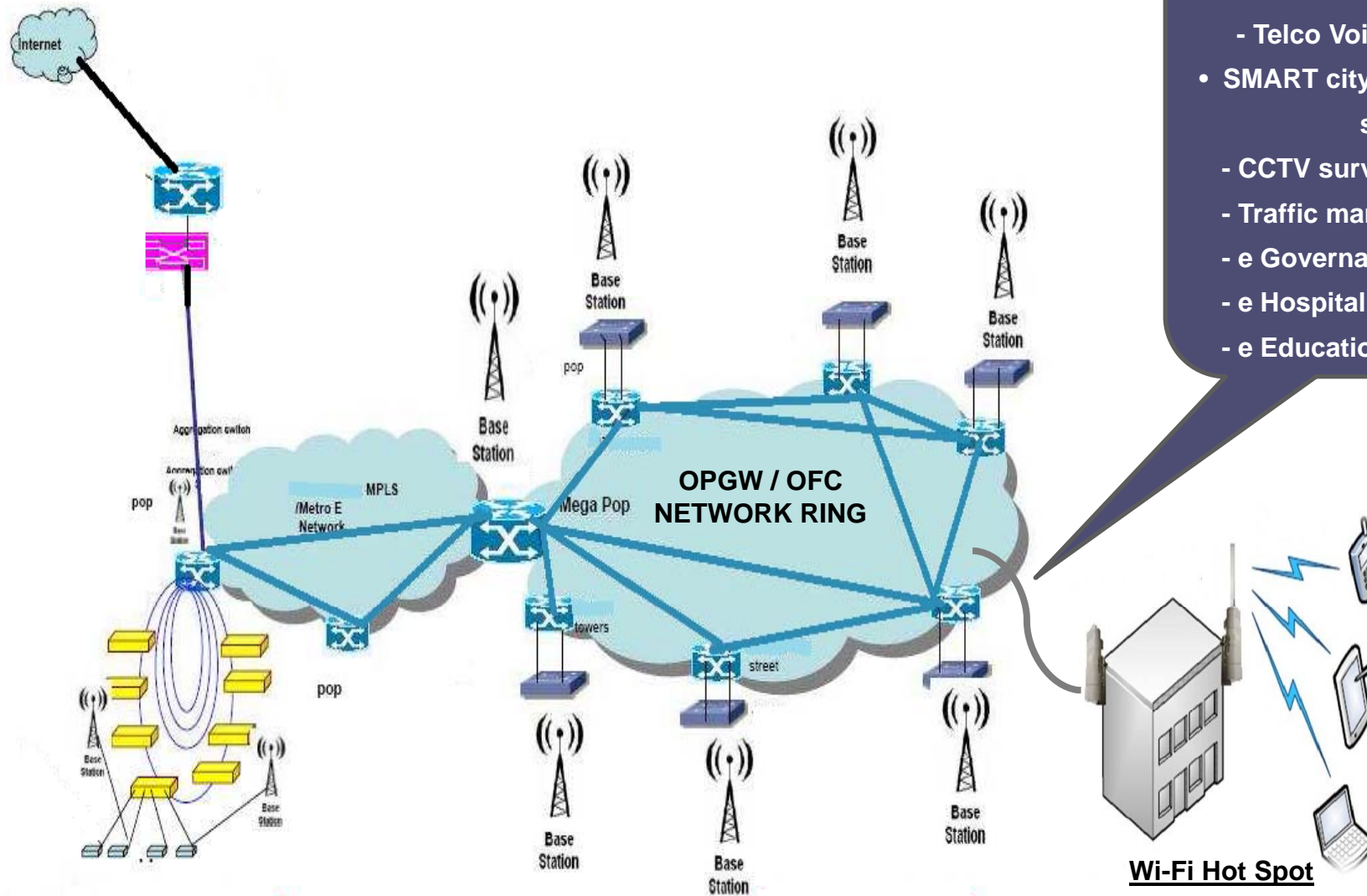


# BOT (PPP) model



## Model for OPGW / ADSS fibre sharing

# Implementation plan



## Network Synergy

- Wi-Fi Network
- 2G / 3G /4G /5G
  - Telco Voice & Data
- SMART city & Public services
  - CCTV surveillance
  - Traffic management
  - e Governance
  - e Hospital
  - e Education

# Challenges

- i. **ROW** -/ BOT model to unlock & monetizing
- ii. **Last mile access** -/ using fibre & microwave
- iii. **Public inconvenience** -/ reduced
- iv. **Complexity in Design & Erection** -/ simplified
- v. **High Availability** -/ much higher  
(Telecom networks require >99.9% availability)
- vi. **Customer Support & Service Delivery** -/ scope of service providers

**Three pronged approach: Time to market, Financing & Roll out !**

# Cost Benefit Analysis

Investment of Rs 200 Cr for typical 3000 Km optic fibre network in a state,

- Network overlays electricity lines, connects all districts and major talukas.
- Technically can have deeper penetration to Gram Panchayats, Govt & e-Seva centres
  - i. CAPEX on backbone network reduced
  - ii. BOT/ JV model for implementation – no cost on ex-chequer
  - iii. Additional revenue by ROW charges and leasing of spare fibres
  - iv. Utility company gets fibres for tele-protection /grid-communication
    - ❑ Remaining ~40 fibres available for Wi-Fi project
    - ❑ Sharing of Equipment (SDH, MUX, NMS) cost
  - v. Roll out tied up with technical & commercial obligations
  - vi. Pure play partners, third party selection through competitive bidding
  - vii. Maximising use of available infrastructure

## Benefits to Govt/ Utility company

- ❑ NO Project cost borne by utility
- ❑ Technology up-gradation for Tele-protection, SCADA communication, voice & data
- ❑ Fast Rollout
- ❑ Fibers available to utility for exclusive internal use
- ❑ No equipment cost borne by utility. Future expansion very cost effective
- ❑ No Govt assets shared with private parties, ownership of existing assets remains with the utility

# Conclusion & Way forward

**Collaborative model requiring tie-up / assurances for  
[i] funding, against [ii] buyback of fibres for Time bound rollout**

## **Holistic approach required**

- **Overall telecom development with focus on infrastructure & backbone**
  - Revenue generation possibilities
  - Internal requirement of utility companies
- **BOT model using public-private partnership**
- **Opportunity to monetise assets & infrastructure**
- **Revenue generation through ROW charges & leasing of fibres**
- **Speed to market**
- **Long term development**

**Expert team available with experience of similar projects**

**SYNERGY !! With fibre rollout, other projects can be kick started  
CCTV surveillance, Traffic management, e Governance, e Hospital, e Education, etc.**



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**Thank you**

**Bhoopesh Raghav**

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