

OCTOBER 25-27, 2022 · SAN JOSE, CA

OCTOBER 25-27, 2022 · SAN JOSE, CA

Accelerating Your Fleet Electrification Journey



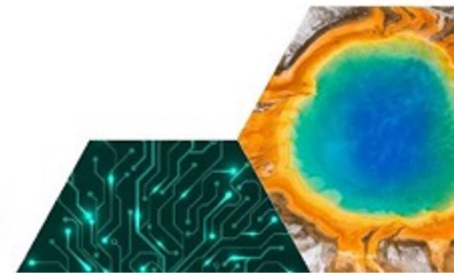
Nicole Efron
Dir. of Development
NextEra Mobility



Margaret McCall
Manager, Customer
Success & Data Analytics
NextEra Mobility



Yann Kulp
Dir. Business Development
NextEra Mobility





NEXTERA
MOBILITYSM

DECIDE: FROM LIGHTBULB TO PILOT

WHY ELECTRIFY AND WHERE TO START



NextEra Energy is a clean energy leader composed of two primary businesses

NEXtera
ENERGY

NextEra Energy, Inc.

- » Fortune 200 company
- » 95-year track record
- » \$19.2B operating revenue
- » ~54 GW in operation
- » NYSE: NEE



Florida Power and Light (FPL)

- » One of the largest US electric utilities
- » 5 MM customer accounts
- » 27,400 MW of net generating capacity
- » Lowest bills in the state
- » ~60% of NEE operating revenue

NEXtera
ENERGY
RESOURCES

NextEra Energy Resources, LLC

- » World leader in renewable generation
- » Over 21,000 MW in operation
- » >200 operating assets in 37 states & Canada
- » Includes Power Marketing & DG businesses
- » ~40% of NEE operating revenue

NextEra energy is the world's leading sustainable energy company

For 25+ years, decarbonization has been our core strategy

Wind, Solar, & Battery Storage



Supply Chain



Engineering &
Construction



Proprietary Analytics



\$145 B

Total assets

61 GW of energy generation¹

28 GW of renewable generation in operation¹

18 GW of renewable generation under development¹

4.5 GW of battery storage operating and under development¹

\$100 B

Capital invested from 2011-2020

- » **47% better** CO₂ emissions rate than industry average²
- » **98% power** generated from clean or renewable resources²
- » **63% better** operating costs than industry average^{2,3}
- » **83% improvement** in safety performance since 2003²
- » **\$17B** state and local taxes paid in 2020²

1. As of March 31, 2022

2. As of December 31, 2020

3. Florida Power & Light Company

WHO WE ARE



ADVISORY FLEET EV ADVISORY LEADER

Leader in North America,
over 300,000 vehicles
assessed for Fortune
500, public and federal
fleets

Provides fleet
electrification modeling,
change management and
site energy design



EN-ROUTE HIGHWAY CHARGING NETWORK

\$650 million Joint
Venture with Daimler
Trucks and Blackrock

Addresses need for
regional and long-haul
charging infrastructure



CUSTOMER DEPOT INFRASTRUCTURE "AS-A-SERVICE"

Turn-key charging
infrastructure for
corporate and public
fleet depots

Reduces upfront cost
of infrastructure for
customer owned
charging sites



OFF-SITE E-PORT MULTI-USER CHARGING

Shared turn-key fleet
charging hubs in major
US cities

Dedicated charging
locations for customers
without owned depot
charging access



MARKET FORCES FOR FLEETS AND EVS

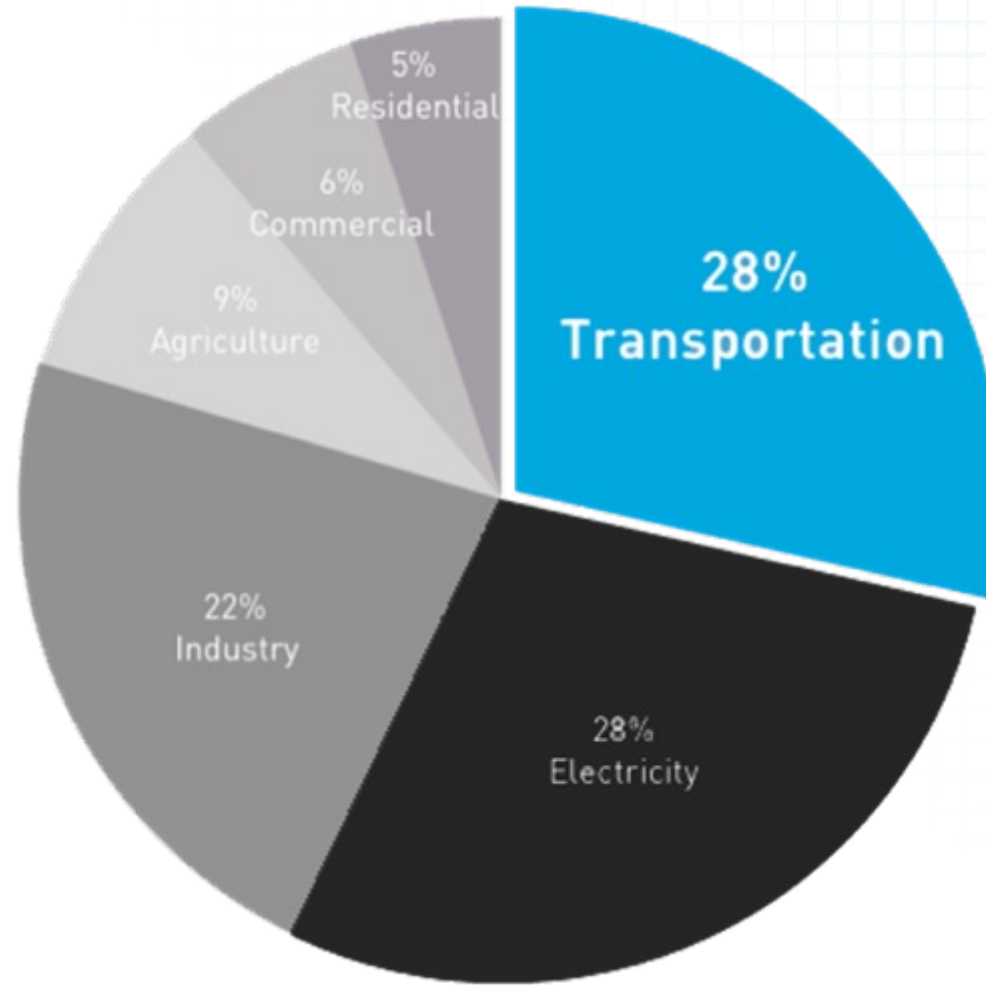


FLEETS ARE A HUGE INDUSTRY, READY FOR ELECTRIFICATION

300 billion
Miles Traveled

\$200 billion
Annual Spend

40+ million
vehicles



MANUFACTURERS INVEST \$300 BILLION IN EVS FOR THE US



Rivian R1T



Tesla model 3



Nissan Ariya



VW ID4



Ford Transit EV



GMC Hummer EV



Tesla Cybertruck



Lordstown Endurance



GM Silverado



Ford F150 EV



Tesla Semi



Blue Bird EV bus



Rivian Amazon



LION 8 truck



Daimler eCascadia



Arrival UPS



MOTIV box truck



Lightning E-450



Peterbilt 220 EV



Volvo VNR EV



Orange EV – yard truck



Brightdrop ZEVO 600 (GM)



XOS e-van



Harbinger e-van



Thomas Bus Jouley

GROWING POLICY AND SUSTAINABILITY MANDATES



Inflation
Reduction
Act

15+ states
follow CA
clean car
standards



VA passes 5 EV-friendly bills



Congress

Congress moves to establish electric vehicle pilot program for Defense Department



All 50 states get green light to build EV charging stations covering 75,000 miles of highways

PUBLISHED TUE, SEP 27 2022-12:40 PM EDT | UPDATED TUE, SEP 27 2022-2:26 PM EDT

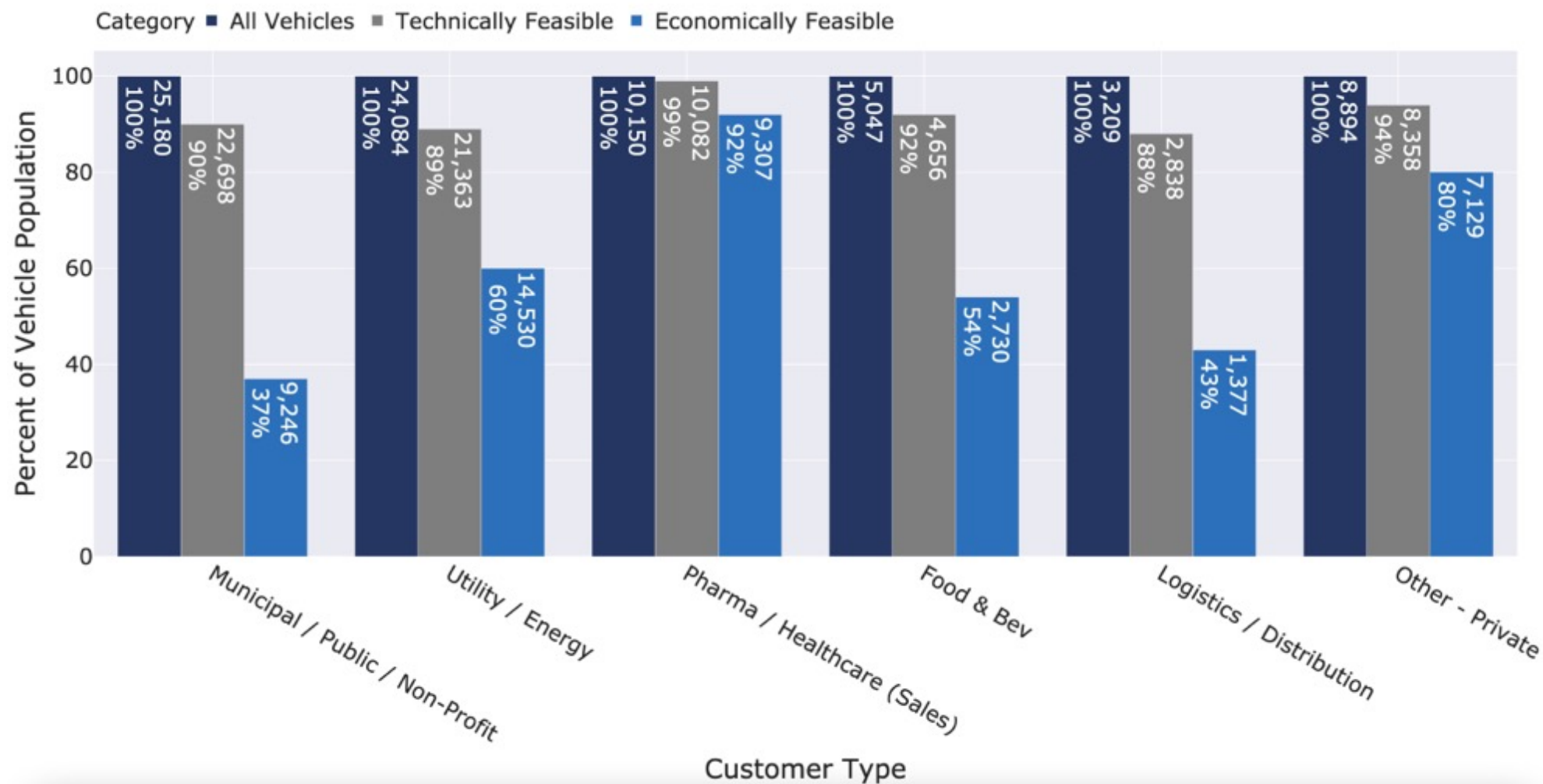
Biden to expand federal fleet of EVs in bid to make government carbon-neutral by 2050

PUBLISHED WED, DEC 8 2021-2:56 PM EST | UPDATED WED, DEC 8 2021-8:16 PM EST

Emma Newburger
@EMMA_NEWBURGER

SHARE f t in e

FLEETS HAVE VERY STRONG EV OPPORTUNITIES



Source: 88,000 vehicles assessed by eIQ Mobility

FLEET ELECTRIFICATION IS A COMPLEX JOURNEY

MASTERPLAN

- » Pick locations, EVs, chargers, vendors, define costs, emissions, incentives

DEPLOY PILOT

- » Finance and deploy assets, Electric Vehicles and energy & EV charging infrastructure

OPERATE & OPTIMIZE

- » The new electric fleet and facilities, including energy and EV charge management

SCALE UP

- » Learn from pilots, create a fleet-wide strategy and scale across operations



EIQ MOBILITY, THE LEADER IN FLEET ELECTRIFICATION ASSESSMENTS

- » #1 provider of fleet electrification assessment solutions for fleets, utilities, OEMs, and FMCs
- » Deepest experience with utilities, telecom, delivery, pharma, food & beverage, cities, states, universities, K-12, and other fleets

100+ FLEETS & CUSTOMERS

300,000+ VEHICLES

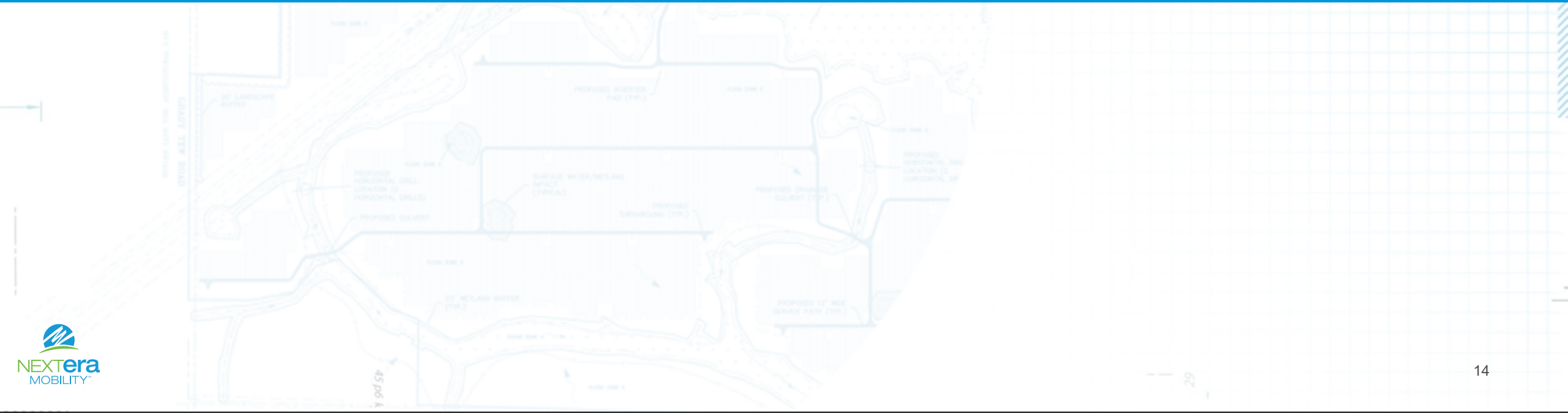
5+ MILLION TRIPS

450+ MILLION MILES





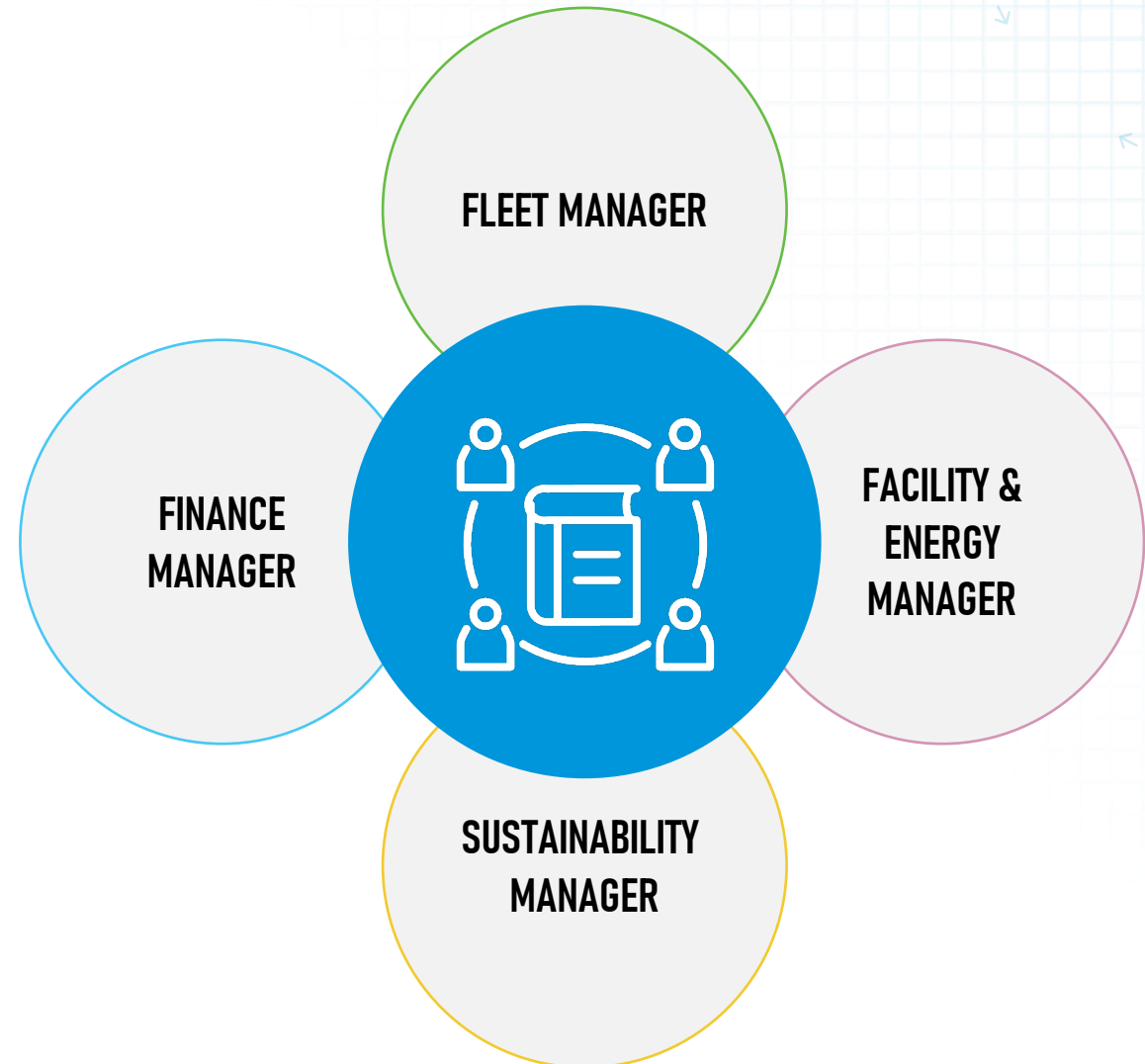
HOW TO START



YOUR FLEET ELECTRIFICATION PLAN MUST BE DATA-DRIVEN

A data-driven plan aligns stakeholders, reduces risk

- » Conversation about electrification on the horizon or here already
- » Plan can unite stakeholders
- » What does it mean to be data-driven?
 - Systematic approach
 - Leverage existing data
- » Risk of starting without a plan



KEY CRITERIA TO CONSIDER WHEN DETERMINING WHERE TO START



VEHICLE FEASIBILITY

Do EVs exist that can do the job required by your fleet?



CHARGING FEASIBILITY

If you acquire EVs, can you design a charging plan that will work for them?



FINANCIAL FEASIBILITY

What is the cost impact of electrifying?



TIMELINE FEASIBILITY

How does electrification fit within your organization's timeline?

VEHICLE FEASIBILITY

Do EVs exist that can do the job required in your fleet?

	TECHNICAL FEASIBILITY	OPERATIONAL FEASIBILITY
First-order	▷ Does an EV exist of the right vehicle type and weight class? ▷ Does it have the right features (e.g., cargo space)? ▷ Can it handle your upfitting (e.g., carry a ladder)?	▷ Does the EV range match the range needed by your vehicles? ▷ What fraction of the time?
Next-level	▷ Can it handle your upfitting (e.g., run a refrigeration unit)?	▷ Can it meet your routes in the mountains? ▷ in the winter? ▷ While fully loaded? ▷ while running a refrigeration unit?

CHARGING FEASIBILITY

If you acquire EVs, can you design a charging plan that will work for them?

	DWELL LOCATION	DWELL CONSISTENCY	DWELL TIME
First-order	▷ Does the vehicle overnight at a depot? ▷ Is depot controlled long-term? ▷ Is vehicle take-home? ▷ Is residence an owned single-family home?	▷ Does the vehicle return to the same location every night?	▷ What charger power will recharge your vehicles in given dwell time?
Next-level	▷ Is depot not controlled long-term? ▷ Is residence a MUD or a rental? ▷ Is employee turnover a concern?	▷ Does the vehicle overnight at multiple different locations?	▷ If dwell time is limited, is it feasible to charge for your routes?

FINANCIAL FEASIBILITY

What is the cost impact of electrifying?

	VEHICLE FINANCIALS	CHARGING FINANCIALS
First-order	▶ Does EV save money compared to gas/diesel vehicle on a TCO basis? ▶ On a capex/opex basis?	▶ How do charging costs impact the financials on a TCO basis? ▶ Networking ▶ Power ▶ Energy costs
Next-level	▶ Which TCO elements are currently unknown? ▶ Which incentives can be realistically realized?	▶ How do site-specific grid upgrade costs impact the financials? ▶ Is on-site or off-site charging more cost-effective?

TIMELINE FEASIBILITY

How does electrification fit within your organization's timeline?

	FLEET REPLACEMENT CYCLE	BUDGET CYCLE	VEHICLE / CHARGER AVAILABILITY
First-order	▶ Which vehicles are due for replacement in the near term?	▶ Are annual vehicle replacement budgets sufficient to cover cost of EVs, which may cost more upfront than ICE vehicles?	▶ Are EVs being produced and delivered on the timeline required by your organization? ▶ Can charging be set up on required timeline?
Next-level	▶ Are certain vehicles without suitable EV candidates due for replacement in the near term?		

USING KEY CRITERIA TO GET STARTED

A data-driven approach will let you answer these key questions

OUTCOME OF PLANNING PROCESS

- » Key criteria will identify high-potential sites
- » Pick a place to start
 - Use organizational priorities to tiebreak
 - Start with best location for vehicle operations and site suitability
 - Learn most by focusing on one location
- » Make pilot a step towards your overall goal

LOW-HANGING FRUIT FOR EARLY ACTION

- » LDVs (or certain MHDVs, esp with incentives)
- » Poor fuel mileage from idling/city driving
- » Consistent dwell patterns at controlled locations
- » Predictable, realizable incentives
- » Good economics (hint! Sometimes a “luxury” brand pencils)
- » Vast majority of days within an EV’s range
- » Soon to retire

WHERE NEXT?



NEXTERA
MOBILITYSM

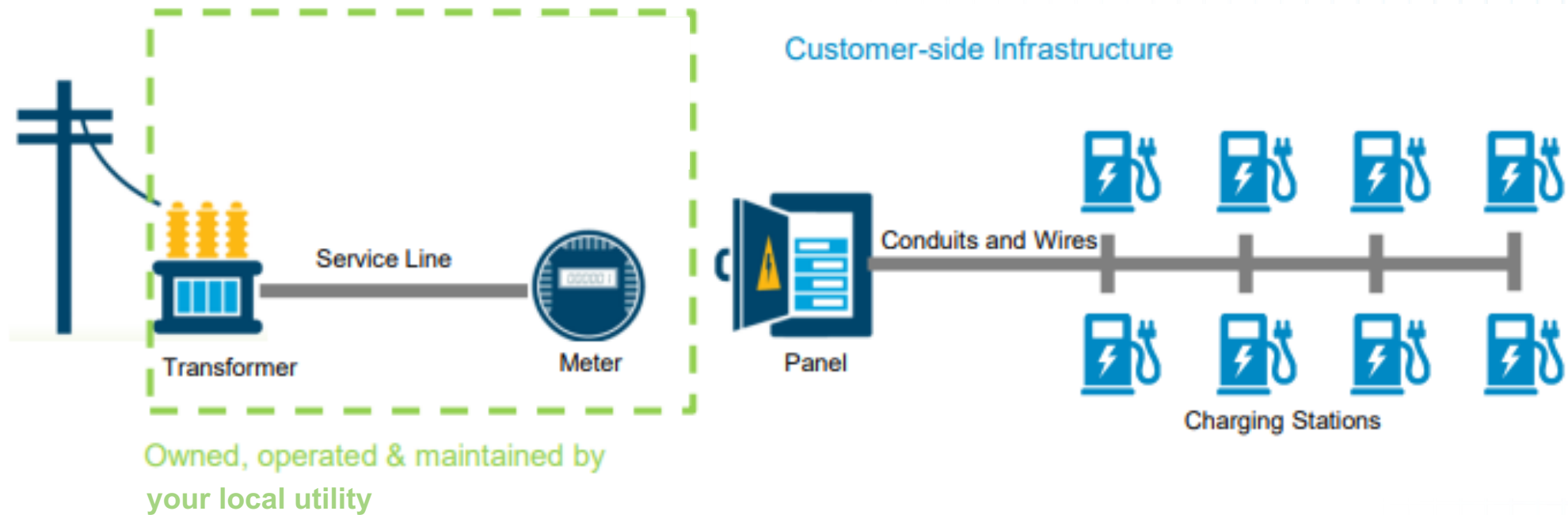
PILOT AND IMPLEMENT

DEVELOPING INFRASTRUCTURE FOR AN EV FLEET



WHAT IS CHARGING INFRASTRUCTURE?

Charging infrastructure comprises traditional utility service equipment & your charging stations and associated equipment

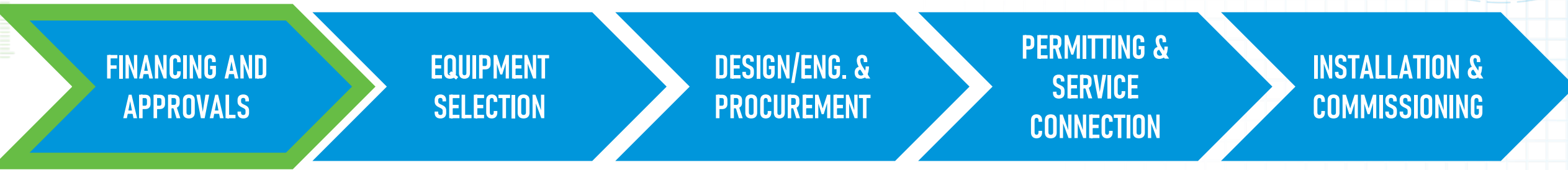


KEY STEPS IN PROJECT DEVELOPMENT AND DEPLOYMENT

These steps can be complex and have many stakeholders, dependencies, and long lead-times



Long lead time!



AWARENESS OF WHAT IT TAKES TO BRING A PROJECT TO LIFE WILL HELP YOU MEET YOUR SCHEDULE COMMITMENTS, BUDGET, AND OPERATIONAL REQUIREMENTS

FINANCING AND APPROVALS

Electrification projects may be capital-intensive & have long approval cycles

- » Early industry experience indicates funding can be a challenge & internal approval cycles can be lengthy
- » Upfront electrification costs for infrastructure (excluding vehicle procurement) can run in the millions
- » Funding support may be available – requires seeking funding early and strong understanding of program requirements
 - Grant programs
 - Utility EV programs
- » Explore alternative funding models – such as Charging-as-a-Service
- » Expect long approval cycles – begin now
 - First-of-a-kind within your organization
 - Size of project
 - Alignment with capital budgeting cycles



KEY STEPS IN PROJECT DEVELOPMENT AND DEPLOYMENT



- Start now
- Explore alternative funding models

EQUIPMENT SELECTION

Make sure to consider more than just charger make and power level

- » Project parameters – charger-to-EV ratio, charger power
- » Usability and practical matters
- » Approved product lists
- » Other grant program requirements



KEY STEPS IN PROJECT DEVELOPMENT AND DEPLOYMENT

FINANCING AND
APPROVALS

EQUIPMENT
SELECTION

DESIGN/ENG. &
PROCUREMENT

PERMITTING &
SERVICE
CONNECTION

INSTALLATION &
COMMISSIONING

- Start now
- Explore alternative funding models

- Consider usability, not just make/power levels

DESIGN AND PROCUREMENT

Project design and procurement can present opportunities for optimization, but if not done right, can present unexpected costs or delays for your project

OPPORTUNITIES



**INNOVATIVE
DESIGNS**

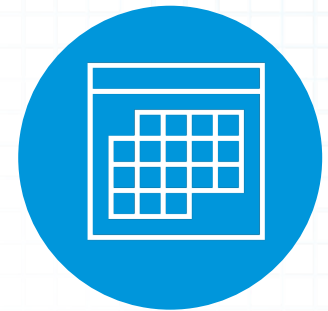


**FUTURE-
PROOFING**

UNDERSTAND COMPLEXITIES



**CODE
COMPLIANCE**



**PROCUREMENT TIMELINES &
COORDINATION**



KEY STEPS IN PROJECT DEVELOPMENT AND DEPLOYMENT

FINANCING AND APPROVALS

- Start now
- Explore alternative funding models

EQUIPMENT SELECTION

- Consider usability, not just make/power levels

DESIGN/ENG. & PROCUREMENT

- Look out for opportunities to optimize, understand complexities

PERMITTING & SERVICE CONNECTION

INSTALLATION & COMMISSIONING

PERMITTING

There is significant diversity between jurisdictions on requirements and timelines

» Permitting timelines can vary significantly between jurisdictions



- High variability – industry experience has been a few months to over a year
- There are efforts today to streamline permitting in some jurisdictions

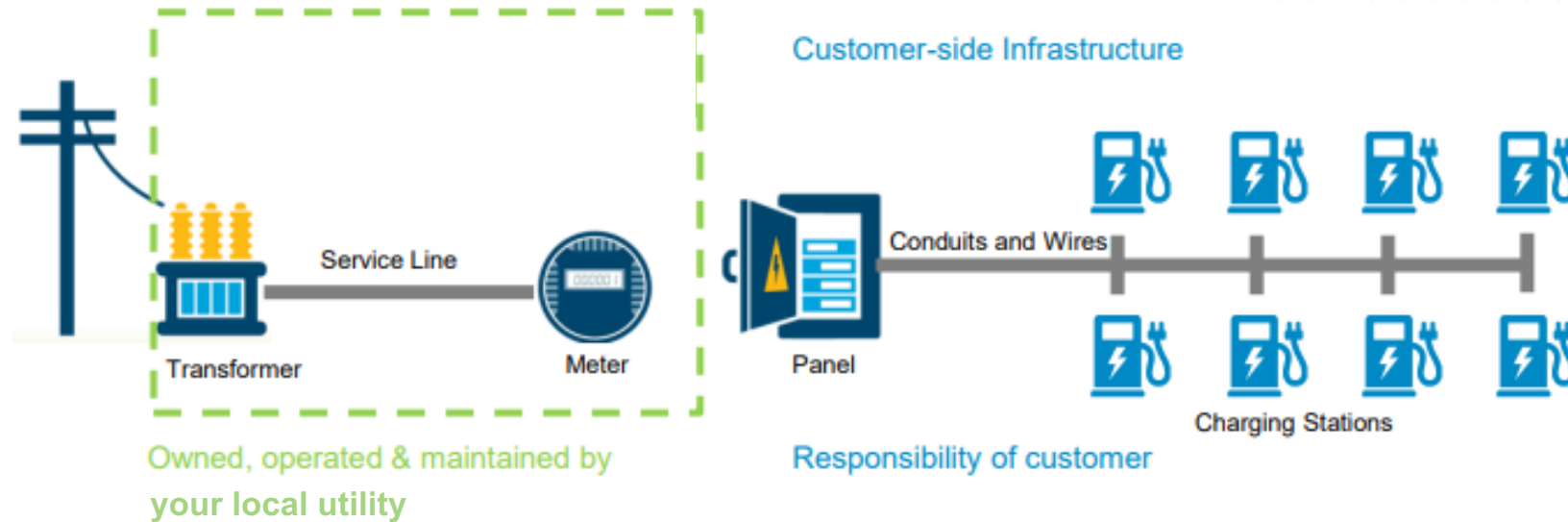
» What you need to know

- Understand your jurisdiction's requirements and process
- Rely on early coordination with local authorities having jurisdiction (AHJ)



SERVICE CONNECTION

What does it take to bring power to your site?



- » What is a service connection?
- » What does it take to bring power to your site?
 - Local utility process
 - Scope of service connection work can vary

SERVICE CONNECTION

Bringing power to your site can require significant lead-time



» New service

- Can take 12-24 months
- Utility make-ready programs, where available



» Existing service

- A potential option if/where possible
- Relies on software to manage your charging!

» What you need to know:

- Service connection timelines can drive your project schedule
- Early coordination with local utility
- Make use of local programs
- Project partner experience matters

KEY STEPS IN PROJECT DEVELOPMENT AND DEPLOYMENT

FINANCING AND APPROVALS

- Start now
- Explore alternative funding models

EQUIPMENT SELECTION

- Consider usability, not just make/power levels

DESIGN/ENG. & PROCUREMENT

- Look out for opportunities to optimize, understand complexities

PERMITTING & SERVICE CONNECTION

- Understand requirements and timelines upfront

INSTALLATION & COMMISSIONING

INSTALLATION AND COMMISSIONING

Select experienced vendors who will ensure the least disruption to your site operations

- » Construction
- » Commissioning
- » Be on the lookout for:
 - Safety
 - Communication
 - Schedule changes
 - Scale matters



KEY STEPS IN PROJECT DEVELOPMENT AND DEPLOYMENT

FINANCING AND APPROVALS

- Start now
- Explore alternative funding models

EQUIPMENT SELECTION

- Consider usability, not just make/power levels

DESIGN/ENG. & PROCUREMENT

- Look out for opportunities to optimize, understand complexities

PERMITTING & SERVICE CONNECTION

- Understand requirements and timelines upfront

INSTALLATION & COMMISSIONING

- Experience matters

- » Deployment involves many stakeholders and long lead-times
- » Bringing a project to life could take up to 2 years or more
- » You should engage with your infrastructure provider early



THE RIGHT TIME TO INITIATE YOUR CHARGING INFRASTRUCTURE DEPLOYMENT IS NOW!

INTEGRATED TURNKEY PROVIDERS CAN HELP YOU SEE AROUND CORNERS

Charging-as-a-Service model is one way to ensure your project is deployed smoothly

» Turn-key provider:

- Finances charging stations (and more)
- Designs/procures/constructs the infrastructure, interconnects with grid
- Provides **software solution** to manage vehicles' charging
- **Owns and operates** the infrastructure to meet fleet's operational needs while minimizing energy cost

» Charging-as-a-service combines hardware, software, and ongoing service into a single offering, in a subscription-based model

» Benefits

- Financing to convert upfront capital spend into predictable operating expense
- Single accountable provider
- Long-term risk and cost management



ENERGY COST MODELING FOR ELECTRIC FLEETS

ELECTRIC VEHICLES HAVE A NEW FUELING PARADIGM

$\$/\text{GAL} \neq \$/\text{KWH}$

\$/GAL $\neq$ \$/KWH

It matters **when** you use it

» Short-term variability

- \$/kWh varies by hour (time-of-use), by season
- \$/gal varies over weeks/months

» Longer-term changes

- \$/kWh
 - Set by regulatory body, step-changes frequently
 - Will evolve with more renewables and EVs
- \$/gal also hard to predict in a changing world

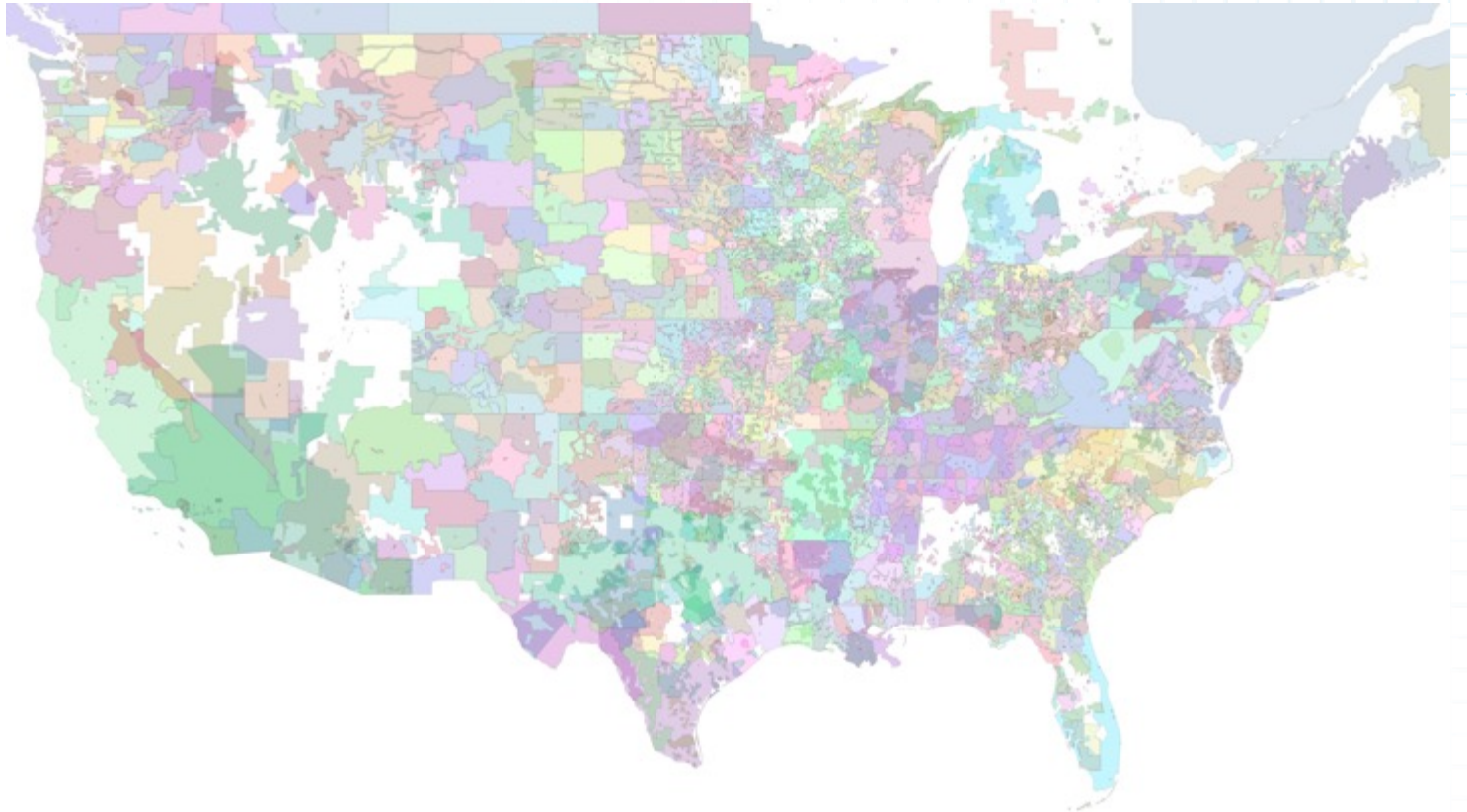
Hour	Energy		
	June-Sept	Oct-Feb	Mar-May
0	\$0.122	\$0.122	\$0.122
1	\$0.122	\$0.122	\$0.122
2	\$0.122	\$0.122	\$0.122
3	\$0.122	\$0.122	\$0.122
4	\$0.122	\$0.122	\$0.122
5	\$0.122	\$0.122	\$0.122
6	\$0.122	\$0.122	\$0.122
7	\$0.122	\$0.122	\$0.122
8	\$0.122	\$0.122	\$0.122
9	\$0.122	\$0.122	\$0.067
10	\$0.122	\$0.122	\$0.067
11	\$0.122	\$0.122	\$0.067
12	\$0.122	\$0.122	\$0.067
13	\$0.122	\$0.122	\$0.067
14	\$0.147	\$0.122	\$0.067
15	\$0.147	\$0.122	\$0.122
16	\$0.183	\$0.160	\$0.160
17	\$0.183	\$0.160	\$0.160
18	\$0.183	\$0.160	\$0.160
19	\$0.183	\$0.160	\$0.160
20	\$0.183	\$0.160	\$0.160
21	\$0.147	\$0.122	\$0.122
22	\$0.147	\$0.122	\$0.122
23	\$0.122	\$0.122	\$0.122

Hourly and seasonal variability in PG&E Large Industrial rate

$\$/\text{GAL} \neq \$/\text{KWH}$

It matters **where** and **who** you are

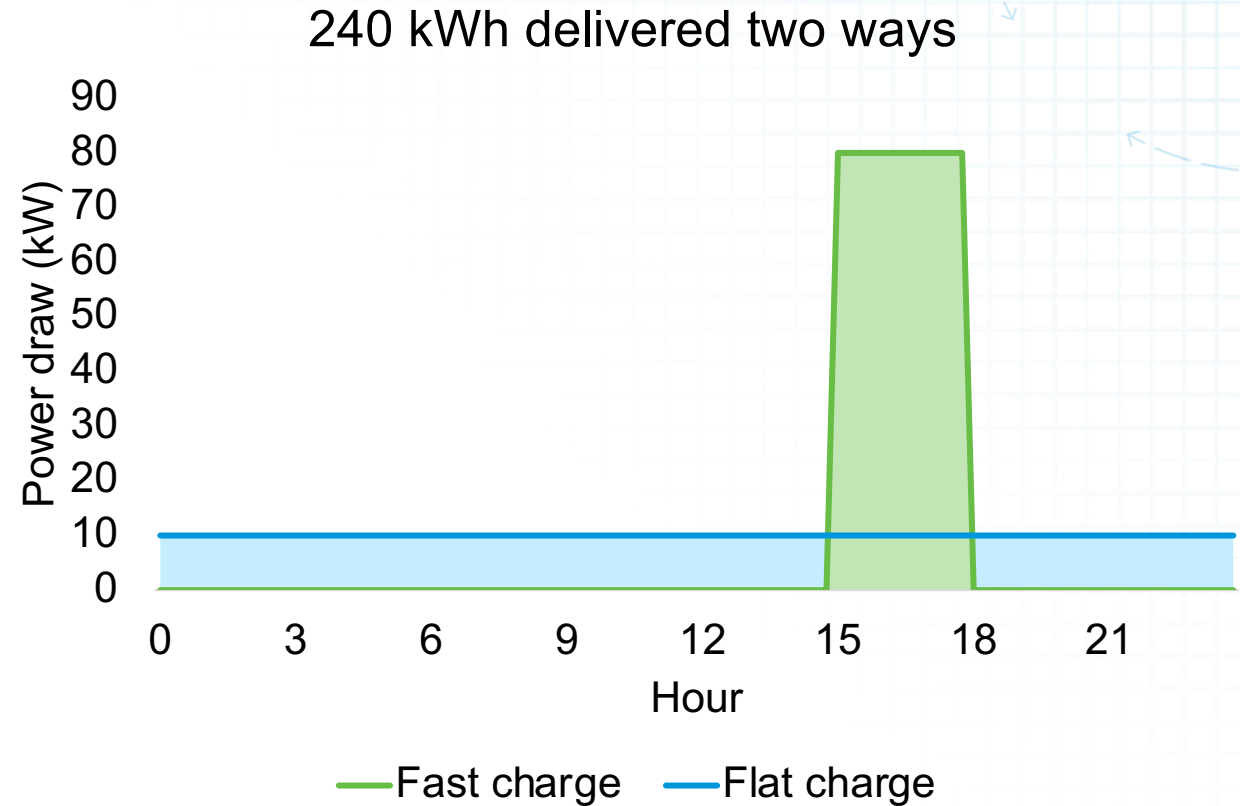
- » There are 3,000 utilities in the US, and each has a different rate structure
- » Regulations and conventions differ by region
- » Different customers have different rates



$\$/\text{GAL} \neq \$/\text{kWh}$

It matters **how fast** you fuel up

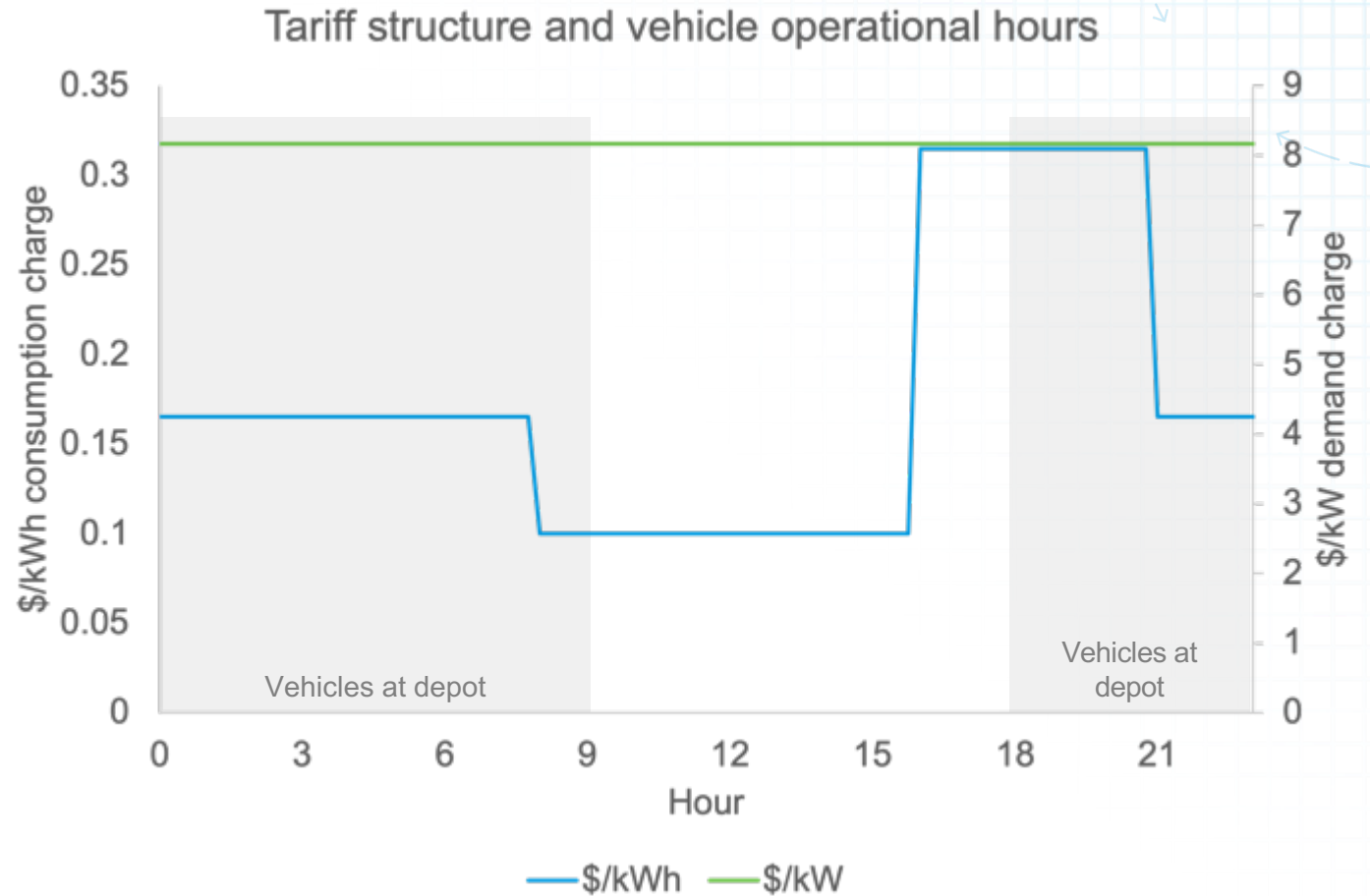
- » $\$/\text{kWh}$ seems like one number, but actually has 3 components blended together
 - Consumption: $\$/\text{kWh}$
 - Demand: $\$/\text{kW}$
 - Quantity: $\$/\text{month}$
- » The same amount of energy (kWh) can be delivered in different ways; cost can be dramatically different depending on timing/magnitude of power draw



CONTROLLING ENERGY COSTS IS EASIER WITH MANAGED CHARGING

Example truck fleet scenario:

- » Fleet of class 6 box trucks is away from depot from 9am-6pm
- » Vehicles travel average of 90 miles/day; use 130 kWh on average, more in extreme temps/long days
- » Selected 25-kW chargers to cover cases where full charge required
- » Utility tariff has time-of-use (TOU) rate ending at 9pm and a demand charge



CONTROLLING ENERGY COSTS IS EASIER WITH MANAGED CHARGING

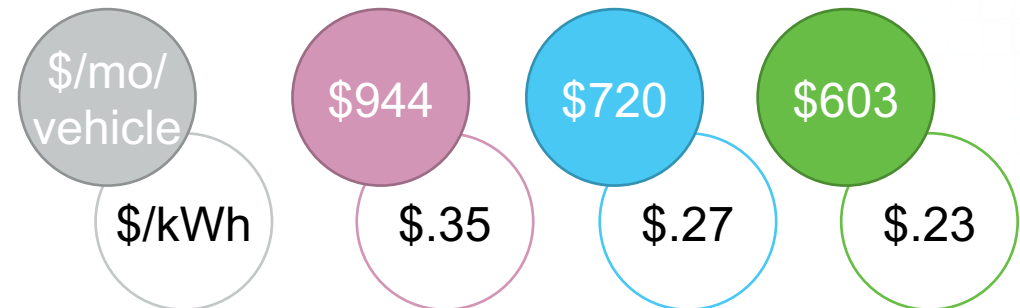
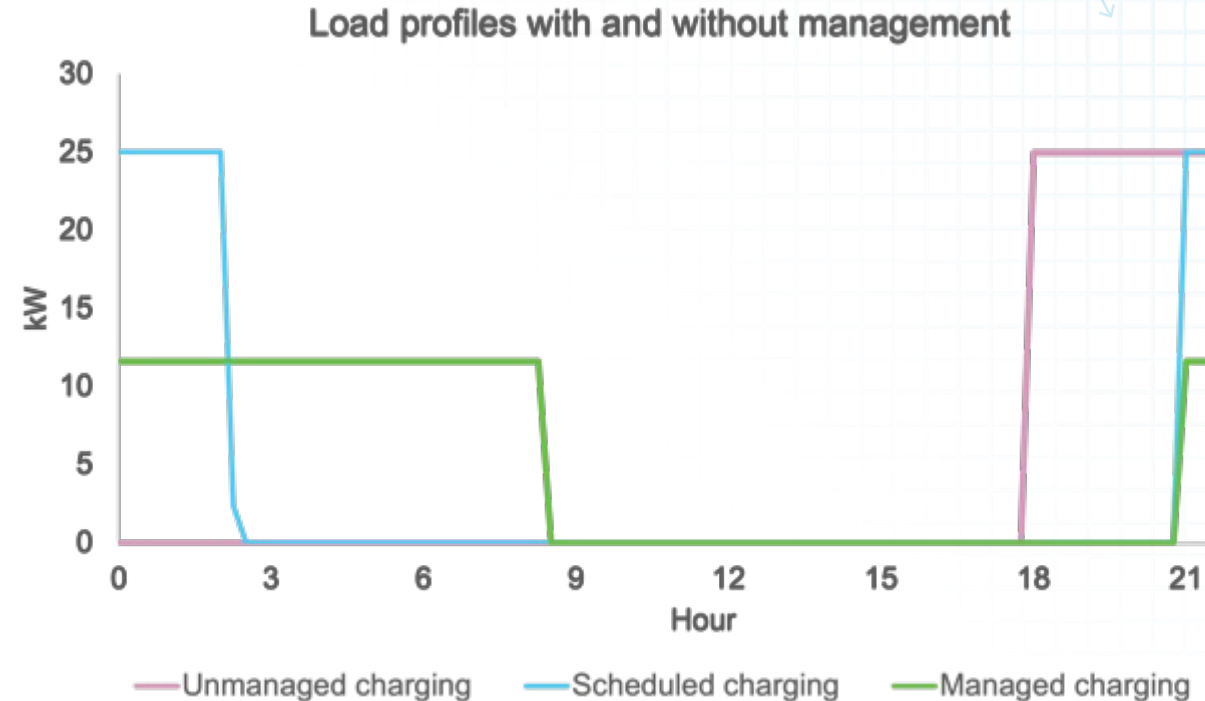
Managed charging can mitigate cost of charging this fleet

» Options

- Unmanaged charging
Vehicles start charging when they return to depot
- Managed charging
Drivers plug in vehicles when they return, but software manages charging to minimize cost

» Unmanaged charging costs 57% more than managed charging – an extra \$341/vehicle/month

» Scheduling charging to start at 9pm >> 19% more expensive than managed





NEXTERA
MOBILITYSM

CONSIDERATIONS TO OPERATE

MANAGING YOUR EV FLEET AFTER INSTALLATION



ENSURE THE RIGHT OPERATIONAL STRUCTURE TO FOCUS ON YOUR CORE BUSINESS

What does it look like when everything goes right? What is your plan for when it doesn't?

- » Consider two key operational capabilities
 - Managed charging
 - Maintenance
- » The right project partner can ease the transition from implementation through operations and make an electrified fleet as 'set and forget' as possible



MANAGED CHARGING

What is managed charging?

- » Many meanings!
- » Why do you need managed charging?
 - Energy management – minimize cost
 - Operational needs – complete routes
 - Asset management



MANAGED CHARGING

Managed charging is not just a box to check

KEY FUNCTIONALITY

- » Hardware status and control
- » Cost minimization
 - Integration with utility tariffs
 - Integration of site/fleet-specific constraints
 - Dynamic adaptation to unexpected conditions
- » Control charging within electrical requirements

ADDITIONAL CONSIDERATIONS

- » User interface and dashboards
- » Reporting/analysis

THE QUALITY OF YOUR MANAGED CHARGING SOFTWARE CAN MAKE OR BREAK USER EXPERIENCE AND OPERATIONS/FINANCIAL PERFORMANCE OF YOUR SITE

MANAGED CHARGING

Integration of software into your project requires technical know-how and stakeholder coordination



» Software integrations

» Change management and process development

**DON'T LET THESE OPERATIONAL CONSIDERATIONS BE
AFTERTHOUGHTS FOR YOUR PROJECT**

MAINTENANCE

Asset management must be built into your operational plans



Preventative
maintenance



Corrective
maintenance

ITERATIVE APPROACHES TO GROWING AND LEARNING

Moving through electrification pilots will require planning, testing, and flexibility

» Pilots should serve a clear purpose

- Be the first step in broader plan
- Inform evolution of plan

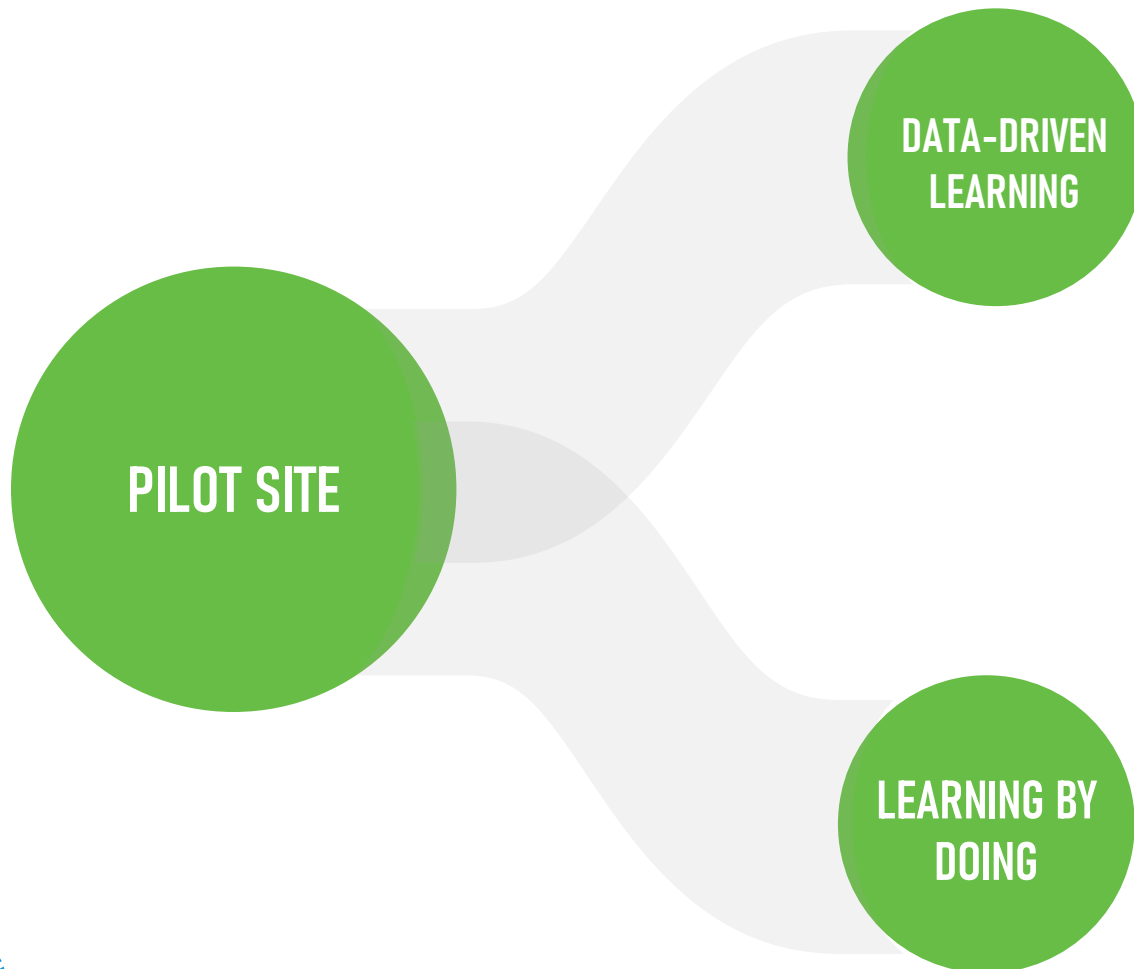
» Growing beyond pilots will require

- Revisiting projections regularly
- Understanding procurement cycles
- Coordinating beyond fleet



USING THE PILOT TO INFORM THE PLAN

Define what questions your pilot is intended to answer and be open to broader learnings



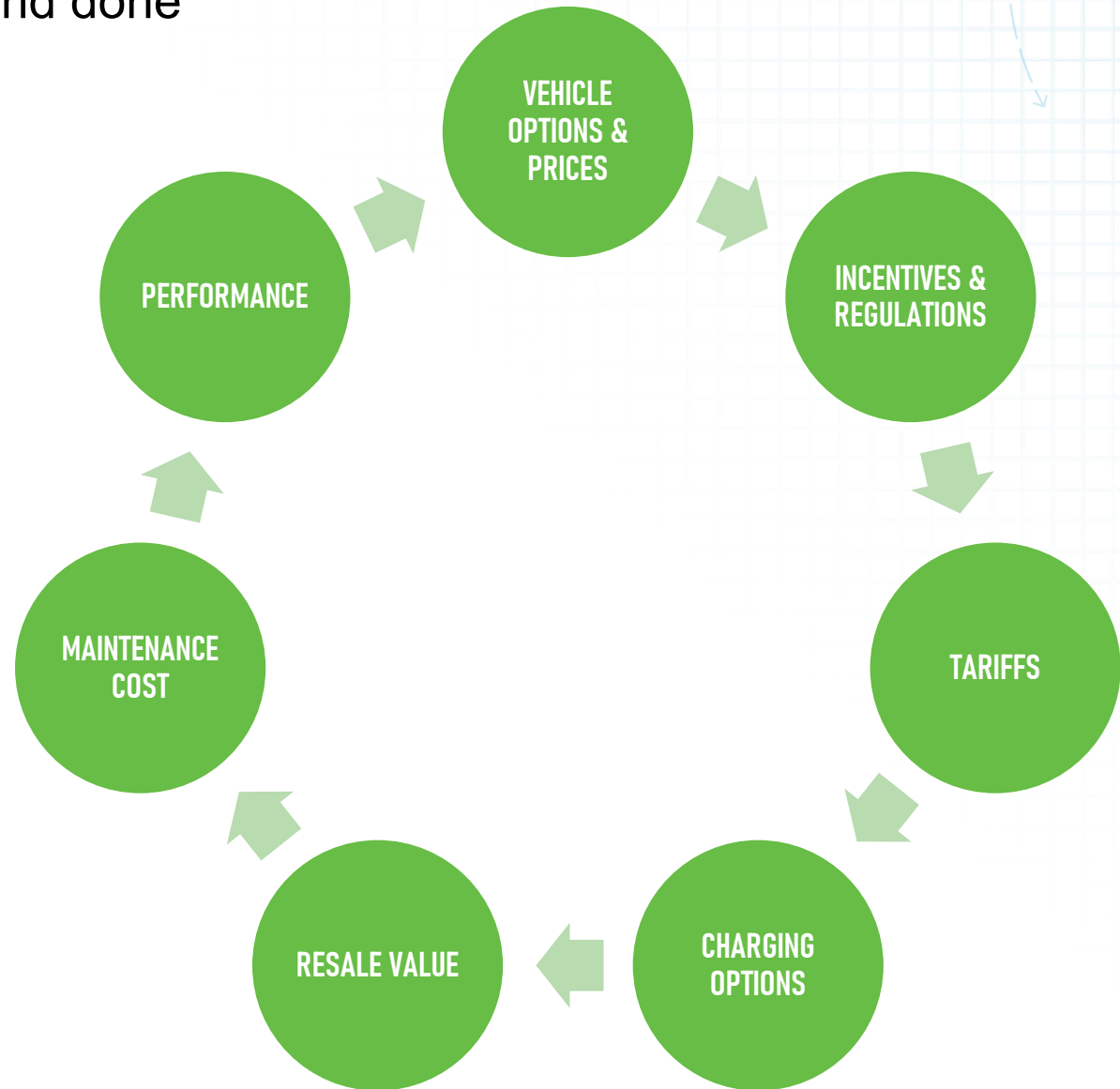
- » Make a plan before collecting data
 - Which questions are you trying to answer?
 - What data do you need to answer these questions?
- » Ensure you can access and analyze data
- » Track and revisit data you collect

- » Test what it means to electrify a site
- » Gather experience with timelines, criteria for vendors, unexpected roadblocks

GROWING BEYOND PILOTS: REVISITING PROJECTIONS

Fleet electrification planning isn't one and done

- » Revisit projections regularly – key information is changing all the time
 - New market variables to inform available options
 - New data to enable more accurate modeling
- » Plan concretely for next few years while working backwards from goal



ACCELERATING YOUR FLEET ELECTRIFICATION JOURNEY

- » Data-driven approach is the way to go, both to get started and to move past pilots
- » Fueling is different with EVs, and managed charging is the key to cost savings
- » Infrastructure can take a long time to deploy – engage with your provider now!
- » Consider integrated solutions providers to help you see around corners

- This presentation and the information contained herein has been prepared solely for informational purposes. NextEra makes no warranty or representation of any kind, express or implied, regarding the accuracy, adequacy, validity, reliability, availability, or completeness of any information contained herein. NextEra shall not be liable for any damages arising in contract, tort, warranty, strict liability, or otherwise from the use of or inability to use the information contained herein, or from any action or decision taken as a result of using the information contained therein.
- **For further information or a detailed analysis of individual business opportunities with NextEra Mobility involving fleet electrification, please contact [Yann Kulp at yann.kulp@nexteraenergy.com](mailto:yann.kulp@nexteraenergy.com).**