

Organizing Partner



India Smart Grid Forum

Host Utilities



Co-Host Utilities



**DISTRIBUTION  
UTILITY MEET  
DUM2022**

**SESSION – 1: ENERGY TRANSITION CHALLENGES TO DISCOMs**  
**17 NOVEMBER 2022 | 11:30 ~ 13:00 (IST)**

**KR Jyotilal, IAS**  
**Principal Secretary – Energy, Kerala**



## Increasing Share of RE

- Current Share (Installed Capacity) of RE **<39%**
  - Flexibility available with firm stations (Hydro including PSP & Thermal) and other auto response mechanisms are able to manage grid disturbance to great extent
- **Expected Share (IC) of RE by 2030** **≈ 59%**

## Hidden costs associated with RE

- Availability does not match with requirement
  - Solar not available during evening & morning peak hours
  - Small Hydro (other than run-of the river) not available in summer
  - Sudden fluctuations in Wind generation
- High voltage issues due to underloaded cables connecting RE stations to grid
- **Additional investment requirement to address infirm nature**
  - Need for Storage Systems
  - Secondary contracts to meet balancing power requirements
    - Additional Fixed Cost liability

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## Consumer to Prosumer – Challenge & Options

- Drain in Subsidising group
- Net metering – a Threat to Financial viability of utility
  - ❖ Gross Billing
  - ❖ Net Billing
  - ❖ Green Tariff
  - ❖ Banking Charges / Storage Charges



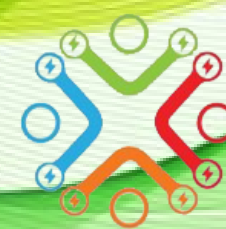
Need to build  
consensus  
among  
stakeholders

## Opportunities....

- H<sub>2</sub> & eMobility - Business Opportunities for DISCOMs
- Storage as a Service
  - Pumped Storage Systems, Battery Energy Storage System
    - Will require CFA in the initial stage
- H<sub>2</sub> as Energy Carrier
- Revenue generation utilising available RoW
  - 5G, ePRT

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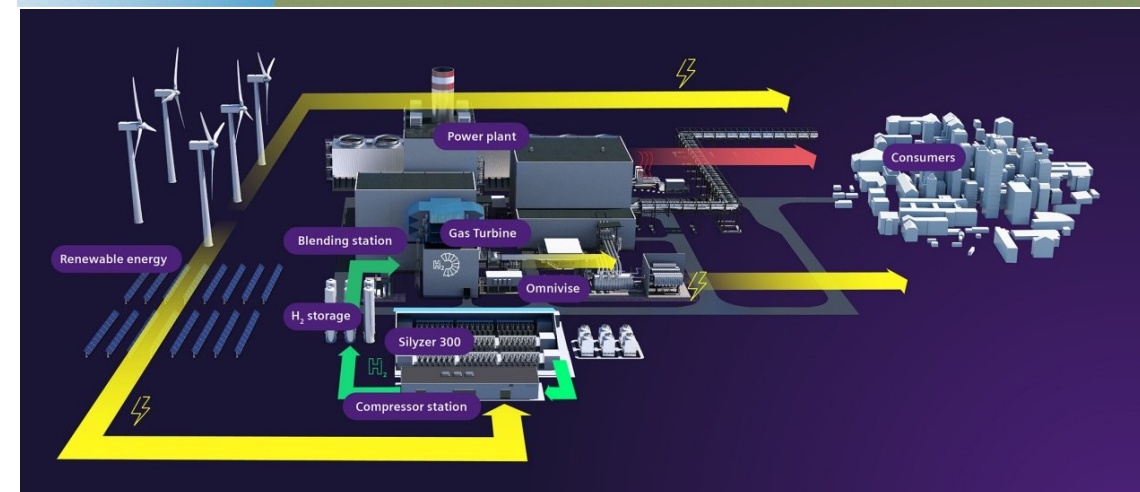
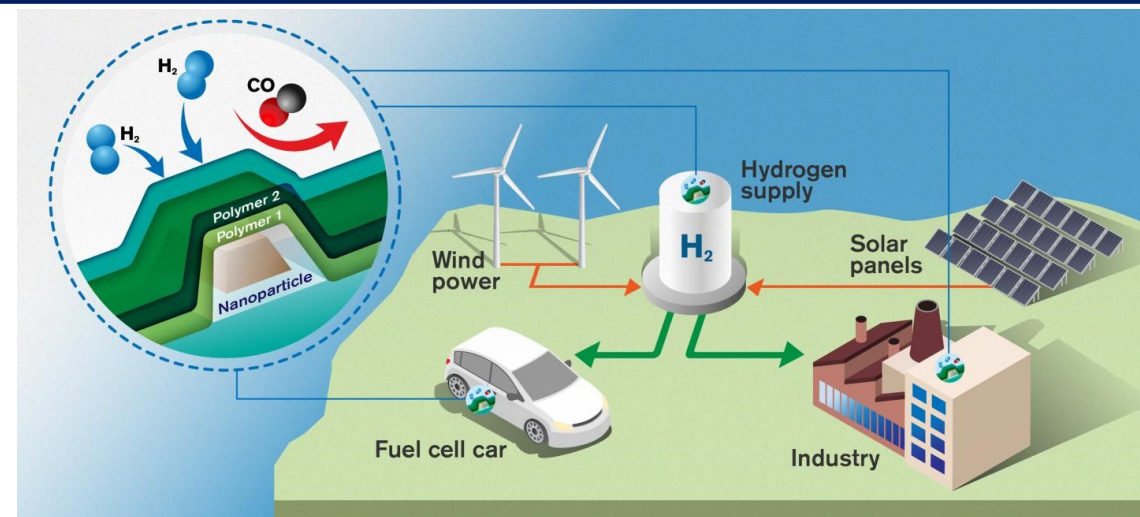




## H<sub>2</sub> - the Energy Carrier for tomorrow

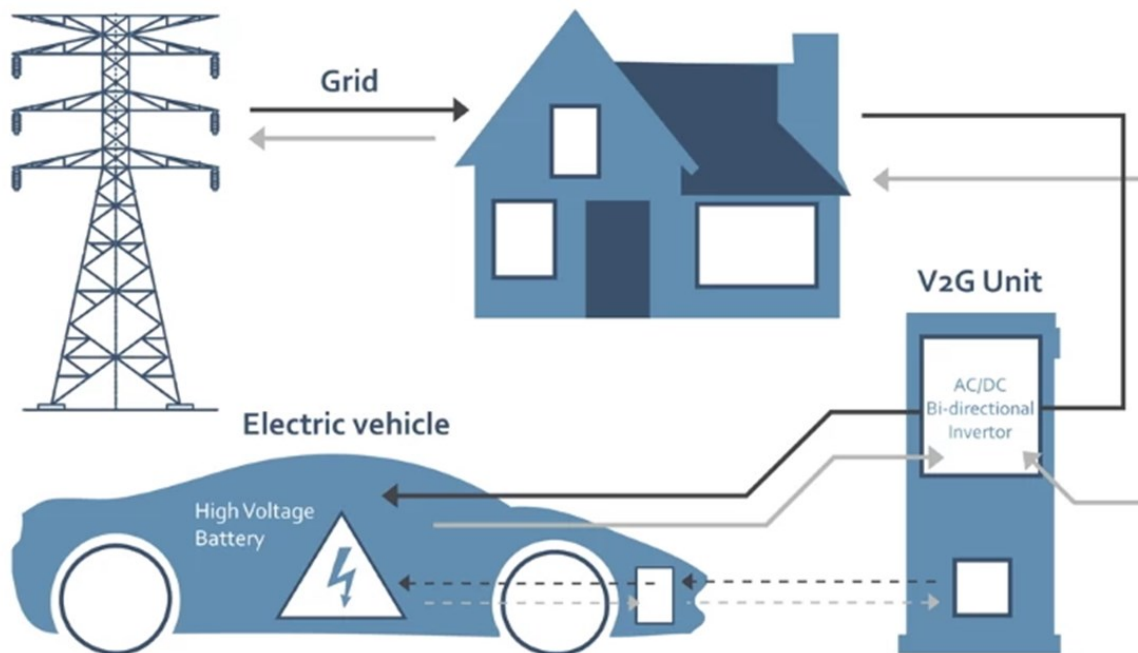


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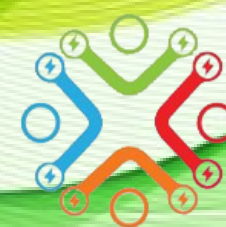


## eMobility & V2G with Smart Grid

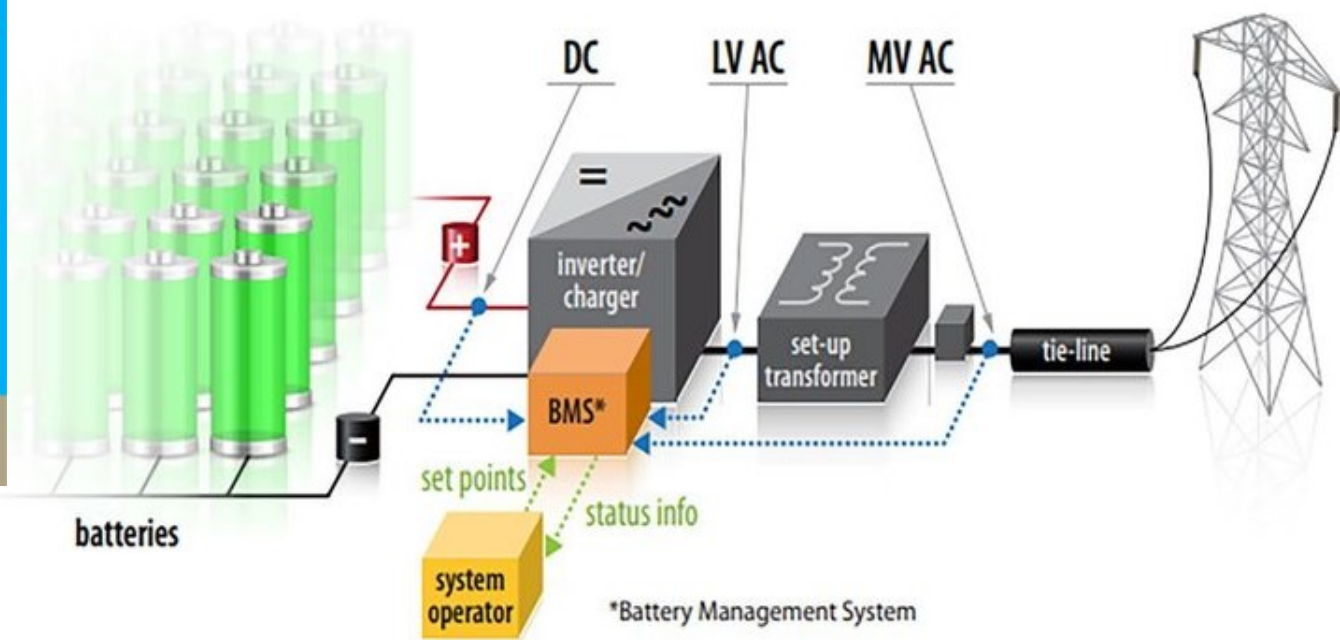
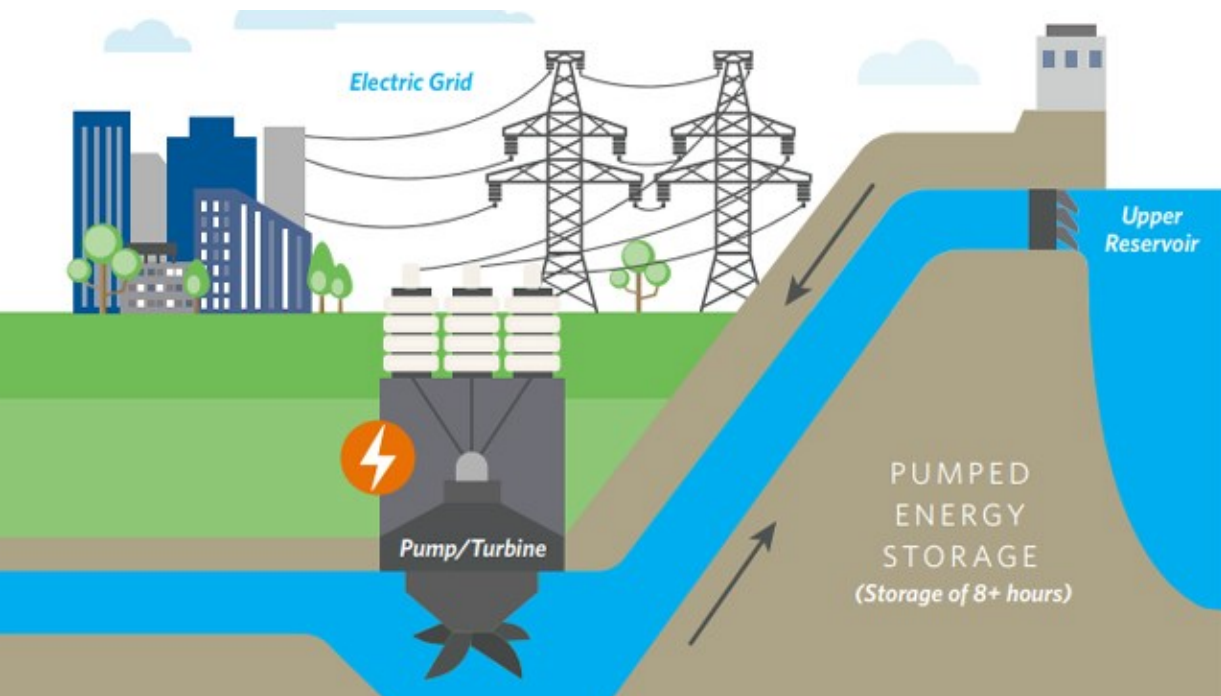
- Viewed as optimum solution for distributed grid storage
- V2G - Forms part of Smart-Grid



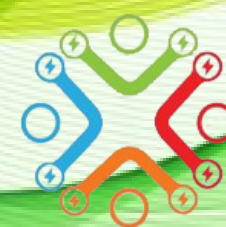
- Idling vehicle connected to a V2G unit / bidirectional inverter will go to charging cycle when energy charge in grid is low
- Vehicle battery can support grid during power shortage / energy cost is high
- Technology is still nascent



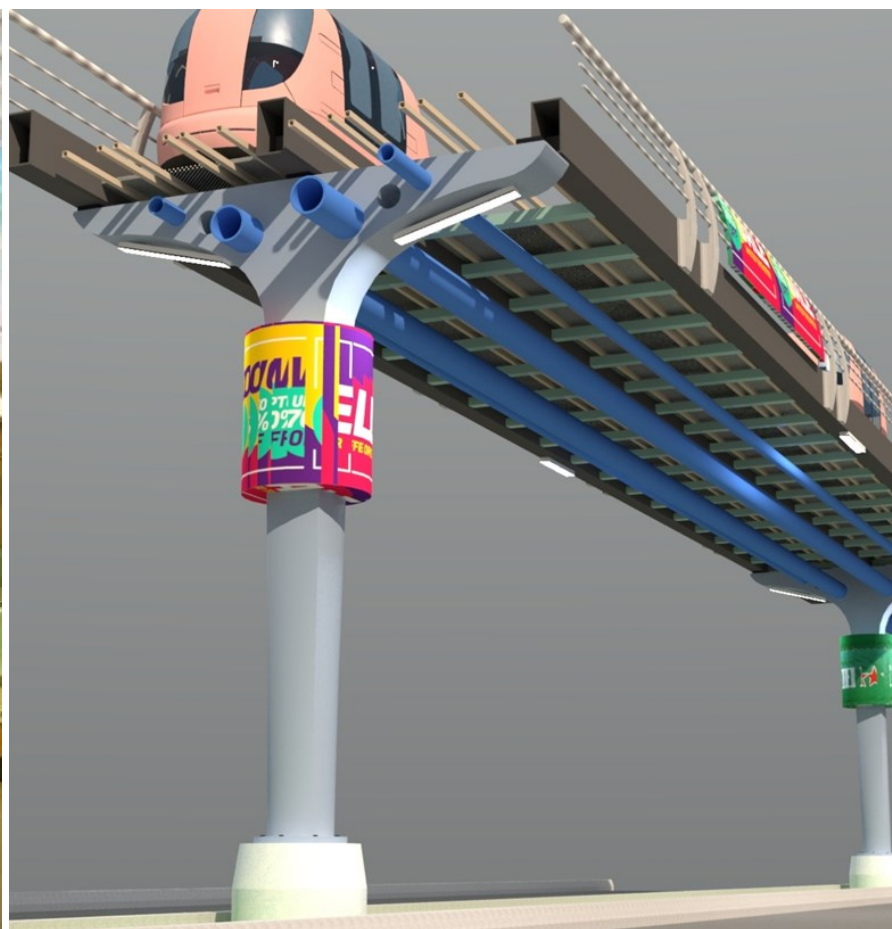
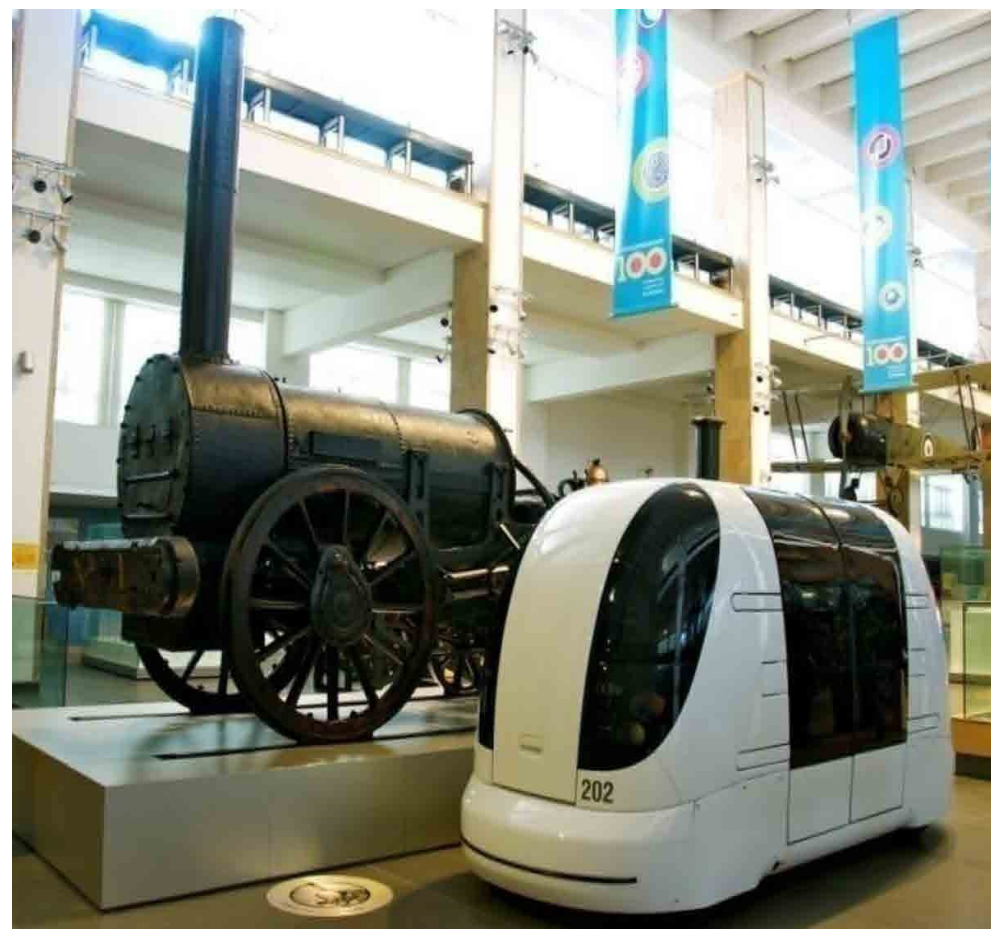
## Storage as a Service







## Effective utilisation of RoW – utilities including 5G, ePRT



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## Host Utilities



**TPCODL**  
TP CENTRAL ODISHA DISTRIBUTION LIMITED  
(A Tata Power and Odisha Government Joint Venture)



**TPNODL**  
TP NORTHERN ODISHA DISTRIBUTION LIMITED  
(A Tata Power and Odisha Government Joint Venture)

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## THANK YOU

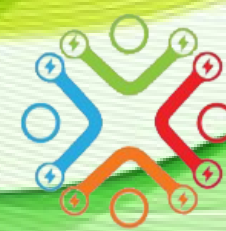
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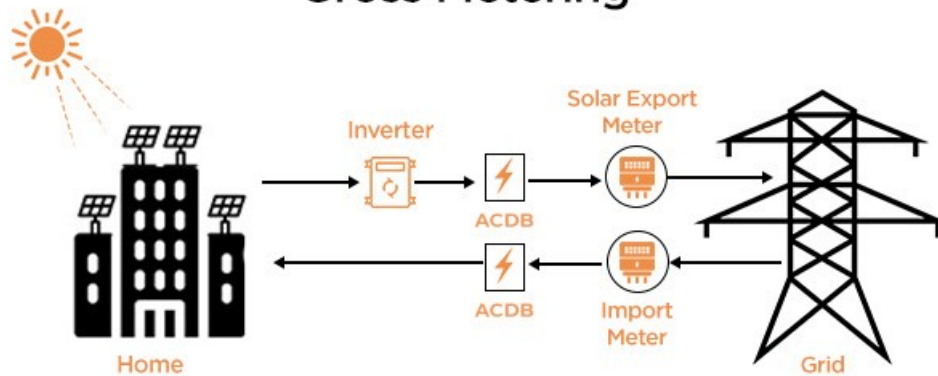






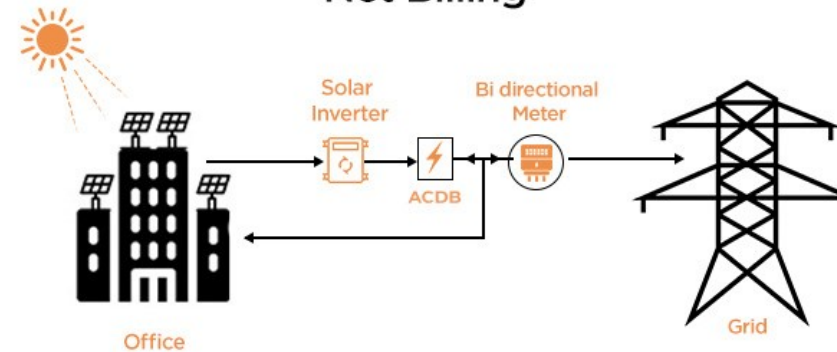
## Gross Metering, Net Billing, Net Metering

### Gross Metering



Settlement happens in ₹/\$/£

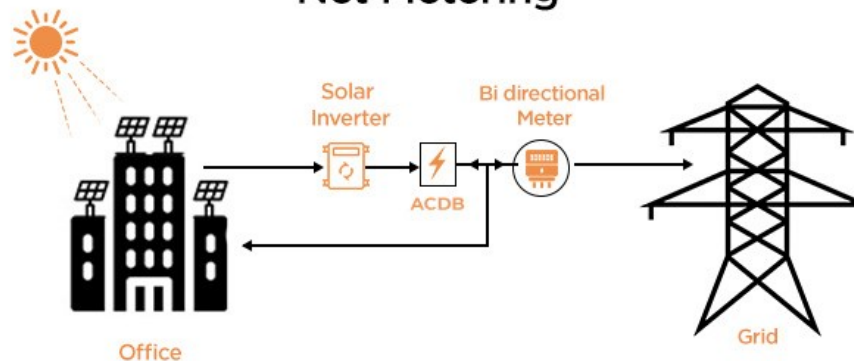
### Net Billing



Settlement happens in ₹/\$/£

The way solar energy is settled

### Net Metering



Settlement happens in KWH

Type of Metering/Billing	Settlement Mechanism
Net Metering	KWH
Net Billing	₹/\$/£
Gross Billing	₹/\$/£

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