

NEW BRUNSWICK ELECTRICAL

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# EV Chargers

Electric vehicle charger installation, requirements,  
and costs

15 Expert Answers from Electric IQ

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## Adding an EV charger to an older Saint John home?

**Adding an EV charger to an older Saint John home typically requires a panel upgrade and dedicated 40-amp circuit, with total costs ranging from \$3,000-\$5,000 including the charger installation.** Most homes built before 1990 have 100-amp electrical panels that lack the capacity for a Level 2 EV charger while maintaining safe electrical loads for the rest of the house.

### Panel Capacity Assessment

Older Saint John homes often have 100-amp electrical panels that are already near capacity with existing loads like electric heat, hot water heaters, and appliances. A Level 2 EV charger typically draws 32 amps continuously (requiring a 40-amp circuit), which represents a significant portion of your home's electrical capacity. TSANB regulations require a load calculation to ensure your panel can safely handle the additional load without overloading circuits or creating fire hazards.

Your electrician will perform a load calculation considering your home's existing electrical demands. If the calculation shows insufficient capacity, you'll need a panel upgrade to 200 amps before installing the EV charger. This is especially common in Saint John's older neighborhoods like the South End or North End, where many homes still have original 100-amp services from the 1960s-80s.

### Installation Requirements and Permits

EV charger installation requires a TSANB electrical permit in New Brunswick, and the work must be completed by a licensed electrical contractor. The installation involves running a new 40-amp, 240-volt circuit from your electrical panel to the charging location, typically your garage or driveway. In Saint John's coastal environment, any exterior components must be rated for marine conditions due to salt air exposure, which can accelerate corrosion of electrical components.

The charger location should be within reach of where you park but protected from Maritime weather. Many Saint John homeowners install chargers in attached garages or under covered areas to protect the equipment from ice storms and coastal weather. The circuit requires GFCI protection and proper grounding per Canadian Electrical Code requirements.

### Costs and Timeline

For a Saint John home needing a panel upgrade, expect \$3,000-\$5,000 total including the panel upgrade (\$2,000-\$3,500), new circuit installation (\$800-\$1,200), and charger mounting. If your panel has adequate capacity, installation costs drop to \$1,200-\$1,800. Popular charger brands like Tesla Wall Connector, ChargePoint, and Grizzl-E work well in New Brunswick's climate.

The installation typically takes 1-2 days, with TSANB inspection required before energizing the circuit. During Saint John's winter months, scheduling may take longer due to weather delays and higher demand for electrical services during ice storm season.

### **Safety Considerations**

Never attempt DIY installation of EV charging circuits. The 240-volt, 40-amp circuit poses serious electrocution and fire risks if improperly installed. Older Saint John homes may have additional challenges like knob-and-tube wiring, aluminum wiring, or outdated panels that require professional assessment. Federal Pacific or Zinsco panels common in 1970s-80s homes should be replaced regardless of EV charger plans due to fire risks.

Need help finding a qualified electrician for your EV charger project? New Brunswick Electrical can match you with licensed contractors experienced in EV installations and panel upgrades in the Saint John area.

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Q2

## **What are the rebates and incentives for EV charger installation in New Brunswick?**

**New Brunswick currently has limited provincial rebates specifically for EV charger installation, but federal programs and NB Power incentives can help offset costs.**

The **federal iZEV program** provides purchase incentives for qualifying electric vehicles, and the **Canada Greener Homes Grant** has historically covered some electrical upgrade costs related to energy efficiency improvements. Check the Natural Resources Canada website for current program availability, as these programs update regularly.

**NB Power's energy efficiency programs** occasionally include incentives related to electrification. While not always a direct EV charger rebate, panel upgrades required for charger installation may qualify under broader home electrical improvement programs. Contact NB Power at 1-800-663-6272 to ask about current offerings.

**Municipal incentives** vary across New Brunswick. Some municipalities offer reduced permit fees or expedited processing for EV infrastructure. Check with your local building department — Moncton, Fredericton, and Saint John have been the most progressive on EV adoption support.

### **Cost breakdown without incentives:**

- Level 2 charger unit: \$600-\$1,200
- Installation by licensed electrician: \$500-\$1,500
- Panel upgrade (if needed): \$2,000-\$4,000

- TSANB permit: \$100-\$200

**Tax considerations:** The charger and installation costs may be eligible for the federal Clean Technology tax credit if you're a business. Residential installations don't currently qualify for federal tax credits, but keep receipts — tax programs change annually.

**Condo and multi-unit buildings** face additional challenges. If you're in a condo, the NB Condominium Property Act requires board approval for electrical modifications to common elements. Some condo corporations are proactively installing shared charging infrastructure — ask your board about plans.

Your best first step is getting a quote from a licensed electrician who specializes in EV installations, then checking NB Power's website and the federal programs portal for any active rebates before committing.

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Q3

## Can I install an EV charger on a 100 amp panel in New Brunswick or do I need to upgrade?

**You may be able to install a Level 2 EV charger on a 100 amp panel, but it depends on your current electrical load — many older New Brunswick homes will need a panel upgrade first.**

**The math matters.** A typical 40-amp Level 2 EV charger draws significant power. On a 100-amp panel, you're working with limited headroom. The Canadian Electrical Code requires that your total connected load doesn't exceed 80% of your panel's capacity (80 amps usable on a 100-amp panel). If you have electric baseboard heat, an electric stove, a dryer, and a hot water tank, you're likely already close to that limit.

**Load calculation is required.** A licensed electrician will perform a load calculation per CEC Section 8 to determine if your panel can handle the additional EV charger circuit. This calculation considers all existing loads and determines available capacity. In New Brunswick, where many homes rely on electric baseboard heating, 100-amp panels are frequently maxed out during winter months.

**Options if your panel is too small:**

- **Panel upgrade to 200 amp:** \$2,500-\$4,500 installed, plus TSANB permit. This is the most common solution and future-proofs your home
  - **Load management device:** \$300-\$600 installed. These smart devices monitor your electrical usage and throttle the EV charger when other loads are high, allowing installation on smaller panels
  - **Lower amperage charger:** A 24-amp or 30-amp charger instead of 40-amp uses less panel capacity, though charging takes longer
  - **Time-of-use charging:** Program the charger to run overnight when baseboard heaters cycle less frequently
- NB Power service upgrade:** If you upgrade to 200 amps, NB Power may need to upgrade the service entrance cable from the transformer to your meter. This can add 2-4 weeks and potential additional costs if the existing service cable is undersized.

**TSANB permit is required** regardless of whether you upgrade. Get your electrician to pull the permit and schedule the inspection — typical wait times are 5-10 business days in urban areas.

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## What EV charger works best in extreme cold New Brunswick winters?

**Look for a Level 2 EV charger rated for -40°C operation with a heated cable management system — New Brunswick winters demand cold-weather performance that not all chargers deliver.**

**Temperature ratings matter most.** The best chargers for NB winters are rated to at least -30°C (ideally -40°C). Budget chargers rated to only -20°C may malfunction during January cold snaps when Fredericton and Edmundston regularly hit -30°C or colder. Check the operating temperature range in the charger specifications before buying.

### Top performers for cold climates:

- **ChargePoint Home Flex:** Rated to -40°C, adjustable amperage (16-50A), WiFi scheduling, 25-foot cable. Around \$800-\$1,000
- **Grizzl-E:** Canadian-designed, rated to -40°C, NEMA 4 weatherproof, rugged build. Around \$500-\$600. Popular choice for outdoor installations
- **Tesla Wall Connector:** Rated to -30°C, best integration with Tesla vehicles, 24-foot cable. Around \$600-\$700
- **Emporia Energy Smart:** Budget option rated to -30°C with energy monitoring. Around \$500

**Cable management is critical.** Charging cables become stiff and difficult to handle below -20°C. Look for chargers with:

- Cable management hooks or retractors that keep the cable off the ground (ice and snow damage cables left on driveways)
- Thicker, cold-rated cables that stay flexible in extreme cold
- Cable lengths of at least 25 feet — you don't want to be stretching a stiff cable in a snowstorm

### Installation considerations for NB:

- **NEMA 4 or NEMA 4X enclosure** rating for outdoor installation — this protects against rain, snow, ice, and salt spray (important near coastal areas like Saint John and Shediac)
- **Dedicated 40-amp circuit** on a two-pole breaker with appropriate gauge wire per CEC
- **GFCI protection** is required by the Canadian Electrical Code for EV charger circuits
- **Mount height:** Install at 4-5 feet to keep the connector above typical snow accumulation

**Pre-conditioning tip:** Most EVs let you pre-condition the battery while plugged in, warming it before your morning commute. This uses grid power instead of battery power, giving you better range on cold NB mornings. Schedule pre-conditioning to finish 15-20 minutes before you leave.

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### Q5

## How long does it take to charge an electric vehicle with a Level 2 charger in New Brunswick?

**A Level 2 EV charger typically adds 30-50 km of range per hour of charging, meaning most daily driving in New Brunswick can be replenished overnight in 4-8 hours.**

**Charging speeds depend on three factors:**

- **Charger amperage:** A 40-amp circuit (the most common residential installation) delivers about 9.6 kW, adding roughly 45-50 km per hour. A 30-amp circuit delivers about 7.2 kW, adding 30-35 km per hour
- **Vehicle's onboard charger:** Your car's maximum AC charging rate limits speed regardless of charger capacity. Most EVs accept 7.2-11.5 kW on Level 2
- **Battery temperature:** In NB's cold winters, charging slows by 15-30% when the battery is cold. A -20°C battery charges significantly slower than a 20°C battery

### Real-world charging times for common EVs in New Brunswick:

Vehicle	Battery Size	0-100% Time (40A)	Daily Top-up
Tesla Model 3 LR	75 kWh	~8 hours	3-4 hours
Hyundai Kona Electric	64 kWh	~7 hours	3-4 hours
Chevy Bolt EUV	65 kWh	~7 hours	3-4 hours
Ford Mustang Mach-E	68-88 kWh	7-10 hours	3-5 hours
Nissan Leaf Plus	60 kWh	~8 hours*	3-4 hours

\*Leaf's 6.6 kW onboard charger limits charging speed

**The daily commute perspective:** The average New Brunswick commute is about 30-40 km round trip. That's roughly 1 hour of Level 2 charging — easily handled overnight. Even Moncton-to-Fredericton trips (180 km) can be fully recharged overnight.

**Winter impact:** Plan for 20-30% slower charging and 15-25% reduced range during December through March. If you normally charge 4 hours in summer, budget 5-6 hours in deep winter. Plugging in immediately after driving helps — the battery retains heat from driving, charging faster than a cold-soaked battery.

**NB Power rates:** At approximately \$0.13/kWh, a full charge for a 65 kWh battery costs about \$8.50 — roughly equivalent to 4 litres of gas. Over a year, most NB EV owners save \$1,500-\$2,500 versus gasoline.

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Q6

## Can I install a Level 2 EV charger in my detached garage in New Brunswick and what's involved?

Yes, you can install a Level 2 EV charger in a detached garage in New Brunswick — it's one of the most common EV charging setups in the province, especially for homes in suburban and rural areas where detached garages are the norm. However, running power to a detached structure adds complexity and cost compared to an attached garage installation.

### What You Need: The Basics

A Level 2 EV charger requires:

- **240V circuit** (same voltage as your dryer or stove)

- **40-amp circuit** for most chargers (supporting 32 amps continuous charging — the CEC requires circuits to be rated at 125% of continuous load)
- **6-gauge copper wire** (or 4-gauge aluminum) for a 40-amp circuit
- **GFCI protection** — either a GFCI breaker in the panel or a charger with built-in GFCI (most modern units have this)
- **TSANB electrical permit and inspection**

Popular Level 2 chargers for home use include the **ChargePoint Home Flex** (\$600–\$800), **Grizzl-E** (\$500–\$600 — a Canadian-made option), **Tesla Wall Connector** (\$550–\$650, works with adapters for non-Tesla vehicles), and **Emporia Energy** (\$500–\$600). All are rated for outdoor/garage installation.

## The Detached Garage Challenge: Getting Power There

The key difference from an attached garage installation is that you need to run a dedicated circuit from your main electrical panel in the house to your detached garage. There are two methods:

### Underground Feed (Recommended)

This is the preferred method for permanent, reliable power delivery:

- **Trench from house to garage** — The Canadian Electrical Code requires underground cable to be buried at specific depths:
  - **600mm (24 inches)** minimum for cable in rigid PVC conduit - **900mm (36 inches)** for direct-burial rated cable without conduit - In practice, most New Brunswick electricians go with **conduit at 24 inches** for easier future maintenance
- **Cable specifications** — For a 40-amp EV circuit plus basic garage lighting/outlets, your electrician will likely run **#6 AWG copper NMWU** (rated for direct burial) or pull wire through conduit. For a sub-panel approach (recommended — see below), heavier wire supports multiple circuits.
- **Frost depth consideration** — New Brunswick's frost line depth varies from **1.2 metres (48 inches) in Fredericton** to **1.0 metre (39 inches) in coastal Moncton**. While the CEC burial depth is measured from grade, going deeper provides extra protection against frost heaving that can damage conduit joints. Most experienced NB electricians dig to at least 30 inches.
- **Trench cost** — Expect **\$15–\$30 per linear foot** for hand-digging or **\$8–\$15 per foot** with a mini-excavator. A 50-foot run (typical for most properties) costs **\$400–\$1,500** just for the trench. Rocky soil — common in parts of Saint John, the Kingston Peninsula, and the Upper Saint John River Valley — can increase costs significantly.

## Overhead Feed

Less common but sometimes necessary:

- Cable runs on a messenger wire between house and garage
- Must maintain **3.7 metres (12 feet) clearance** over walkways, **4.0 metres (13 feet)** over driveways
- Less expensive to install but more exposed to Maritime weather (ice, wind, falling branches)
- Not recommended if the garage is more than 15 metres from the house

## Sub-Panel vs. Direct Circuit

**Direct circuit approach:** Run a single 40-amp, 240V circuit from the house panel to the garage for the EV charger only. Simplest and cheapest if the garage has no other electrical needs. Cost: **\$1,500–\$3,000** total.

**Sub-panel approach (recommended):** Install a small sub-panel (60-amp or 100-amp) in the garage, fed by a feeder cable from the house. This supports the EV charger PLUS garage lighting, outlets, a garage door opener, and future needs like a workshop or heated workspace. Cost: **\$2,500–\$5,000** total, but far more practical long-term.

Most electricians in New Brunswick recommend the sub-panel approach because:

- Adding circuits later means just adding breakers, not running new cable from the house
- A 60-amp sub-panel costs only **\$200–\$400 more** in materials than a direct circuit
- It meets the CEC requirement for a disconnecting means in the detached structure

## Panel Capacity: Will Your Main Panel Handle It?

Before any installation, your electrician must verify your main panel has capacity for the additional 40-amp (or 60-amp feeder) load. This is particularly important in New Brunswick homes with electric baseboard heat, which already places heavy demand on the panel.

### Typical scenarios:

- **200-amp panel with baseboard heat:** Usually has room for a 40-60 amp garage feeder, but a load calculation is essential
- **100-amp panel with baseboard heat:** Very likely needs a **panel upgrade to 200 amps** before adding an EV charger — add **\$2,500–\$4,500** to the project cost
- **200-amp panel with heat pump:** More headroom available, usually straightforward

## Permit and Inspection

TSANB (Technical Safety Authority of New Brunswick) **requires a permit** for this work — it involves a new circuit, underground or overhead wiring, and potentially a sub-panel. Your electrician will:

- Apply for the permit (fee: approximately **\$75–\$150**)
- Complete all rough-in wiring
- Request TSANB inspection
- Make any corrections if needed
- Receive approval, then energize the circuit

Timeline: expect **1–3 weeks** from permit application to inspection, depending on TSANB's current workload and your area.

### Total Cost Summary

| Component | Cost Range | |-----|-----| | EV charger unit | \$500–\$800 | | Trenching (50 ft) | \$400–\$1,500 | | Underground cable & conduit | \$300–\$800 | | Sub-panel in garage | \$200–\$400 | | Electrician labour (full day) | \$600–\$1,200 | | TSANB permit | \$75–\$150 | | **Total (sub-panel approach) | \$2,500–\$5,000 | | Panel upgrade if needed (100A?200A) | Add \$2,500–\$4,500 |**

### NB Power and Rebate Programs

Check NB Power's current incentive programs — they have periodically offered rebates for EV charger installation as part of their electrification initiatives. The federal government's **iZEV program** and **Canada Greener Homes** programs have also offered EV infrastructure incentives. These programs change frequently, so verify current availability before starting your project.

### Practical Tips for NB Homeowners

- **Plan the trench route carefully** — avoid septic fields, water lines, and NB Power's underground service (call before you dig: **1-800-565-1NOB** for New Brunswick One-Call)
- **Install the charger inside the garage** rather than on the exterior to protect it from Maritime salt air and ice
- **Consider a NEMA 14-50 outlet** instead of (or in addition to) a hardwired charger — this gives you flexibility to swap charger brands or use a portable charger for travel
- **Insulate the garage** if you plan to charge in extreme cold — batteries charge more efficiently above 0°C, and a slightly heated garage in January can improve charging speed by 10–20%

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## How much does it cost to install a Level 2 EV charger in New Brunswick?

### Level 2 EV Charger Installation Costs in New Brunswick

Installing a home Level 2 EV charger is the single biggest improvement you can make to the EV ownership experience. Here's a detailed cost breakdown for NB homeowners based on real-world installation scenarios.

#### Equipment Costs

| Charger | Power | Price | Notes | |-----|-----|-----|-----| | Grizzl-E Classic | 40A, 9.6 kW | \$500–\$600 | Canadian-made, rated to -30°C, best value | | FLO Home X5 | 30A, 7.2 kW | \$800–\$1,000 | Made in Quebec, rated to -40°C, premium build | | Tesla Wall Connector | 48A, 11.5 kW | \$550–\$650 | Best for Tesla owners, pairs with app | | ChargePoint Home Flex | 50A, 12 kW | \$700–\$900 | Adjustable amperage, good app | | Emporia Smart EVSE | 48A, 11.5 kW | \$450–\$550 | Budget smart option, energy monitoring | | Lectron V-Box | 40A, 9.6 kW | \$350–\$450 | Budget option, basic features |

Most NB homeowners should look at 40A chargers (9.6 kW) as the sweet spot — they add 45–55 km of range per hour, fully charging most EVs in 6–10 hours overnight. The 48A chargers are faster but require a 60A circuit and heavier wiring.

#### Installation Costs

Installation costs vary dramatically based on three factors: panel capacity, distance from panel to charger, and whether indoor or outdoor mounting.

##### Scenario 1: Best case — 200A panel, indoor garage, panel on garage wall

- Short wire run (under 5 metres)
- 40A circuit with 8 AWG copper
- NEMA 14-50 outlet or hardwired connection
- Cost: **\$500–\$900**

##### Scenario 2: Typical — 200A panel in basement, charger in attached garage

- 10–15 metre wire run through basement to garage
- 40A circuit with 8 AWG copper
- Cost: **\$800–\$1,500**

##### Scenario 3: Longer run — panel in basement, charger in detached garage or driveway

- 15–30 metre wire run, possibly underground
- May need to upsize wire to 6 AWG for voltage drop
- Underground run adds trenching costs
- Cost: **\$1,500–\$3,000**

#### **Scenario 4: Panel upgrade needed — 100A panel**

- Panel upgrade from 100A to 200A: \$2,500–\$4,500
- Plus charger circuit installation: \$500–\$1,500
- Cost: **\$3,000–\$6,000**

#### **Installation Cost Breakdown**

| Component | Cost Range | |-----|-----| | 50A GFCI breaker (if required by charger) | \$80–\$150 | | 40A or 50A standard breaker | \$30–\$60 | | 8 AWG copper NMD90 (per metre) | \$4–\$7 | | 6 AWG copper NMD90 (per metre, long runs) | \$6–\$10 | | NEMA 14-50 outlet (if plug-in charger) | \$15–\$30 | | Conduit and fittings (if exposed run) | \$50–\$200 | | Electrician labour (2–6 hours) | \$300–\$900 | | TSANB permit | \$50–\$100 | | **Typical total (no panel upgrade) | \$800–\$2,500 |**

#### **Plug-In vs. Hardwired**

##### **Plug-in (NEMA 14-50 outlet):**

- Charger plugs into a 240V outlet like a stove or dryer
- Charger is portable — take it if you move
- Slightly easier to replace the charger later
- Outlet must be installed by a licensed electrician

##### **Hardwired:**

- Charger is permanently connected to the circuit
- Cleaner installation (no visible outlet)
- Some chargers (like Tesla Wall Connector at 48A+) require hardwiring
- Changing the charger later requires an electrician

Both approaches require the same circuit, same wiring, same permit. The cost difference is minimal (\$15–\$30 for the outlet vs. a few minutes of additional wiring time for hardwired).

#### **TSANB Permit and Inspection**

A dedicated 240V EV charger circuit always requires a TSANB electrical permit. The inspection verifies:

- Correct wire gauge for the circuit amperage and run length
- Proper breaker sizing
- GFCI protection if required (some chargers have built-in GFCI, others need a GFCI breaker)
- Proper mounting and weatherproofing (outdoor installations)
- Panel capacity adequate for the added load

Inspection scheduling: 3–5 business days in Moncton, Saint John, Fredericton; up to 7–10 days in rural areas.

## NB-Specific Considerations

**Cold weather:** Mount the charger in the garage if possible. While quality chargers are rated to -30°C or -40°C, the charging cable becomes stiff and difficult to handle below -20°C. A garage-mounted charger with a cable organizer makes winter charging much more pleasant.

**NB Power rates:** At ~\$0.12/kWh, charging an EV in NB costs roughly \$0.02–\$0.03 per kilometre — about 80% less than gasoline at current pump prices. A typical 15,000 km/year driver saves \$1,500–\$2,500 annually on fuel.

**Insurance:** Inform your home insurance company about the EV charger installation. Most insurers don't increase premiums for a properly permitted and inspected installation, but they want it on file.

## Getting Quotes

Contact 2–3 TSANB-licensed electricians and provide:

- Your panel size (main breaker rating — printed on the breaker)
- Location of the panel and planned charger location
- Whether indoor (garage) or outdoor mounting
- The charger model (or amperage you want)
- Whether you need a NEMA 14-50 outlet or hardwired

Most electricians can complete the installation in half a day. Book ahead — EV charger installations have been growing rapidly in NB and popular electricians book 2–4 weeks out.

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Q8

## How do I install an electric car charger in a condo or apartment in New Brunswick?

### EV Charger Installation in NB Condos and Apartments

Installing an EV charger in a condo or apartment in New Brunswick is more complicated than in a detached home because you're dealing with shared property, common electrical infrastructure, and condo board or landlord approval. But it's doable — here's how.

#### Condo Ownership

If you own your condo unit and have a dedicated parking spot:

**Step 1: Check your condo bylaws** Review your condo corporation's bylaws and rules regarding:

- Modifications to common areas (the parking garage or lot is usually common property)
- Electrical work on common property
- Approval process (board vote, written request, engineering assessment)

New Brunswick's Condominium Property Act doesn't specifically address EV chargers (as of 2025–2026), but most condo corporations require board approval for any work affecting common elements.

**Step 2: Submit a formal request to the condo board** Include:

- What you want to install (specific charger model, power requirements)
- Where it will be mounted (your parking spot, wall or pedestal)
- Electrical details (circuit size needed, where it will connect)

- Who will do the work (TSANB-licensed electrician)
- Who pays (you — this is almost always at the owner's expense)
- Who is liable for any damage during installation
- How the electricity will be metered (your unit's meter or common area meter)

**Step 3: Electrical assessment** The condo board may require a professional assessment of the building's electrical capacity. A building with 50 units may have limited spare capacity in the main electrical room. An electrician or electrical engineer evaluates whether the building can support one or more EV chargers without overloading the main service.

Cost for assessment: \$300–\$800 (you may be asked to pay this)

**Step 4: Metering** The biggest ongoing issue. Options:

- **Sub-meter on your unit's panel:** The charger circuit runs from your unit's panel to your parking spot. You pay through your own electricity bill. This only works if your unit's panel is physically close to your parking spot (ground-floor units with adjacent parking) or if the wire run is practical.
- **Sub-meter on common electrical with a dedicated meter:** A revenue-grade sub-meter (\$200–\$500) is installed on the charger circuit, and you reimburse the condo corporation based on metered usage. This is the most common approach for underground parking garages.
- **Flat-fee arrangement:** The condo board charges a monthly flat fee (\$30–\$80) to cover estimated electricity. Simpler but potentially unfair to low-usage drivers.

## Rental Apartments

If you rent:

**Landlord permission is required** for any electrical work or modifications. NB's Residential Tenancies Act doesn't give tenants the right to install EV chargers without landlord consent.

**Making the case to your landlord:**

- Offer to pay all installation costs
- Use a portable/plug-in charger that can be removed when you leave
- Show that a 240V outlet already exists (some parking garages have dryer-style outlets for block heaters or car washes)
- Point out that EV charging increases property value and attractiveness to future tenants

**If a 120V outlet already exists in your parking spot** (block heater outlet):

- You can use Level 1 charging (5–8 km/hour) without any modifications
- Ask the landlord if this is acceptable — the electricity draw is modest (1.2 kW, about \$15–\$25/month)
- Confirm the outlet is on a dedicated circuit and GFCI-protected

## Technical Challenges in Multi-Unit Buildings

**Electrical capacity:** Older NB apartment buildings (1960s–1980s) were designed for minimal parking electrical loads — maybe a few block heater outlets. Adding a 40A EV charger circuit per unit would overwhelm the building's electrical service. Solutions:

- **Load management systems:** Smart chargers (like ChargePoint or FLO for multi-unit) communicate with each other to share available power. If 10 chargers are installed but the building can only support 4 charging simultaneously, the system rotates charging across vehicles.
- **Scheduled charging:** All chargers programmed to run overnight only, reducing peak demand.
- **Electrical service upgrade:** The building's main electrical service is upgraded to accommodate EV loads. Cost: \$10,000–\$50,000+ depending on building size. This is a capital expense for the condo corporation.

**Wire routing:** Running a circuit from the electrical room to a parking spot in an underground garage can involve:

- Long wire runs (30–50+ metres)
- Penetrations through fire-rated walls (requires fire-stopping after installation)
- Conduit runs along garage ceilings
- Cost for wire routing alone: \$1,000–\$5,000 per charger in complex buildings

**Fire code:** NB's fire code has requirements for electrical equipment in parking garages:

- Equipment must be suitable for the location (garage-rated if in a closed garage)
- Fire separation penetrations must be properly sealed
- The local fire marshal's office may need to be notified

## Costs for Condo EV Charger Installation

| Component | Cost | |-----|-----| | Level 2 charger (40A) | \$500–\$1,000 | | Electrical assessment (building capacity) | \$300–\$800 | | Circuit installation (short run, simple routing) | \$1,000–\$2,500 | | Circuit installation (long run, complex building) | \$2,500–\$6,000 | | Sub-meter (if required) | \$200–\$500 | | TSANB permit | \$50–\$100 | | **Total (simple scenario)** | **\$2,050–\$4,900** | | **Total (complex building)** | **\$3,550–\$8,400** |

## Tips for Success

- **Rally other EV owners** — if 3–5 condo owners want chargers, the cost per unit drops for shared infrastructure (common conduit runs, load management system, bulk electrician pricing)
- **Present a professional proposal** — condo boards respond better to a well-researched request than a casual ask
- **Offer to create a precedent** — propose a policy that future EV owners can follow, relieving the board from re-debating the issue each time
- **Check for incentives** — NRCan and NB provincial programs sometimes offer rebates for multi-unit residential charging infrastructure
- **Be patient** — condo board decisions take time. Start the process 3–6 months before you need the charger.

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Q9

## How do I prepare my home's electrical system for a heat pump installation in NB?

### Preparing Your Electrical System for a Heat Pump in New Brunswick

Heat pumps are becoming the go-to heating upgrade in New Brunswick, driven by rising oil and propane costs and NB Power incentive programs. But before the HVAC installer arrives, your electrical system needs to be ready.

### Electrical Requirements by Heat Pump Type

### Mini-split heat pump (ductless, single zone):

- **Circuit:** Dedicated 240V, 15–30 amp (depends on BTU rating)
- **Wire:** 10/2 or 10/3 NMD90 typical
- **Breaker:** 2-pole 15A, 20A, or 30A
- **Disconnect:** Required — a lockable disconnect switch within sight of the outdoor unit
- **Most common in NB:** 12,000–24,000 BTU units requiring a 20A or 30A, 240V dedicated circuit

### Multi-zone mini-split (2–4 indoor heads, one outdoor unit):

- **Circuit:** Dedicated 240V, 30–50 amp
- **Wire:** 8/2 or 6/2 NMD90 depending on unit
- **Breaker:** 2-pole 30A or 40A
- Higher amperage draw because the outdoor compressor serves multiple indoor units

### Central ducted heat pump:

- **Circuit:** Dedicated 240V, 30–60 amp
- **Additional circuit:** May need a separate circuit for the air handler if it has electric backup heat strips
- **Wire:** 6/2 or larger NMD90
- **Breaker:** 2-pole 30A to 60A depending on system size

## Panel Capacity Check

This is the critical first step. Your electrician will:

- **Read your main breaker rating** — 100A, 150A, or 200A
- **Add up all existing circuit breakers** — this gives the theoretical maximum load (usually well above the actual simultaneous draw)
- **Calculate your actual peak demand** — using CEC load calculation rules (Rule 8-200)
- **Determine available capacity** for the heat pump circuit

### Common findings in NB homes:

| Panel Size | Heat Pump Feasibility | |-----|-----| | 200A | Almost always has room for any residential heat pump | | 150A | Usually fine for a single mini-split; may be tight for multi-zone or central | | 100A | Often at or near capacity, especially with electric water heater, dryer, and stove. Panel upgrade likely needed. | | 60A | Panel upgrade required — not enough capacity for a heat pump plus existing loads |

## Panel Upgrade Costs

If your panel can't accommodate the heat pump:

| Upgrade | Cost | |-----|-----| | 100A to 200A panel upgrade | \$2,500–\$4,500 | | 60A to 200A (full service upgrade) | \$3,500–\$6,500 | | Add tandem breakers to free space (if panel supports them) | \$75–\$200 |

## Disconnect Switch

The CEC requires a **lockable disconnect switch** within sight of the outdoor heat pump unit, mounted between 1.4m and 2m above grade. This allows service technicians to safely de-energize the unit. The disconnect must be rated for the circuit amperage.

Cost: \$100–\$250 installed (typically included in the heat pump electrical package).

## NB Power Programs and Rebates

NB Power's **Total Home Energy Savings Program** has offered rebates for heat pump installations — amounts and eligibility change periodically. As of 2025–2026:

- Rebates have ranged from \$500–\$5,000 depending on the program year and system type
- Pre-approval may be required before installation
- The home may need an energy assessment (EnerGuide evaluation)
- Check NB Power's website or call 1-800-663-6272 for current program details

These rebates do NOT cover the electrical work — that's your cost. But the overall savings from switching off oil or baseboard electric to heat pump typically repay the electrical investment within 2–4 years.

## Total Electrical Costs for Heat Pump Installation

| Scenario | Electrical Cost | |-----|-----| | Mini-split, 200A panel, short run | \$400–\$800 | | Mini-split, 200A panel, long run | \$700–\$1,200 | | Mini-split, panel upgrade needed | \$3,000–\$5,500 | | Multi-zone or central, 200A panel | \$800–\$1,500 | | Multi-zone or central, panel upgrade needed | \$3,500–\$6,000 | | TSANB permit | \$50–\$100 |

## Coordination and Timeline

- **Contact your electrician first** — even before the HVAC company. Have them assess your panel and run the load calculation. This determines whether you need a panel upgrade, which adds 1–3 weeks to the project.

- **HVAC company provides electrical specs** — they'll tell the electrician the exact circuit size, wire gauge, disconnect requirements, and communication cable needs.
- **Electrician runs the circuit** — this can often be done before the heat pump is installed, so the circuit is ready when the HVAC crew arrives.
- **TSANB inspection** — your electrician arranges this. In Moncton, Saint John, and Fredericton, expect 3–5 business days for scheduling.
- **HVAC installation** — connects the unit to the pre-wired circuit and disconnect.

Planning the electrical work alongside (not after) the heat pump purchase avoids the common frustration of having a heat pump delivered but no circuit to power it.

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## Can I charge my electric vehicle with a regular outlet in New Brunswick?

### Charging an EV from a Regular 120V Outlet in New Brunswick

Yes, every electric vehicle can charge from a standard 120V household outlet using the Level 1 charger that comes with the vehicle. But whether it's practical depends on how much you drive, how cold it gets, and your patience.

#### Level 1 Charging Specs

- **Voltage:** 120V (standard household outlet)
- **Amperage:** 8–12 amps (most EVs draw 12A on Level 1)
- **Charging rate:** 1.2–1.4 kW
- **Range added:** 5–8 km per hour of charging
- **Full charge time (empty to full):** 40–60+ hours for a typical 60–80 kWh battery

#### When Level 1 Works Fine

Level 1 charging is adequate if:

- **You drive less than 50–60 km per day** — an overnight charge (10–12 hours) adds 50–96 km, enough to cover daily driving
- **You have a plug-in hybrid (PHEV)** — PHEVs have small batteries (8–18 kWh) that fully charge overnight on Level 1
- **You're parked at home for long periods** — weekends, work-from-home days
- **It's temporary** while you wait for a Level 2 charger installation

#### When Level 1 Falls Short in NB

**Cold weather battery drain:** In New Brunswick winters (-15°C to -30°C), EV batteries lose 20–40% of their range due to cabin heating and battery thermal management. A car that gets 400 km of range in summer might get 240–320 km in January. Level 1 charging can't keep up if you're driving 60+ km daily in winter because the charging rate doesn't compensate for the increased energy consumption.

**Pre-conditioning:** Smart EV owners pre-heat their car while still plugged in, which uses grid power instead of battery power. On Level 1, pre-conditioning can consume most of your overnight charging gains — you're heating the cabin and battery at 1.2 kW while only adding 1.2 kW from the outlet.

**Long commutes:** Many NB residents commute between cities — Moncton to Dieppe (15 km round trip, fine on Level 1), but Moncton to Sussex (100 km round trip) or Fredericton to Oromocto (40 km round trip in winter) starts to strain Level 1's capacity.

## Outlet Requirements for Level 1

If you're going to use Level 1 charging, make sure:

- **Dedicated outlet** — the EV should be the only thing on that outlet. No extension cords, no sharing with a garage fridge or shop vac.
- **GFCI protection** — the CEC requires GFCI-protected receptacles in garages. Level 1 chargers have built-in GFCI as well, but the outlet protection is still code-required.
- **Proper outlet condition** — check that the outlet is tight (no loose plug wobble), not warm during charging, and has no signs of scorching or discolouration. A loose 120V outlet drawing 12 amps continuously for 10+ hours every night will overheat.
- **15A or 20A circuit** — a 15A circuit can handle a 12A EV charger (80% rule = 12A continuous is the maximum for 15A). If ANYTHING else is on that circuit, you risk tripping the breaker. A 20A circuit gives more headroom.

## Cost Comparison: Level 1 vs. Level 2

Aspect	Level 1 (120V)	Level 2 (240V)	----- ----- -----	Equipment cost	\$0 (included with EV)	\$500–\$1,200
				Installation cost	\$0 (uses existing outlet)	\$800–\$2,500
				Charging rate	5–8 km/hour	35–70 km/hour
				Overnight charge (10 hrs)	50–80 km	350–700 km
				Winter adequacy (60 km/day)	Marginal	Comfortable
				Winter adequacy (100+ km/day)	Inadequate	Comfortable
				Electricity cost per km	Same	Same

The electricity cost per kilometre is identical — Level 2 charges faster but uses the same kWh. At NB Power's residential rate (~\$0.12/kWh), an EV costs roughly \$0.02–\$0.03 per km, compared to \$0.10–\$0.15/km for gasoline.

## The Practical NB Recommendation

Start with Level 1 to see if it meets your needs. If you find yourself:

- Leaving for work with less charge than you'd like
- Worrying about range in winter
- Unable to charge enough over a weekend to cover Monday's commute

Then it's time for a Level 2 installation. A TSANB-licensed electrician can assess your panel, run the dedicated 240V circuit, and have you charging at 7–10× the speed within a day or two. The \$1,300–\$3,800 investment (no panel upgrade) pays for itself in convenience immediately, and the total cost of EV ownership in NB is still dramatically lower than gasoline.

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Q11

## How do I choose the right EV charger for cold New Brunswick winters?

### Choosing an EV Charger for New Brunswick's Cold Climate

New Brunswick winters routinely hit -20°C to -30°C, and cold weather affects both your EV's battery performance and your charger's efficiency. Choosing the right charger setup matters more here than in milder climates.

### Level 2 Charger Basics

A Level 2 home charger runs on 240V and delivers 7.2–11.5 kW of power, adding 35–70 km of range per hour of charging. This is the standard for home installations in NB. Level 1 charging (regular 120V outlet) adds only 6–8 km per hour — not practical as your primary charging method in winter when battery efficiency drops 20–40%.

### Key Features for NB Winters

**1. Operating temperature range** Look for chargers rated to at least -30°C. Quality units from ChargePoint, Grizzli-E, FLO, and Tesla Wall Connector are rated for Canadian winters. Cheaper imported chargers may only be rated to -20°C and can fail during cold snaps.

**2. NEMA 4 or NEMA 4X enclosure rating** If the charger is mounted outdoors (garage exterior, carport, driveway post), it needs a NEMA 4 rating for weather resistance. NEMA 4X adds corrosion resistance — important in coastal NB communities like Saint John, Shediac, and Bathurst where salt air accelerates corrosion.

**3. Cable management** Cold cables become stiff and difficult to handle. Chargers with integrated cable management or retractable cables make winter charging less frustrating. A 25-foot cable gives you flexibility for different parking positions.

**4. Smart features** WiFi-connected chargers let you schedule charging during NB Power's off-peak hours and monitor energy usage from inside your warm house. Some (like Emporia or ChargePoint) integrate with your EV's pre-conditioning feature to warm the battery before your morning commute.

## Electrical Requirements

Most Level 2 chargers need a **dedicated 240V, 40-amp circuit** with a NEMA 14-50 outlet or hardwired connection. This requires:

- **A TSANB electrical permit** — your electrician handles the application
- **Adequate panel capacity** — your panel needs 40 amps of available capacity. Older 100-amp panels in many NB homes may already be at capacity, requiring a panel upgrade (\$2,500–\$4,500)
- **Proper wire gauge** — typically 6 AWG copper for a 40-amp circuit, run from the panel to the charger location

## Costs in New Brunswick

Item   Cost Range    ----- -----	Level 2 charger (purchased)   \$500–\$1,200	Electrical installation   \$800–\$2,500
Panel upgrade (if needed)   \$2,500–\$4,500	TSANB permit   \$50–\$100	<b>Total (no panel upgrade)   \$1,350–\$3,800  </b>
<b>Total (with panel upgrade)   \$3,850–\$8,200  </b>		

## NB Rebates and Incentives

Check current programs before purchasing:

- **NRCan ZEVIP** — federal rebates up to \$5,000 on eligible EVs
- **NB Power programs** — check NB Power's website for any current EV charger incentives or time-of-use rates
- **Employer programs** — some NB employers offer workplace charging infrastructure

## Recommended Chargers for NB

- **Grizzl-E Classic** (\$500–\$600): Canadian-designed, rated to -30°C, NEMA 4, 40A hardwired. Best value.

- **FLO Home X5** (\$800–\$1,000): Canadian-made (Quebec), rated to -40°C, smart features, excellent cold-weather reliability.
- **Tesla Wall Connector** (\$550–\$650): Best for Tesla owners, pairs with vehicle for scheduled charging and pre-conditioning.
- **ChargePoint Home Flex** (\$700–\$900): Adjustable amperage (16–50A), good app, widely supported.

## Installation Tips

Mount the charger in a garage if possible — it protects both the charger and the cable from ice and snow, and you'll appreciate not plugging in outside at -25°C. If outdoor mounting is your only option, choose a south-facing or sheltered wall and ensure the cable doesn't hang where it can freeze to the ground.

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Q12

## Can I charge my electric vehicle with a regular household outlet in New Brunswick?

### Charging an Electric Vehicle with a Regular Household Outlet in New Brunswick

Yes, you **can** charge an electric vehicle using a standard 120-volt household outlet in New Brunswick — every EV sold in Canada comes with a Level 1 charging cord that plugs into any standard 3-prong outlet. But the real question is whether Level 1 charging is **practical** for your daily driving needs, and the answer depends on how far you drive, where you live, and how cold it gets.

## How Level 1 Charging Works

A standard 120V, 15-amp household outlet delivers approximately **1.4 kW** of power to your EV (120V × 12A, limited to 80% of the circuit's capacity for continuous loads per the CEC). This translates to:

- **5-8 km of range per hour** of charging in mild weather
- **3-5 km of range per hour** in New Brunswick winter conditions (-10°C to -30°C)
- **40-65 km of range** per overnight charge (8 hours)
- **Full charge from empty:** 40-60+ hours depending on battery size

For context, here are charge times for popular EVs sold in New Brunswick:

Vehicle	Battery Size	Level 1 Full Charge	Level 2 Full Charge
Nissan Leaf (40 kWh)	40 kWh	~28 hours	~8 hours
Chevy Bolt (65 kWh)	65 kWh	~46 hours	~11 hours
Tesla Model 3 SR (60 kWh)	60 kWh	~43 hours	~10 hours
Tesla Model Y LR (75 kWh)	75 kWh	~54 hours	~12 hours
Hyundai Ioniq 5 (77 kWh)	77 kWh	~55 hours	~7 hours
Ford F-150 Lightning (98 kWh)	98 kWh	~70 hours	~14 hours

## When Level 1 Charging Works in New Brunswick

**Level 1 is sufficient if:**

- You drive **less than 50 km per day** (covers most Moncton, Fredericton, or Saint John commutes)
- You can charge every night for 8-10 hours
- You have a garage or covered carport where the car and charging cable stay dry
- You have a backup plan for longer trips (Level 3 DC fast chargers are available along the Trans-Canada and major NB highways)

**A typical New Brunswick commuter example:** You live in Riverview and work in Moncton — a 15 km round trip. You also run errands, bringing total daily driving to 40 km. At 6 km/hour Level 1 charging rate, you need about 7 hours of charging overnight. This works fine on a standard outlet.

## When Level 1 Is NOT Enough

**Level 1 becomes impractical when:**

- **You drive more than 60-80 km daily** — You can't recover enough charge overnight
- **During New Brunswick winters** — Cold temperatures reduce both battery range AND charging speed. A car that gets 400 km of range in summer may only get 280-320 km in a Moncton January. The Level 1 charging rate

also drops 20-30% in freezing conditions because the car uses some charging power to heat the battery.

- **You need the car available unpredictably** — Level 1 can't quickly add range for unexpected trips. If you're a contractor, healthcare worker, or parent doing multiple school runs and activities, the slow charge rate creates anxiety.
- **You have a larger EV (truck or SUV)** — Vehicles like the F-150 Lightning or Rivian R1T have huge batteries that would take 3+ days to fully charge on Level 1.

## Electrical Safety Considerations

**Use a dedicated outlet:** Don't plug your EV charging cord into an outlet shared with other appliances. EV charging is a continuous load — the outlet runs at near-maximum capacity for 8-12 hours straight. This stresses the outlet, wiring, and connections far more than intermittent use from a vacuum or lamp.

### Check the outlet and circuit condition:

- The outlet should be a grounded 3-prong type in good condition — no cracks, no loose plug fit, no warmth when charging
- The circuit should be 15-amp minimum, preferably 20-amp, with no other significant loads
- The wiring should be in good condition — older New Brunswick homes with 14 AWG aluminum wiring on outlet circuits should NOT be used for EV charging without evaluation by a licensed electrician

**Outdoor outlet concerns:** If you park outside and plug into an outdoor outlet, ensure it has:

- Working GFCI protection (test it monthly)
- A weatherproof in-use cover (the bubble type that seals while the cord is plugged in)
- No snow or ice accumulation around the outlet
- The charging cable's connection to the car should also be kept dry and free of ice

**Extension cords — avoid if possible:** Most EV manufacturers and the Canadian Electrical Code strongly recommend against using extension cords for EV charging. If you must use one:

- Use a **minimum 12 AWG outdoor-rated cord** (the thick orange or yellow type)
- Maximum 15 metres (50 feet) length
- Never coil excess cord while in use — coiled cords generate heat
- Inspect the cord for damage before each use
- Never run the cord through a closed window or door

## The Level 2 Upgrade Math

For most New Brunswick EV owners, upgrading to Level 2 (240V) charging makes sense within the first year. Here's the cost comparison:

**Level 1 charging costs (electricity only):**

- 15,000 km/year ÷ 6 km/kWh average efficiency = 2,500 kWh
- 2,500 kWh × \$0.13/kWh (NB Power blended rate) = **~\$325/year**

**Level 2 charging costs (electricity only):**

- Same consumption: **~\$325/year** (the car uses the same energy regardless of charging speed)

**Level 2 installation cost:**

- Charger unit: \$500-\$800
- Electrical installation (40-50A circuit): \$500-\$2,000 depending on distance and panel capacity
- TSANB permit: \$75-\$125
- **Total: \$1,075-\$3,000**

**What Level 2 gives you:**

- Full charge overnight (6-10 hours) regardless of battery size
- Reliable winter charging at 5-6× the speed of Level 1
- Pre-conditioning capability — heat or cool the cabin while still plugged in, preserving battery range
- Peace of mind — you start every day with a full charge

**Gasoline savings comparison:**

- 15,000 km/year at 9L/100km (average car) × \$1.60/L = **~\$2,160/year in gas**
- 15,000 km/year EV electricity cost: **~\$325/year**
- **Annual savings: ~\$1,835**

The Level 2 installation pays for itself in saved fuel within 1-2 years.

**Public Charging in New Brunswick**

While Level 1 home charging can work for daily driving, having awareness of New Brunswick's public charging network fills the gap for longer trips:

- **Petro-Canada** has Level 3 DC fast chargers along the Trans-Canada Highway in New Brunswick
- **NB Power** has installed Level 2 chargers at several locations across the province
- **ChargePoint and FLO networks** have stations in Moncton, Saint John, Fredericton, and along major routes

- **Level 3 DC fast charging** adds 200+ km of range in 20-30 minutes — useful for road trips or when Level 1 home charging falls behind

The combination of Level 1 home charging for daily use and occasional Level 3 public charging for longer trips is a workable strategy for moderate-use New Brunswick EV owners who want to delay the Level 2 installation investment.

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## How much does it cost to install a Level 2 EV charger at my home in Moncton?

### Level 2 EV Charger Installation Cost in Moncton

With electric vehicle adoption growing across New Brunswick — driven by rising gas prices, federal rebates, and an expanding EV inventory at Moncton dealerships — installing a Level 2 home charger is becoming one of the most requested electrical upgrades in the Greater Moncton area. Here's a detailed breakdown of what it costs and what's involved.

#### Total Cost Summary

| Component | Cost Range | |-----|-----| | Level 2 charger unit | \$500-\$1,200 | | Electrical installation | \$500-\$2,000 | | Panel upgrade (if needed) | \$2,500-\$4,500 | | TSANB permit + inspection | \$75-\$125 | | **Total (no panel upgrade) | \$1,075-\$3,325 | | Total (with panel upgrade) | \$3,575-\$7,825 |**

Most Moncton homeowners with a 200-amp panel and a garage near the electrical panel spend **\$1,200-\$2,500 all-in** — that's the most common scenario.

#### The Charger Unit

Level 2 chargers operate on 240V (same voltage as your dryer or stove) and deliver 7.2-11.5 kW of power, adding 30-60 km of range per hour of charging. Popular units available at Moncton retailers and online:

- **ChargePoint Home Flex** (\$600-\$750): 16-50 amps adjustable, WiFi connected, 25-foot cable. Best overall for most EV owners.
- **Grizzl-E** (\$500-\$600): Canadian-made (Ontario), 40 amps, rugged outdoor-rated housing, no WiFi but extremely reliable. Popular in the Maritimes for outdoor installations.
- **Tesla Wall Connector** (\$550-\$650): 48 amps, WiFi, sleek design. Works with all EVs via adapter but optimized for Tesla vehicles.
- **Emporia Level 2** (\$450-\$550): Budget-friendly, 48 amps, energy monitoring built in.
- **Pulsar Plus** (\$700-\$900): 40 amps, compact, smart features, good for indoor garages.

#### Key specs to consider:

- **Amperage:** 40-amp units are the sweet spot — they charge most EVs overnight in 6-8 hours. A 40-amp charger requires a 50-amp circuit (CEC requires the circuit to be rated 125% of the continuous load).

- **Cable length:** 25 feet is standard. If your parking spot is far from the charger mount point, look for 20+ foot cables.
- **NEMA 4 or IP65+ rating:** Essential for any outdoor installation in Moncton's Maritime climate. Indoor garage installations can use standard indoor-rated units.
- **CSA or cUL certification:** Required for TSANB inspection approval. Don't purchase uncertified units from overseas sellers.

## Electrical Installation Costs

**The biggest variable is the distance from your electrical panel to the charger location.** A Moncton electrician's quote will depend primarily on this factor:

### **Short run (panel in basement, charger on garage wall directly above or nearby) — \$500-\$1,000:**

- 15-25 feet of 6/3 NMD90 cable (\$4-\$6 per foot)
- 50-amp double-pole breaker (\$15-\$25)
- NEMA 14-50 outlet or hardwired connection
- Conduit and fittings if running exposed
- Labour: 2-4 hours at \$85-\$150/hour

### **Medium run (panel on opposite side of house, 40-60 feet) — \$1,000-\$1,500:**

- More cable, more labour, possibly drilling through multiple walls or running through attic/crawl space
- May need conduit through unfinished areas
- Labour: 4-6 hours

### **Long run or detached garage (60-100+ feet) — \$1,500-\$3,000:**

- Underground conduit from house to detached garage requires trenching below frost line (4 feet in Moncton)
- Heavier gauge wire for voltage drop compensation on long runs — 4/3 or even 3/3 wire for runs over 75 feet
- Possible sub-panel in detached garage (\$300-\$500 additional)
- Labour: 6-10 hours plus trenching time

**Labour rates in Greater Moncton:** Licensed electricians typically charge \$85-\$130 per hour. The Moncton-Dieppe-Riverview area has a healthy number of electrical contractors, so getting 3 competitive quotes is straightforward. Expect 1-3 week wait times for scheduling.

## Panel Capacity Assessment

Before quoting, your electrician will assess whether your panel can handle the additional 40-50 amp load:

**200-amp panel with available spaces:** You're likely fine. Most 200-amp residential panels can accommodate a 50-amp EV circuit without overloading, unless you already have electric heat, a hot tub, and a workshop all drawing heavy loads simultaneously. No panel upgrade needed.

**100-amp panel:** This is common in Moncton homes built before 1990, particularly in the north end, west end, and older Dieppe neighbourhoods. A 100-amp service usually **cannot** support a 40-50 amp EV charger circuit alongside your existing loads (furnace blower, dryer, range, hot water). Options:

- **Panel upgrade to 200 amps** (\$2,500-\$4,500) — The recommended long-term solution. Provides capacity for the EV charger plus future electrical needs.
- **Load management device** (\$300-\$600) — Devices like the DCC-9 or Emporia load manager monitor your panel's total load and throttle the EV charger when other large loads are running. This can work on a 100-amp panel if your total load is manageable, avoiding the panel upgrade cost.

**Full panel (no available breaker spaces):** Even with adequate amperage, you need physical space for the new 50-amp breaker. If your panel is full, options include tandem breakers (where the panel bus allows them) or adding a sub-panel (\$500-\$800).

## TSANB Permit and Inspection

An electrical permit is **required** for EV charger installation in New Brunswick. Your electrician handles the application:

- Permit fee: \$75-\$125 depending on scope
- TSANB inspector visits after installation is complete (typically within 5-10 business days)
- Inspector verifies: circuit sizing, breaker rating, wire gauge, grounding, GFCI protection (required for garage circuits), and proper charger mounting

## Available Rebates and Incentives

Check for current programs before purchasing:

- **Federal iZEV rebate** — Up to \$5,000 off qualifying new EV purchases (not for the charger, but reduces overall EV transition cost)
- **NRCan Zero-Emission Vehicle Infrastructure Program** — Has provided up to \$5,000 for home charger installation in past program years
- **NB Power programs** — NB Power has explored EV-related incentives and time-of-use pilots. Check their current offerings at the time of your installation.

- **Manufacturer rebates** — Some charger manufacturers offer seasonal promotions

## Hardwired vs. Plug-In Installation

**NEMA 14-50 plug-in** (\$50 for the outlet): The charger plugs into a standard 240V outlet (same as an RV outlet). Advantages: charger is portable (take it if you move), easy to swap/upgrade, can use the outlet for other 240V needs. This is the most popular choice in Moncton.

**Hardwired** (direct connection): The charger is permanently wired to the circuit. Advantages: slightly cleaner installation, no plug to work loose, some electricians prefer it for outdoor installations. Required for some charger models above 40 amps.

Both methods are code-compliant and pass TSANB inspection. For most Moncton homeowners, the **NEMA 14-50 plug-in option** offers the best flexibility.

## Timeline

- Purchase charger: 1-3 days (online) or same-day (local electrical supply)
- Electrician scheduling: 1-3 weeks in Moncton area
- Installation: Half day to full day
- TSANB inspection: 5-10 business days after
- **Total: 2-5 weeks from decision to charging**

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Q14

## Can I install a Tesla Wall Connector myself in New Brunswick to save money?

**No, you cannot legally install a Tesla Wall Connector yourself in New Brunswick.** The installation requires a dedicated 240V, 60 amp circuit from your electrical panel, which constitutes new electrical work that must be performed by a TSANB-licensed electrician with a permit and inspection.

This is one of the most common questions from Tesla owners looking to save on installation costs, and the temptation is understandable — the Tesla Wall Connector is designed with a clean mounting system and clear instructions. But the wall mounting is only a small part of the job. The real work is the electrical connection: running heavy-gauge wire (6 AWG copper for a 48 amp unit on a 60 amp breaker) from your panel to the garage, installing the correct breaker, making proper connections, and ensuring the circuit meets all Canadian Electrical Code requirements.

**What could go wrong with a DIY installation?** The risks are serious. Improper wire sizing can cause the wire to overheat inside your wall, leading to a fire. A loose connection at the panel or at the charger can arc, creating a fire or electrocution hazard. Incorrect breaker sizing means the circuit isn't properly protected. And without GFCI protection (which may be required depending on the installation location), a ground fault could be lethal.

**The consequences of skipping the permit in New Brunswick.** TSANB can issue fines for unpermitted electrical work. Your home insurance company can deny any claim related to the installation — not just electrical fire claims, but potentially any claim if they discover unpermitted work during investigation. If you sell your home, a buyer's inspection will flag the installation, and you'll need to have it retroactively permitted (which costs more and may require opening walls to inspect the wiring). And Tesla's warranty on the Wall Connector may not cover damage from improper installation.

**What a professional installation costs.** A Tesla Wall Connector installation in New Brunswick typically runs \$1,200 to \$2,000 for the electrical work (not including the charger itself, which is around \$650 to \$800 from Tesla). This covers the dedicated circuit, breaker, wire run, mounting, connection, TSANB permit, and inspection. If your panel needs upgrading from 100 to 200 amps to accommodate the new circuit, add \$2,500 to \$4,000.

**Ways to actually save money on the installation.** Choose a garage wall location close to your electrical panel — every additional metre of wire run adds cost. Have the electrician install a NEMA 14-50 outlet instead of hardwiring, which gives you flexibility to use a portable charger and costs slightly less. And if you're planning other electrical work (panel upgrade, adding garage lighting, etc.), bundle it all into one visit to save on trip charges and permit fees.

For a quote on Tesla charger installation, find a licensed electrician through the New Brunswick Construction Network.

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Q15

## How do I add an EV charger circuit if my electrical panel is already full?

**If your panel is full, you have three main options: install tandem breakers to free up space, add a subpanel fed from the main panel, or upgrade to a larger panel.** The right choice depends on your current panel's amperage, the available space, and your budget.

**Option 1: Tandem (slim) breakers — \$200 to \$500.** Many panels accept tandem breakers, which put two circuits in the space of one standard breaker. If your panel is physically full but has amperage capacity to spare, an electrician can replace two standard single-pole breakers with a tandem breaker, freeing up one slot. Do this twice, and you have a double-pole slot available for your 240V EV charger breaker. Not all panels accept tandem breakers — your panel's internal labelling will show which slots are rated for them. An electrician can assess this in about 15 minutes.

**Option 2: Subpanel — \$1,200 to \$2,500.** If your main panel has amperage to spare (you're on 200 amp service but only using 120 to 150 amps of capacity), your electrician can install a subpanel nearby and feed it from a double-pole breaker in the main panel. The subpanel gives you 6 to 12 new breaker slots for the EV charger circuit plus future expansion. This is a clean solution that doesn't require replacing your existing panel, and it's the most common approach for adding EV charging to New Brunswick homes that have adequate amperage but no physical space in the panel.

**Option 3: Panel upgrade — \$2,500 to \$4,500.** If your home is on 100 amp service (common in New Brunswick homes built before the 1980s), adding a 40 to 50 amp EV charger circuit isn't just a space problem — it's a capacity problem. A 100 amp panel running an electric dryer (30 amps), range (40 amps), and heat pump (20 to 30 amps) simply doesn't have the amperage headroom for an EV charger. In this case, upgrading to a 200 amp panel solves

both the space and capacity issues. The new panel will have plenty of slots and double the total capacity.

**Option 4 (emerging): Smart electrical panels — \$3,000 to \$5,000.** Products like the Span smart panel or load management devices can dynamically share capacity between circuits. For example, when the EV charger is running at night, the system can temporarily reduce power to the dryer circuit (which isn't in use). This technology is newer but gaining traction in situations where a full panel upgrade isn't practical.

**How to determine which option you need.** Your electrician will perform a load calculation — adding up the demand from all your existing circuits and comparing it to your panel's total capacity. This calculation, done according to CEC Section 8, determines whether you have enough amperage to add the EV charger or need to upgrade. The inspection takes about 30 minutes and most electricians include it in their quote.

**TSANB permits are required** for all of these options — adding tandem breakers, installing a subpanel, or upgrading the main panel. Your electrician handles the permit and coordinates the TSANB inspection. If upgrading from 100 to 200 amp service, NB Power will also need to upgrade the service drop to your home, which they typically do at no charge but may take several weeks to schedule.

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