



Demand Side Flexibility for India



STRICTLY PRIVATE AND CONFIDENTIAL

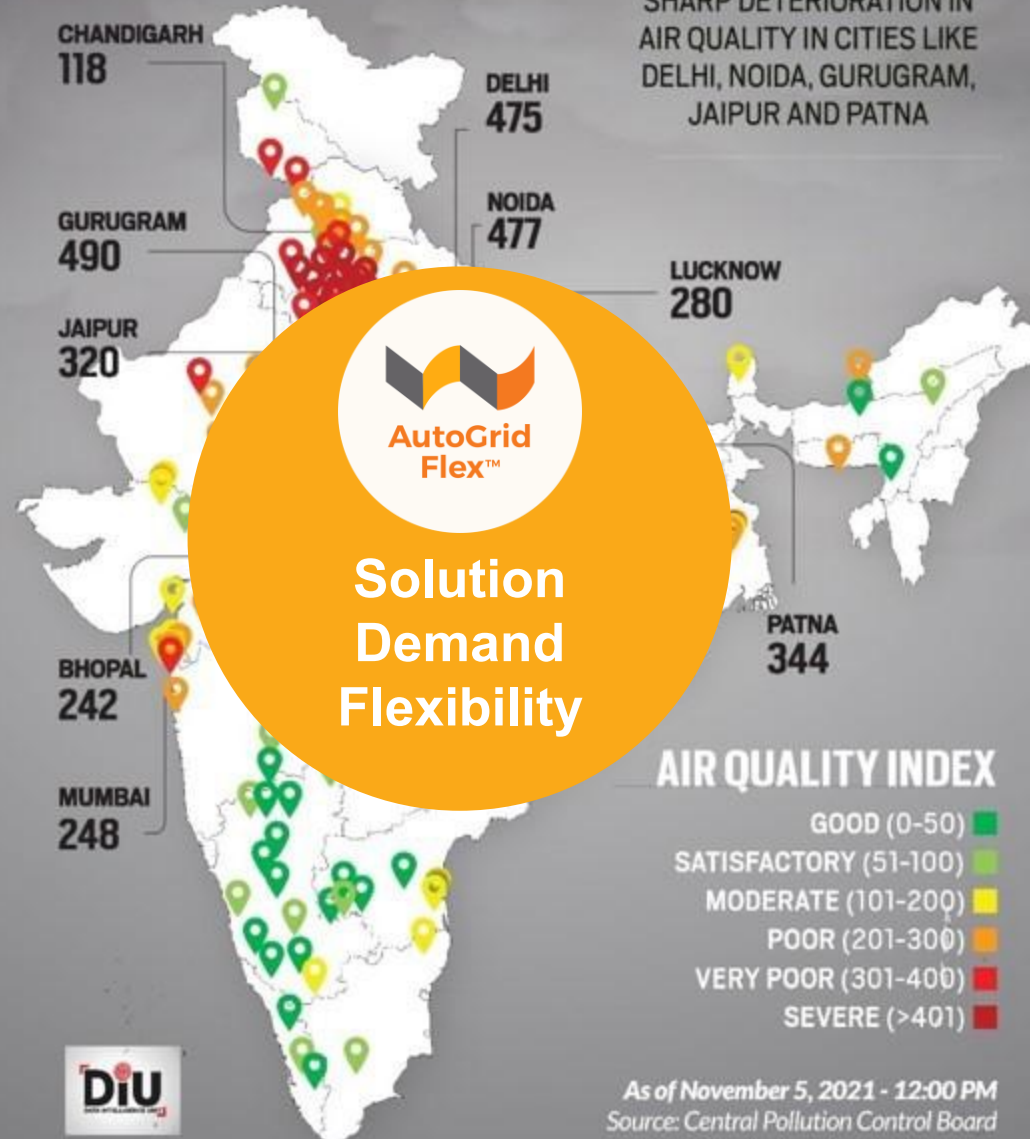


**Worst
Power
crisis in
over 6 yrs**

**Delay in
Coal Plant
Closures**

POLLUTION SCARE

SHARP DETERIORATION IN
AIR QUALITY IN CITIES LIKE
DELHI, NOIDA, GURUGRAM,
JAIPUR AND PATNA



**Market
Price Cap
puts
Pressure on
Supply Side**

**CEA
Guidelines
for
Resource
Adequacy**

AutoGrid Solving Demand Flexibility across Globe

Can Do It For India!

DR Capacity of **240 MW** leading to **\$40M** savings over 3 years



12,000 Smart residential devices



Honeywell



100K Customers
47 MW

2021



600K Customers
310 MW

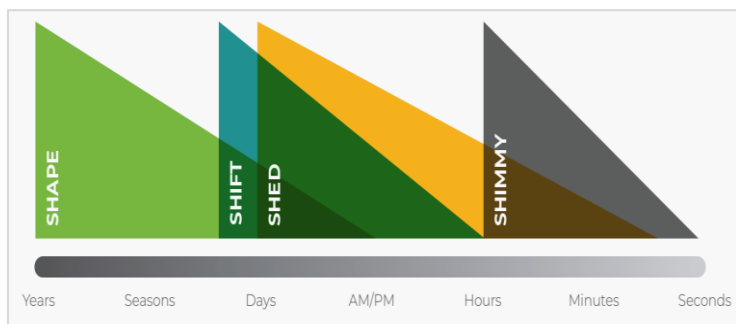
2022



Demand Response - Indian Context

More Demand Shift & Less Shed

- ✓ Highest Peak Demand exp less than 10% of time
- ✓ Shift n/w load to high PV hours



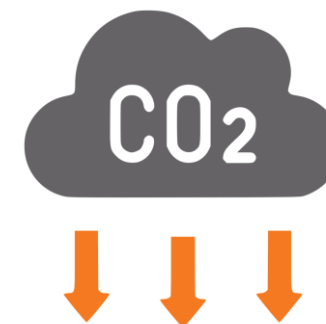
DR as a Flexible Resource

- ✓ Potential Savings of 8-10% in DSM penalties
- ✓ Aggregated DR participate in Grid Services

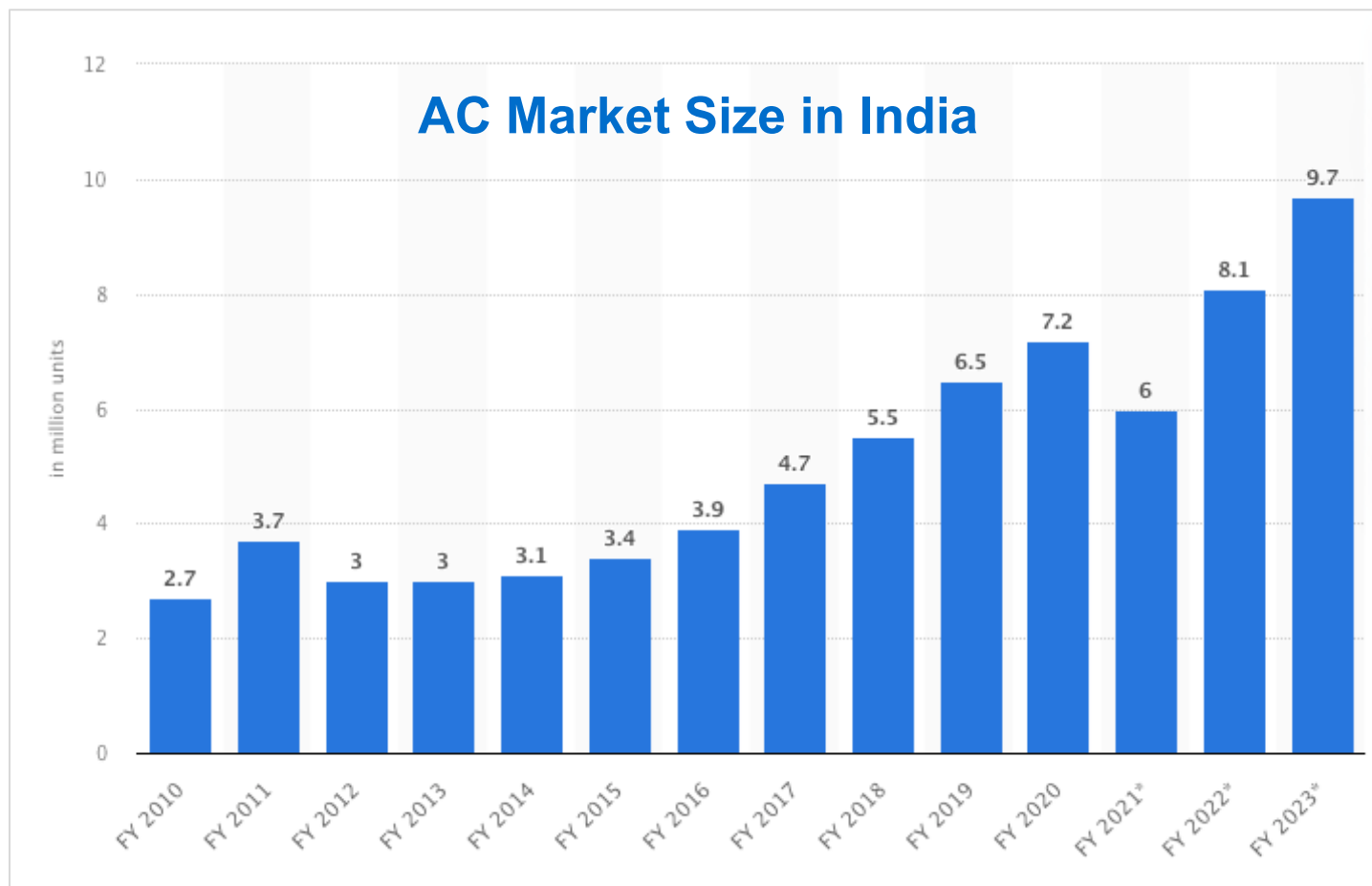


Portfolio Optimization

- ✓ DR above a threshold in portfolio stack
- ✓ Economic & Emission co-optimization



Demand Response - Indian Context



Expected: Avg. annual AC sales 8 million



Flexible DR Added every year > 3GW



Aggregated: 30GW Flexible capacity in next 10 years



Partner with us in our
URJA ARPAN PROGRAM (Demand Response) to
Save Energy and Win Attractive Rewards!



Tata Power-DDL's Demand Response Program is an innovative way to reduce electricity consumption during peak usage.

2021->2022: Production & Scale Proven

Incentives to encourage Participation

	2021(Pilot)	2022 (Sep 2022)
Program Type	BDR (Critical Peak Rebate)	
Event Period	July-Oct	May-Oct
Segment	Resi	Resi, C&I
Events	16	(14,8)
Incentives	Qualifying Shed -10% of baseline	

Matching the Vision: “URJA ARPAN”

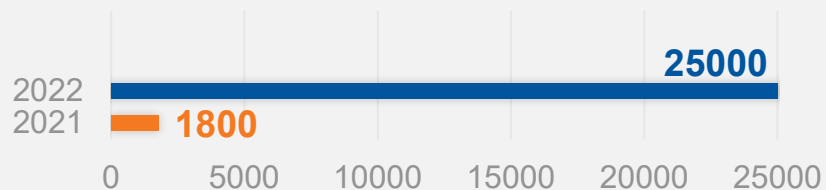
Greater Impact with Social Messaging

Customer enrollment	
Direct call	Program brochures
Follow up on phone	Special announcements
Lucky Draws	

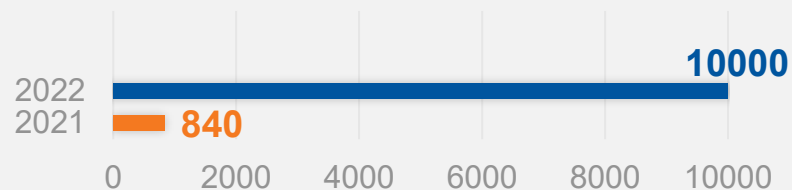
Program Scale Up: Performance Metrics

Pilot 2021 2022

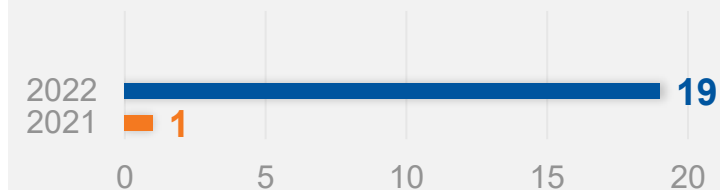
Enrolled consumers



Contributing Consumers

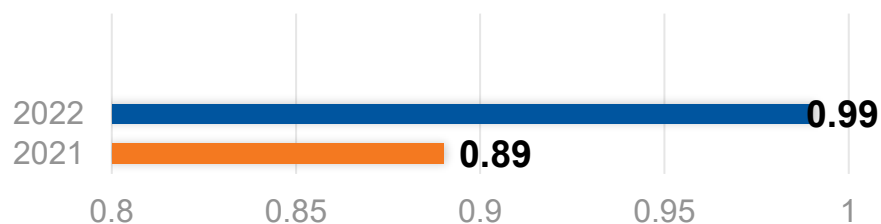


Max Cap Shed (MW)

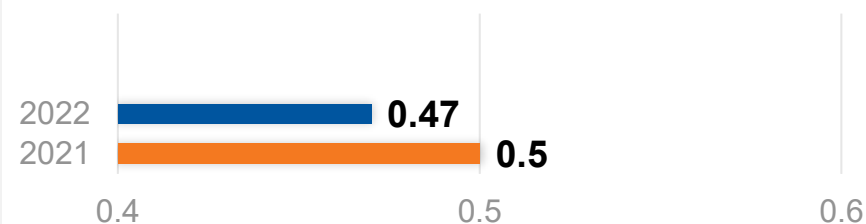


Residential Segment

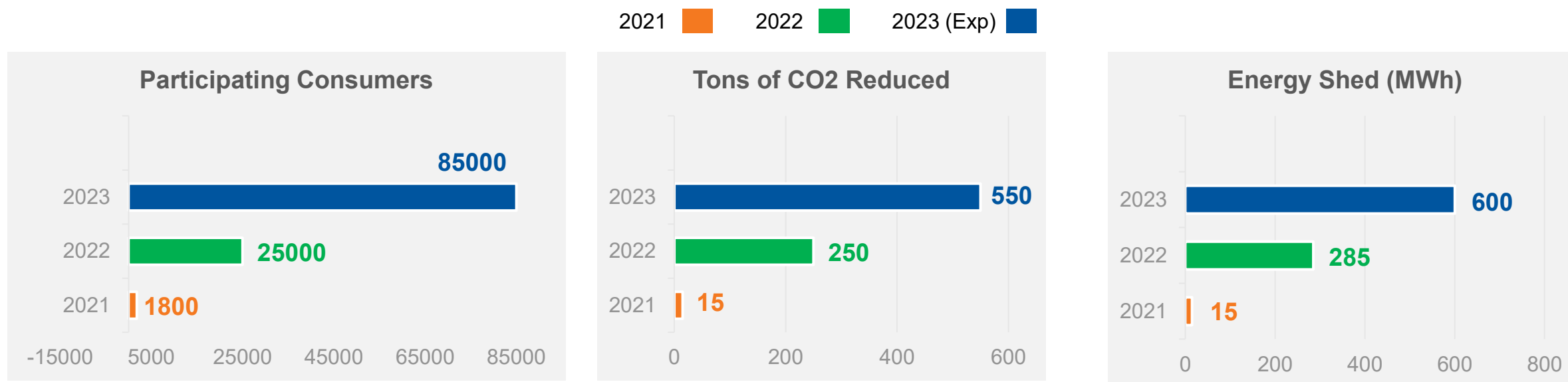
Avg Energy Shed per Meter (KWh)



Avg Cap. Shed per Meter (KW)



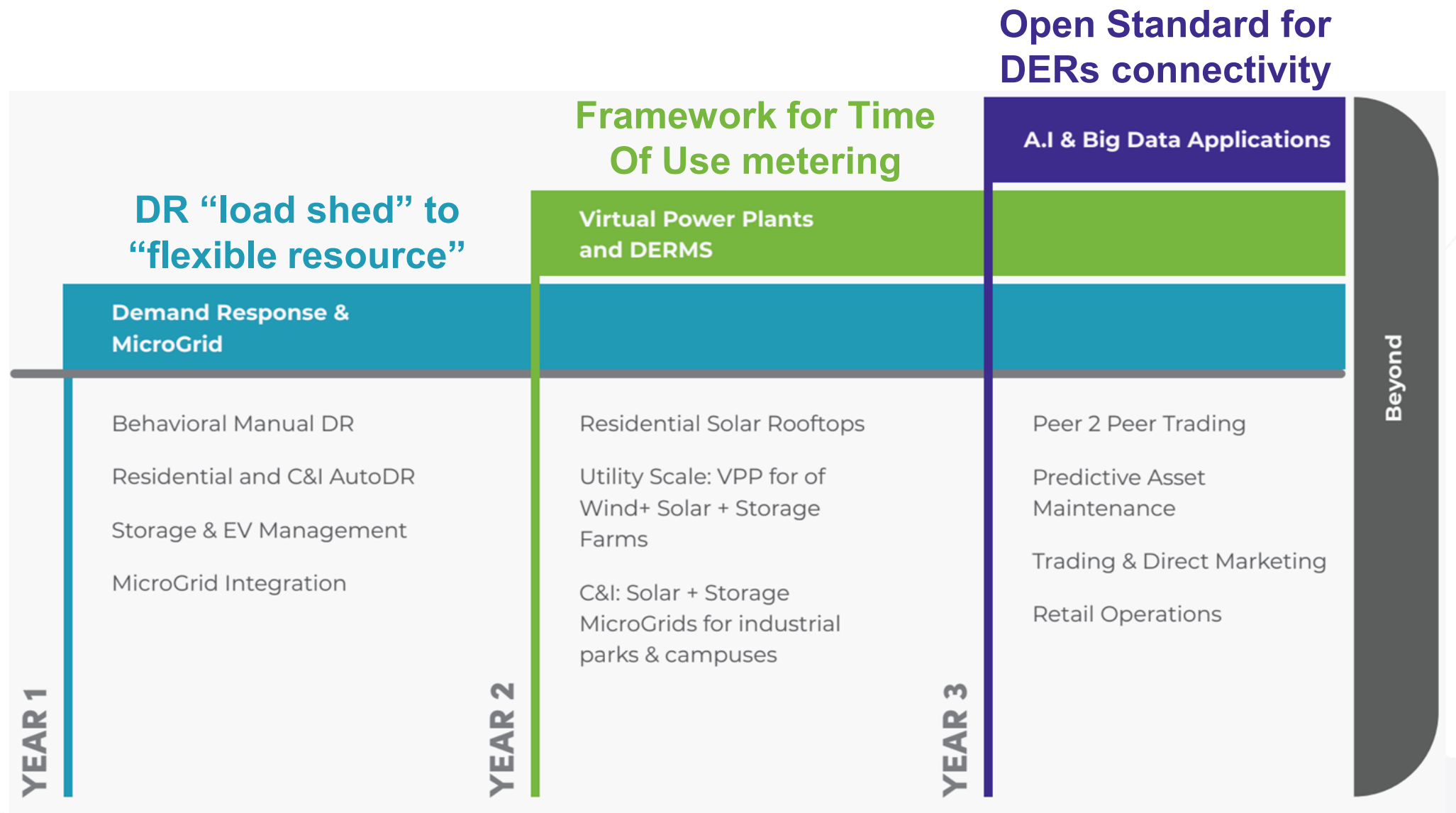
Program Scale Up: Performance Metrics



DR as a Flexible Resource.....



Roadmap for Flexibility Management for DISCOMS



M&V Settlement-Foundation of DR

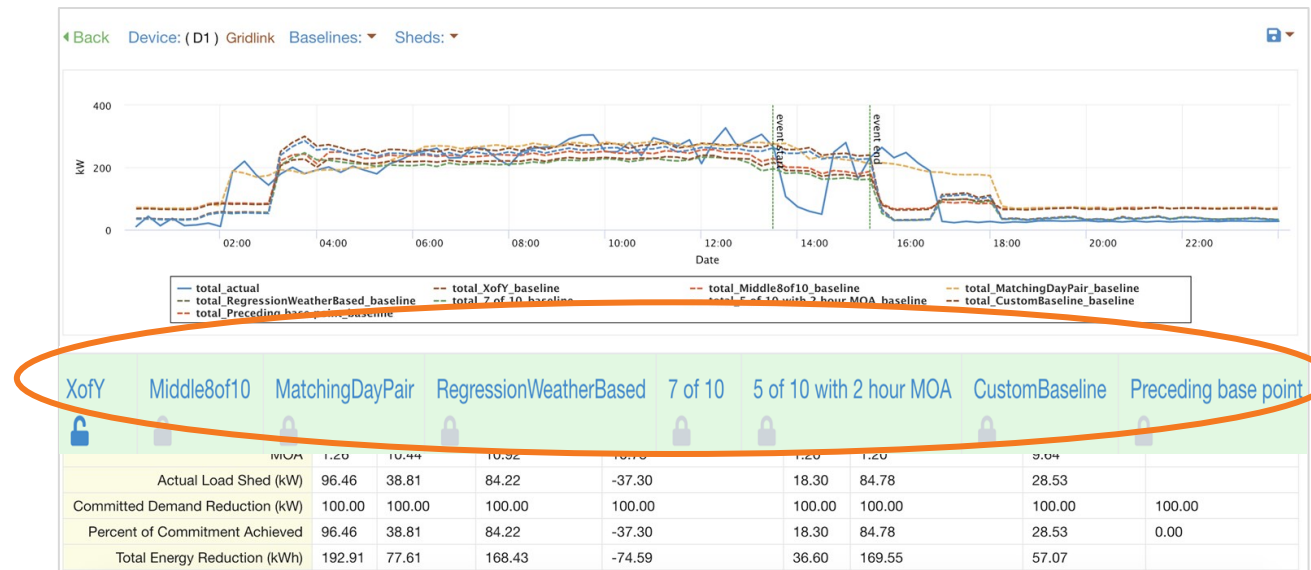
M&V Settlement: Pre-requisite

- ✓ Robust Baseline protocol
- ✓ Baseline Adjustments for day-of-event conditions
- ✓ Platform to run Fast & Reliable M&V at scale

AutoGrid can run
**M&V for 1million+
Smart Meters**

AutoGrid: M&V Capabilities

- ✓ Baseline methodologies as per industry standards
- ✓ Production proven at scale to run M&V
- ✓ Fast & reliable Reporting Framework
- ✓ Track record with markets & regulatory regimes



Challenges



**Accelerate Smart Meter
Roll outs**



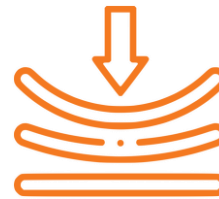
**Demand Flexibility Needs to
have a level playing field
along with traditional &
renewable generation assets**



**Combine Energy Efficiency +
Demand Response Programs
for cost effective automated DR**



**Tap into latent flexibility
in Smart ACs**



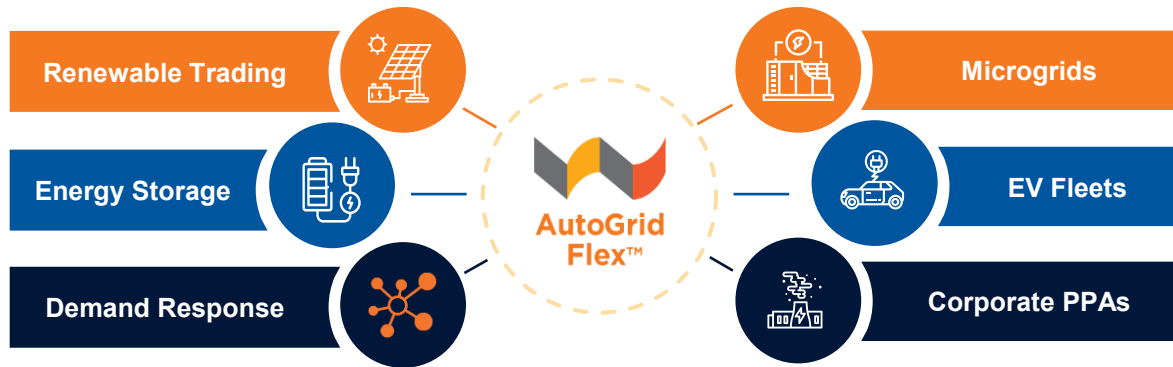
**Regulators must allow rate-
based demand flexibility
programs**



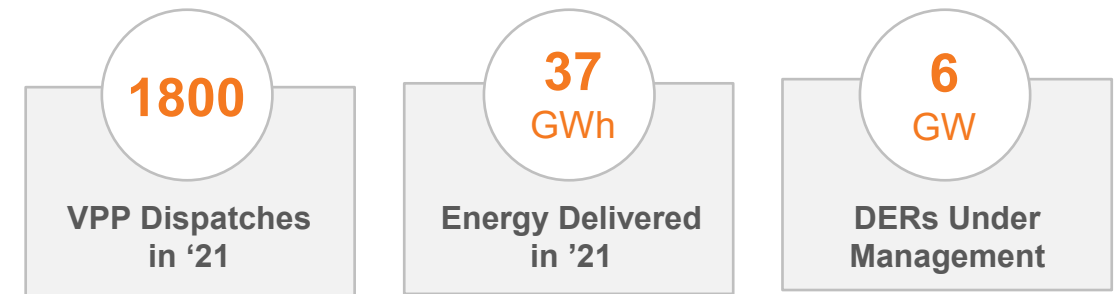
**From Pilots to SCALE,
DISOCMS need help procuring
Cloud/SaaS solutions**

AutoGrid Platform –DER Orchestration

One Platform to Connect and Optimize all DERs



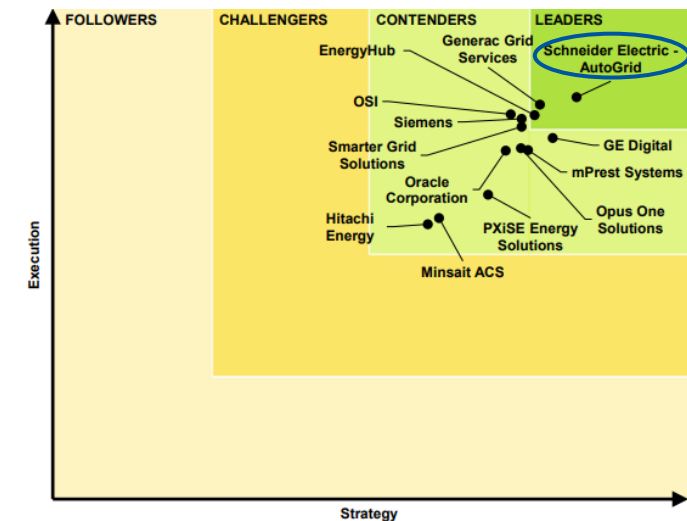
Production Proven, at scale



Some of our Global Customers



Ranked #1 DERMS by Guidehouse



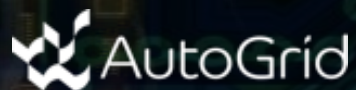
CONTACT

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BOOTH #

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AI for New Energy



Asset Portfolio Optimization for Hybrid Renewables

Current State

- “Fire & Forget” approach for asset utilization and dispatch
- No optimization between Day-Ahead and Real-Time market products
- Value-stacking opportunities limited as no optimization of bids across products & asset types

Portfolio of Utility Scale Renewables Storage Assets



**Wind And
Solar Assts**



**Financial
PPAs**



**Battery
System**

Value Streams



PPA Management



**Day-Ahead & Intra Day
Optimization**



Ancillary Services



Penalty Reduction



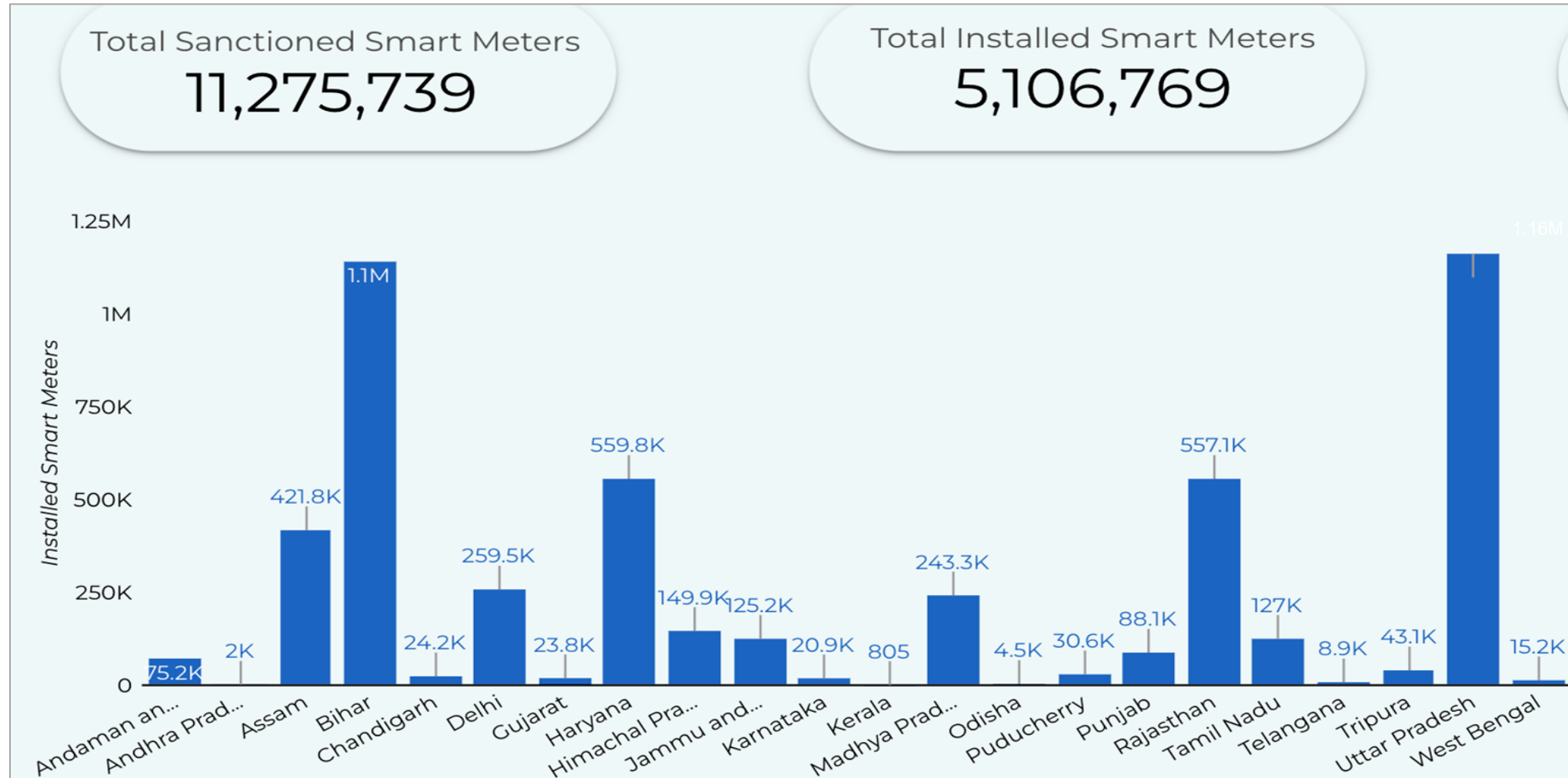
24X7 Carbon Free

Future State

- Look-ahead to forecasted market states
- Co-optimization across value streams for single asset type
- Multiple asset VPP delivering multiple value streams
- Value at risk adjusted portfolio bids

AutoGrid FLEX™ Platform

Smart Metering Deployment Statistics Across Various Schemes/States



Peak Demand in States in Aug 2022 (MW)

