



# Diversifying Power in Paradise :

Attempts to restructure Power Dependencies in Kashmir Valley

**Yasin M. Choudhary, IAS**

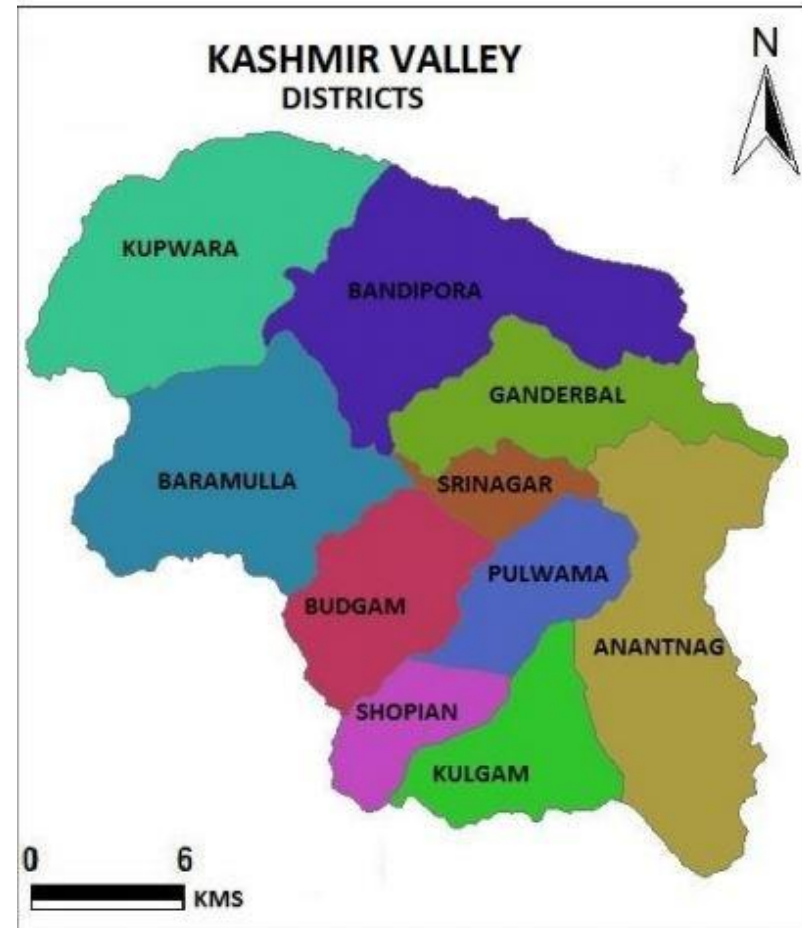
Managing Director,

Kashmir Power Distribution Corporation Ltd. (KPDCL)

# Kashmir's Distribution Scenario : An Overview



|   |             |
|---|-------------|
| Districts                               | 10          |
| Circles                                 | 6           |
| Divisions                               | 19          |
| Sub-Divisions                           | 69          |
| Total No of Consumers                   | 12,43, 199  |
| Total Connected Load (As on 31.03.2021) | 1,601.22 MW |
| Per Capita Consumptions (FY 21-22)      | 1,384 kWh   |
| Peak Demand (Nov 2022)                  | 1,820.0 MW  |
| AT & C Loss (FY 21-22)                  | 69.84%      |
| ACS-ARR Gap ( FY 21-22)                 | 3.82        |
| Average Hours Supply (Rural) [FY 21-22] | 18.08       |
| Average Hours Supply (Urban) [FY 21-22] | 21.48       |



# Existing Infra of KPDCL (As on 31.03.2021)

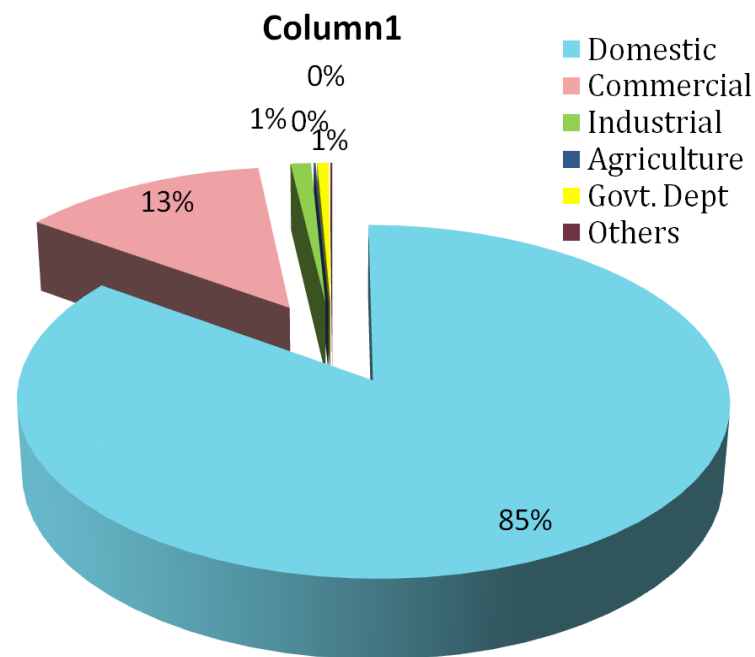


| <b>Descriptions</b>      | <b>Unit</b> | <b>Quantity</b> |
|--------------------------|-------------|-----------------|
| 33/11 KV Sub-Station     | No.         | 303             |
| 33 KV Feeder             | No.         | 117             |
| 11 KV Feeder             | No.         | 1,061           |
| Distribution Transformer | No.         | 39,883          |
| HVDS DT                  | No          | 721             |
| HT Line Length           | Ckt-Km      | 15,903.23       |
| LT Line Length           | Ckt-Km      | 41,615.79       |
| Metered Consumer         | No.         | 3,40,958        |



# Consumer breakup

| Category         | Quantity         | Connected Load (MW) |
|------------------|------------------|---------------------|
| Domestic         | 8,85,747         | 879.41              |
| Commercial       | 1,37,669         | 242.07              |
| Industrial       | 11,375           | 224.03              |
| Agriculture      | 997              | 53.89               |
| Govt. Department | 6,392            | 39.4                |
| Others           | 1,019            | 162.42              |
| <b>Total</b>     | <b>12,43,199</b> | <b>1,601.22</b>     |

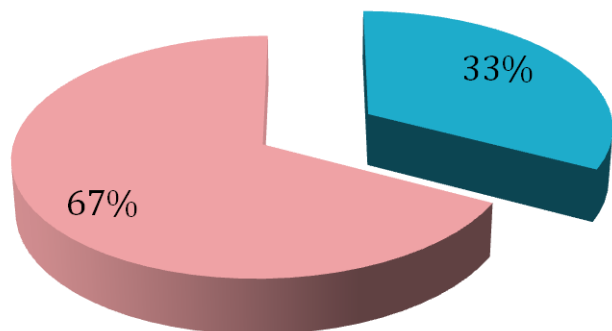




# Metering Status

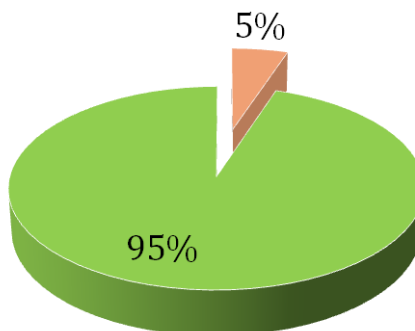
## Consumer

■ Metered ■ Un Metered



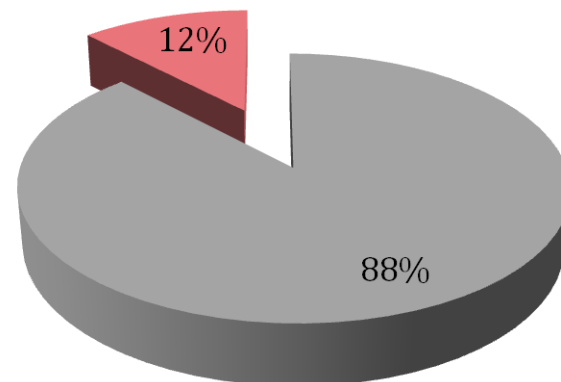
## DT

■ Metered ■ Un Metered



## Feeder

■ Metered ■ Un Metered



Prepared By: Medhaj Techno Concept Pvt. Ltd., PMA RDSS-KPDCL

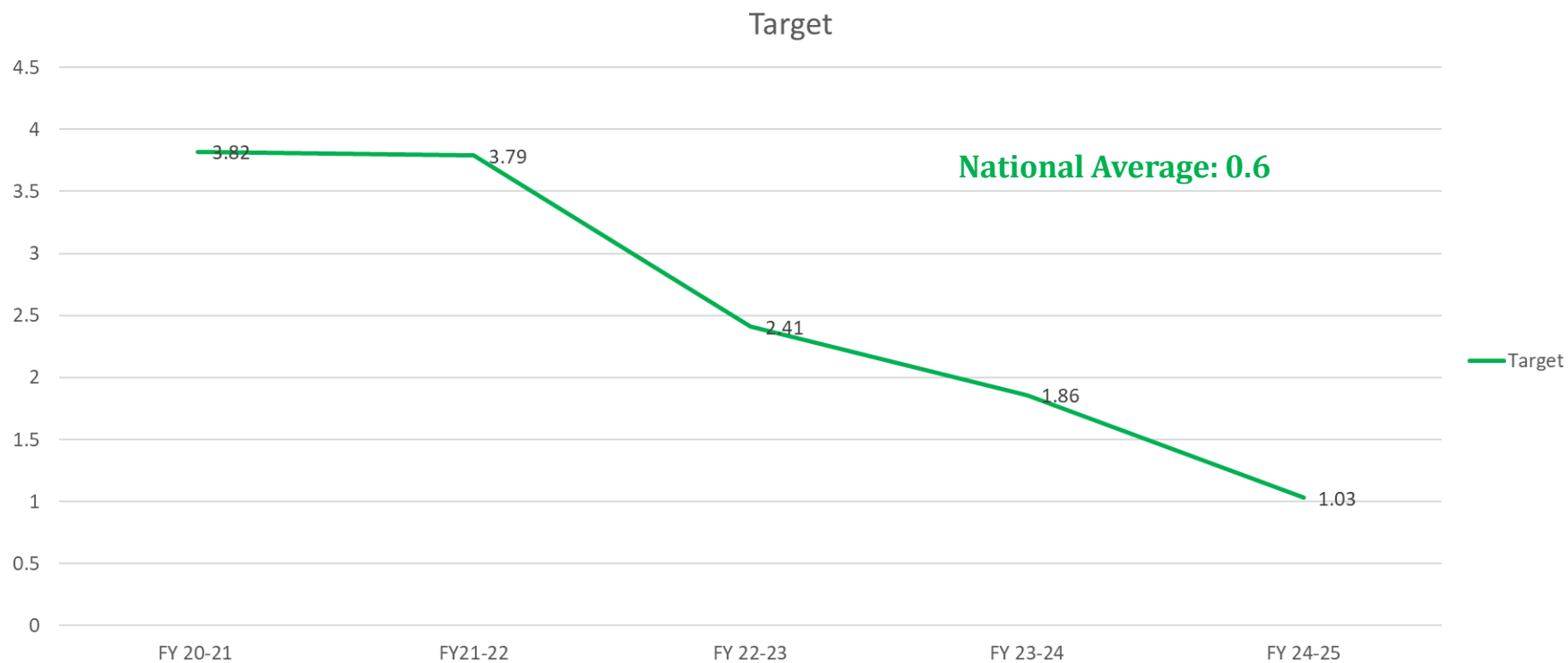
# Operational & Financial Overview



| Description                                     | FY 2019 | FY 2020 | FY 2021  |
|---|---------|---------|----------|
| Gross Power Purchase (MU)                       | 9185.72 | 9879.17 | 10455.04 |
| Billing Efficiency (%)                          | 33.68%  | 34.05%  | 41.03%   |
| Collection Efficiency (%)                       | 100%    | 88.56%  | 93.12%   |
| AT&C Losses (%)                                 | 66.32%  | 69.84%  | 65.58%   |
| ACS (Avg. cost of Supply) Rs./unit              | 4.85    | 5.13    | 4.49     |
| ARR(Avg. Revenue Realized) Rs./KWh              | 1.77    | 1.31    | 1.32     |
| ACS- ARR Gap (Subsidy Received Basis) (Rs./kwh) | 3.08    | 3.82    | 3.17     |
| Power Purchase Cost /unit (In Paisa)            | 4.60    | 4.46    | 3.62     |
| PAT (Subsidy Received Basis) (Rs./ Cr)          | 2581.65 | 3774.54 | -        |

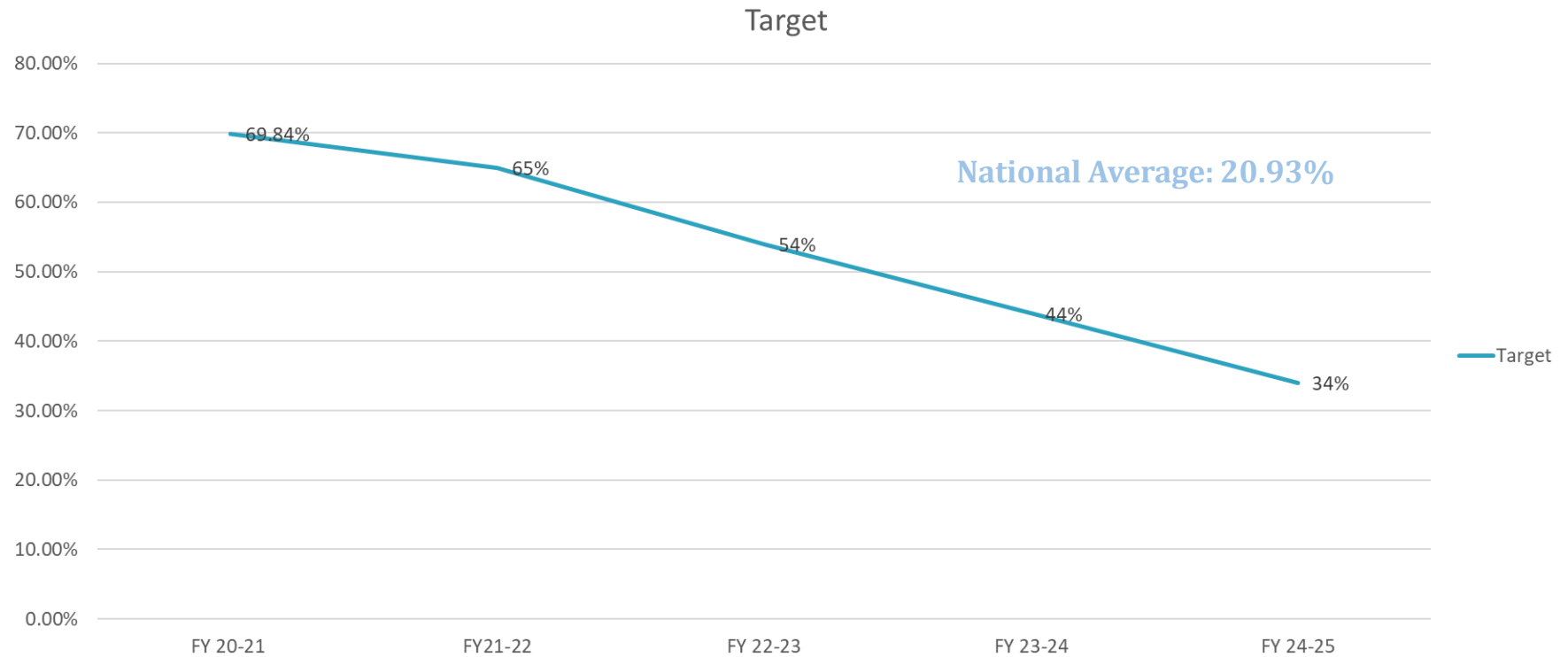


# ACS –ARR Gap Trajectory-KPDCL





# AT&C Loss Trajectory-KPDCL





# Root Cause Analysis



## Issues leading to ACS-ARR Gap

- High AT& C Loss
- High Power Purchase Cost
- Delay in Regulatory Filing
- Subsidy Overdue

## Issues leading to AT&C Loss

- Long Feeders
- LT & HT Ratio
- Overloaded DTs
- DT Failure Rate
- Excess of unmetered consumer
- Low Billing Efficiency
- Defective Meters
- Power Theft
- Average, Manual Billing & Errorness of Billing
- Delay in Replacement of Defective Meters



# Heating Load : The unaddressed issue

- Rapid economic development – Abandoning of fuelwood
- Changing lifestyle – Shift from communal living
- Ujjwala scheme : Impact of Aadhar mapping
- No alternate sources like gas for heating
- Excessive use of nichrome coil heaters and crude boilers

**RESULT :** Extremely high DT Damage rate (6%) because of intense overloading – Strong need for having alternate load sharing localized generation sources

# RE in UT of J&K



**5000 Solar agricultural Pumps shall be installed under PM-KUSUM Scheme**



**17 MW Grid-tied Solar Power Plants installed under MNRE scheme powering houses and institutions**



**12 MW rooftop solar plants being installed at Government buildings under Smart City Project**



**2200 Govt. Schools Solarized across J&K with 8 MW Solar Plants (Hybrid).**



**43 Small Hydro Plants to be implemented with a cumulative capacity of 250 MW**



**4 SHP's of cumulative capacity of 15.75 MW commissioned & 4 SHP's with cumulative capacity of 22 MW to be commissioned by 2023-24.**



**220 MW Solar Rooftops under MNRE Scheme to power around 55000 houses**



**57,000 Solar Street Lights installed.**



**ASPIRING TOWARDS 2000 MW RENEWABLE ENERGY IN J&K BY 15 AUG, 2030**



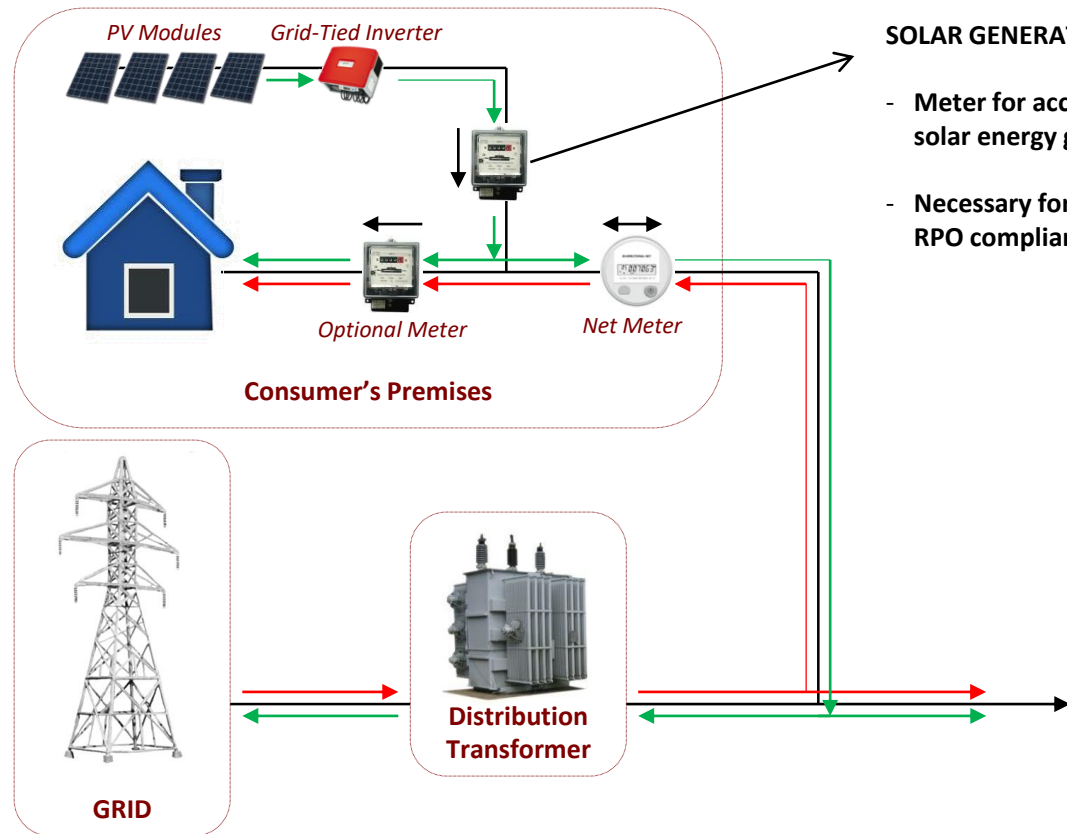
# Smart Meters as Net meters to facilitate Solar Rooftop

However uptake of Solar Rooftop has been poor :

1- Sharp escalation of rates because of high custom duty Making it unviable for consumers

2- Lack of enthusiastic response from vendors

3- Lack of consumer confidence



# Rooftop Solar Projects (Govt. Buildings)



Dept of Environment and Remote Sensing, Srinagar  
30kW



Raj Bhawan 83 kW



JK Tourism Dept. Corporation,  
Srinagar 150 kW



Govt. Degree College Women,  
Srinagar 300 kW



Women Polytechnic College,  
Bemina 100 kW



LD Hospital, Srinagar 200 kW

# RTSPP scheme for Residential sector under 20 MW sanction of MNRE



# Solar Pumps Installed under PM-KUSUM.









## Small Hydro – A disappointing non-starter

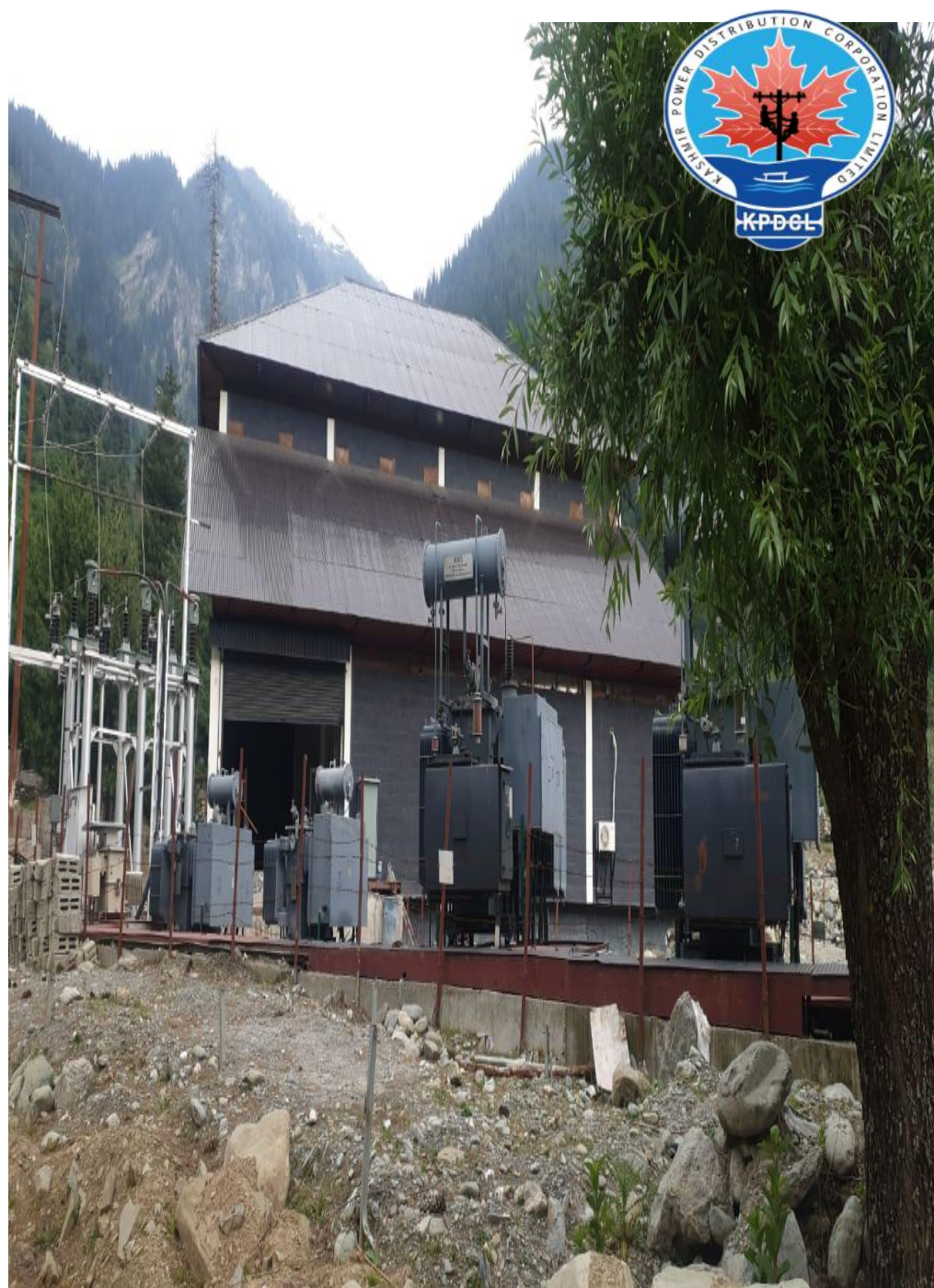
- 25 Hydro sites with aggregate capacity of 93.65 MW for development have been allotted through Independent Power Producers (IPP Mode). Four projects have been commissioned so far and one project is at the advanced stage of completion.
- We have proposed to develop 13 SHPs with a cumulative capacity of 98 MW in EPC Mode under PMDP at an estimated cost of Rs 980 crores.

| S.NO | Project Name | District  | Plant Capacity (MW) | Status                  |
|------|--------------|-----------|---------------------|-------------------------|
| 1.   | Bultikulan   | Ganderbal | 05                  | Commissioned            |
| 2.   | Ichoo        | Anantnag  | 05                  | Commissioned            |
| 3.   | Khari- I     | Ramban    | 3.75                | Commissioned            |
| 4.   | Rayil        | Ganderbal | 02                  | Commissioned            |
| 5.   | Batakulan    | Ganderbal | 05                  | Expected by March, 2023 |

# Khari SHP



# 5 MW MHP BULTIKULAN





## Small Hydro – A disappointing non-starter

- We have proposed to develop 13 SHPs with a cumulative capacity of 98 MW in EPC Mode under PMDP at an estimated cost of Rs 980 crores. Power purchase assured by KPDCL. But most are held up for lack of funding.
- 32 projects allotted through Independent Power Producers (IPP Mode). Four projects have been commissioned so far and one project is at the advanced stage of completion.

| S.NO | Project Name | District  | Plant Capacity (MW) | Status                  |
|------|--------------|-----------|---------------------|-------------------------|
| 1.   | Bultikulan   | Ganderbal | 05                  | Commissioned            |
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**KPDCL has offered an attractive purchase rate of Rs 4.65 Cr for Khari-I**



**Thank You**

[yasin.iit@gmail.com](mailto:yasin.iit@gmail.com)  
[mdkpdcl@gmail.com](mailto:mdkpdcl@gmail.com)