

# IF WE BUILD IT WILL THEY COME?

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# Current Ownership Models

- Utility or OEM owned and operated
  - Primary focus – drive EV adoption
  - Loss leader
  - Typically well maintained and operational
- Retail owned and operated
  - Primary focus – drive foot traffic, customer satisfaction, employee satisfaction, sustainability requirement
  - Typically break even or run at a loss
  - Questionable maintenance
- Other 3<sup>rd</sup> Party owned and operated
  - Primary focus – revenue generation
  - Higher rates, fees
  - Motivated to be well maintained and operational

# Future Ownership Models

- **High Speed**
  - Gas stations
    - Primary focus – retain customer base
    - Break even/Loss leader – money is made in the store
    - Must be well maintained and operational
  - Grocery chains
    - Primary focus – customer loyalty
    - Break even/loss leader – money is made in the store
    - Must be well maintained and operational
- **Low Speed**
  - Bring your own charger
    - Primary focus – increase foot traffic
    - Limited cost to provider, both initial and ongoing
    - Less maintenance and overhead
  - Mobile charging platform
    - Primary focus – revenue generation, for in need customers
    - Higher rates, fees
  - Long term parking – single high speed unit with valet
    - Primary focus – reduce initial and ongoing cost, provide premium service
    - Premium service, reduced capital

***2020... WAWA announces first all electric fuel station***

# Future infrastructure possibilities

- Adding storage
  - Curtails demand peaks
  - Increases overall load
  - Reduces infrastructure requirement
  - Increases resilience
- Adding solar
  - Reduces cost
  - Production timing can be mitigated by storage

# Urban versus Rural

- Both cases 80-90% is home based L1/L2 charging
- Urban
  - Destination charging for workplace L1/L2
  - High speed hubs for multi family, commuters, travelers and fleet opportunity charging
  - Every 20 minute drive, provides enough density to address rideshare and multi family
  - 12-20 ports, up to 350 KW for quick turn around
- Rural
  - Rural EV owners will save 2x more than Urban drivers
  - Set hubs in central areas where shopping occurs
  - Will serve both community and pass through travelers
  - Should be level 3 not level 2
  - Must include an educational program at the same time
  - 4 ports for redundancy, 50-150 KW, more likely to stay at the hub for the charge
  - Good market for first/second generation EV

# Non-economically viable locations

- Charging stations will not be revenue generating for quite some time
- Retail must look at this as a loss leader promoting primary sales
- Utilities must look at the full picture
- 1 car = 4,000 kWh/year ~ 316/year - non fuel based revenue regardless of where they charge

OUC territory – 250,000 customers, 800,000 cars

2020 = 3,500 cars = \$1M/year

2025 target = 5% = 40,000 = \$14M/year

*Visible charging hubs are the anti for EV adoption but....*

*...Charging hubs on their own will not create growth*

*Must add policy, education, relationships, investments*

# Shared infrastructure

- Cheaper to provide a larger pipe to a single location than multiple pipes to smaller
- Hubs can be used for
  - MUD charging
  - Travelers
  - Residential
  - Fleet opportunity charging
  - Rideshare

## RECHARGE MOBILITY HUB



# EV Adoption is a team sport

Agency	WIIFM	Role	Risk
Federal government	GHG reduction	EV investment tax credits for vehicles and infrastructure, block grant funding for infrastructure	Loss of US jobs to foreign manufacturers
State	GHG reduction, growing in State revenue	Regulations, State sponsored contracts, Highway infrastructure, emergency evacuation	Road tax loss
Cities	Improving air quality an public health, local economic development, city fleet transition	Public destination charging, permitting	Escalating cost of GHG
Utilities	Revenue	Public charging, education, fleet infrastructure, demand control	New demand peak
Charging companies, network providers	Revenue	Provision of EVSE, network management	Technology change, stranded assets
State Commission	Consistency	Rate approval	Allowing rates that deter EV adoption
Planning agencies	Streamlined consistent process	Insuring the right locations, consistent design, regional infrastructure planning	Making it too hard for EV charging installations



# Rideshare Electrification

- Why important
  - Higher miles, greater GHG reduction
  - Education role for riders
- WIIFM – Rideshare
  - Lower cost of operation
  - Durability of car – 100,000 → 300,000
- What is needed
  - Quick charge
  - Strategically located
  - Reasonable cost
  - High availability