



Cost Stack of DCFC | U.S. DOE, Western Region

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America's Largest Public Fast Charging Network



Develop | Finance | Own | Operate



We build, own, & operate the nation's largest network of public DC fast chargers



115MM Americans live within a 15 minute drive of an EVgo charger



200,000+ customers



Over 800 fast charging locations nationwide



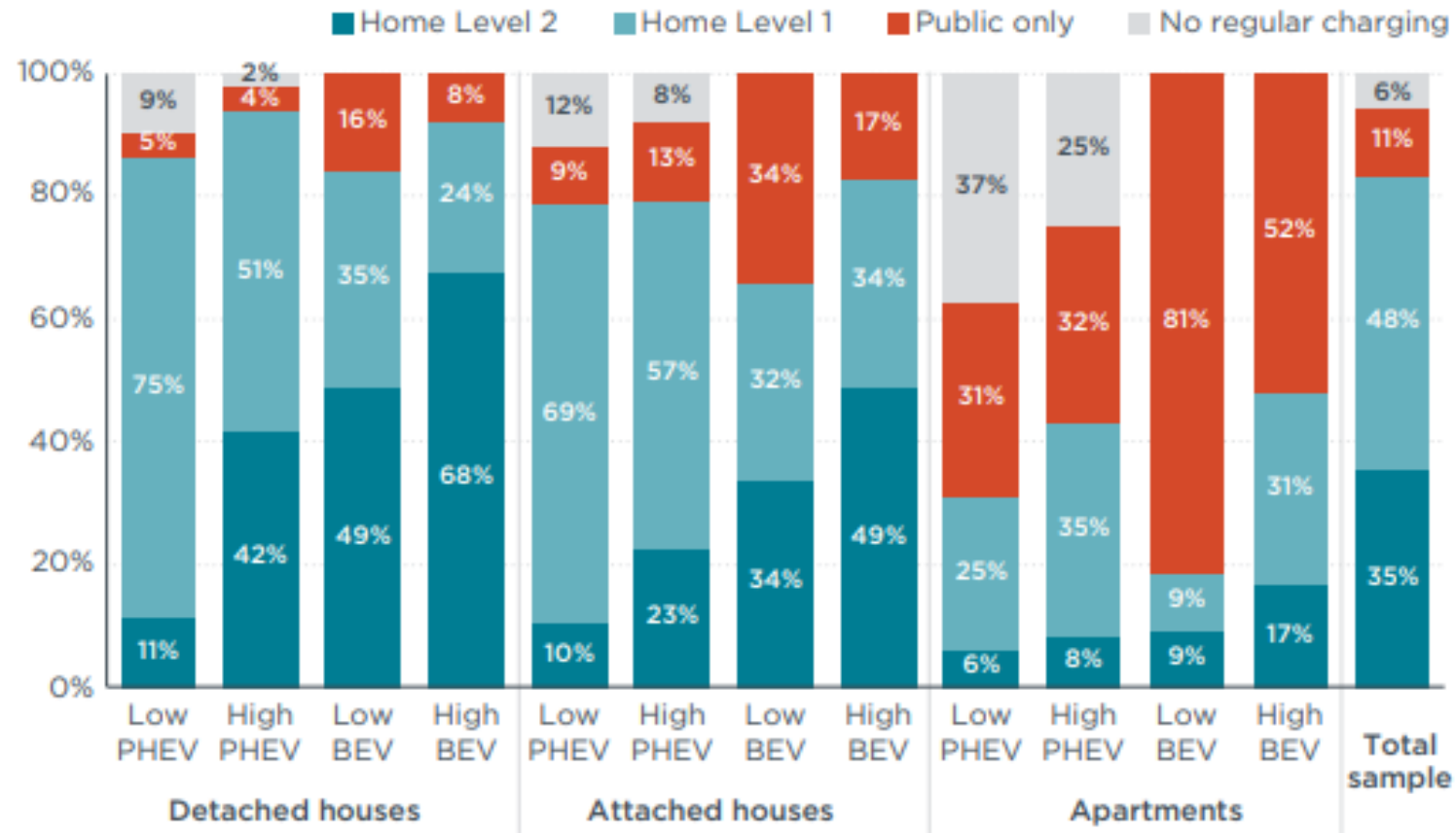
98% charger uptime rate



**75 million+ electric vehicle miles annually,
1/3 from fleets**

Fast Chargers Serve MUD Residents in Urban Markets

52 – 81 % of apartment dwellers with battery electric vehicles are relying solely on public charging.



Source: International Council on Clean Transportation, *Quantifying the Electric Vehicle Charging Infrastructure Gap Across U.S. Markets* (January 2019)

Fast Charging is Critical to Support Light Duty Fleet Electrification



- Duty cycle is favorable to electrification: 3-7x more miles per car per year
- Most full time TNC EV drivers are using flexible lease program, limited/no opportunity to charging at home
- If charging is not fast and reliably available – potential lost revenue

DCFC Cost Stack: More than Electricity

DCFC MAJOR COST CATEGORIES

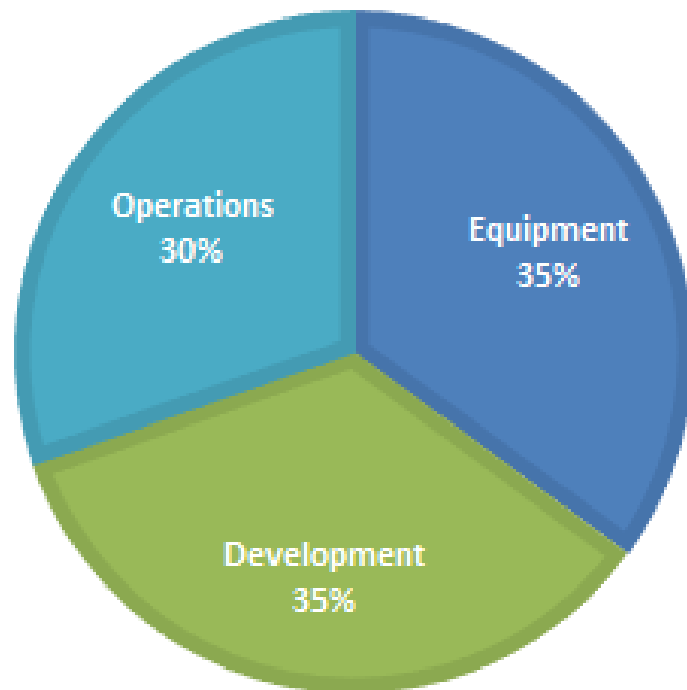
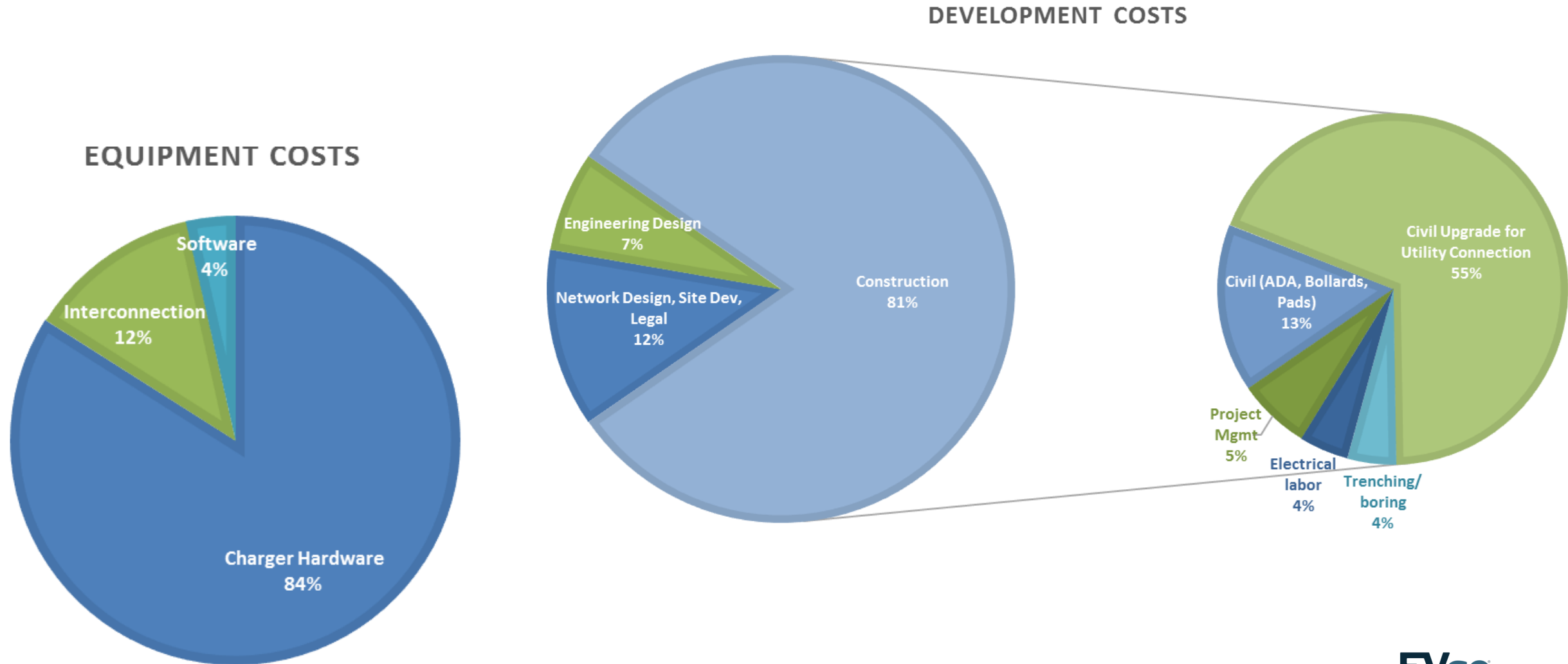


Table 1: Illustrative List of Public Fast Charging Cost Components by Category

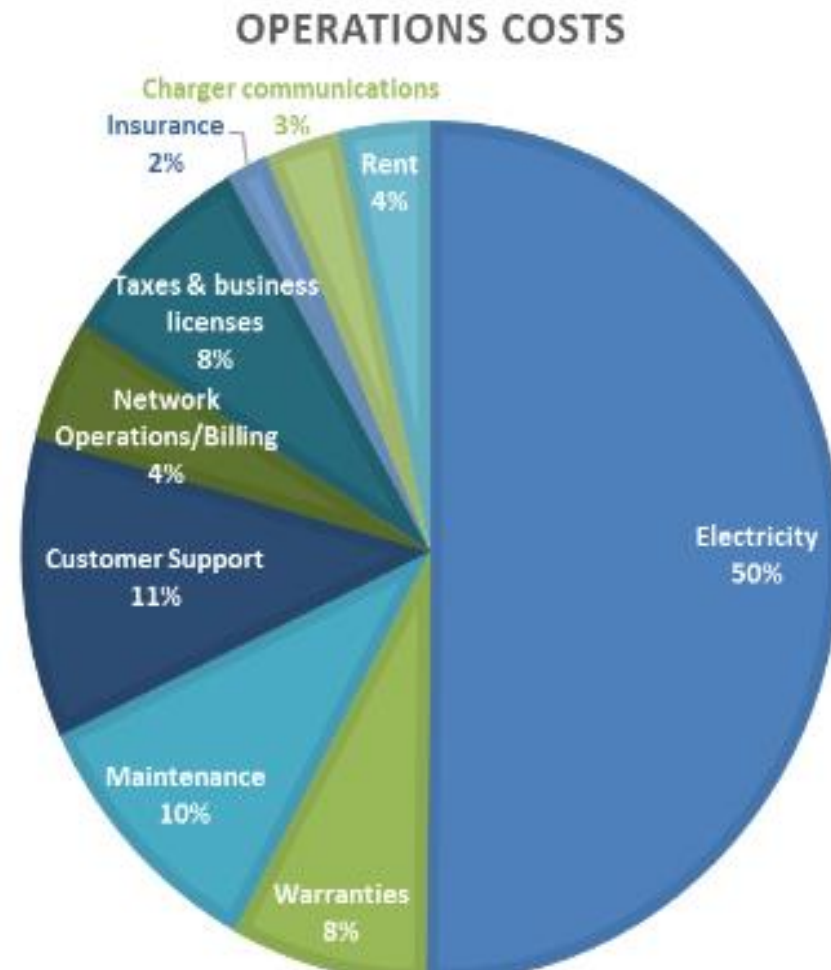
Equipment Costs	Developmental Costs	Operation Costs
Charger Hardware	Network Design	Electricity / RECs
Utility Interconnect (e.g. switchgear, conduit)	Site Development	Rent*
Software	Legal Contracts	Warranties
Credit Card Reader	Site Surveys	Maintenance
Communications Hardware	Engineering	Charger Communications
Wheel Stops	Utility Review	Customer Care/Call Center
Signage	Permitting	Network Operations / Billing
Security	Construction (e.g. boring, trenching)	Taxes & Business Licenses
Additional Technology Tools	Bollards, Pads & ADA	Insurance
Utility Service Upgrade*	Project Management	Web/App/Digital Services
		Reporting

*situation-specific: required sometimes but not always

DCFC Cost Stack: More than Electricity



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Rate Design is Critical for Transportation Electrification

*“Xcel Energy new rates for commercial EVs and fleets **reduced demand charges, which were making electric buses 60% more expensive for RTD to operate than diesel.**”*

NEWS > COLORADO NEWS

RTD's electric 16th Street Mall buses cost nearly 60% more to operate than diesel coaches

Transit agency says “demand charge” levied by Xcel Energy on electricity costs is to blame



RJ Sangosti, The Denver Post

Electric buses move pedestrians down the the 16th Street Mall in Denver on May 13, 2019. RTD pays nearly twice as much per mile to power its electric buses as it does its conventional diesel fleet. The price disparity could slow the transit agency's embrace of zero-emission technology at a time when air quality and climate change have become ever larger topics of conversation in Colorado.

By JOHN AGUILAR | jagular@denverpost.com | The Denver Post
PUBLISHED: May 14, 2019 at 11:13 a.m. | UPDATED: May 14, 2019 at 6:11 p.m.

NEWS > TRANSPORTATION

Lower electric rate expected soon for RTD's mall buses, EV fleets in Colorado

A new Xcel rate structure for commercial electric vehicle should become final Tuesday



RJ Sangosti, The Denver Post

Riders board an electric bus along the 16th Street Mall in downtown Denver on May 13, 2019.

By JOHN AGUILAR | jagular@denverpost.com | The Denver Post
PUBLISHED: October 28, 2019 at 6:00 a.m. | UPDATED: October 28, 2019 at 2:50 p.m.

Rate Design is Critical for Transportation Electrification

Utility	Exemplar Rates
Southern California Edison	<p>TOU – EV – 8</p> <ul style="list-style-type: none">- All volumetric TOU rates for first 5 years, with demand charges phased back in years 6-10- TOU volumetric energy charges increased to recover costs
Eversource, CT	<p>EV Rate Rider Pilot (EVRRP)</p> <ul style="list-style-type: none">- Demand charges of the applicable commercial rates are converted to an equivalent \$/kWh charge for all kWh utilized by the DCFC customer during each billing period
SDG&E, CA	<p>TOU – M (Interim Rate)</p> <ul style="list-style-type: none">- While the EV rate is finalized, sites can temporarily switch onto this rate with a \$2.50/kW demand charge and the 40 kW demand cap waived
Dominion, VA	<p>GS – 2 (Non-Demand)</p> <ul style="list-style-type: none">- Low usage sites (<200 kWh per kW) qualify for this non-demand general service rate
Madison Gas & Electric, WI	<p>Low Load Factor Provision</p> <ul style="list-style-type: none">- Commercial customers on rate schedules Cg-4, Cg-2, or Cg-2A; annual electric load factor <15%. On-Peak Demand Reduction of 50%
DTE Energy, MI	<p>GS – D3</p> <ul style="list-style-type: none">- The 1000 kW demand cap for this non-demand general service rate is waived for DCFCs through June 1, 2024

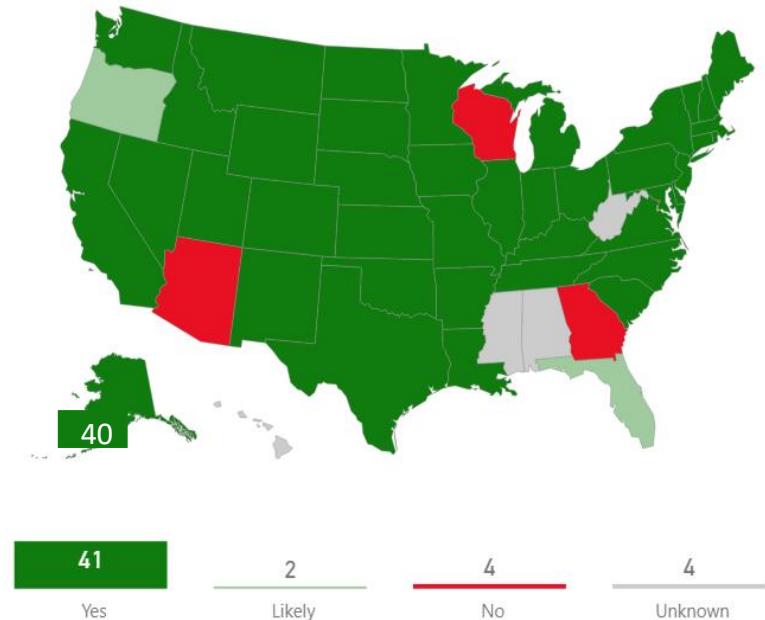
Thoughtful Program Design is Key to Successful Deployments

Emerging Patterns

- Dieselgate “Appendix D” funding has created opportunity for market transformation across the U.S.
- First-come, first serve rebates in L2 space; competitive solicitations in DCFC space
- More emphasis on DCFC as corridor use case than urban = opportunity for improvement

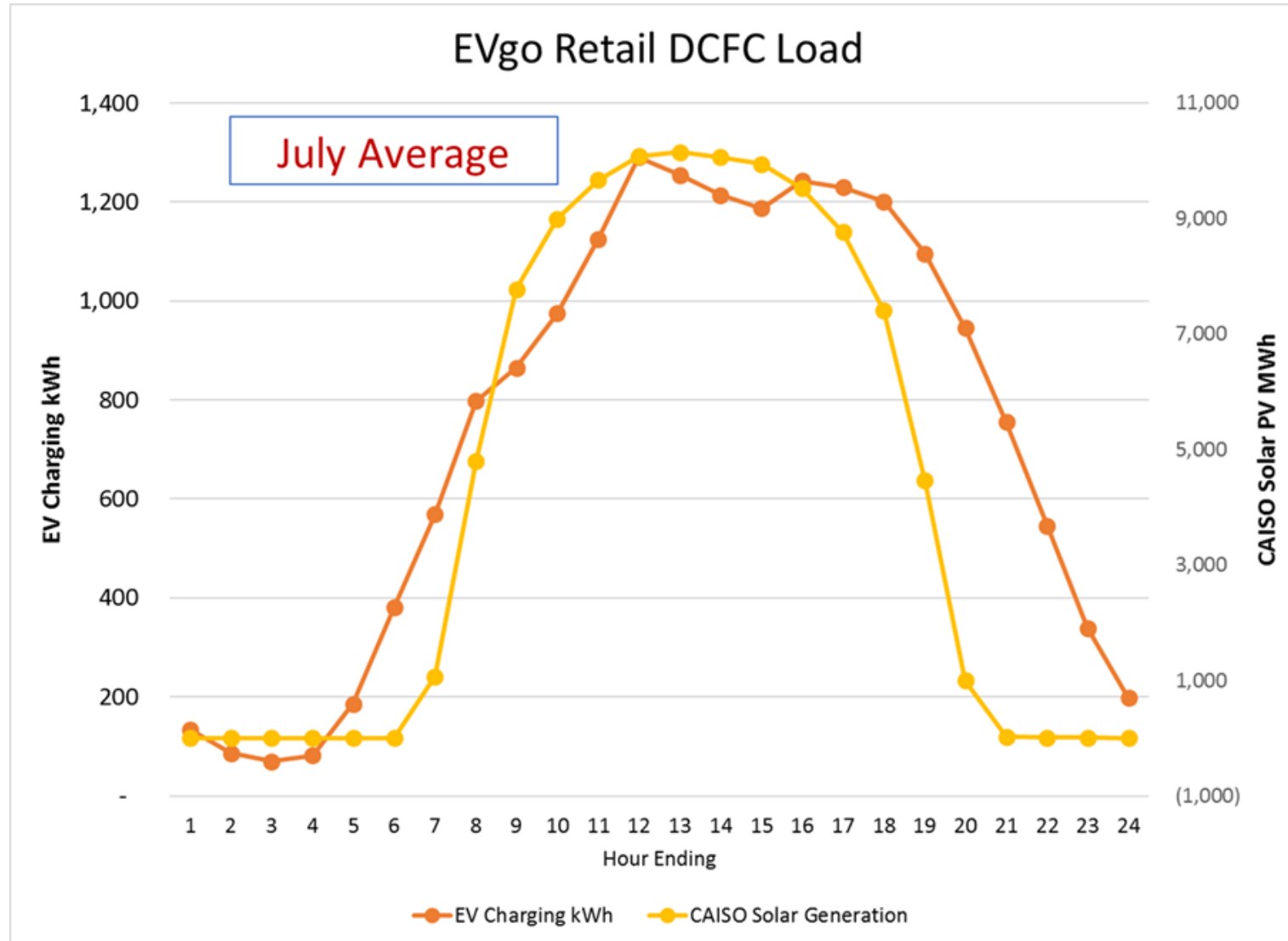
Best Practices

- **North Carolina DEQ:** Quantifiable rubric. Scoring based on EJ, traffic density, space from other chargers, access to amenities, etc.
- **Pennsylvania:** Several smaller solicitations to allow time for improvement
- **Colorado RAQC:** Predictable solicitations several times / year



SOURCE: EV HUB, SEPTEMBER 2018

Grid Benefits: DCFC is Solar-friendly Load





Questions?

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