Transforming Urban Utilities with IoT, AI, and Digital Twins

Vehicles are becoming the largest “connected asset class” in cities

350M

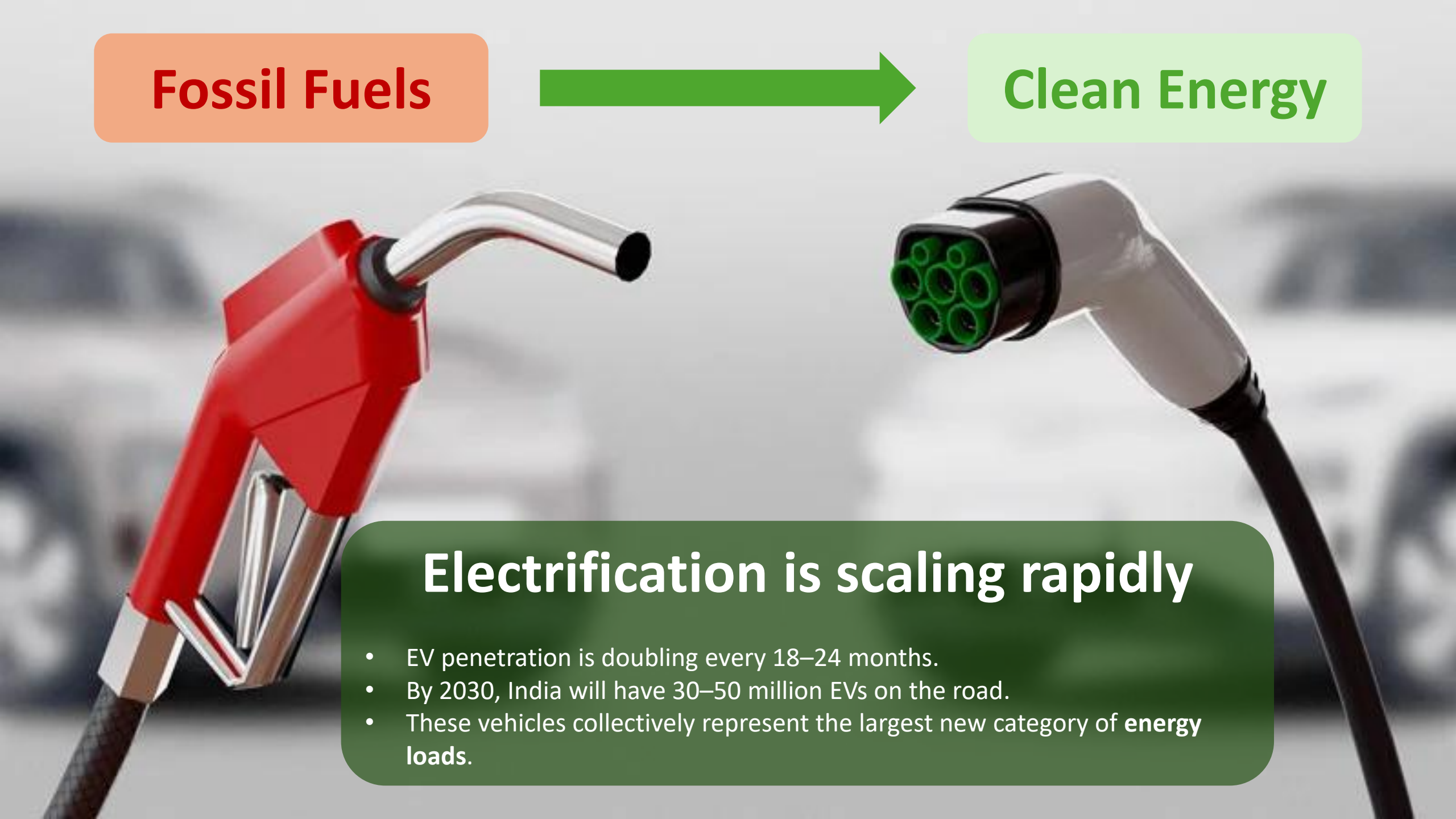
Number of Households

370M

Number of Vehicles

This makes vehicles the **single biggest consumer-facing network** after telecom.

Fossil Fuels → Clean Energy



Electrification is scaling rapidly

- EV penetration is doubling every 18–24 months.
- By 2030, India will have 30–50 million EVs on the road.
- These vehicles collectively represent the largest new category of **energy loads**.

Electrification Is Quietly Rewriting the Energy Curve

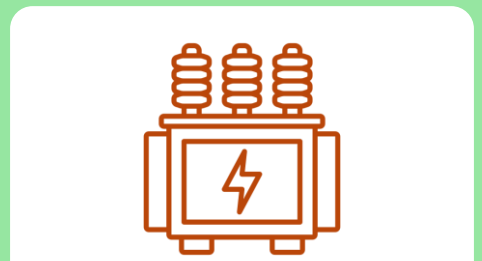
EV charging introduces a new type of energy load:

- High power
- Unpredictable
- Accelerating grid stress
- Clustered around homes, workplaces, malls, depots

Energy planners never had to deal with this before.

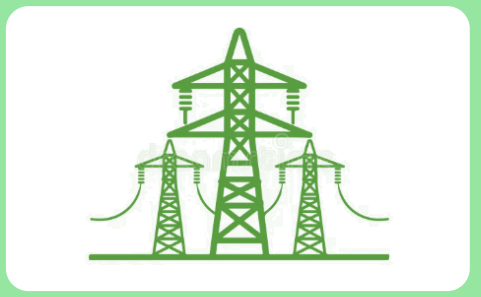
Unmanaged Electrification = Utilities Under Stress

Peak load spikes
(especially 6–10 PM)



Local transformer overloading

Unplanned blackouts in dense cities



Need for expensive grid reinforcement

Urban utilities face demand patterns they were never designed for.

Pillars of eMobility

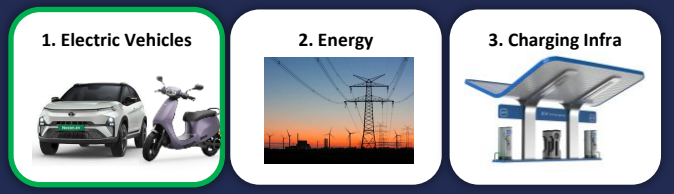
eMobility

1. Electric Vehicles

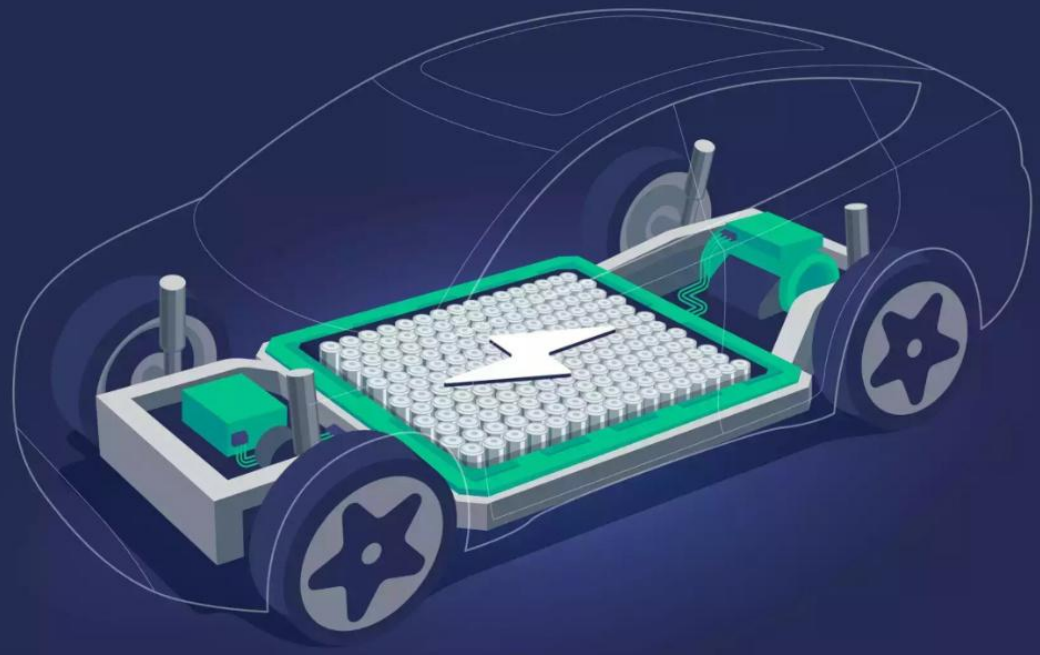
2. Energy Infrastructure

3. Charging Infrastructure

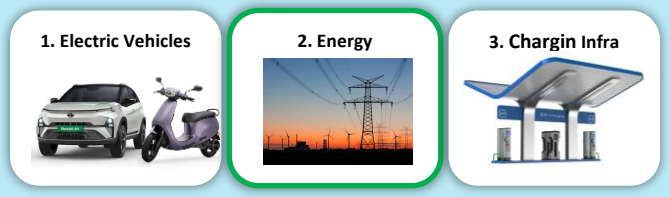
Where Do We Stand- Electric Vehicles



- Act as an Energy Consuming Entity
- Resource Scarcity for Battery Manufacturing
- Vehicle-Centric Innovation
- Are EVs completely Green?



Where Do We Stand- Energy Infra



Need for Grid Modernization

Demand Fluctuations

Integration of Distributed Energy Resources (DER)

Fixed Billing Mechanisms

Generation

- Legacy Power Plants (Thermal, Hydro, Nuclear etc.)
- Emerging Power Gen Plant
  - Solar (PV Panels, Invertors, Battery, Intelligent Gateway)
  - Wind (Turbines, Genset, Gateway)

Transmission

- Transformers and Circuit Breakers
- Feeder Meter

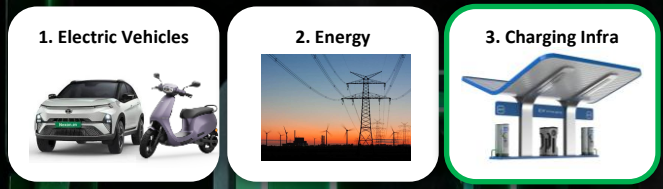
Distribution

- Net-metering

Consumption

- Residential Consumers
- Commercial Consumers

Where Do We Stand- Charging Infra



Interoperability Issues

Dynamic Load Management Challenges

Lack of Integration with Demand Response (DR)

Limited Smart Insights for Users

The Need for Unified Synergy

True eMobility

1. Electric Vehicles

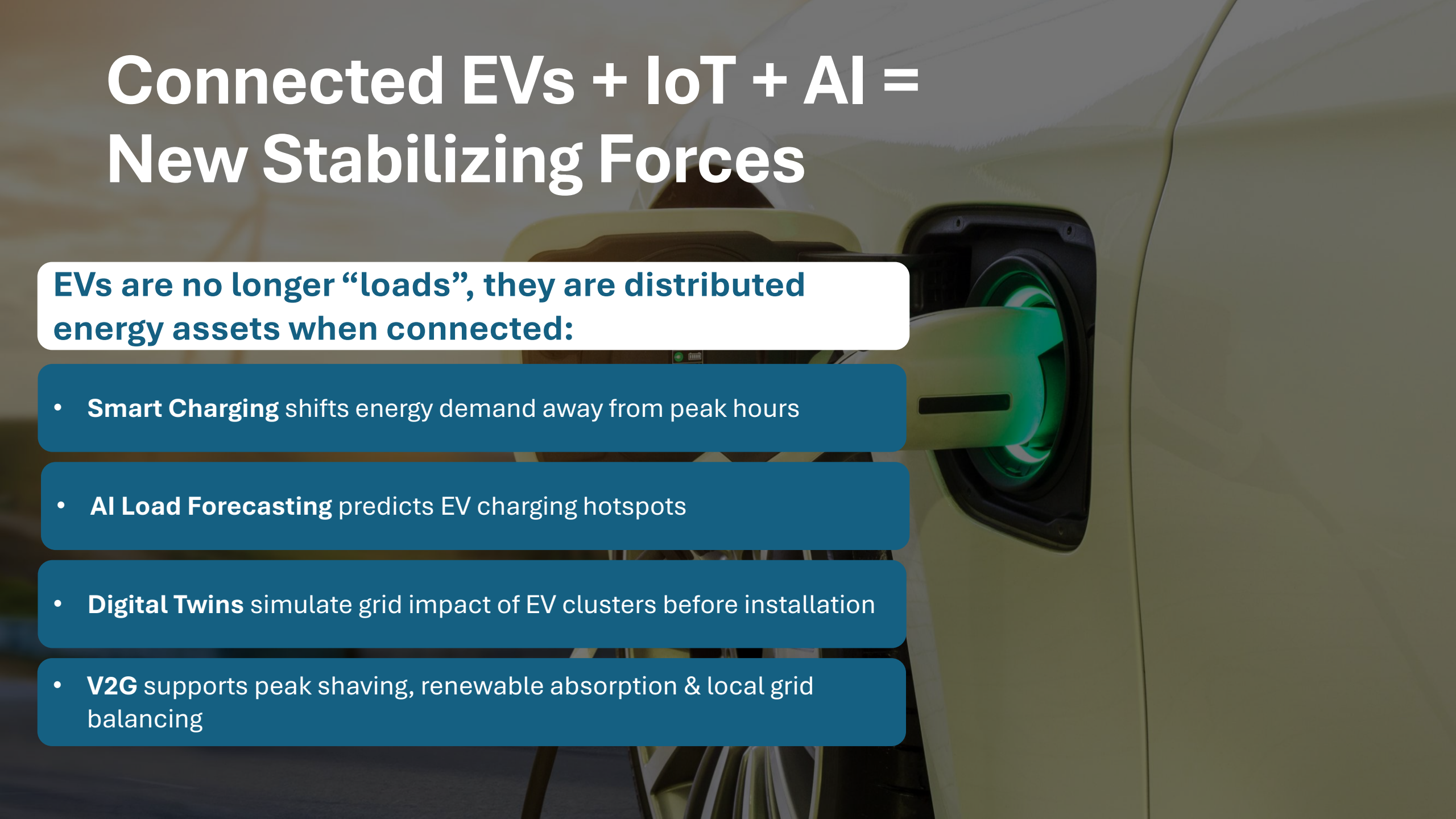
2. Energy Infrastructure

3. Charging Infrastructure

3i's

- Intelligent
- Interoperable
- Integrated

Connected EVs + IoT + AI = New Stabilizing Forces

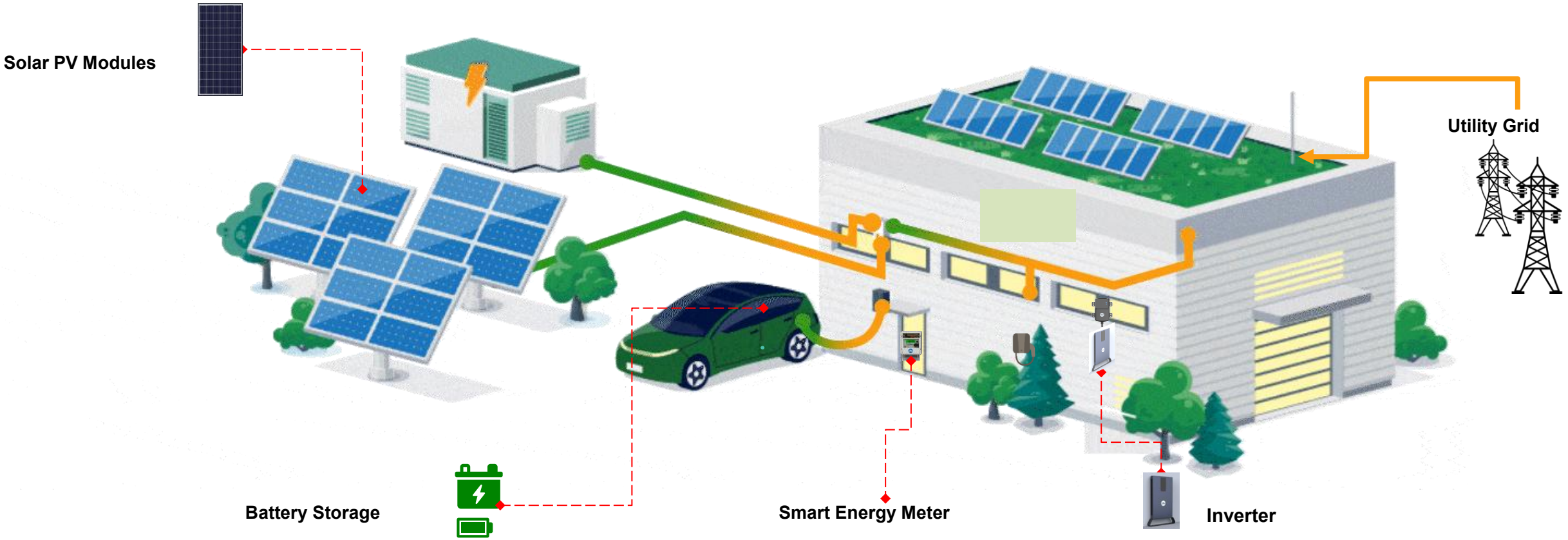


EVs are no longer “loads”, they are distributed energy assets when connected:

- **Smart Charging** shifts energy demand away from peak hours
- **AI Load Forecasting** predicts EV charging hotspots
- **Digital Twins** simulate grid impact of EV clusters before installation
- **V2G** supports peak shaving, renewable absorption & local grid balancing

Unified Energy Architecture

Powered by 3i's



End-to-End Unified Energy Architecture providing a single, integrated view of all energy assets for seamless management

Jio Unified Mobility Platform (JUMP) Ecosystem

JioThings

Intelligent | Interoperable | Integrated

- Smart EV Charging
- Advanced Vehicle Telematics
- Smart Battery Management
- Smart Digital Cluster
- Smart Energy Management
- Smart Fleet Management

Electric Vehicles | Energy Infra | Charging Infra

- JioMotive 
- AvniOS SDC 
- JioHumsafar
- TruePower By JioThings 
- JioEnerginie 

Thank You

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