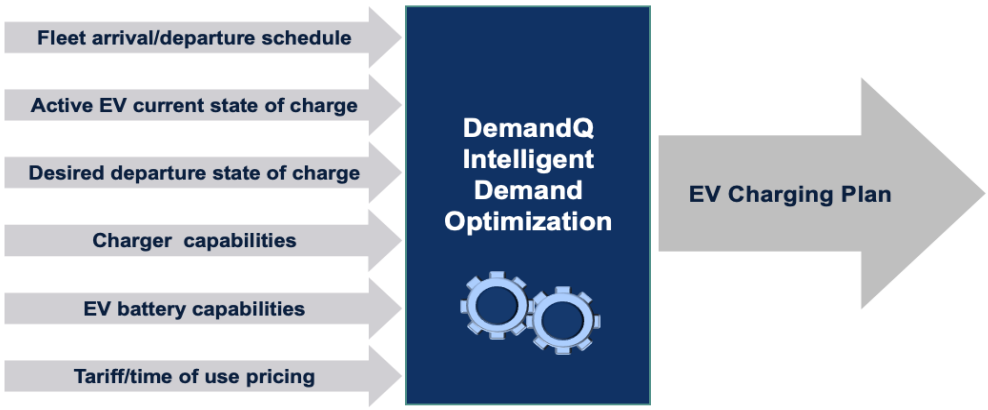
UNH EV Fleet Charging Impact Analysis

Peak Demand Mitigation Test Conducted by DemandQ

In response to the rapidly expanding deployment of EV fleets, DemandQ has fully integrated its patented Intelligent Demand Optimization services with the Open Charge Point Protocol supporting global EV charging. Our technology enables 24/7/365 reduction in electricity costs and associated operational risks for the emerging fleet utilization of EV's in University, Municipal and Commercial operations.



DemandQ manages EV generated peak demand at the point of charge, maintains on-time operational objectives of fleet management, and ensures fulfillment of the target charge state of each EV in the fleet.

University of New Hampshire EV Program

UNH has initiated the deployment of EVs on campus through the Facilities Management EV vehicle fleet. The University wants to understand the impact of the conversion from fossil-fueled vehicles to EV transport on its total cost of operations and sustainability objectives as they seek a green solution that is cost effective.

UNH recently upgraded one of its charging stations to conform with the international OCPP 1.6j standard. This re-engineering project enabled operational control and remote insight over the simultaneous charging cycle of up to four vehicles. The station now represents the current standard for EV charging.

Clear and traceable data from this re-engineered smart charging site will provide UNH with the information required to make sound decisions related to energy management, cost of operations and environmental impact planning for future expansion of campus-wide EV utilization.

Case Study

DemandQ conducted an empirical analysis of its Intelligent Demand Optimization service at the UNH site on June 23, 2021. The test assumptions:

- Vehicles in the UNH fleet will arrive randomly at a charging station
- Vehicles arrive with a baseline of approximately 20% charge remaining (initial State of Charge)
- Vehicles are available for service when an 80% State of Charge is attained
- Each EV's schedule determines when it must be available for service
- Each EV can remain on-station charging at a variable rate longer than the minimum time required to achieve 80% State of Charge without disrupting its operating schedule

Data Summary

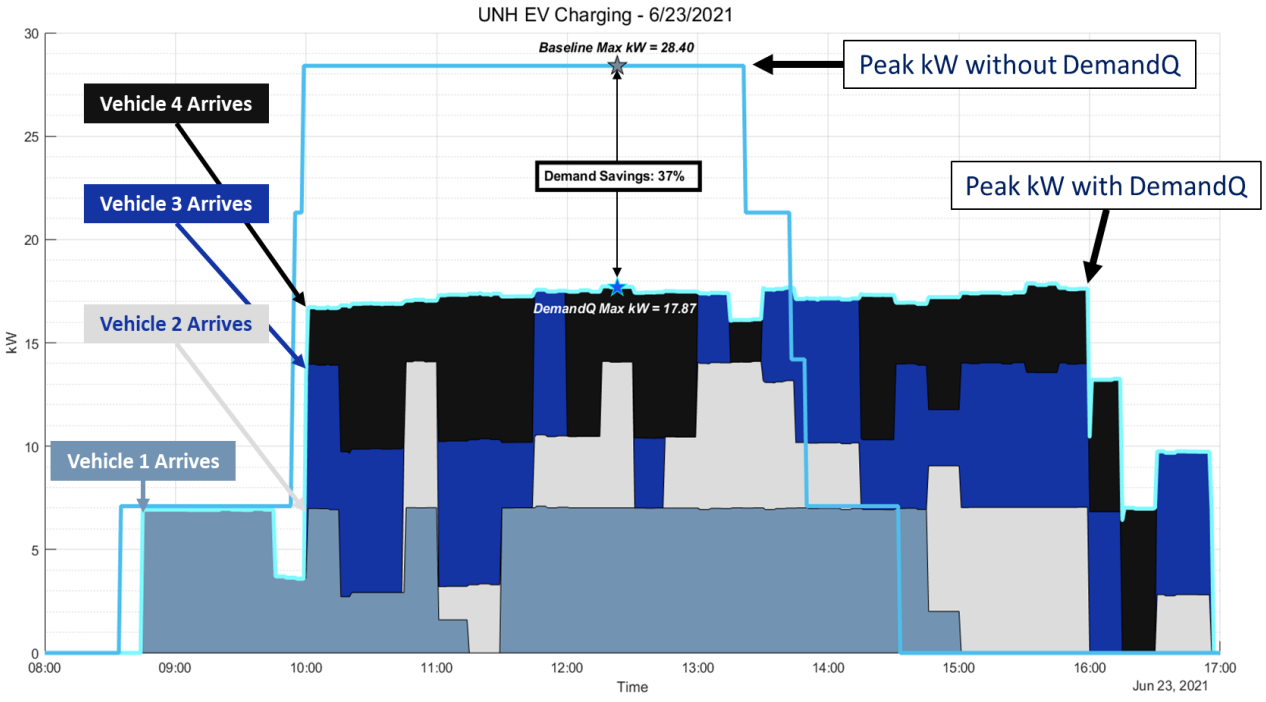
Vehicle ID	Battery Capacity	Actual Arrival	Arrival SoC	Minimum On Station	Actual On Station	Departure Time	Departure SoC
T 1	62 kWh	08:45	26%	5h 07m	6h 15m	03:00	82%
T 2	54 kWh	10:00	42%	3h 22m	6h 15m	04:15	80%
T 3	62 kWh	09:55	32%	4h 38m	6h 05m	04:00	84%
T 4	54 kWh	09:55	34%	3h 52m	6h 35m	04:30	80%

Comparative Performance Analysis

DemandQ's charging plan achieved the desired State of Charge by providing the required power targeted for each EV. All departure schedules were satisfied.

DemandQ's integration and inter-operations with EV charging stations has a dramatic impact on the 15-minute moving average used by utilities to compute demand charges. As detailed in the following graph, by implementing DemandQ's Intelligent Demand Optimization, **the coincident peak demand of the Charging Station in this study was substantially mitigated and reduced by over 37%.**

UNH is billed for demand charges at the rate of $12.50/kW. This 37% reduction in demand charges delivered by DemandQ caps the cost of every kilowatt used by the University to support EV charging. By applying DemandQ's technology to these services at scale, UNH would realize thousands of dollars in electricity utility cost savings each year in charging their fleet of vehicles. In support of broader institutional goals, UNH can apply the data from this analysis to model the benefits and financial impact of the deployment of EV services campus wide.



For more information about DemandQ, please email our team at info@demandq.com, or call us at (855) 693-8377