



Fleet Electrification Lessons from the Field

*Austin's Experience Moving from Adoption to
Operational Scale*

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FLEET ELECTRIFICATION DASHBOARD

Austin Fleet Electrification | Operating Experience & Outlook (2017 – 2030)



430 BEVs - CY26 FORECAST

+ 12% YoY

2.0M ELECTRIFIED MILES

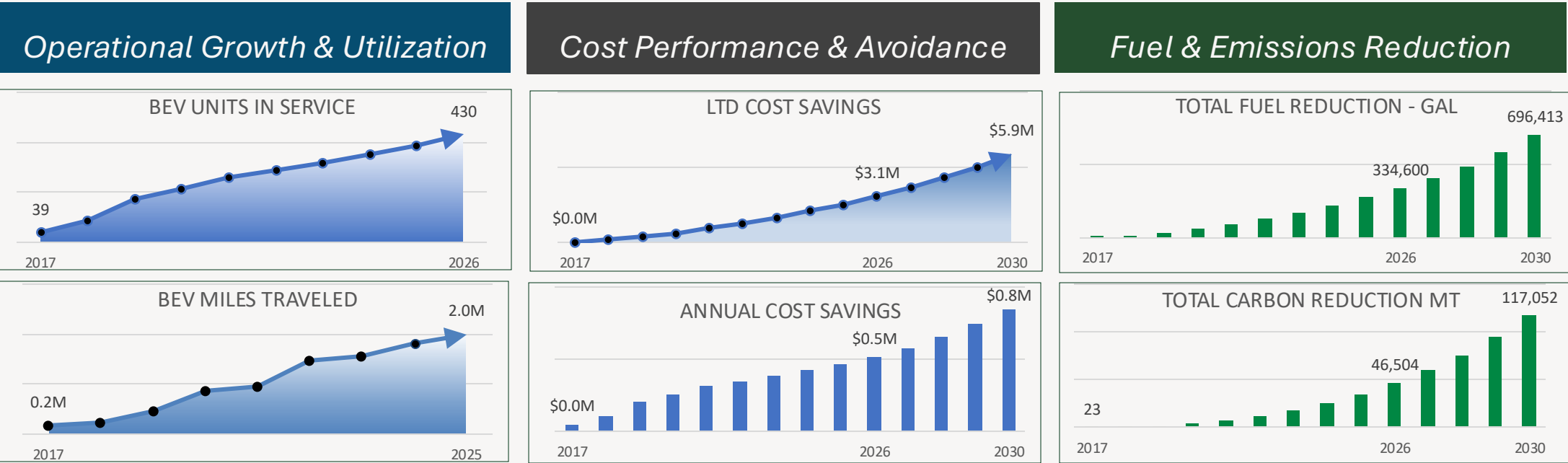
+ 10% YoY

\$3.1M LTD SAVINGS

15% YoY

46,504 Co2 MT REDUCED

+ 21% YoY



ACTIVE PILOTS - (Validate Then Scale)

APD BEV Blazer

Duty Cycle: Patrol | Status: Active

Refuse BEV (Battle Motors)

Duty Cycle: Heavy Route | Status: Active

Front Loader BEV (Volvo)

Duty Cycle: Organic Material | Status: (NEW)

Focus:

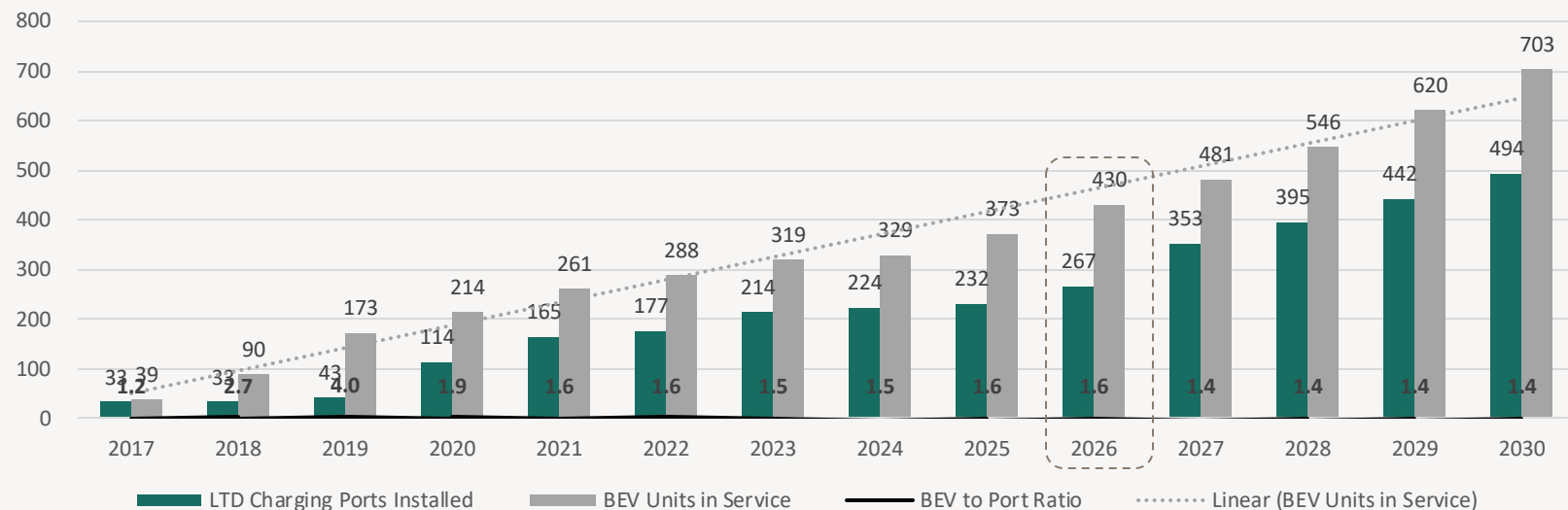
Phased Investment

Verified Outcomes

Scalable Growth

SCALING THE CHARGING NETWORK

BEV UNITS AND CHARGING PORTS



CHARGING NETWORK SNAPSHOT (CY26)



267 CHARGING PORTS

- 255 Level 2 Ports
- 12 DC Fast Chargers



2027 NORTHEAST SERVICE CENTER

- 74 Level 2 Ports
- 12 DC Fast Charging Ports

Multi-purpose fleet electrification hub



430 BATTERY ELECTRIC VEHICLES

- 1.6 BEVs Per Charging Port

Maintains Operational Charging Capacity



~ 480 MWh
Electricity delivered the last 12 months



\$.09/kWh
Austin Energy fleet charging rate

STRATEGIC DESIGN PRINCIPLES

- ✓ Distributed Level 2 charging supports overnight and workplace charging
- ✓ DC Fast Chargers provide rapid turnaround for mission critical vehicles

WHAT WE HAVE LEARNED



Austin



1

ELECTRIFY WHERE THE DUTY CYCLE FITS

BEVs perform well in predictable, return-to-base applications with sufficient charging dwell time.



2

ONE TECHNOLOGY DOES NOT FIT EVERY MISSION

Range, payload, auxiliary loads, emergency response and extended operating hours vary significantly across City operations



3

VEHICLES AND INFRASTRUCTURE MUST BE PLANNED TOGETHER

Charging location, power level and dwell time are operational requirements – not simply infrastructure decisions.



4

VALIDATE, THEN SCALE

Pilot emerging applications, measure actual performance and lifecycle cost, then expand proven solutions.



The Lesson: Electrification must be mission-driven, infrastructure-ready and validated by operating data.

THE TECHNOLOGY LANDSCAPE IS CHANGING

OEMs Are Evolving and Electrification Is Diversifying 

1

PRODUCT AVAILABILITY IS SHIFTING

BEV Offerings continue to expand in some applications, while several OEMs are redesigning products and adjusting production based on market demand.

F-150 LIGHTNING
Current BEV
production ended



F-150 LIGHTNING
(BEV)
All-Electric Vehicle

NEXT GENERATION
EREV architecture 700+
mile estimated range



NEXT GENERATION
(EREV)
Electric + Internal Combustion Engine
to Extend the Range

OEMs are redesigning products around range, towing, cost and customer requirements

2

OEM STRATEGIES ARE EVOLVING

Manufacturers are adjusting platforms, production and propulsion strategies as the market develops.



FORD

BEV F-150 Lightning → EREV

Next-generation Lightning shifts from BEV to EREV architecture.



GM

BrightDrop → Production Ended

Ended electric delivery van production in 2025 due to slower than expected demand.



STELLANTIS

Multi-path strategy

BEV+PHEV/EREV+Hybrid+ICE

Offering a range of options across vehicle classes.

3

FLEET TECHNOLOGY IS DIVERSIFYING

Multiple technologies can meet different operational needs. The market now offers more options beyond pure battery electric vehicles.



BEV
Battery
Electric

Zero tailpipe
emissions.
Predictable
duty cycles.



Hybrid
Engine +
Electric

Improved
efficiency.
Broad
application.



PHEV
Plug-in
Hybrid

Electric +
Engine.
Variable
missions.



EREV
Extended
Range
Vehicle

Electric drive
+ generator.
Extended
Range +
heavy-duty.



The Lesson: Start with the mission – then select the technology.

FY27 ACQUISITION OPPORTUNITY

Expanding Electrification Across City Operations



1 FY27 PLANNED ACQUISITIONS General Fund + Enterprise Fund

663 Vehicles | Equipment

82

Potential BEV Applications

12.4 %

of planned acquisitions

581

No Current BEV Option or
Specialized Mission

87.6%

of planned acquisitions

Top Vehicle Classes with BEV Potential



2 ELECTRIFICATION IS EXPANDING ACROSS OPERATIONS From Passenger Vehicles to Specialized Equipment

LIGHT-DUTY FLEET

BEV sedans, SUVs,
vans, selected trucks



Proven Technology



Strongest near-term
application



Deploying across
multiple departments

PARKS & RECREATION

Mean Green 72" electric
mower decks



Zero emissions



Supports sustainable
parks operations



Expanding electrification
into commercial grounds
equipment

AUS AIRPORT

Toro electric mowers



Zero emissions



Supports AUS
sustainability goals



Demonstrates
electrification into high
utilization operations

NEXT FRONTIER SOLID WASTE



Largest electrification
opportunity



High-energy, heavy-
duty application



Operational validation
before scale

3 MISSION-BASED SELECTION A consistent, data-driven approach



Market
Available



Mission
Fit



Charging
Ready



Deploy



Electrification opportunity is determined by
mission fit – not vehicle availability alone.

SOLID WASTE ELECTRIFICATION

A Heavy-Duty Case Study: From Feasibility to Operational Validation

1

FEASIBILITY & PLANNING

Early studies identified significant electrification potential.



~65%

of ARR Routes were identified as potential BEV-Compatible Under Broad Planning Assumptions

Established Potential – Not the Pace of Deployment

2

IMPLEMENTATION & VALIDATION

NESC – First ARR Electric Charging Depot

Building the Infrastructure for a Cleaner, More Resilient Austin



ARR DEFINES THE MISSION



- Routes & Collection Requirements
- Service Schedules
- Productivity & Payload

FLEET VALIDATES THE TECHNOLOGY



- Vehicle Specification & Availability
- Charging Infrastructure
- Reliability & Maintainability

3

OPERATING FRAMEWORK

Data-Driven Decisions For Responsible Scale.



MODEL

Identify Routes & Applications with Potential



DEPLOY

Introduce BEVs through Pilot Deployments



MEASURE

Collect Real-World Data: Range, KWh, Mile, Payload, Uptime, Maintenance



VALIDATE

Compare Performance, Service Reliability, Lifecycle Costs, Against existing Fleet



SCALE

Expand Deployment Where Operational & Financial Performance is Demonstrated



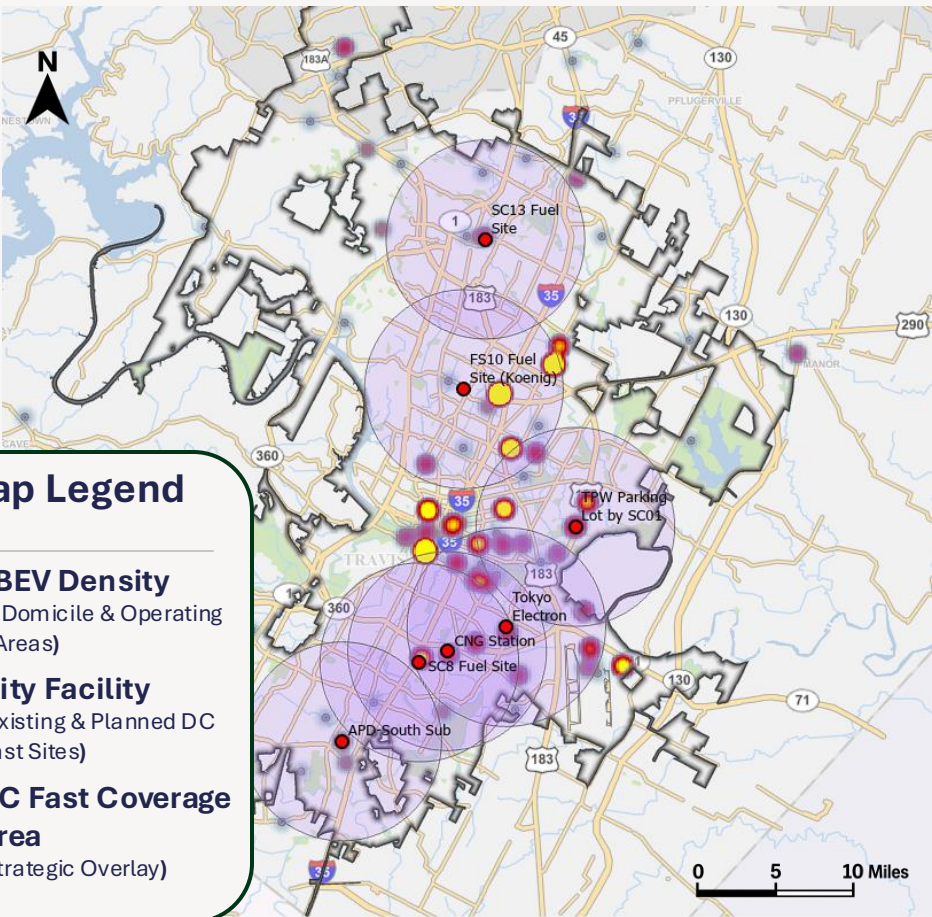
ARR defines the mission. **Fleet** validates the technology.
Together we determine the pace of deployment

CHARGING INFRASTRUCTURE STRATEGY



Austin

Match Charging Infrastructure to Vehicle Mission and Operating Geography



Level 2

Distributed + Dwell Based



- ✓ Overnight and workplace charging
- ✓ Predictable return-to-base fleets
- ✓ Lower cost distributed capacity



DC FAST

Strategic + Mission Based



- ✓ Rapid turnaround
- ✓ High utilizations + heavy-duty operations
- ✓ Strategic geographic coverage



GIS + Telematics

DATA DRIVEN SITE SELECTION



Vehicle Domicile → Duty Cycle → Dwell Time → Charging Need → Site Selection

FLEET ELECTRIFICATION ROADMAP

Austin's roadmap: deploy what is proven, validate what is emerging, and scale what performs.



FY27 - FY28

EXECUTE

Deploy Proven Technology



Scale Proven Light-Duty Applications

Prioritize by mission fit, duty cycle, and total cost of ownership.



Advance Charging Infrastructure

Implement facility-based Level 2, and strategic DC fast charge where needed e.g. NESC, ARR sites



Continue Operational Validation

APD, ARR, PARD, and other targeted pilots



Use Data-Driven Planning

Apply GIS and Telematics to guide site selection and phasing

FY29 – FY31

VALIDATE + EXPAND ➔ SCALE WHAT PERFORMS

Expand Deployment As Operational Performance, Economics, and Technology Mature.



Scale Demonstrated Applications

Expand proven BEV applications



Expand Solid Waste Electrification

Scale based on Austin operating pilots and results



Advance Heavy-Duty Charging Hubs

Develop high power charging capacity for emerging heavy-duty applications as operational demand develops



Integrate Smart Charging and V2G

Optimize energy use, load management, and grid interaction as technology develops



Evaluate Next Generation Batteries

Adopted improved battery technology as it becomes commercially viable.



AUSTIN'S ELECTRIFICATION ROADMAP IS DISCIPLINED, DATA-DRIVEN AND ADAPTABLE - SCALING PROVEN TECHNOLOGY AS OPERATIONAL CAPABILITY AND INFRASTRUCTURE MATURE.



Thank you | Questions?



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