Ready, Set Charge! Preparing our Communities for Plug-in Vehicles

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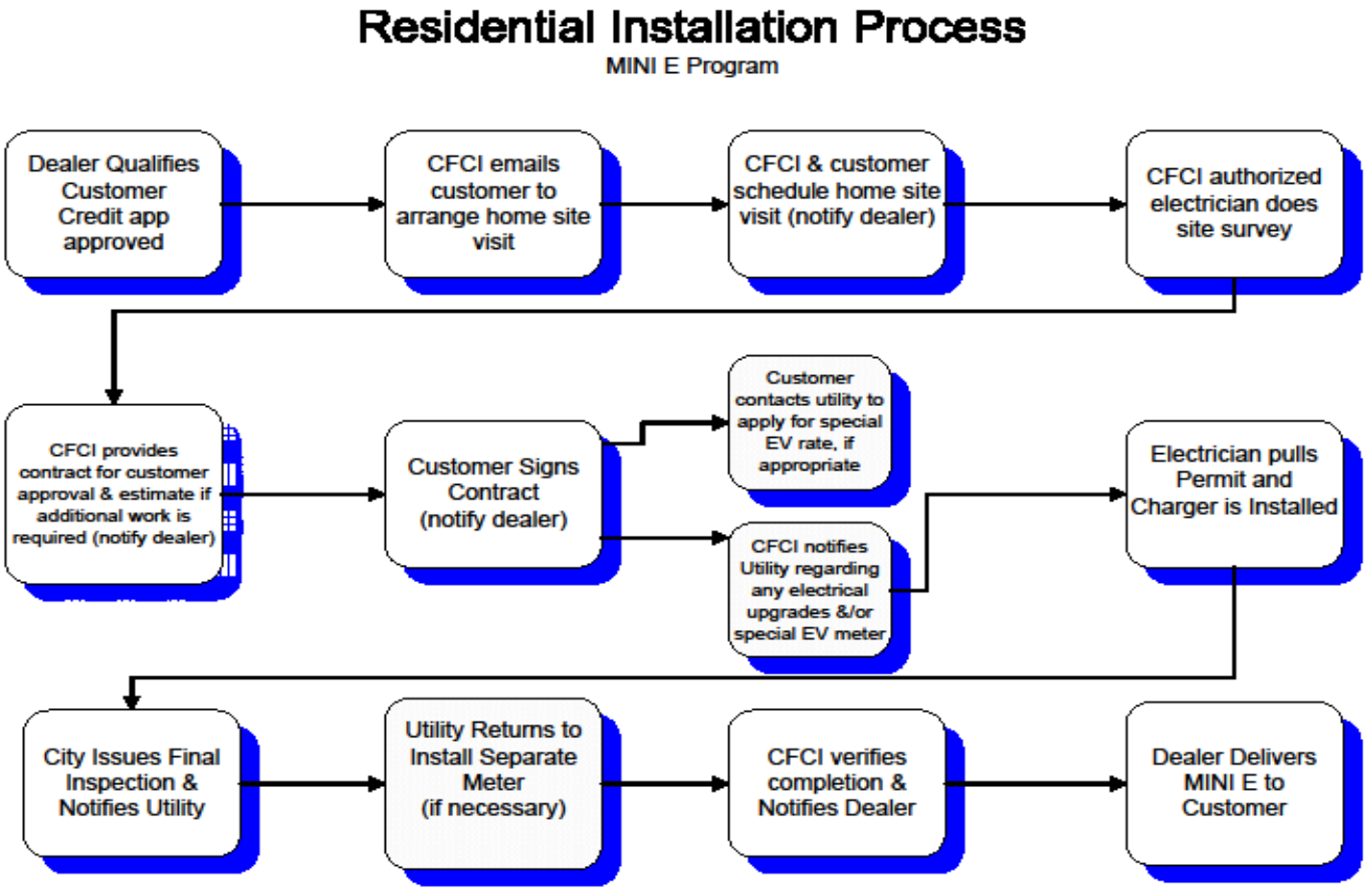
Clean Fuel Connection--CFCI

- In EVSE business for 14 years
- Grew out of Edison International subsidiary
- Sold and installed over 7500 chargers
- Installation partner for MINI E program
- Woman-owned
- Electrical contractor
- EV fleet for past 8 years
- Other business lines
  - solar, CNG, air quality consulting

The Customer Infrastructure Experience--The Goal

- Mirror the current consumer car buying experience—impulsive, ego-driven, immediate gratification.
- Ideally should be able to:
  - Drive vehicle home on day of purchase and charge
  - Confidently drive beyond 50% of battery range knowing that recharging opportunities are readily available
  - Be able to travel beyond typical daily route and know there are chargers along the way

The Reality--Residential Installation Process



The Customer Infrastructure Experience—The Reality

- Today—only Plug-in hybrid customers can drive their vehicle home the same day and only if they have a garage with a 110v outlet.
- Installation programs are ramping up with OEMs and their infrastructure partners
- Workplace and public charging are just starting to be installed—funded through ARRA grants and state programs
- Fast charging corridors not yet available—also only one car is equipped for fast charging
- What is the role of the Local Authority Having Jurisdiction (aka local government) in accelerating and facilitating the path to success for plug in vehicles?

Lessons Learned from the 1990s

- Historical—208/240 volt Level 2 infrastructure—30 to 45 days for total installation process

- Includes site visit, estimate, permit, install, inspection, etc.
  - Actual install time approx. 4 hours
  - Pulling permit in person 2 to 4 hours (less if on-line permitting)
  - Inspection window--4 hours

- Barriers:
  - Multiple stakeholders, multiple hand-offs
  - Permit/inspection—local AHJ budget cuts
  - Residential panel capacity
  - Customer education--previous buyers were a carefully screened and selective group; mass market customer EVSE installation profile is unknown
  - Special or second meter installations
  - Lack of vendor-neutral, customer-friendly decision making tools (think solar calculators)
  - No garage (ie., urban environments, coastal areas)
  - Multi-family residence

Local Government Roles

- Provide leadership
- Streamline permitting
- Train first responders (Fire, Police)
- Train Building Inspectors and Plan Checkers
- Establish EV friendly codes
- Add EV charging to Conditional Use Permit conditions
- Adopt Green Building Standards
- Develop and implement a public charging plan
- Develop solutions for multi-family residents to have access to charging
- Walk the talk—buy PEVs for fleet
- Communicate the benefits of PEVs to residents and businesses
- Utility communication

Regional and State Government Roles

- Address Americans with Disabilities Act issues
- Address signage issues
- Provide incentives for vehicles and infrastructure
- Create and implement a regional plan
- Help create solutions to utility load issues
- Provide legislative solutions where necessary
- Curbside charging and payment
- Plug vs. hardwired EVSE
- Drivers without garages
- Public Education--how do we help consumers evaluate their options

Best Practice
EV 101 Conferences

- Started in No. CA by PEV advocacy groups including, EV Communities Alliance, Bay Area Climate Collaborative, Bay Area AQMD
- Implemented in So. CA by local advocacy groups with support from South Coast AQMD and regional government agencies
- Purpose—dialogue between manufacturers and local governments about how to ensure success of PEVs

Best Practices Oregon

- Adopted alternative method of calculating load factor for EVSE
- Ability to spot inspect EVSE installations
- Portland, Oregon adopted EV component of Climate Action Plan
  - EV friendly policies
  - Clean taxi priority
  - Adopt EVs for 20% of city fleet
  - Develop multi-family charging program

Best Practices
City of Riverside

- Implementing 10 Point EV Readiness plan
  - Public Charging
  - Utility Impacts
  - City Fleet
  - Residential Charging
  - Process Streamlining
  - Communication Strategy
  - City policies and ordinances
  - Public Safety
  - GHG Reduction
  - Training development
- Spearheaded by Mayor Ron Loveridge
- Implemented by Model Clean Air City Advisory Committee

Best Practice PEV Collaborative

- Statewide coalition of automakers, utilities, environmental groups and EVSE companies
- Supported by CARB
- Report issued December 2010 provides a roadmap for local and regional governments
- Continuing as a private membership coalition to facilitate and monitor implementation

Best Practices Puget Sound

- Washington State legislature passed requirement for study and model codes—HB 1481
- Coalition of Plug-in America, GordonDerr, Lightmoves
- Driver survey on charging behavior
- Model codes
- Informational materials

Best Practices
Ready, Set Charge! RFG Grant

- Funded by Reformulated Gas Penalty Fund
- $650,000 for EV Readiness including
  - Model EV Ready Green Building ordinances and public works guidelines (currently underway)
  - Local outreach in Bay Area and So. CA
    - City of LA
    - Los Angeles County
    - Riverside
    - Santa Monica
  - EV Installation Process Streamlining
  - Outreach and policy guidance to l
    including workshops
  - Evaluation

Best Practices BC3

- Bay Area Business Group
- Developing Guidelines for Bay Area Businesses
- Public Charging for Customers
- Employee Charging
- Fleet Charging

- And there are many more examples including City of LA

Funding: Vehicles

- Air Resources Board Incentive Program
- Administered by CA Center for Sustainable Energy
  - Contact David Almeida [david.almeida@energycenter.org]
  - Qualifying vehicle—Nissan Leaf

Funding: Infrastructure

- ARRA Funded Programs
  - Ecotality—The EV Project
  - Coulomb Technologies—ChargePoint America
- CEC Funded Programs
  - Clipper Creek
  - Coulomb Technologies
  - EV Communities Alliance
  - SoCal EV
- AQMD Funded Programs
  - Clipper Creek
  - Ecotality
  - Clipper Creek

Funding:CEC Regional Coalition Funding

- California Energy Commission developing RFP for regional EV Readiness coalitions
- Regional government groups
- $100k to 150k per coalition
- Implement EV Readiness activities including training, consumer education, permit streamlining, code adoption etc.

To Do List (partial)

- ADA
- Multi-Family Installations
- Street-side charging
- Utility notification
- Special EV charging rates—second meters
- Workplace charging
- Issues around fast charging
- Charging for electricity issues for charter cities and municipal utilities

Conclusion

- Current Status:
  - A lot of energy and activity around PEV and the beginnings of a statewide plan
- We will not have many of the issues resolved by rollout but are trying to establish short-term solutions
- Long-term solutions are complex (ie., getting uniformity among local jurisdictions) and some years out

Thank You!

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