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Future of Electric Vehicles in India

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10th Nov 2021

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Indian EV industry: Progress so far…

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Electrification is an imperative to address key issues of national interest

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Issues of National Interest

Urban Pollution
- *14/15 polluted cities*
- *1.2 Mn deaths*
- *Welfare losses - 7.7% of GDP*

Increasing Trade Deficit
Vehicular fuel requirement to increase to 90Bn in 2030 from 40Bn in 2017

Energy Security
~70% of oil sourced from countries with geo-political risks

Focus areas

COP 26 commitment
Reduction in emissions intensity by 45%[1] percent below 2005 levels by 2030, net zero by 2070

"Amtmanirbhar" Bharat
Proactive localization of EVs and New technologies in Automotive filed

Employment generation
Maintain and enhance the employment in Automotive sector

1. https://economictimes.indiatimes.com/news/india/global-media-hails-indias-commitment-in-cop26-summit/articleshow/87566929.cms

Multiple barriers have kept the penetration of EVs low in India

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Range anxiety

Poor range for long/outstation trips, High charging time, Unpredictable range

Ltd. charging infrastructure

Inadequate, Unavailable on-demand, Unreliable power supply

Lack of suitable EV options

Limited models, Not aspirational, Inadequate range

Lack of awareness of EVs

EVs are low speed - low performance cars for city usage

Higher cost

Higher vehicle price, Residual value, Battery replacement cost

Technology uncertainty

Battery life uncertainty, Safety concerns

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Government has shown a strong intent to drive electrification through enabling policies to overcome the barriers to adoption

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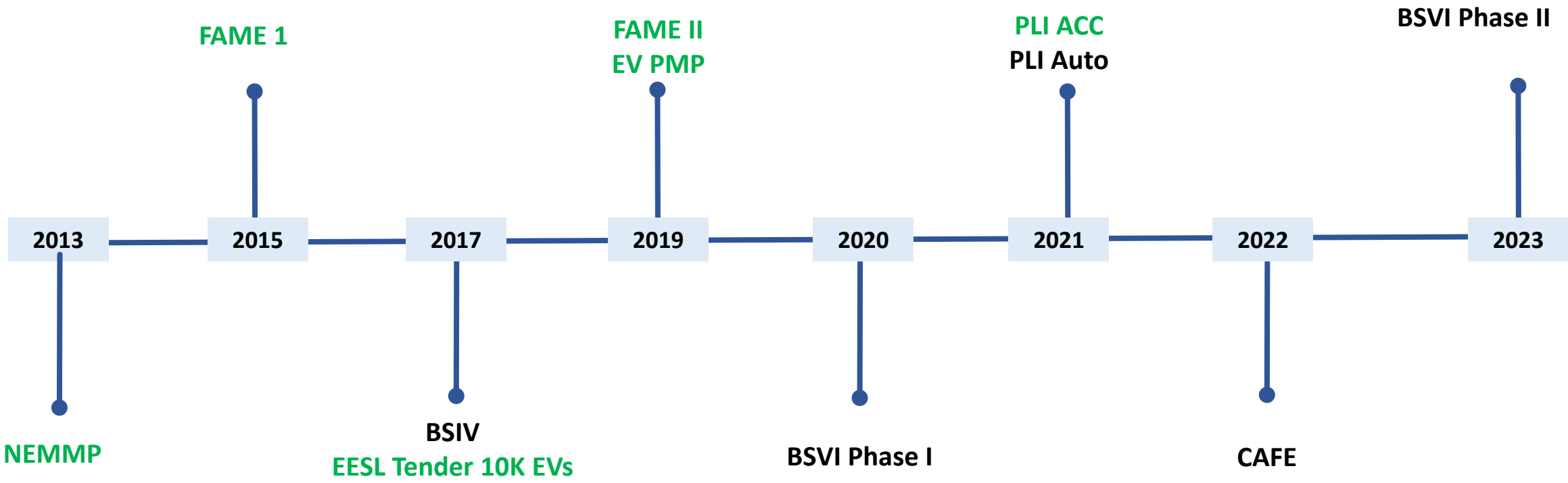

Low GST Rate

Road Tax & Registration waiver

Income Tax Exemption

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Offering more choices to the customers and addressing the issues around range and price have been crucial in increasing the consideration for EVs

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XPRES-T

Xpress- T (LV) : 162 Km and 213 Km, 21 kWh

ZIPTRON

Nexon EV (HV): 312 Km, 30.2 kWh

ZIPTRON

Tigor EV (HV): 306 Km, 25.9 kWh

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Awareness creation, credibility building and myth busting have brought greater confidence among prospective buyers

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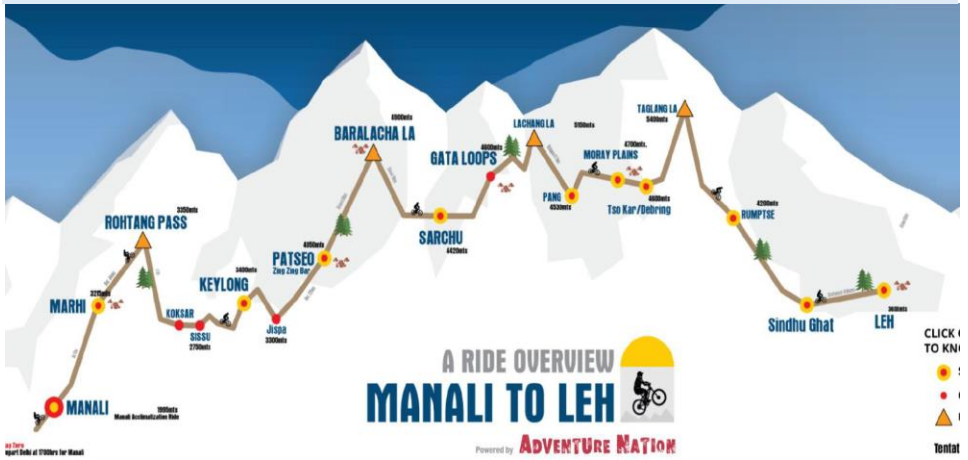
Creation of Awareness & Aspiration

State of the art EV tech brand **Ziptron** launch

An **immersive drive experience** of the Nexon EV

Building Credibility & Breaking Myths

1st Electric 4 W to travel from **Manali to Khardungla (Leh)**



#TheUltimateElectricTest to bust all myths

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Ecosystem Approach has enabled synchronized action among various companies to overcome the real barriers to adoption

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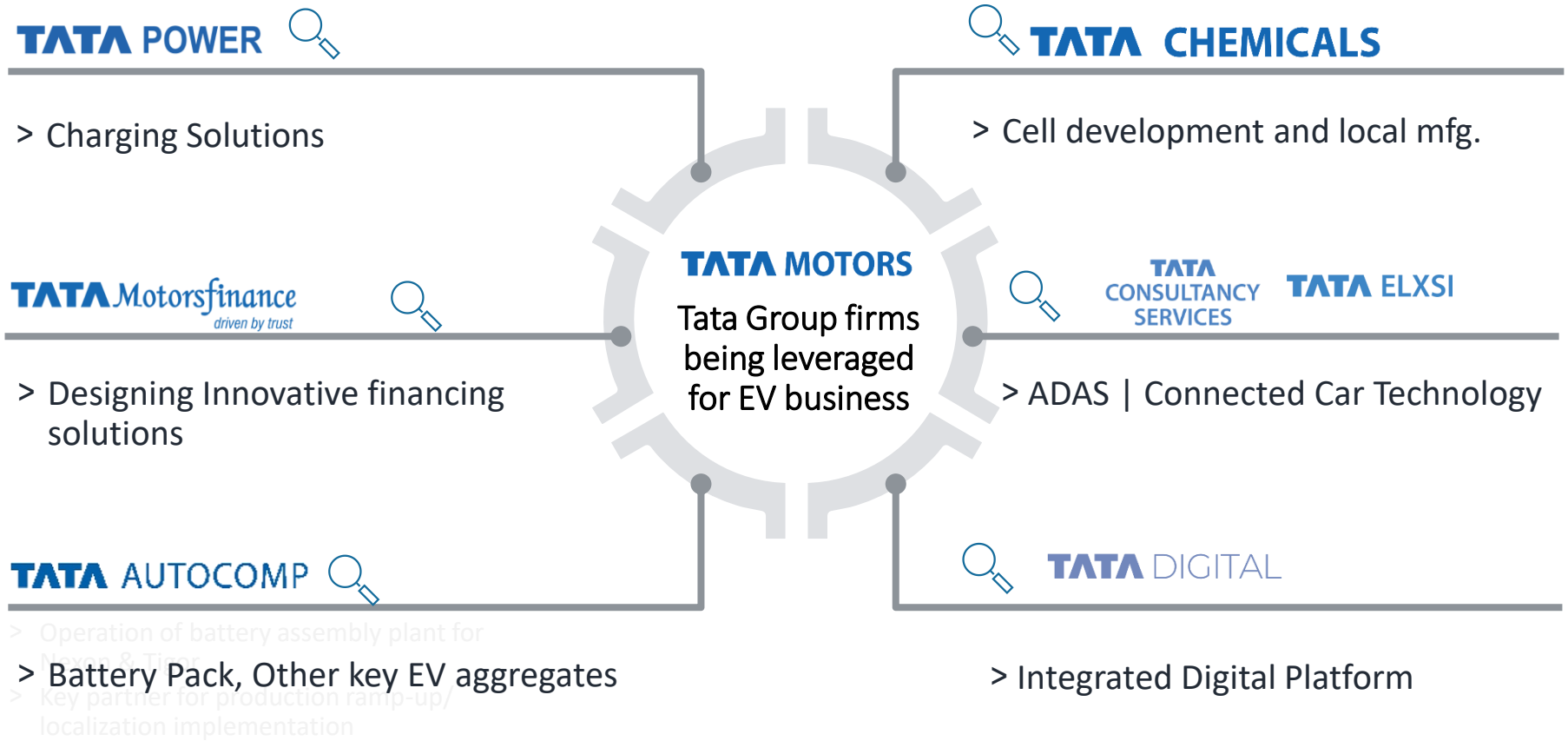

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Thus, EV industry has witnessed a significant growth with consumer base shifting from early adaptors to early majority

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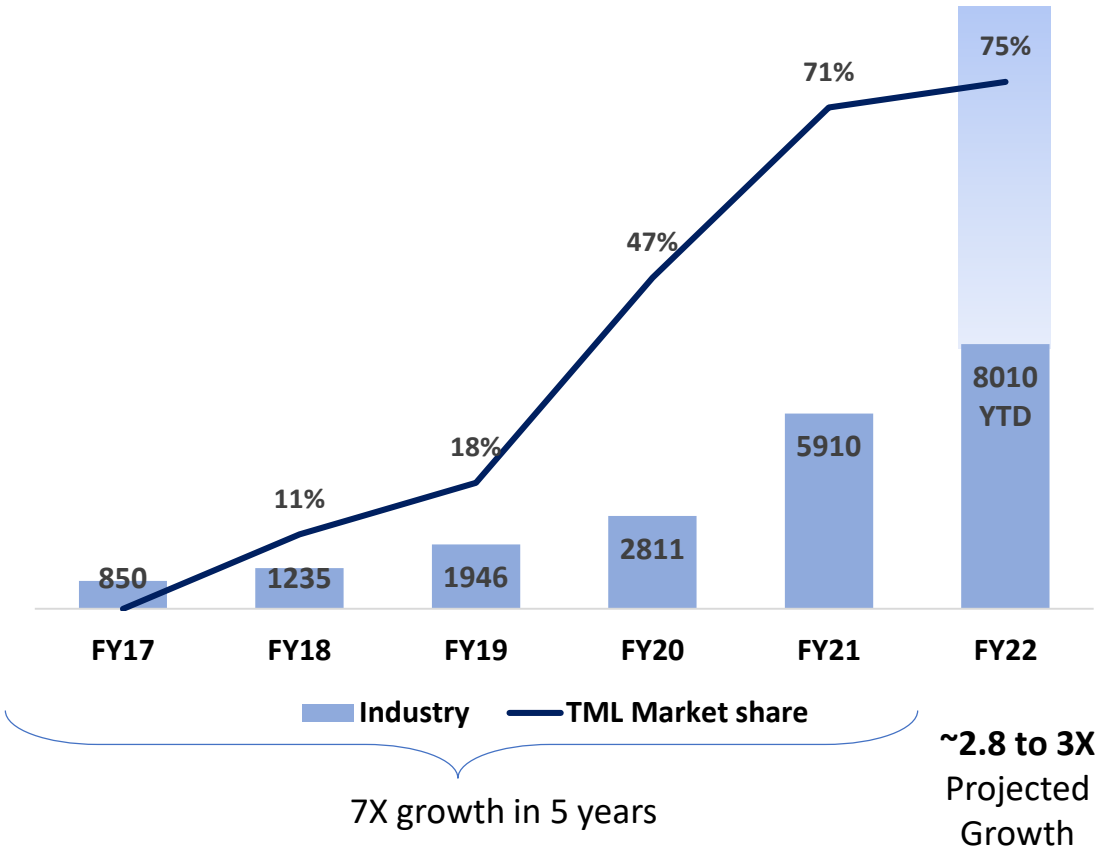
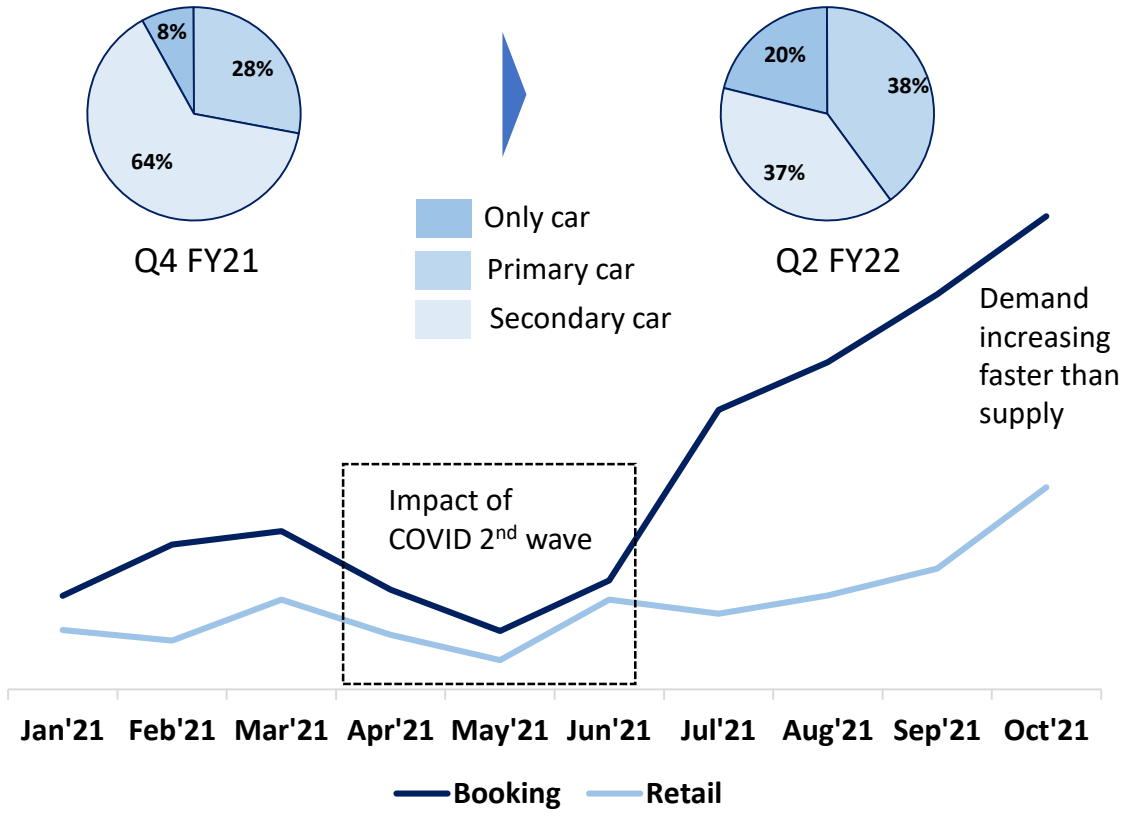
EV Industry Growth



75% market share is till YTD FY22

Demand Scenario and buyer profile (Tata EVs)



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What will support the future growth?

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Going forward, state specific EV policies will drive EV adoption

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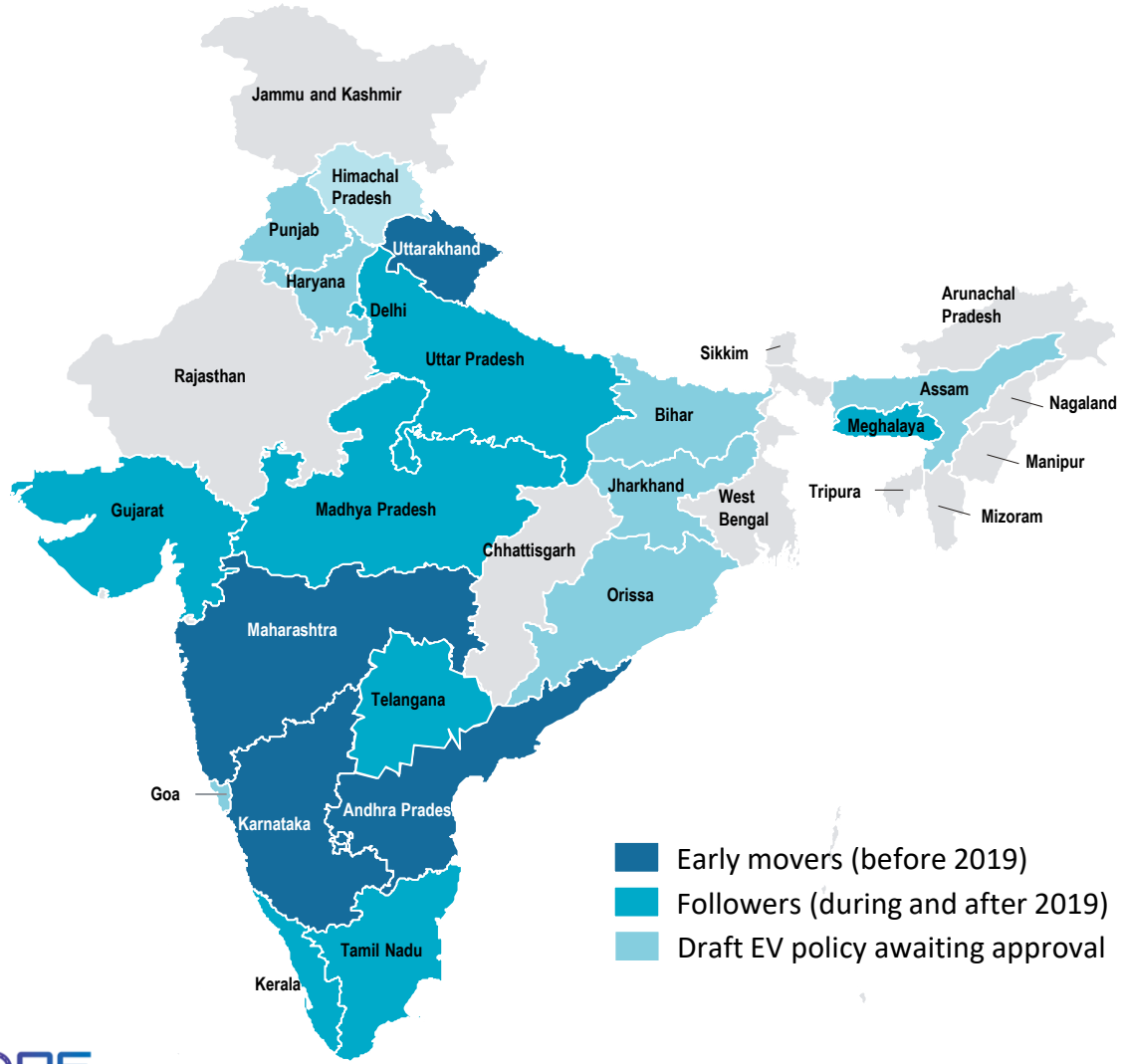
Policy Release Status



State	Demand subsidy	Road tax exemption	Charger subsidy
Delhi	✓	✓	✓
Maharashtra	✓	✓	✓
Gujarat	✓	X	✓
Andhra Pradesh	X	X	✓
Karnataka	X	✓	✓
Kerala	X	Partial	✓
Madhya Pradesh	X	✓	✓
Tamil Nadu	X	✓	X
Telangana	X	✓	X
Uttar Pradesh	X	Partial	X
Uttarakhand	X	✓	X
Bihar (Draft)	✓	✓	✓
Goa (Draft)	✓	X	✓
Haryana (Draft)	✓	✓	✓
Meghalaya (Draft)	✓	✓	X
Punjab (Draft)	X	✓	✓
Jharkhand (Draft)	✓	✓	✓

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Stringent emission roadmap will force OEMs to have EVs in their portfolio

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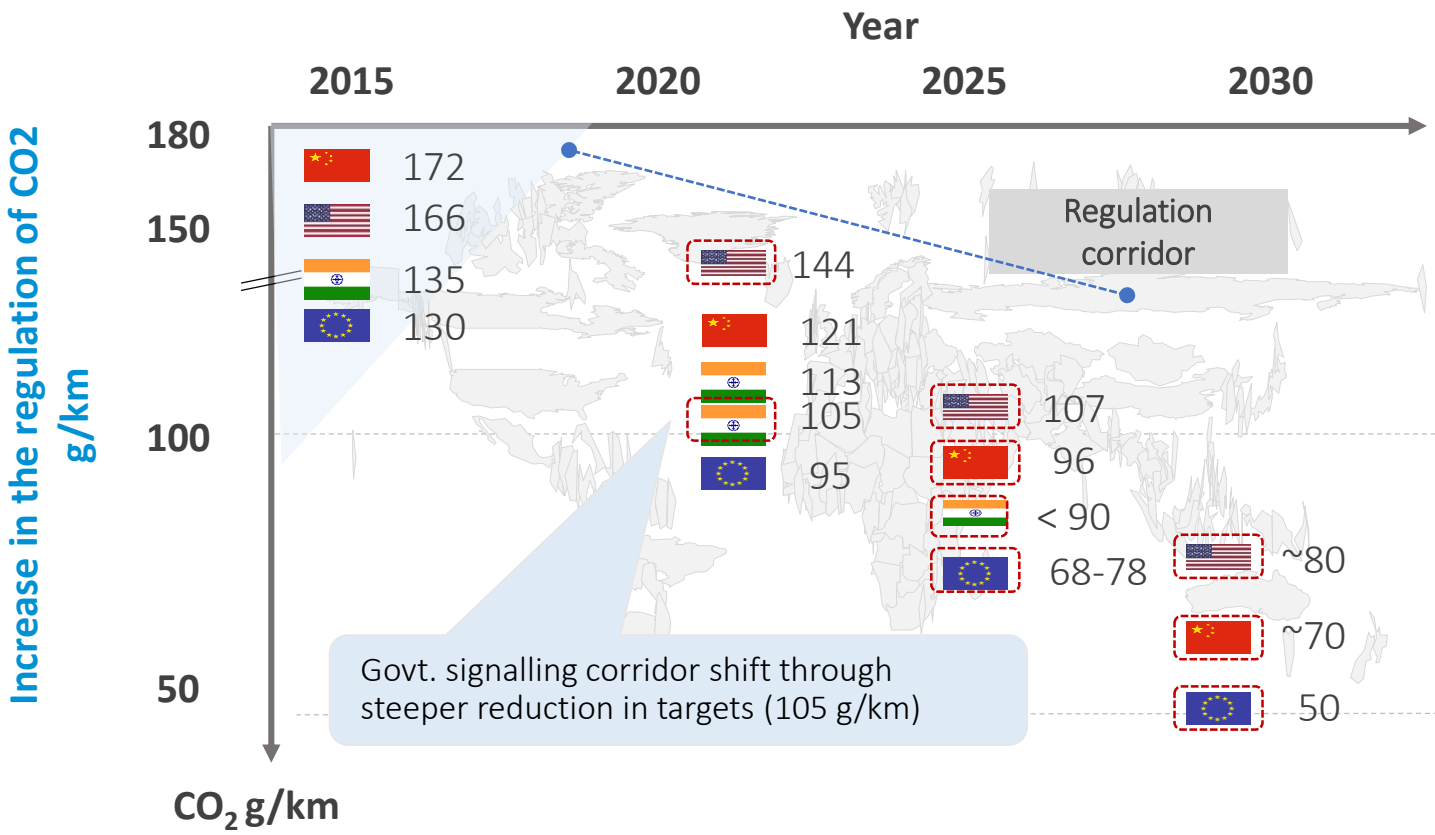
Corridor for potential CO2 regulation



Required powertrain portfolio

"World of today"

Less than 10% EVs required

"Mix of powertrains"

Equitable composition of ICE & EVs needed

"EV World"

Primarily EVs and PHEVs needed

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Customers will get range of options as OEMs gear up to introduce long range EVs to meet stringent regulations and to support Government's vision

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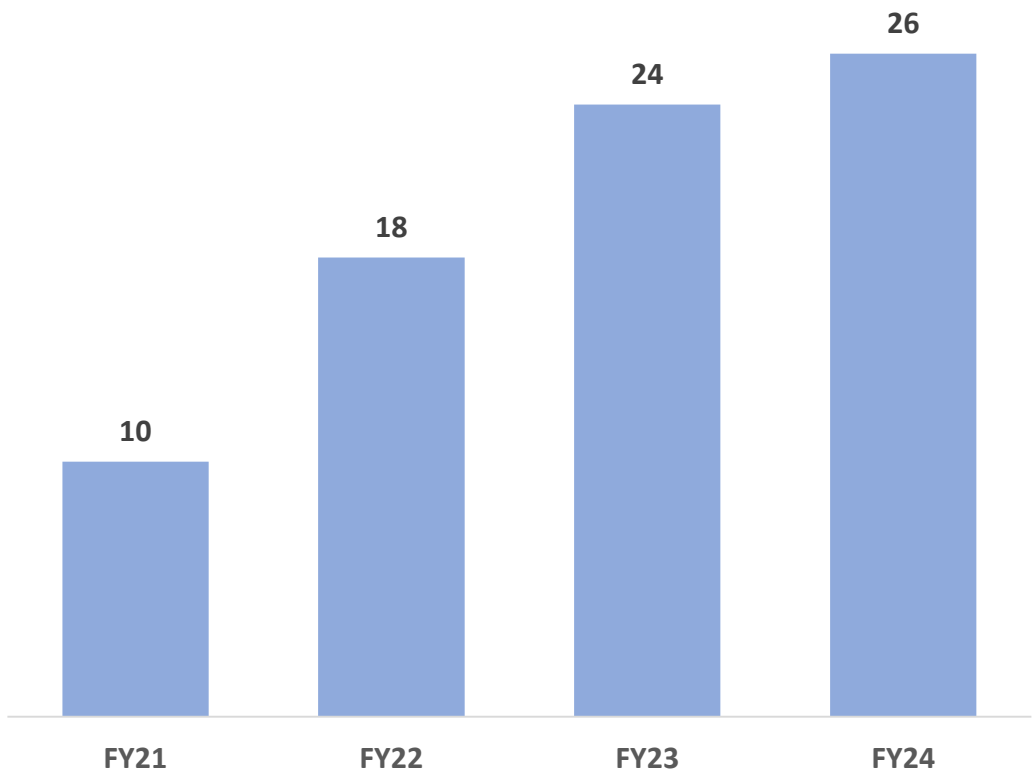
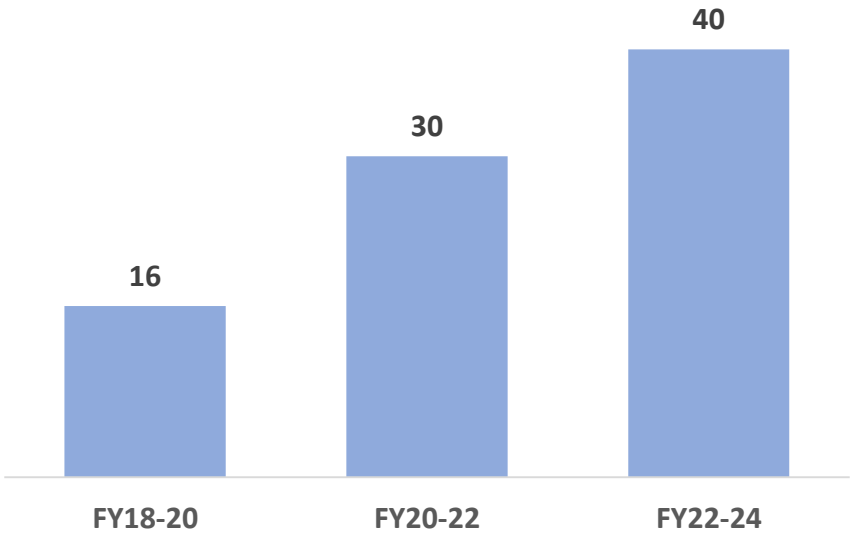
Upcoming EV models



Average on board energy



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Interest from public and private players across the value chain will proliferate charging infrastructure

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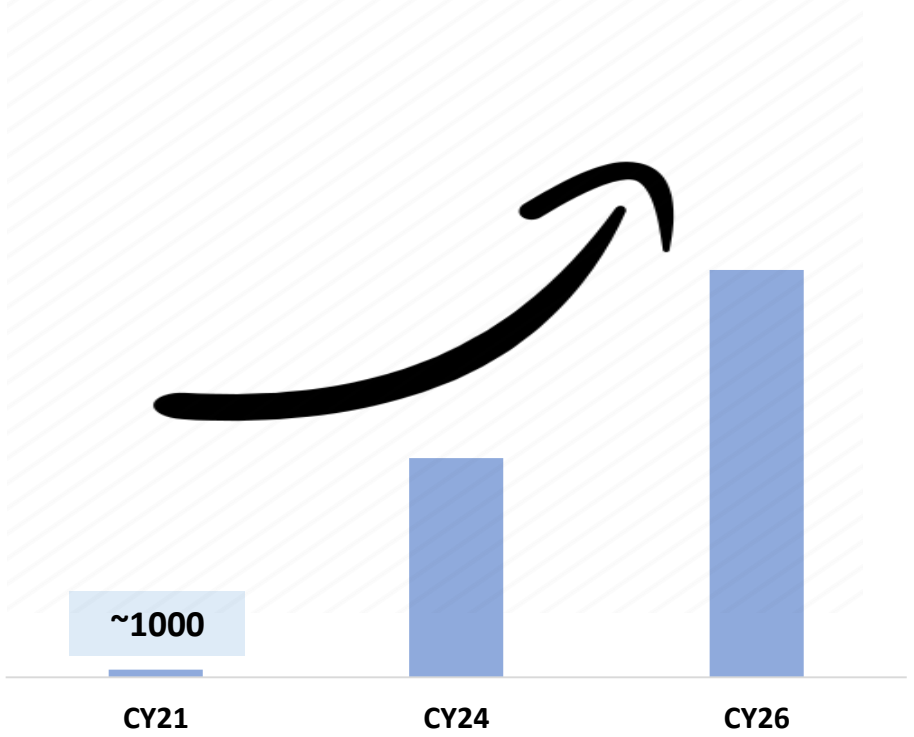
Value Chain

- **HW equipment provider** — DELTA, EXICOM POWER SOLUTIONS, ABB
- **Infrastructure owner** — IndianOil, *Hyderabad Metro*, OEM Dealerships
- **Charging station operator** — TATA POWER, NTPC, BESCOM, EESL
- **Charging network provider** — TATA POWER EZ CHARGE, fortum, chargepoint

Outlook : Public Fast Chargers



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Localization of battery will help optimize cost

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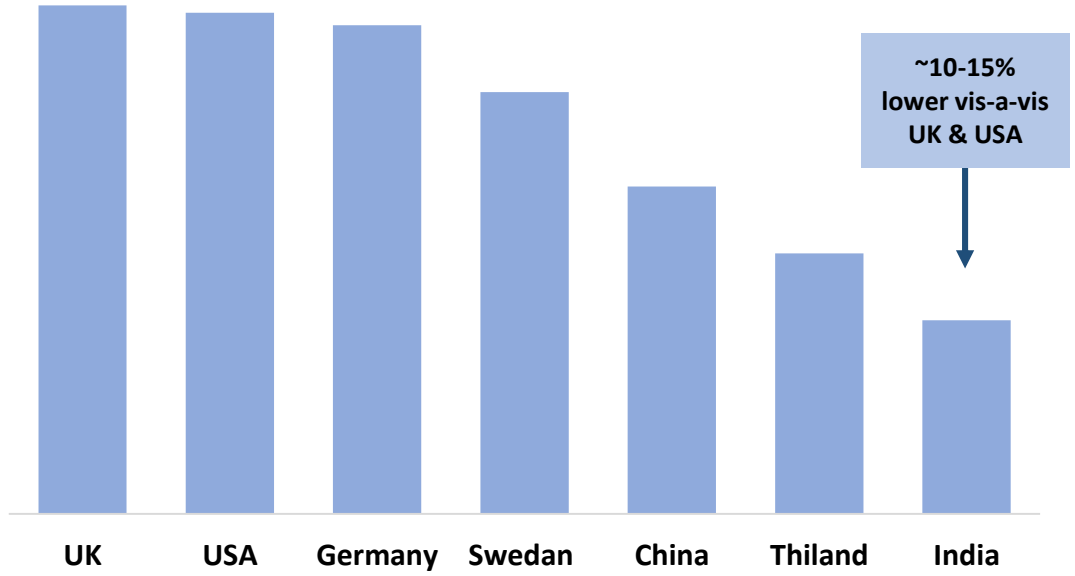
Key highlights of ACC PLI scheme

- **Production linked incentive scheme** to establish **battery manufacturing** in India
- **18000 Cr. outlay** planed
- **50GWh of capacity** to be established
- **Additional 5GWh** for niche battery chemistries

Estimates for cell manufacturing cost [USD/ Kwh]



Source – BNEF
Cost is hypothetical for 'If battery cells are manufactured in India'

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TCO parity against ICEs will drive consumer adoption

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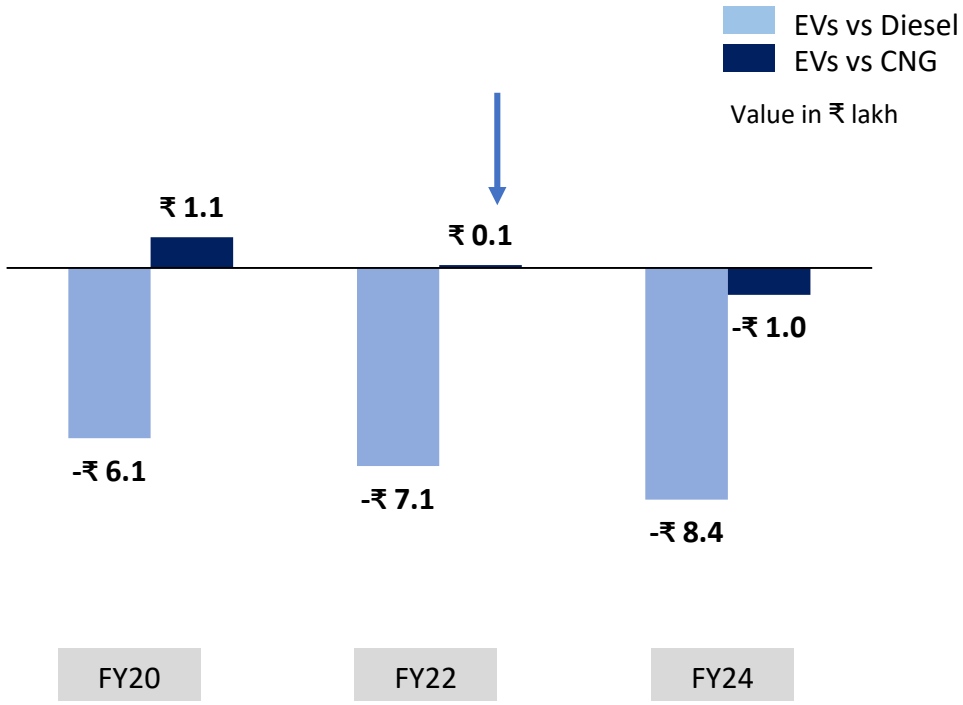
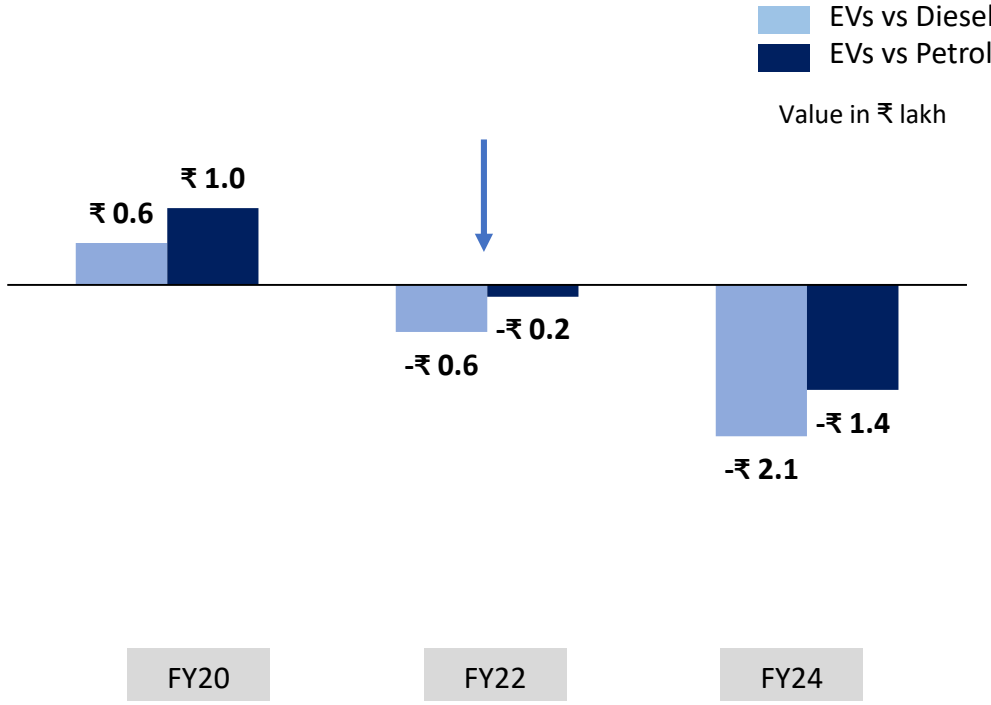
Total Cost of Ownership B2B[1] (with FAME subsidy)



Total Cost of Ownership B2C[2]



1) Vehicle life 4 years, annual running 50K, 90% financing @12% interest, Charging cost 7/kWh, Resale EV30%, Resale Diesel,& CNG 40%
2) Vehicle life 5 years, annual running 10K, 80% financing @12% interest, Charging cost 7/kWh, Resale EV 20%, Resale Petrol 30%

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EV penetration in India is well poised to witness sharp penetration and Tata Motors will plan for 20% penetration in 5 years

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Product

- Expand portfolio of **offering India specific products with different body styles and driving ranges** (10 EVs by FY26)
- Transition to **Modular Multi-energy platform from Conversion EVs**

Sales & Marketing

- **Expand beyond existing micro-markets** (100+ cities , 255 touchpoints in FY22)
- **Strong focus on states with progressive EV policies**
- Continue brand building for **awareness creation and driving aspiration**
- Increase **options to access Tata EVs** (e.g Subscription)

Capability building

- **Drive deeper localization (localization of Tier-1 & Tier 2 components)**
- **Build center of competence**

Ecosystem Development:

- **Expand Tata UniEVerse to offer holistic solutions to customers** (Charging, financing, options to access TML EVs etc)
- **Operationalising plan on battery reuse, repurpose and recycle**

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Thank You!

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