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Designing, installing and O&M Charging Systems for Multi Unit Residential Buildings

Prepared for
Mann Energy Solutions
March 2022

EV sales trend

Mann Group brief

Chargers' comparison

Charging Systems Solutions

Funding

How can we help

Questions

EV sales trend

- As of Q3 2022, over 1 in 10 new vehicle registrations are either Battery EV or Plug-in Hybrid Electric vehicle and as such the demand for EV charging solutions will increase proportionally as more and more electric vehicles join the fleet.
- Government of Canada expects that 20% of all new and used energy-truck sales to be electrification by 2030.
- Statistics Canada has reported that the proportion of new vehicle registrations that are electric vehicles (EV) has dramatically increased compared to the same period last year.
- New vehicle registration growth in Q3 of 2022
- EVs in Ontario in February
- EVs in Ontario in February
- EVs in Ontario in February



How many chargers should we install in a building?

How big of a load do we need?

How do I manage the load during peak times?

A government funding program is available for EV charging.

Mann Group

- The Mann Group of companies was founded in 1984
- Our core business
 - Consulting Engineering for consulting engineering groups focused on sustainable design building and performance projects
 - Project Management that is your consultant for traditional construction and so-called project management services for construction projects
 - Construction for construction groups with a mission that means energy conservation and sustainable construction elements as part of the project goals
 - Automation Control and Building Automation for automation groups focused on providing automated building solutions for our clients using advanced technology for the application. Our technology provides the best of building energy design and "Energy Smart" controls to our building automation groups or directly to our sustainable energy management technology.

Mann Group

- Our expertise
 - EV Charging for electric vehicle charging group focuses on a subordinated approach that supports the design, build and testing needs for both EV and non-EV projects
 - Electrical engineering and services for electrical engineering groups includes electrical wiring, building engineering and implementation. Our firm has hundreds of installed electrical projects and provides power solutions that follow traditional engineering practices.
 - Energy Management for energy audits the first step in identifying energy-wasting and energy cost reduction opportunities, reduce greenhouse gas emissions, and improve the comfort, health, and safety of its occupants.
 - Alternative Energy We have extensive experience with alternative energy including solar and wind. We also provide expertise in energy efficiency and reduction of energy use.
 - Reduce the overall project risk through cost-effective building operations and maintenance at quality and safety. This is achieved through having an experienced team building by providing an ongoing level of service to our clients.

Chargers comparison

Charger Type	Output Voltage	Power (range/h of charge)	Typical Load to fully charge a vehicle
Level 1	120V AC	1.5 kW	80%
Level 2	240V AC	30-50 kW	15-20%
Level 3 (DC Fast Charge)	500V DC	100-300 kW	10-30 min (range)

Charging systems solutions

Non-networked
One dedicated circuit per charger - Limited numbers of chargers

Networked System
Chargers (DCFP) - Power Management

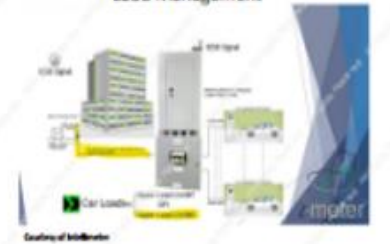
Central/Metering and Power Management Panel



Charging systems solutions

	Relative Capacity (%)	Reliability	Application	Construction	Support (Year Management)
Non-networked	Low	High	Unplanned Power	Individual Circuit	High
Networked System (DCFP)	Medium	High	Pre-planned/Unplanned Power, High Capacity, High Reliability, or High Capacity, High Reliability, or High Capacity, High Reliability	Individual Circuit	High
Central/Metering and Power Management Panel	High	Medium	Pre-planned/Unplanned Power, High Capacity, High Reliability, or High Capacity, High Reliability, or High Capacity, High Reliability	Individual Circuit	High

Load Management



Funding

- ZEVP structure and timelines
 - Five-year, first-come, first-served
 - Total of \$180,000,000 ending in 2024
 - Through distribution organizations

Funding: ZEVP

Type of Infrastructure	Range	Maximum Funding
Level 2 (240V AC)	1,000 to 10,000	Up to 60% of total project costs, to a maximum of \$2,000 per charger
Fast-charger	200 to 500	Up to 60% of total project costs, to a maximum of \$2,000 per charger
Fast-charger	500 to 1,000	Up to 60% of total project costs, to a maximum of \$2,000 per charger
Fast-charger	1,000 to 2,000	Up to 60% of total project costs, to a maximum of \$2,000 per charger
Fast-charger	2,000 to 5,000	Up to 60% of total project costs, to a maximum of \$2,000 per charger
Fast-charger	5,000 to 10,000	Up to 60% of total project costs, to a maximum of \$2,000 per charger

How Can We Help?

Feasibility Study

Consulting Approach in Engineering, Procurement, Construction

Funding Application

Questions

Questions?

- Link to our EV blog
https://www.mannenergysolutions.com/blog/ev-blog/
- Link to our EV brochure
https://www.mannenergysolutions.com/_files/ugd/0e9778_1c1317a50436072352e98424c37a2d.pdf

Thank You
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