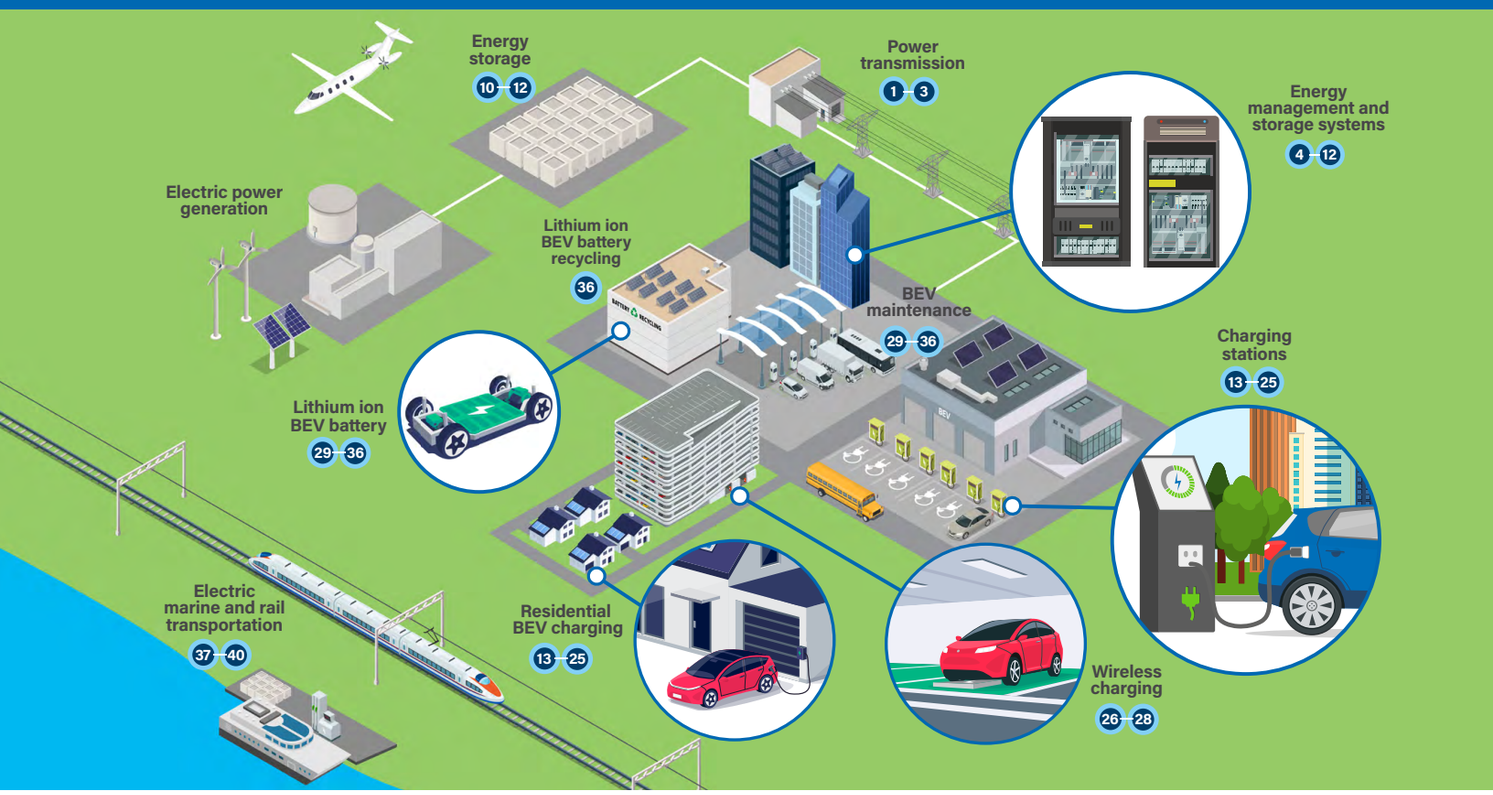
Battery Electric Vehicles and Energy Management

CSA Group standards-based solutions help facilitate a reliable, sustainable deployment of Battery Electric Vehicles (BEV) infrastructure across North America. Recognizing the role BEVs can play in energy management solutions, CSA Group adopted a systems-based approach to help facilitate seamless integration of BEVs with the electrical grid.



Standards and research publications

Power Transmission and Electrical Installation

1 - **CSA C22.3 NO. 1,** *Overhead systems*

2 - **CSA C22.3 NO. 7,** *Underground systems*

3 - **CSA C22.1,** *Canadian Electrical Code, Part I, Safety Standard for Electrical Installations*

Energy Management Systems

4 - **CSA/ANSI C22.2 NO. 343,** *Electric vehicle energy management systems*

5 - **CSA C22.2 NO. 348,** *Electric vehicle power export equipment*

6 - Electric Vehicle Energy Management Systems (research report)

7 - Charging Ahead: Unlocking Vehicle-grid Integration in Canada (research report)

8 - Charging Ahead: Ensuring Equity and Reliability in Canada's Electric Vehicle Network (public policy report)

9 - Integration of Electric Vehicle Batteries into Energy Management Systems (research report, in progress)

Energy Storage

10 - **CSA/ANSI C22.2 NO. 340,** *Battery management systems*

11 - **CSA/ANSI C22.2 NO. 350,** *Test method for safety and performance of thermal barriers for use in batteries and battery-based energy storage systems*

12 - **CSA/ANSI C800,** *Testing protocol for energy storage system reliability and quality assurance program*

Vehicle Charging

13 - **CSA C22 NO. 280,** *Electric vehicle supply equipment*

14 - **CAN/CSA-C22.2 NO. 281.1,** *Standard for safety for personnel protection systems for electric vehicle (EV) supply circuits: General requirement*

15 - **CAN/CSA-C22.2 NO. 281.2,** *Standard for safety for personnel protection systems for electric vehicle (EV) supply circuits: Particular requirements for protection devices for use in charging systems*

16 - **CSA C22.2 NO. 346,** *DC charging equipment for electric vehicles*

17 - **CSA C810,** *Energy efficiency and test methods for EVSE DCFCs*

18 - **CSA TS-802,** *Electric vehicle infrastructure deployment guideline*

19 - **CSA TS-803,** *Electric vehicle charging infrastructure accessibility* (in progress)

20 - **CSA TS-804.1,** *Electric vehicle infrastructure uptime guidance - Overview and definitions*

21 - **CSA TS-804.2,** *Electric vehicle infrastructure uptime guidance - Reporting*

22 - **CSA TS-808,** *Electric vehicle building readiness* (in progress)

23 - Evaluating Energy Performance of EV Charging Technologies (research report, in progress)

Cables

24 - **CSA C22.2 NO. 332,** *Electric vehicle cable*

Plugs, Receptacles, and Couplers

25 - **CAN/CSA-C22.2 NO. 282,** *Plugs, receptacles, and couplers for electric vehicles*

Wireless Charger

26 - **CSA C22.2 NO. 61980-1,** *Electric vehicle wireless power transfer (WPT) systems – Part 1: General requirements*

27 - **CSA 61980-2,** *Electric vehicle wireless power transfer (WPT) systems – Part 2: Specific requirements for MF-WPT system communication and activities* (in progress)

28 - **CSA C61980-3,** *Electric vehicle wireless power transfer (WPT) systems – Part 3: Specific requirements for magnetic field wireless power transfer systems* (in progress)

Batteries and Vehicle Maintenance

29 - **CSA E62660-1,** *Secondary lithium-ion cells for the propulsion of electric road vehicles – Part 1: Performance testing*

30 - **CSA E62660-2,** *Secondary lithium-ion cells for the propulsion of electric road vehicles – Part 2: Reliability and abuse testing*

31 - **CSA B401.4,** *Battery electric vehicle maintenance facility code* (in progress)

32 - **CSA C22.2 NO. 60086-1,** *Primary batteries – Part 1: General*

33 - **CSA C22.2 NO. 60086-2,** *Primary batteries – Part 2: Physical and electrical specifications* (in progress)

34 - **CSA C801,** *Testing protocol for evaluating effectiveness of detection and suppression systems for battery failure events* (in progress)

35 - **CSA TS-806,** Lithium-ion battery incident response and management (in progress)

36 - Circularity and Recycling of Lithium-Ion Batteries for Electric Vehicles – Standardization and Safety Requirements (research report)

Railway Applications

37 - **CSA TS-602,** *Railway applications – Rolling stock – Onboard lithium-ion traction batteries*

38 - Advancing the Use of Hydrogen and Electrification in the Rail Industry (research report)

39 - Standardization Landscape of Railway Electrification (research report, in progress)

40 - Climate Change Impacts on Railway Electrification (research report, in progress)

CSA Group ongoing BEV activities

- Engaging with interested parties in the BEV ecosystem, including governments, utilities, charger manufacturers, vehicle manufacturers, and others to identify standardization gaps and priorities
- Updating existing standards and developing new standards for charging equipment, charging infrastructure, load and energy management systems, energy efficiency, battery safety and lifecycle, and electrified transportation modes.

For more information,
visit csagroup.org/BEV

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