

The ChargePoint logo, consisting of the word "chargepoint" in a lowercase, sans-serif font with a registered trademark symbol (®) to its upper right. The logo is white and positioned in the upper right corner of the slide. The background of the slide is a blurred city street scene with a car in the foreground on the right, suggesting motion and urban connectivity.

—chargepoint®

DC FAST CHARGING IN NEW HAMPSHIRE

Capital & Operating Cost Barriers and Opportunities

Presenter: Christopher Nihan
February 22, 2018

DCFC Deployment – Capital Costs

- + Potential EV charging site hosts face a wide range of capital costs, which can vary wildly based on site-specific issues and the charging station's power (kW)

Description	Two 50kW Class Chargers		Two 150kW Class Chargers		Notes:
	Low	High	Low	High	
Site Acquisition	\$ -	\$ 25,000	\$ -	\$ 25,000	No costs if site is already known and no contract needed. Can be up to \$25K in hard to source areas (costs for travel, legal, negotiation, feasibility studies, etc.)
DCFC Equipment	\$ 60,000	\$ 85,000	\$ 90,000	\$ 150,000	Low range is for monolithic, non-upgradable equipment. High range is for upgradable, future proofed equipment, capable of much higher power levels without swap.
Electrical Panels and Switchgear	\$ 4,000	\$ 20,000	\$ 12,000	\$ 26,000	Low range is for panel and switchgear sized just for the initial assets installed. High range is for switchgear and panels that can accommodate future growth.
Engineering, Design, Permitting	\$ 3,500	\$ 12,000	\$ 7,000	\$ 16,000	Wide range based on location and complexity of site. The more future proofed you want the site to be, the more expensive the design.
Utility Upgrades	\$ 2,000	\$ 50,000	\$ 35,000	\$ 100,000	This range fluctuates wildly by utility.
Project Management	\$ 3,000	\$ 10,000	\$ 5,000	\$ 15,000	For single jobs, this may be integrated into construction costs. For larger jobs or multi-site projects costs can be higher. Large national firms can also cost more.
Construction Costs	\$ 35,000	\$ 90,000	\$ 70,000	\$ 120,000	Costs can be low if you just size for a small install and conduit runs are all short. For expandable sites or sites where there are long conduit runs costs can be very high.
Total	\$ 107,500	\$ 292,000	\$ 219,000	\$ 452,000	Depending on the goals of the program, the location, complexity of design, and availability of 3 phase power near the chargers, the range can be wide.

Understanding Demand: kWh vs kW

Energy 101

- + What is a kWh?
 - Unit of electrical energy (e.g. the amount of energy a battery can store).
- + What is a kW?
 - Unit of electrical power flowing at one moment in time.
- + What is a demand charge?
 - The highest rate of electrical flow during a demand period, typically measured in kW.

Demand Charges

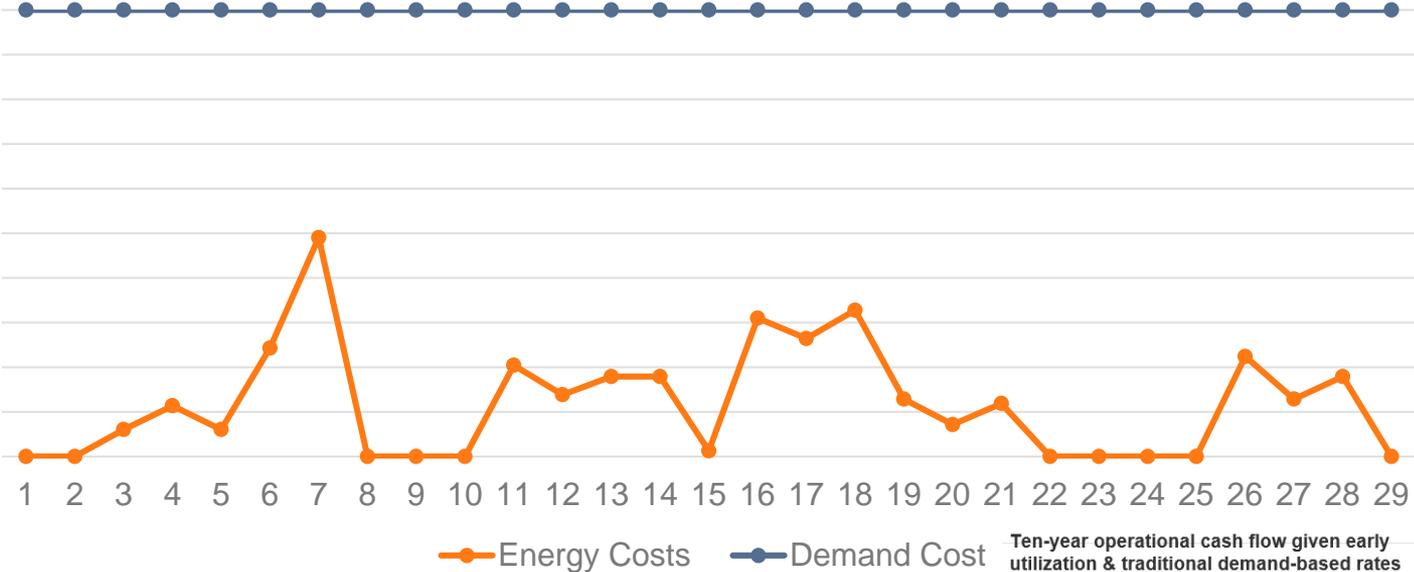
- + Traditional mechanism to recover fixed grid costs in providing power
- + Typical in commercial rates across the country
- + Can present a challenge for site hosts offering DCFC in early EV adoption markets



Nature of Energy vs Demand Charges

Demand

Energy



Monthly Utility Bill Period

