Multiunit Dwelling Electric Vehicle Supply Equipment Grant Program

Bronwyn Cooke, Department of Housing and Community Development
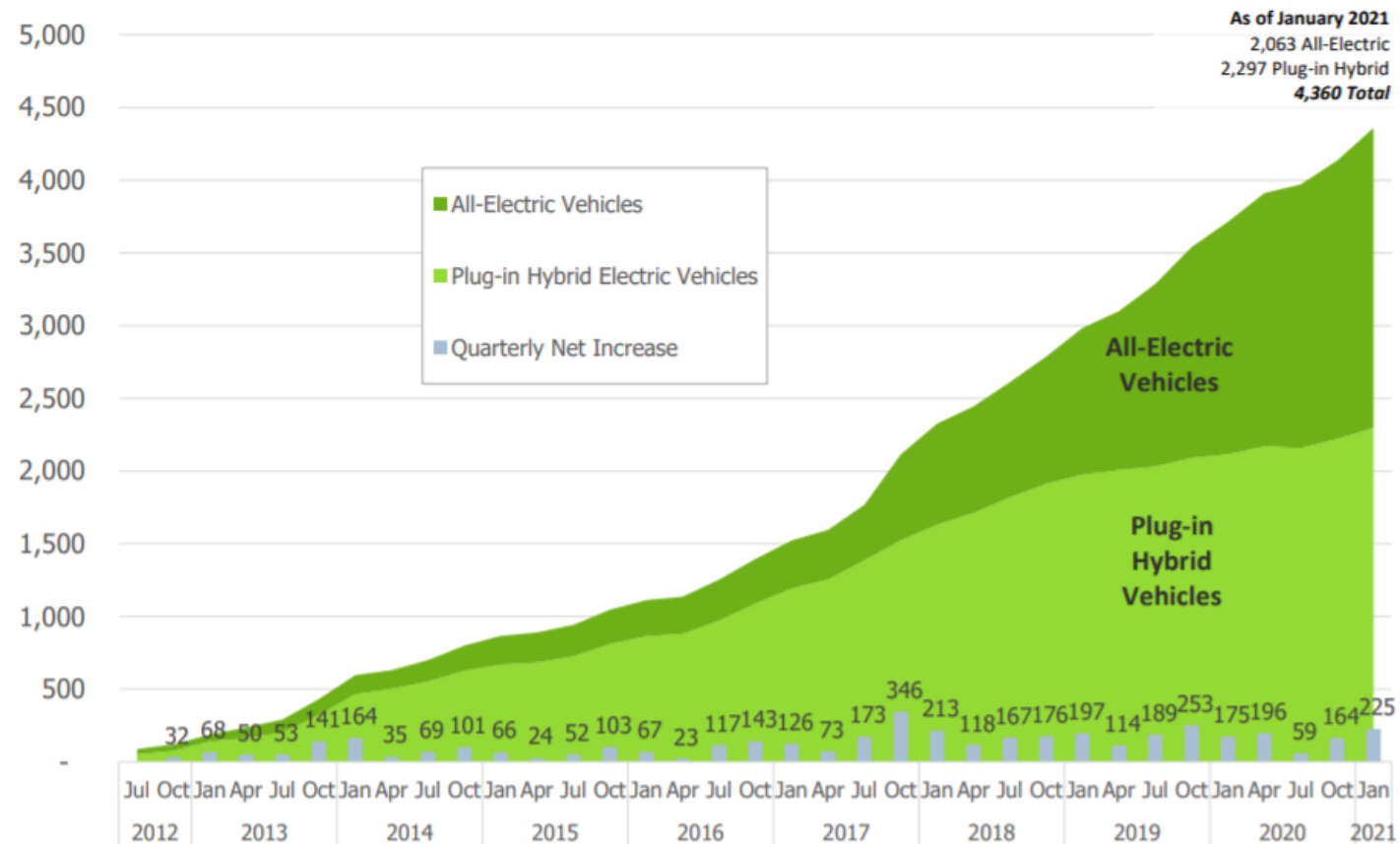Dave Roberts, Drive Electric Vermont

Informational Workshop
January 26th, 2022

Agenda

1. Introductions
2. Grant Program Overview
3. Charging Equipment Basics
4. Costs
5. Managing Charging Equipment
6. Grant Program Details
7. Q&A

Program Overview | Electric Vehicle (EV) Trends

Vermont Electric Vehicle Registrations

Program Overview | EV Cost Savings

Gasoline Vehicle: 24 miles

24	3.40
miles per gallon	local $ per gallon

Electric Vehicle: 54 miles

0.33	19.12
kWh/mile	Utility ¢ per kWh rate

Statewide average ~paying $1.51 per gallon

Estimated annual savings

The annual cost comparison shown below is based on the above cost and efficiency information combined with estimated annual vehicle use of 12,000 miles per year.

Gasoline Vehicle: $1,700 a year

Electric Vehicle: $757 a year

$943

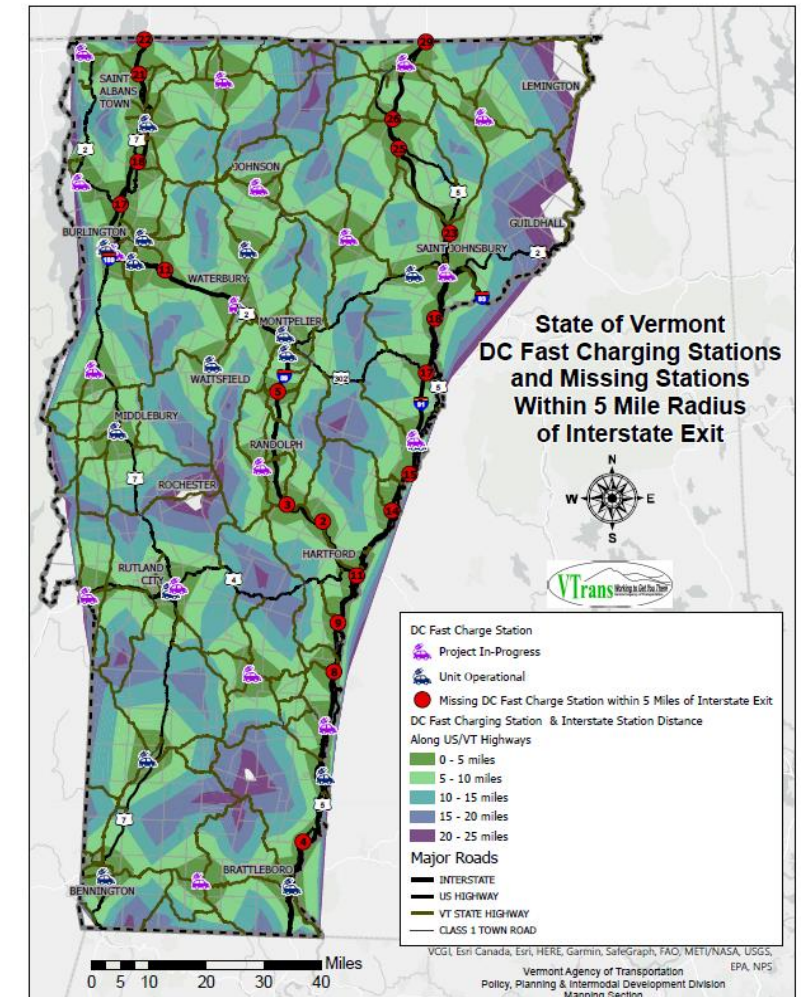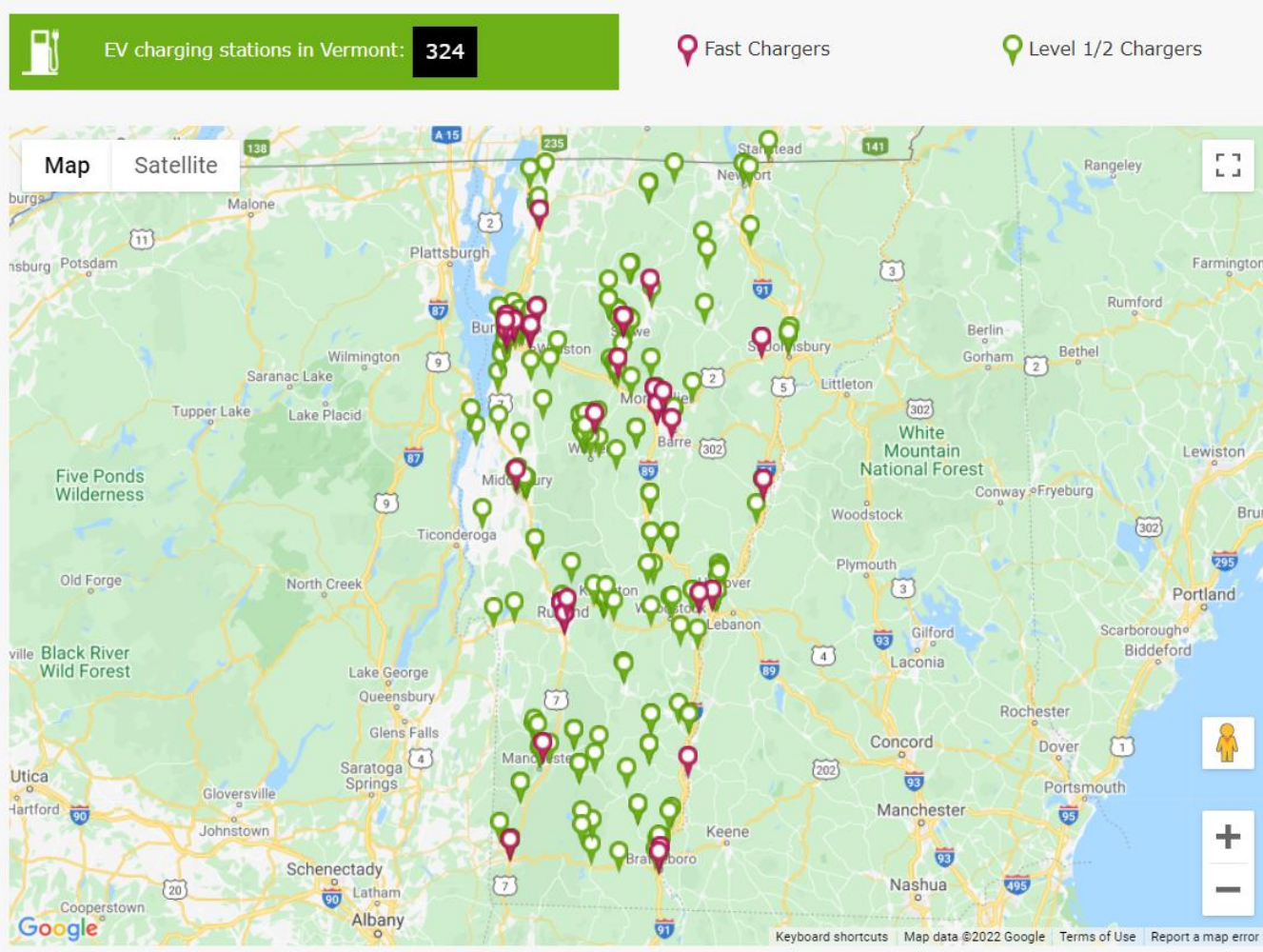Switch to electric and save big on fuel. Estimated annual savings.

Program Overview | EV Incentives

	New Nissan LEAF		Nissan Sentra
State also supports MileageSmart used vehicle incentives up to $5,000	Standard Incentive	< $50k Income Incentive	
Starting Price	$27,400	$27,400	$19,510
Federal Tax Credit	-$7,500	-$7,500	--
State Incentive	-$2,500	-$4,000	--
Utility Incentive (varies)	-$1,500	-$2,500	--
Price after Incentives	$15,900	$13,400	$19,510

https://www.driveelectricvt.com/incentives

Program Overview | Public Charging Network

EV charging stations in Vermont: 324

Fast Chargers

Level 1/2 Chargers

State of Vermont
DC Fast Charging Stations
and Missing Stations
Within 5 Mile Radius
of Interstate Exit

DC Fast Charge Station
- Project In-Progress
- Unit Operational
- Missing DC Fast Charge Station within 5 Miles of Interstate Exit

DC Fast Charging Station & Interstate Station Distance
Along US/VT Highways
- 0 - 5 miles
- 5 - 10 miles
- 10 - 15 miles
- 15 - 20 miles
- 20 - 25 miles

Major Roads
- INTERSTATE
- US HIGHWAY
- VT STATE HIGHWAY
- CLASS 1 TOWN ROAD

Vermont Agency of Transportation
Policy, Planning & Intermodal Development Division
Mapping Section

Program Overview | Multiunit Housing

Figure 3-16: Vermont housing units by type of building

Attached single-family house (e.g. townhouse, row house), 13,151 units

Small multifamily building (2-9 units), 55,995 units

Detached single-family house, 220,193 units

Large multifamily building (10-50+ units), 18,701 units

Mobile home, boat, van, RV, etc., 23,066 units

Source: U.S. Census Bureau: American Community Survey 5-year estimates, 2013-2017 (Table B25024) from housingdata.org. Includes all vacant stock.

10+ unit housing is a small percentage of Vermont's total housing units (~6%)

However, it represents nearly 20,000 units for which there is a gap in home charging solutions

Program Overview | Goals

Increase access to home charging for residents of multiunit housing.

Test solutions that work for property owners and residents.

Pilot Program
➢ non-prescriptive program requirements
➢ most costs are eligible for funding
➢ solicit a wide range of EV charging service models
➢ award funds, implement projects
➢ evaluate to look for replicable service models

Charging Basics | Equipment Types

Level 1 Charging
120V

5 miles range / hr

Level 2 Charging
240V

10-20 miles / hr

DC Fast Charging
480V

Up to 1,000 miles / hr

Plug Types →

J1772   Tesla

J1772   Tesla

CCS   CHAdeMO   Tesla

Charging Basics | Smart Charging Overview

- Smart charging equipment is connected to a network service provider. Networking can be used to:
  - Measure use of EVSE with online dashboards
  - Charge user fees
  - Reserve access to EVSE at a certain time
  - Limit access to residents or fleet vehicles (or set differentiated pricing)
- Networking options vary depending on the equipment, but can include:
  - Wi-Fi connection
  - Cellular data connection (requires decent cell service)
  - Hardwired ethernet connection
- Networked equipment may use proprietary communications or open protocols that would allow you to change network providers in the future

Charging Basics | Smart Charging Examples

Plugzio Level 1 Outlet

$600-1,200

No fees first 2 years;
up to $120 thereafter

EV Match Wallbox L2

$650 per unit

+$200/yr per port

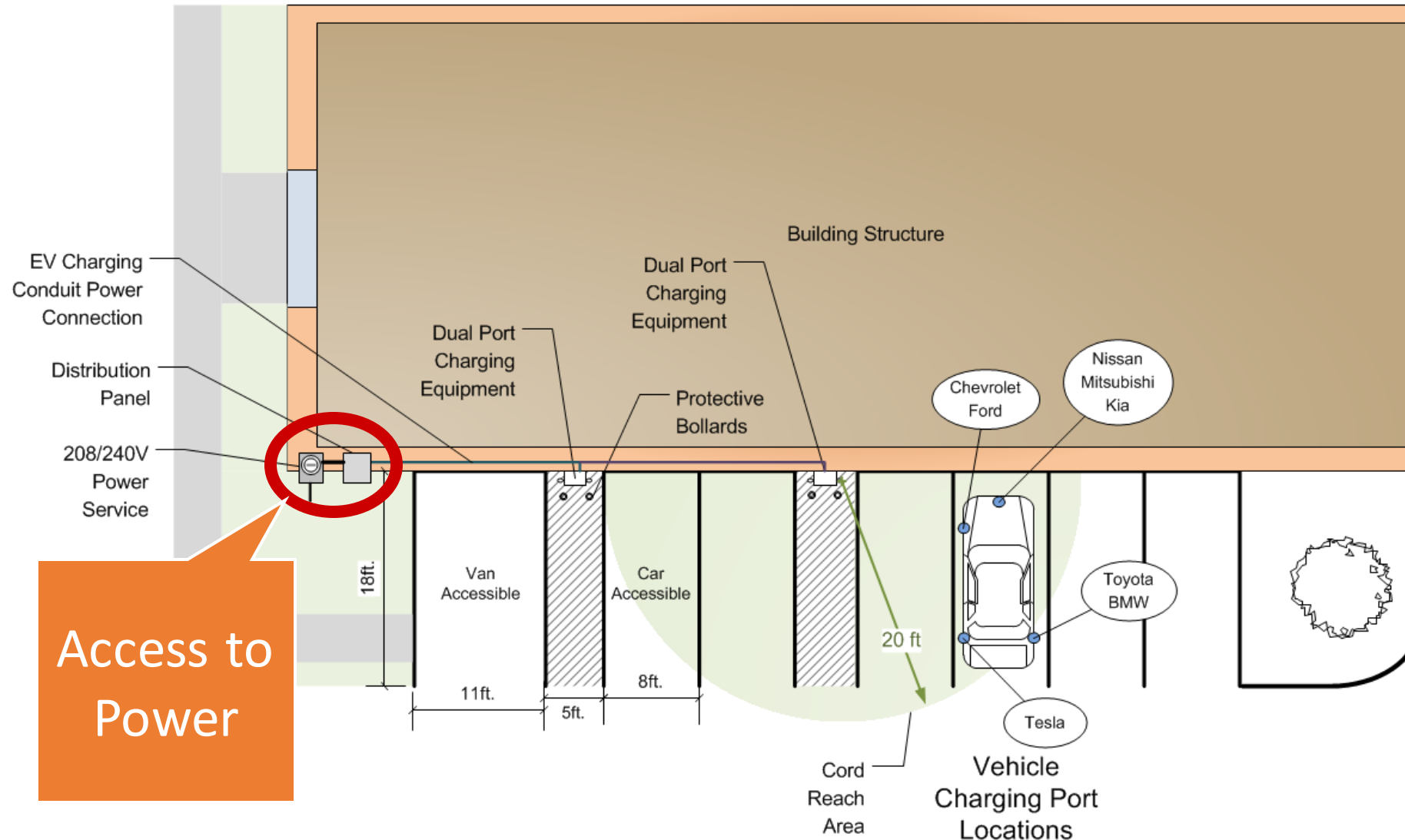Cord management to keep cables off the ground

Flo Core L2

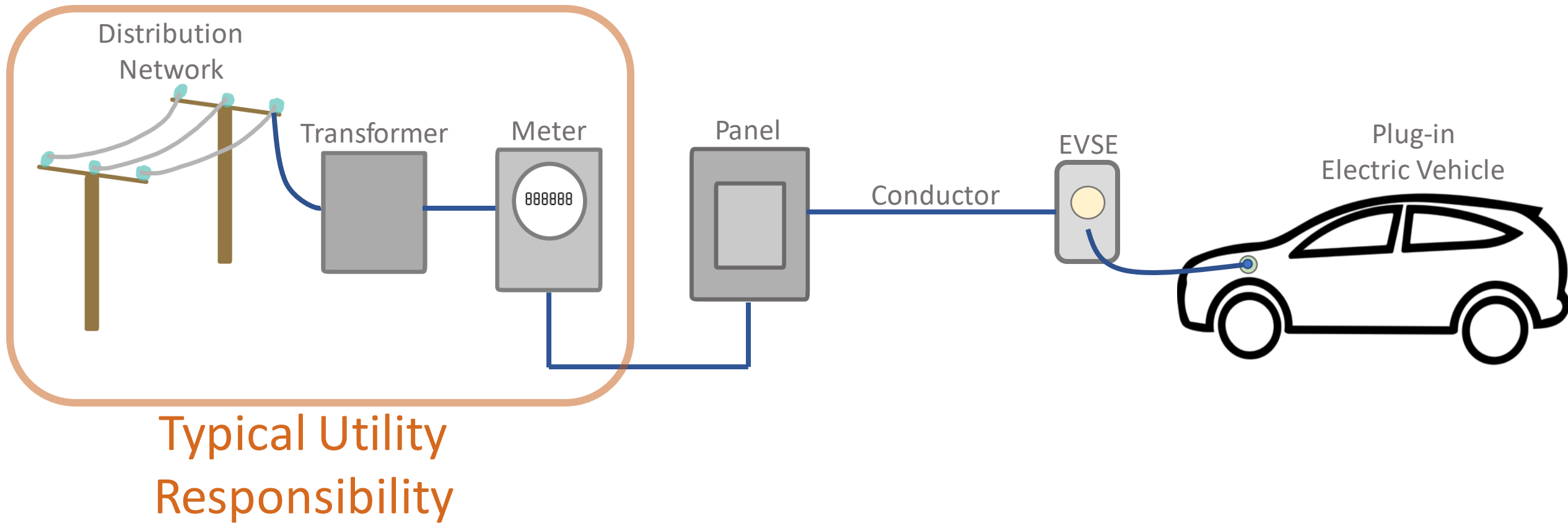$3,500 per unit

+$150/yr per port

Charging Basics | Siting

Considerations

- Power
- Futureproofing
- ADA access
- Walkways
- Cell service
- Snow removal

Charging Basics | Utility Role

Distribution Network

Transformer

Meter

Panel

Conductor

EVSE

Plug-in Electric Vehicle
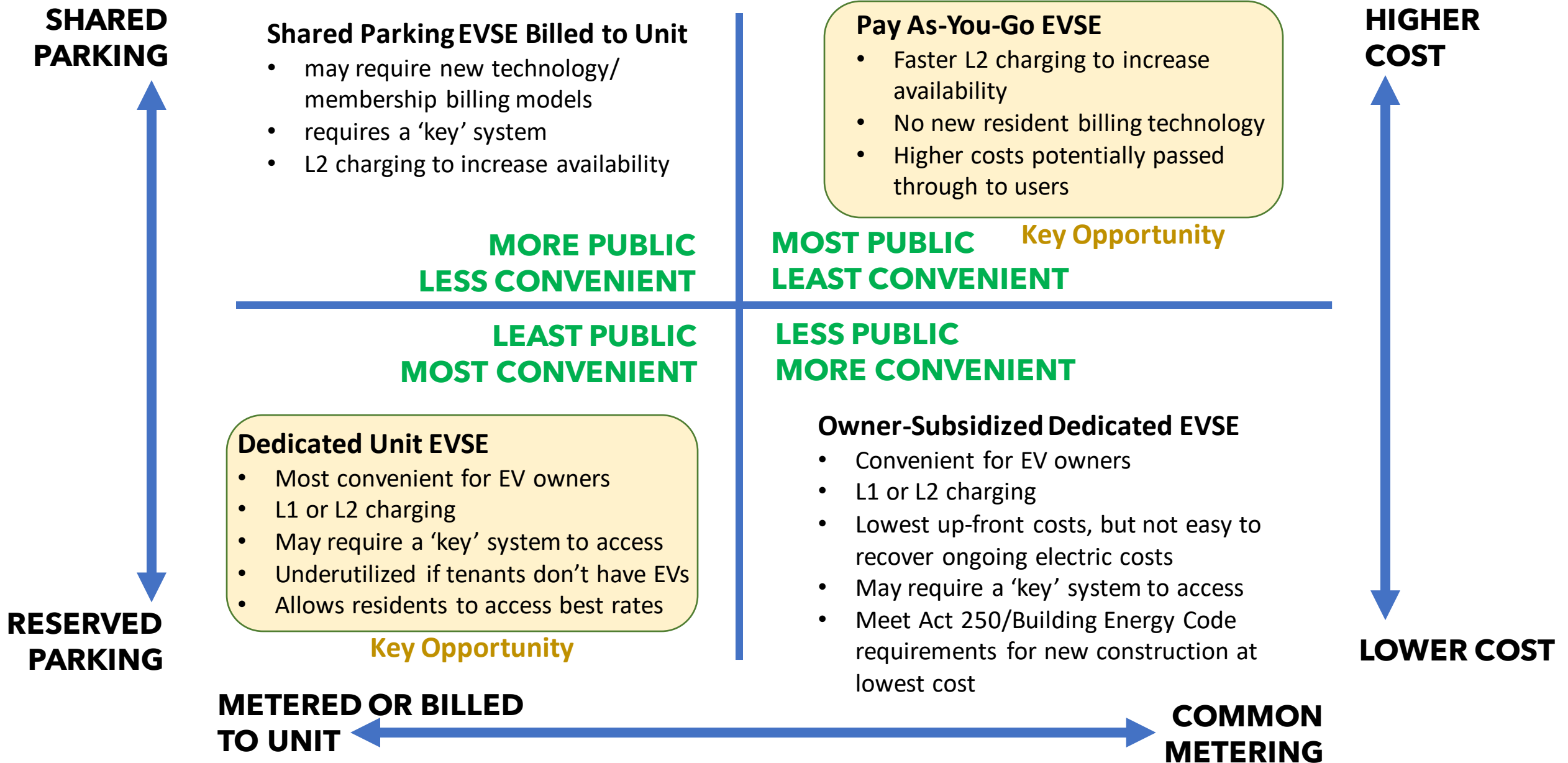
Typical Utility Responsibility

Charging Basics | Metering & Fee Options

1. **Resident meter** – If EV owners have their own charging equipment tied into their meters, covering costs is a non-issue - they will pay for their own electricity like usual. Also streamlines access to lower cost off-peak home charging rates offered by many VT utilities.

2. **Pass-through** – If residents have their own dedicated parking and charging equipment, but it is connected to a shared/common meter, then networked charging equipment is available to report on how much energy is used and this could be billed to them.

3. **Flat rate** – EV charging could be offered to residents as an amenity, either to all residents or to residents who opt-in for a flat rate

4. **Cost to charge** – Requires charging equipment that can directly collect fees. Revenue is deposited into an account for the management company. Fees can factor in electricity costs, network subscription fees, payment processing costs, and/or extended warranties to ensure all operating costs associated with the charging equipment are covered.

Costs | Electric Rates and Use Fees

1. **Service Costs** – If an additional service is needed there is a fixed monthly cost from the utility for each meter.

2. **Energy Costs (kWh)** – Energy costs vary depending on the utility and rate. Average rate in Vermont is about $0.21/kWh. At that rate, a typical EV driver would be using about $65/month in electricity.

3. **Demand Charges (kW)** – If the electric service is on a commercial rate, then it may be subject to peak power demand charges. For example, GMP charges $18.73 per kW on one of their rates. If EV charging is happening at the same time as other peak uses it could add significantly to these costs. An EV charging at 7kW (40A) Level 2 could add $130/month in demand charges on the GMP rate. For larger EVSE installations networked equipment with power management capabilities is available to reduce potential demand costs.

4. **User fees** – Current State law requires setting fees by the kWh - resale of electricity **is allowed** at EVSE. Additional fees based on time or other factors can be used as well.

OPPORTUNITY MATRIX FOR MULTI-UNIT DWELLING EVSE CHARGING

SHARED PARKING

HIGHER COST

Shared Parking EVSE Billed to Unit
- may require new technology/ membership billing models
- requires a 'key' system
- L2 charging to increase availability

Pay As-You-Go EVSE
- Faster L2 charging to increase availability
- No new resident billing technology
- Higher costs potentially passed through to users

Key Opportunity

MORE PUBLIC LESS CONVENIENT

MOST PUBLIC LEAST CONVENIENT

LEAST PUBLIC MOST CONVENIENT

LESS PUBLIC MORE CONVENIENT

Dedicated Unit EVSE
- Most convenient for EV owners
- L1 or L2 charging
- May require a 'key' system to access
- Underutilized if tenants don't have EVs
- Allows residents to access best rates

Owner-Subsidized Dedicated EVSE
- Convenient for EV owners
- L1 or L2 charging
- Lowest up-front costs, but not easy to recover ongoing electric costs
- May require a 'key' system to access
- Meet Act 250/Building Energy Code requirements for new construction at lowest cost

Key Opportunity

RESERVED PARKING

LOWER COST

METERED OR BILLED TO UNIT

COMMON METERING

Program Details | Eligibility

Multiunit Affordable Housing

- New or existing, with ten (10) or more dwelling units on a tract or tracts of land

- At least 50% of the units are or will be occupied by households whose income does not exceed 100% of the greater of the State or area median income

OR

- All units are affordable to households earning between 60 and 120 percent of area median income

Multiunit Housing Owned by a Nonprofit

- New or existing, with ten (10) or more dwelling units on a tract or tracts of land

- Owned by a person that has nonprofit status under Section 501(c)(3) of the U.S. Internal Revenue Code, as amended, and is registered as a nonprofit corporation with the Office of the Secretary of State

Program Details | Eligibility

Minimum Project Provisions

- Must provide two Level 2 ports

Limitations

- Funds cannot be used for projects mandated by Federal, State or Local requirements
- Funds cannot be used for expenses incurred prior to grant commencement
- No more than $300,000 can be awarded to a single applicant
- No more than $80,000 can be awarded to a single site
- No more that $500,000 can be awarded to a single county

Program Details | Standards

- Site standards
    - e.g. sufficient lighting
    - e.g. designed to prevent tripping or blocking of walkways
- Equipment standards
    - e.g. ADA compliance
    - e.g. minimum cord length of 18 ft
- Implementation and Operation Standards
    - e.g. be installed by a licensed electrician
    - e.g. fees must be posted or disclosed prior to charging the user

Program Details | Eligible Costs

Eligible Costs

- Planning (up to 20% of total project cost)
- Permitting fees
- Physical hardware
- Equipment Warranty (up to 5 years)
- Upgrading electric supply
- Construction costs related to installation
- Future proofing
- Signage and pavement painting
- Software subscription (up to 5 years)
- 3rd party contracts for preventative and corrective maintenance (up to 5 years)

Ineligible Costs

- Land/parking space purchase or lease
- Taxes
- Internet connection or cell signal
- Electricity consumption and demand charges

Program Details | Application

- Summary Information on the Applicant and the Project
- Site Specific Information
- Amount Requested
- Approximate Project Timeline
- Attachments
  - Municipal resolution (if applicant is a municipality)
  - Agency of Natural Resources Permit Navigator Summary Report
  - Project Site Plan(s) and Photograph(s)
- Scoring Criteria

Program Details | Important Dates

April 1st, 2022 - Application due by 4:30 pm

April 22nd, 2022 - Grant awards announced

Late spring, 2024 - Deadline for project completion

Late spring, 2023 or 2024 - Annual grant reports due

Late spring, 2028 or 2029 - Project Grant period ends
(depending on when project was completed)

Program Details | Resources

Where to Start?

Contact your utility
 - *utility contacts can be found in Appendix F of the Application*

Talk to your residents
 - *understanding resident need/interest can help you plan*

Read up on Guides and Case Studies
 - *links can be found on page 3 of the program description*

Q & A