NEW BRUNSWICK ELECTRICAL

Generators & Backup

Whole home generators, transfer switches, and backup power for NB ice storms

15 Expert Answers from Electric IQ

newbrunswickelectrical.com/construction-brain

Table of Contents

Q1

Cold weather starting tips for NB generators?

Cold weather can significantly impact generator performance in New Brunswick's harsh winters, but proper preparation ensures reliable backup power when ice storms and blizzards knock out electricity.

Generator engines face unique challenges in Maritime winter conditions. Cold temperatures thicken engine oil, making it harder for the starter to turn the engine over. Battery capacity also drops significantly in freezing weather - a battery that works fine in summer may only provide 50% of its cranking power at -20°C. Additionally, fuel can gel or develop condensation issues when stored through New Brunswick's long winter months.

Pre-winter preparation is crucial for reliable cold weather starts. Switch to winter-grade oil (typically 5W-30 synthetic) which flows better in cold temperatures compared to conventional 10W-30. Check your battery's age and load-test it - batteries over 3-4 years old often fail during the first cold snap. Clean battery terminals and ensure tight connections, as corrosion worsens in Maritime humidity. For fuel preparation, add fuel stabilizer and consider using winter-blend gasoline if available. Propane generators have an advantage here since propane doesn't gel like gasoline can.

Block heaters and battery warmers are game-changers for New Brunswick generators. Many standby generators can be equipped with block heaters that keep the engine warm, similar to those used on vehicles. Battery warmers or trickle chargers maintain battery capacity during cold storage. Some homeowners move portable generator batteries indoors during extreme cold, reconnecting them when needed. For standby generators, ensure the unit's enclosure has proper ventilation while protecting against snow accumulation.

Starting procedures matter significantly in cold weather. Allow extra cranking time between start attempts to avoid overwhelming the starter motor. If the generator fails to start on the first attempt, wait 30 seconds before trying again. For manual-start portable units, prime the engine according to manufacturer instructions - cold engines need more fuel to start. Never use starting fluid unless specifically recommended by the manufacturer, as it can damage modern engines.

Regular winter exercise prevents cold-start problems. Run your generator monthly during winter for 15-20 minutes under load, even if power is on. This keeps internal components lubricated, prevents fuel system issues, and ensures the battery stays charged. During ice storm season (typically December through March in New Brunswick), consider weekly exercise runs since power outages become more likely.

Professional maintenance becomes even more critical before winter. A TSANB-licensed electrician should inspect standby generator connections and transfer switches annually. They can also install block heaters or upgrade to cold-weather starting systems. For whole-home generators, proper installation includes weatherproofing

and adequate clearances for snow removal - critical considerations given New Brunswick's heavy snowfall.

Need help finding an electrician for generator maintenance or installation? New Brunswick Electrical can match you with local professionals who understand Maritime winter conditions and can ensure your backup power system works when you need it most.

Find a Electrical Contractor

New Brunswick Electrical connects you with experienced contractors through the https://newbrunswickconstructionnetwork.com:

- Blue Energy Ltd ?
- A&S Electric Ltd. ?
- BCB Electric ?

View all electrical contractors ?

Q2

How do I install a transfer switch for my standby generator in New Brunswick?

A transfer switch installation in New Brunswick requires a licensed electrician and a TSANB permit — this is NOT a DIY project, as improper installation can backfeed power onto NB Power lines and electrocute utility workers.

What a transfer switch does: It's a switching device installed between your electrical panel and the utility meter that safely disconnects your home from the grid before connecting generator power. This prevents dangerous backfeed — electricity flowing from your generator back onto NB Power's lines, which can kill lineworkers restoring power during storms.

Two types of transfer switches:

- **Automatic Transfer Switch (ATS)**: Detects power loss, starts the generator, and switches over automatically — typically within 10-30 seconds. Switches back when utility power returns. Cost: $800-$2,500 for the switch plus $1,500-$3,000 for installation. Best for standby generators.
- **Manual Transfer Switch**: Requires you to physically flip the switch after starting your generator. Cost: $300-$800 for the switch plus $800-$1,500 for installation. More affordable but requires you to be home.

Installation process (what your electrician will do):

- Pull a TSANB electrical permit
- Install the transfer switch between the meter and main panel
- Run a dedicated circuit from the generator to the transfer switch
- Wire selected circuits (manual) or the entire panel (automatic) through the transfer switch
- Install a weatherproof generator inlet box on the exterior wall
- Test the entire system under load
- Schedule TSANB inspection

  New Brunswick-specific considerations:

- **Generator placement**: Must be at least 5 feet from windows, doors, and vents per NB Building Code. Consider snow accumulation — elevate the generator pad or install a shelter
- **Fuel storage**: Propane and natural gas generators avoid fuel storage issues. If using diesel, NB fire regulations limit residential fuel storage
- **NB Power notification**: Required when installing a standby generator with an ATS — NB Power needs to know about generation equipment connected to their grid

  Typical total project cost in New Brunswick:

- Manual transfer switch system: $1,200-$2,500 installed
- Automatic transfer switch system: $2,500-$5,500 installed
- Plus the generator itself: $3,000-$15,000 depending on size

  Get quotes from at least two licensed electricians experienced with generator installations. Verify they'll handle the TSANB permit and inspection.

Find a Electrical Contractor

New Brunswick Electrical connects you with experienced contractors through the https://newbrunswickconstructionnetwork.com:

- A+ Solar Solutions ?
- Blue Energy Ltd ?
- BCB Electric ?

View all electrical contractors ?

Q3

How often should I maintain my standby generator in New Brunswick?

Your standby generator needs maintenance every 6-12 months and after every extended use — New Brunswick's harsh winters and long storm seasons make this critical for reliability when you need it most.

Weekly automatic exercise: Most standby generators run a 15-20 minute exercise cycle weekly (usually programmed by your installer). This keeps the engine lubricated, charges the battery, and confirms the system works. Listen for it running — if you haven't heard it in weeks, something may be wrong. Check your generator's display for error codes or missed exercise cycles.

Seasonal maintenance schedule for NB:

Fall (September-October) — CRITICAL pre-storm season service:

- Oil and filter change (use cold-weather rated oil — 5W-30 synthetic for sub-zero NB temperatures)
- Air filter inspection and replacement
- Spark plug check and replacement if needed
- Battery load test — cold temperatures kill weak batteries
- Coolant level and antifreeze concentration check (must handle -40°C)
- Exercise the transfer switch manually
- Clear debris, leaves, and nesting materials from the enclosure
- Test under load — run the generator with actual household loads for 30+ minutes
- Verify fuel supply (propane tank level, natural gas connection)

Spring (April-May):

- Oil and filter change (especially after heavy winter use)
- Inspect exhaust system for corrosion from road salt and moisture
- Check for rodent damage to wiring — mice love nesting in generator enclosures during NB winters
- Clean or replace air filter
- Test battery and charging system
- Verify automatic transfer switch operation

After every extended power outage use (4+ hours):

- Check oil level immediately — generators consume oil under load
- Inspect coolant level

- Listen for unusual sounds
- Check for oil or coolant leaks

Professional service vs DIY:

- Basic maintenance (oil, filters, visual inspection): Can be done by a handy homeowner following the manufacturer's manual
- Electrical testing, transfer switch inspection, fuel system service: Requires a qualified technician
- Annual professional service: $200-$400 in New Brunswick

Common NB-specific issues:

- **Snow and ice buildup** blocking exhaust or air intake — keep the area around your generator clear after storms
- **Propane regulators freezing** in extreme cold — install a cold-weather regulator rated for NB temperatures
- **Salt corrosion** in coastal areas like Saint John, Shediac, and the Fundy coast — consider a protective coating or more frequent exterior inspection

Manufacturer warranty note: Most generator warranties require documented maintenance. Keep receipts and a maintenance log — Generac, Kohler, and Briggs & Stratton all require proof of regular service for warranty claims.

Find a Electrical Contractor

New Brunswick Electrical connects you with experienced contractors through the https://newbrunswickconstructionnetwork.com:

- BCB Electric ?
- A&S Electric Ltd. ?
- Blue Energy Ltd ?

View all electrical contractors ?

Q4

Can I run a sub-panel to my detached garage from my house in New Brunswick?

Yes, running a sub-panel to a detached garage is a common project in New Brunswick, but it requires a licensed electrician, a TSANB permit, and careful planning for our climate conditions.

Sub-panel sizing for a typical garage:

- **Basic garage** (lights, outlets, garage door opener): 60-amp sub-panel is sufficient
- **Workshop with power tools**: 100-amp sub-panel recommended for table saws, air compressors, welders
- **Heated garage or EV charger**: 100-amp minimum, possibly 200-amp if combining heat and EV charging

How the wiring runs:

You have two options for getting power from the house to the garage:

- **Underground feeder cable (preferred):** Buried in conduit at minimum 24 inches deep (CEC requirement). Use PVC conduit rated for direct burial. In New Brunswick, dig below the frost line where possible — our frost depth reaches 48-60 inches in northern NB, though the electrical code only requires 24 inches of cover for rigid conduit. Consider going deeper to avoid damage from frost heaving.
- **Overhead feeder cable:** Must maintain minimum clearances — 12 feet over driveways, 10 feet over walkways per CEC. This option avoids trenching but is more exposed to NB ice storms and falling trees.

Costs in New Brunswick:

- 60-amp sub-panel installation: $2,000-$3,500
- 100-amp sub-panel installation: $3,000-$5,000
- Underground trenching adds $15-$30 per linear foot (depending on soil conditions — rocky ground common in NB increases costs)
- TSANB permit: $100-$200

NB-specific considerations:

- **Frost heaving**: Use expansion fittings on underground conduit runs to prevent cracking from ground movement
- **Ground conditions**: Much of New Brunswick has rocky soil or high water tables. Your electrician may need to coordinate with an excavator for trenching
- **Separate grounding**: The sub-panel in the garage needs its own grounding electrode system (ground rod) per CEC — the neutral and ground must be separated in the sub-panel, unlike the main panel

- **Disconnect requirement**: A disconnect switch may be required at the garage if it's not in sight of the main panel

  Process: Your electrician pulls the TSANB permit, installs the sub-panel, runs the feeder, and schedules the inspection. Expect the project to take 1-2 days for installation plus inspection scheduling time.

  ### Find a Electrical Contractor

  New Brunswick Electrical connects you with experienced contractors through the https://newbrunswickconstructionnetwork.com:

- A+ Solar Solutions ?
- BCB Electric ?
- A&S Electric Ltd. ?

View all electrical contractors ?

Q5

Can I use a portable generator to power my well pump during an outage in New Brunswick?

Yes — powering a well pump with a portable generator is one of the most critical applications for rural New Brunswick homeowners during power outages. Without power, no well pump means no water for drinking, flushing, cooking, or livestock. Here's how to do it safely and effectively.

Why This Matters in NB

A significant portion of New Brunswick's population relies on **private wells** — particularly in rural areas outside the municipal water systems of Moncton, Fredericton, Saint John, and a few larger towns. When NB Power goes down during ice storms, nor'easters, or post-tropical storms (which can mean **days without power** in areas like the Miramichi, Acadian Peninsula, Upper Saint John Valley, and Kings County), losing water is often a bigger immediate problem than losing lights.

Know Your Well Pump

The first step is identifying your pump type, because this determines the generator size and connection method:

Submersible Pump (Most Common in NB)

A submersible pump sits at the bottom of your well, typically **50–200 feet underground**. It pushes water up to a pressure tank in your basement.

| Pump Size | Running Watts | Starting Watts | Minimum Generator | |-----------|--------------|----------------|-------------------| | 1/3 HP | 500–750W | 1,000–1,500W | 2,000W | | 1/2 HP | 750–1,000W | 1,500–2,000W | 3,000W | | 3/4 HP | 1,000–1,500W | 2,000–3,000W | 4,000W | | 1 HP | 1,500–2,000W | 3,000–4,000W | 5,000W | | 1.5 HP | 2,000–2,500W | 4,000–5,000W | 6,000W |

Starting watts are critical. A well pump's motor draws **2–3 times its running wattage** for the first few seconds when it starts. Your generator must handle this surge or the pump won't start (the generator will bog down, stall, or trip its overload protection).

Jet Pump (Less Common, Shallow Wells)

Jet pumps sit above ground in your basement and draw water using suction. They're found on shallower wells (under 25 feet for single-pipe, under 70 feet for dual-pipe).

| Pump Size | Running Watts | Starting Watts | |-----------|--------------|----------------| | 1/2 HP | 750W | 1,500–2,000W | | 1 HP | 1,500W | 3,000–4,000W |

Jet pumps have similar starting surge requirements to submersible pumps.

How to Find Your Pump Size

- Check the **pump controller or pressure switch** in your basement — it often has a label with the HP rating
- Check the **well inspection report** from when the well was drilled (should be in your home documents)
- Look at the **breaker in your panel** — the dedicated well pump breaker indicates the circuit size (15A for 1/2 HP, 20A for 3/4–1 HP)
- If unsure, assume **1/2 HP (the most common residential size in NB)** and plan for 3,000W minimum generator capacity

Connection Methods

Method 1: Extension Cord (Simplest)

For jet pumps (above ground) only:

- Plug a heavy-duty **outdoor-rated extension cord** directly from the generator to the jet pump
- Use a **10-gauge cord** minimum for runs up to 50 feet (12-gauge is too light for motor loads at distance)

- The pump must have a **standard plug** (NEMA 5-15 or 5-20)

  This does NOT work for submersible pumps because they're hardwired to a dedicated circuit in your panel — there's no plug to connect an extension cord to.

Method 2: Transfer Switch (Recommended)

A **manual transfer switch** lets you safely connect a generator to specific circuits in your panel — including the hardwired well pump circuit.

How it works:

- The transfer switch is installed next to your panel by a licensed electrician
- Selected circuits (well pump, refrigerator, lights, furnace) are moved to the transfer switch
- During an outage, you start the generator, plug it into the transfer switch inlet, and flip the switches for the circuits you want to power
- The transfer switch mechanically prevents backfeeding to the grid (critical safety feature)

  Cost: $500–$1,200 installed for a 6–10 circuit manual transfer switch, including TSANB permit.

  This is the **recommended approach** for most NB homeowners with well pumps. It's safe, code-compliant, and lets you power the well pump plus other essentials from one generator.

Method 3: Interlock Kit (Budget Alternative)

An **interlock kit** is a mechanical device installed on your existing panel that prevents the main breaker and a generator backfeed breaker from being on simultaneously.

How it works:

- Electrician installs a generator inlet (NEMA L14-30 twist-lock) on the outside of your house
- An interlock plate is mounted on the panel — a sliding plate that physically blocks either the main breaker or the generator breaker from being on at the same time
- During an outage: turn OFF the main breaker, slide the interlock, turn ON the generator breaker
- Turn off non-essential breakers to avoid overloading the generator
- The well pump breaker stays on, receiving power from the generator

  Cost: $200–$500 installed, including TSANB permit.

  Advantage over a transfer switch: Less expensive and powers any circuit in the panel (not just preselected ones). **Disadvantage:** Requires manually turning off non-essential breakers to manage load.

Method 4: Direct Wire (Emergency Only — Not Code Compliant)

Some homeowners wire a plug directly to the well pump's dedicated circuit to use an extension cord during emergencies. **This is NOT recommended because:**

- It bypasses the overcurrent protection of the breaker
- The connection may not handle the motor's starting surge safely
- It doesn't prevent backfeed to the grid
- It fails TSANB inspection and may void insurance

Generator Sizing for Well Pump + Essentials

Don't buy a generator just for the well pump — size it for your essential loads combined:

| Load Combination | Minimum Generator | |---|---| | Well pump only (1/2 HP) | 3,000W | | Well pump + fridge + lights | 3,500W | | Well pump + fridge + lights + sump pump | 5,000W | | Well pump + fridge + lights + furnace blower | 5,000W | | All above + freezer + some baseboard heat | 7,500–10,000W |

Important: Don't start the well pump at the same time as other heavy loads. Start the pump first (let it run through a full pressure cycle), then add other loads. This prevents the combined starting surges from overloading the generator.

Practical Tips for NB Outages

Water conservation during generator use: Your generator may not run continuously (fuel conservation, noise at night, mechanical rest). When the generator is running and the well pump is operating:

- Fill the bathtub (emergency water storage — 150+ litres)
- Fill large pots and clean containers for drinking water
- Run a load of laundry if needed
- Let the pressure tank fill completely (listen for the pump to shut off)

A full pressure tank (typically 30–50 gallons) provides **10–20 flushes and several minutes of faucet use** before the pump needs to run again.

Generator run schedule: For water only, running the generator **2–3 times daily for 30–60 minutes** is sufficient to keep the pressure tank filled and meet basic water needs. This conserves fuel — a 5,000W generator uses roughly **2–3 litres of gasoline per hour** at 50% load.

Freeze protection: During winter NB outages, if you can't run the generator continuously, **open faucets to a slow drip** to prevent pipe freezing. Well water comes from below the frost line (typically 4+ feet in NB), so the water itself is above freezing — but pipes in unheated areas (crawlspace, exterior walls, garage) can freeze if the house temperature drops.

Well pump caution: Don't run the well pump dry. If your well has a low yield (common in some NB geological areas, particularly slate and granite regions), continuous pumping during an extended outage can draw the water level below the pump intake. If the pump runs dry, it damages the seals and motor. If you notice reduced water pressure or sputtering at the faucet, let the well recover for several hours before running the pump again.

Cost Summary

| Item | Cost | |------|------| | Portable generator (5,000W) | $800–$1,500 | | Portable generator (7,500W) | $1,200–$2,000 | | Transfer switch (6 circuit, installed) | $500–$1,200 | | Interlock kit (installed) | $200–$500 | | TSANB permit | $75–$150 | | Heavy-duty extension cord (10-gauge, 50 ft) | $50–$80 | | Generator cord (L14-30, 25 ft) | $40–$80 | | **Total (generator + transfer switch)** | **$1,500–$3,000** |

For a rural NB homeowner with a well, this **$1,500–$3,000 investment** provides water security during the extended outages that are a predictable part of Maritime life.

Find a Electrical Contractor

New Brunswick Electrical connects you with experienced contractors through the https://newbrunswickconstructionnetwork.com:

- A+ Solar Solutions ?
- BCB Electric ?
- A&S Electric Ltd. ?

View all electrical contractors ?

Q6

How do I choose the right standby generator size for my home in New Brunswick?

Choosing the right standby generator for your New Brunswick home means matching the generator's capacity to your actual power needs — not guessing or buying the biggest unit available. An undersized generator won't keep your essential systems running during the extended Maritime outages we're known for, while an oversized one wastes thousands of dollars on capacity you'll never use.

Why Standby Generators Matter in New Brunswick

New Brunswick experiences some of the most frequent and prolonged power outages in Atlantic Canada. Ice storms, nor'easters, post-tropical storms, and heavy wet snow regularly knock out NB Power service for hours, days, or even weeks in rural areas. The 2017 ice storm left parts of the Acadian Peninsula without power for over a week. Homes in areas like Miramichi, Bathurst, Campbellton, and the Upper Saint John River Valley are particularly vulnerable due to long transmission line runs through heavily forested terrain.

Unlike a portable generator that you wheel out and connect with extension cords, a **standby (whole-house) generator** is permanently installed, connected to your panel through an automatic transfer switch, and starts within 10–30 seconds of detecting a power failure. It runs on natural gas (where available — limited areas along the Moncton-to-Saint John corridor) or propane (the standard for most of New Brunswick).

Step 1: Calculate Your Essential Load

List everything you want to power during an outage and add up the wattage:

Critical loads (must have): | Item | Running Watts | Starting Watts | |------|--------------|----------------| | Refrigerator | 150–400W | 800–1,200W | | Freezer | 100–300W | 600–1,000W | | Well pump (1/2 HP) | 750W | 1,500–2,000W | | Sump pump (1/3 HP) | 500W | 1,000–1,500W | | Furnace blower (gas/oil) | 500–800W | 1,500–2,000W | | LED lighting (10 fixtures) | 100–200W | Same | | Internet modem + router | 30–50W | Same | | Phone chargers | 20–50W | Same |

Important loads (strongly recommended): | Item | Running Watts | Starting Watts | |------|--------------|----------------| | Electric water heater (40 gal) | 4,500W | Same | | Microwave | 1,000–1,500W | Same | | Washing machine | 500W | 1,200W | | Sump pump (backup) | 500W | 1,000W |

Comfort loads (nice to have): | Item | Running Watts | Starting Watts | |------|--------------|----------------| | Electric baseboard heat (per room) | 1,000–2,000W | Same | | Heat pump (mini-split) | 1,500–3,000W | 3,000–6,000W | | Electric dryer | 5,000W | Same | | Electric range | 2,000–8,000W | Same | | Window AC | 1,000W | 2,000–3,000W |

The critical distinction for New Brunswick: If your home has **electric baseboard heat** (extremely common in NB), powering even a few rooms of heat adds 3,000–6,000+ watts to your generator requirement. This single factor is what pushes many NB homeowners from a modest generator into a larger unit.

Step 2: Account for Starting (Surge) Watts

Motors in well pumps, sump pumps, refrigerator compressors, and heat pump compressors draw **2–3 times their running wattage** when starting. Your generator must handle the highest simultaneous starting surge, not just the running total.

A good rule: take your total running watts and add the single largest starting surge. For example:

- Total running: 8,000W
- Largest surge (well pump): +1,500W
- Generator minimum: **9,500W running capacity**

Step 3: Choose Your Generator Size

10–12 kW: Covers essential loads for a small to medium home without electric heat. Powers well pump, refrigerator, freezer, furnace blower, lights, and a few outlets. Good for homes with oil or gas heat. Price: **$4,000–$6,000** for the unit.

16–20 kW: The most popular size in New Brunswick. Handles essential loads plus some baseboard heat (2–3 rooms), a heat pump, electric water heater, and most kitchen appliances. Suitable for most 3-bedroom homes. Price: **$5,500–$8,000** for the unit.

22–26 kW: Powers most of a medium to large home including significant electric heating, electric range, dryer, and multiple heat pumps. The right choice for larger homes in Fredericton, Quispamsis, or Riverview with all-electric systems. Price: **$7,000–$12,000** for the unit.

30+ kW: Full whole-house power for large homes with extensive electric heat, multiple zones, workshops, hot tubs, or commercial-level needs. Rarely needed for typical residential. Price: **$10,000–$18,000+** for the unit.

Step 4: Fuel Considerations for NB

Propane (most common in NB):

- Available everywhere in the province via delivery
- Requires a propane tank installation (500–1,000 gallon is standard for generators)
- A 20 kW generator running at 50% load uses roughly **2–3 gallons per hour**
- A 500-gallon tank provides **roughly 4–7 days** of continuous operation at moderate load
- Propane tank rental or purchase: **$500–$2,500** depending on size and whether you rent or buy
- Propane delivery is available from providers like Superior Propane, Irving Energy, and local suppliers across NB

Natural gas:

- Only available in limited areas (parts of Moncton, Dieppe, Riverview, Saint John, Fredericton via Liberty Utilities)
- Unlimited fuel supply during outages (gas lines are buried and rarely affected by storms)
- Slightly lower running cost than propane
- If you already have natural gas service, this is the obvious choice

Diesel:

- Some larger standby generators run on diesel
- Fuel is easily available but requires on-site tank storage
- More efficient than propane but noisier and requires more maintenance
- Less common for residential installations in NB

Total Installation Cost

| Component | Cost Range | |----------|----------| | Generator unit (16-22 kW) | $5,500–$10,000 | | Automatic transfer switch | $500–$1,500 (often bundled) | | Concrete pad | $300–$600 | | Electrical installation (licensed electrician) | $1,500–$3,000 | | Propane tank + connection | $500–$2,500 | | TSANB electrical permit | $75–$200 | | Gas permit (propane connection) | $75–$150 | | **Total installed** | **$8,500–$18,000** |

TSANB and Permit Requirements

Standby generator installation in New Brunswick requires:

- **Electrical permit from TSANB** — for the transfer switch connection to your panel
- **Gas permit** — for the propane or natural gas connection (separate from the electrical permit)
- **Setback compliance** — generators must be placed a minimum distance from windows, property lines, and air intakes (typically 5 feet from windows, 18 inches from the house wall)
- **Noise bylaws** — check your municipality's noise ordinances; standby generators typically produce 65–75 dB at 7 metres

Your electrician and propane company typically coordinate the permits. The TSANB inspection covers the electrical connections, while a separate gas inspection covers the fuel connection.

Maintenance for Maritime Conditions

New Brunswick's salt air (coastal areas), extreme cold, and humidity require attention:

- **Weekly automatic exercise:** Most standby generators run themselves for 15–20 minutes weekly to stay ready

- **Annual service:** Oil change, filter replacement, spark plug check — **$200–$400** per year through an authorized dealer
- **Battery replacement:** Every 2–3 years (cold NB winters are hard on batteries) — **$50–$100**
- **Coolant check:** For liquid-cooled units (22 kW+), antifreeze must be rated for our -30°C winter temperatures
- **Rodent protection:** Mice and squirrels nesting in generator enclosures is a real problem in rural NB; check housing vents and wiring regularly

---

Find a Electrical Contractor

New Brunswick Electrical connects you with experienced contractors through the https://newbrunswickconstructionnetwork.com:

- Blue Energy Ltd ?
- A&S Electric Ltd. ?
- BCB Electric ?

View all electrical contractors ?

Q7

How do I choose between a portable and standby generator for my NB home?

Portable vs. Standby Generator: Choosing the Right One for New Brunswick

New Brunswick's outage profile — ice storms lasting days, post-tropical storms, and heavy snow events — makes a generator more of a necessity than a luxury. The choice between portable and standby comes down to your budget, how much of your home you want powered, and how much effort you're willing to put in during an outage.

Portable Generator Overview

What it is: A gasoline (or dual-fuel gas/propane) engine-driven generator that you wheel out, start manually, and connect to your home via extension cords or a transfer switch.

Power range: 3,000–12,000 watts

Costs:

| Item | Cost | |------|------| | Generator (5,000–7,500W recommended for NB) | $800–$2,500 | | Manual transfer switch or interlock kit | $800–$1,500 (installed) | | Heavy-duty outdoor extension cords (if no transfer switch) | $50–$150 | | TSANB permit (for transfer switch) | $50–$100 | | **Total** | **$800–$4,150** |

What it powers (5,000–7,500W typical):

- Refrigerator and freezer
- Well pump (with transfer switch)
- Several lights
- Furnace fan (oil or gas furnace)
- Phone and device charging
- NOT enough for: electric baseboard heat, electric stove, central AC, multiple large appliances simultaneously

Pros:

- Lower upfront cost
- Portable — can take it camping, to a cottage, or lend to a neighbour
- No installation required (if using extension cords only)
- Multiple fuel options (dual-fuel models run on gasoline or propane)

Cons:

- Must be started manually — you're going outside in an ice storm at 2 AM
- Requires gasoline (which goes stale in 3–6 months without stabilizer, and gas stations may be closed during extended outages)
- Must run outdoors, 6+ metres from windows and doors (CO hazard)
- Noisy — 65–75 dB (conversation-level to lawnmower-level)
- Limited runtime — 8–12 hours per tank, then manual refuelling
- Can't power 240V loads (like well pump or baseboard heaters) without a transfer switch

Standby Generator Overview

What it is: A permanently installed, automatic generator that detects a power outage and starts within 10–30 seconds. Runs on propane or natural gas (where available).

Power range: 10,000–48,000 watts (10–48 kW)

Costs:

| Item | Cost | |------|------| | Generator unit (16–22 kW recommended for NB homes) | $5,000–$10,000 | | Automatic transfer switch | Included with most units | | Installation (electrical + concrete pad + gas line) | $3,000–$7,000 | | Propane tank (500L, if not existing) | $1,500–$3,000 (owned) or $0 (leased) | | TSANB electrical permit | $75–$150 | | TSANB gas permit (propane connection) | $50–$100 | | **Total** | **$8,000–$20,000** |

What it powers (16–22 kW typical):

- Entire house including all appliances
- Well pump
- Electric baseboard heaters (some or all, depending on generator size)
- Stove, dryer, hot water tank
- Heat pump
- Everything simultaneously (properly sized unit)

Pros:

- Fully automatic — starts itself, you don't even need to be home
- Powers entire house (properly sized)
- Runs on propane (stored on-site, doesn't go stale, available even when gas stations are closed)
- Quieter than portable — 55–65 dB (air conditioner level)

- Runs indefinitely as long as propane supply lasts (a 500L tank runs a 22kW generator for 3–5 days under typical load)
- Handles 240V loads (well pump, baseboard heat, dryer, stove)
- Increases home resale value ($3,000–$5,000 added value)

Cons:

- Much higher upfront cost
- Permanent installation — cannot be moved
- Requires annual maintenance ($200–$400/year — oil change, filter, exercise test)
- Propane tank rental or purchase
- Setback requirements — minimum distance from windows, property lines, and combustible materials per code

Decision Framework for NB Homeowners

| Factor | Portable | Standby | |--------|----------|---------| | Budget under $2,000 | **Best choice** | Not feasible | | Budget $8,000–$20,000 | Overkill | **Best choice** | | On well water | Works with transfer switch | **Better (automatic)** | | Electric baseboard heat | Cannot power | **Can power (sized correctly)** | | Heat pump | Cannot power (240V) | **Can power** | | Rural NB (long outages) | Fuel supply may run out | **Propane stored on-site** | | Urban NB (shorter outages) | **Usually adequate** | Convenient but may be overkill | | Elderly or mobility-limited occupants | Difficult to manage | **Best choice (automatic)** | | Medical equipment at home | Risky (startup delay, manual) | **Best choice (automatic, fast)** | | Resale value consideration | Minimal impact | **Adds $3,000–$5,000** |

The Middle Ground: Portable + Transfer Switch

For NB homeowners who can't justify the standby generator cost but want more than extension cords:

A **7,500W portable generator** ($1,200–$2,500) with a **manual transfer switch** ($800–$1,500 installed) gives you:

- Safe connection to your panel (no backfeed risk)
- Ability to power 240V circuits (well pump, one or two baseboard zones)
- Selection of which circuits get generator power
- Total cost: $2,000–$4,000 — much less than standby but much more capable than cords alone

This is the most popular setup for NB homeowners in the $2,000–$4,000 budget range.

Sizing Recommendations for NB

| Home Type | Portable Size | Standby Size | |----------|----------|----------| | Small (1,000 sq ft, no well, oil/gas heat) | 3,500–5,000W | 10–14 kW | | Medium (1,500 sq ft, well pump, oil/heat pump) | 5,000–7,500W | 16–20 kW | | Large (2,000+ sq ft, well, electric heat) | 7,500–10,000W | 20–22 kW | | Large with EV charger, hot tub, workshop | 10,000–12,000W | 22–48 kW |

Installation Requirements

Both portable (with transfer switch) and standby generators require a TSANB electrical permit. Standby generators also need a gas permit if propane-fueled. Have your TSANB-licensed electrician handle both permits and coordinate the inspections.

Find a Electrical Contractor

New Brunswick Electrical connects you with experienced contractors through the https://newbrunswickconstructionnetwork.com:

- BCB Electric ?
- A&S Electric Ltd. ?
- Blue Energy Ltd ?

View all electrical contractors ?

Q8

What is the best backup power option for well water during NB outages?

Backup Power for Well Pumps During New Brunswick Power Outages

If your New Brunswick home is on a well — as thousands of rural and suburban properties are across the province — a power outage means no water. No flushing, no washing, no drinking water from the tap. Having a backup power plan for your well pump is essential.

Understanding Your Well Pump

First, know what you're working with:

Submersible well pump (most common in NB):

- Located at the bottom of the well, 30–200+ feet deep
- Runs on 240V, draws 5–15 amps (1,000–3,000 watts running, 3x surge on startup)
- Pushes water up to the pressure tank in your basement
- Cannot be easily accessed or bypassed

Jet pump (surface-mounted):

- Located in the basement or pump house
- Shallow well jet: 120V, 5–10 amps
- Deep well jet: 240V, 7–12 amps
- Easier to connect to backup power

Pressure tank: Your pressure tank stores 10–40 gallons of pressurized water. When power goes out, you have whatever's in the tank — typically enough for 1–3 toilet flushes and a few minutes of tap water. After that, nothing.

Backup Power Options

Option 1: Portable generator with transfer switch ($2,000–$5,000 total)

The most common solution for NB well owners:

- Generator: 5,000–7,500 watt minimum (to handle the pump's startup surge)
- Transfer switch or interlock kit: $800–$1,500 installed by a licensed electrician
- The transfer switch lets you safely power the well pump circuit (and other selected circuits) from the generator

Pros: Powers more than just the pump (lights, fridge, furnace fan), moderate cost Cons: Requires fuel, manual startup, noise, CO risk if improperly placed

Option 2: Standby generator ($6,000–$20,000 installed)

Automatic backup — starts within 10–30 seconds of outage:

- 16–22 kW covers a typical NB home including well pump
- Automatic transfer switch included
- Runs on propane or natural gas
- TSANB electrical permit required

Pros: Fully automatic, powers entire house, runs for days on a full propane tank Cons: High upfront cost, annual maintenance required

Option 3: Battery backup / inverter system ($500–$3,000)

A battery inverter system specifically for the well pump:

- A 240V inverter connected to a battery bank
- Can run a submersible pump for 30–90 minutes of total pumping time (enough for 1–3 days of careful use)
- Batteries recharged by solar panels, generator, or grid power when restored

Pros: Silent, no fuel, instant switchover Cons: Limited runtime, expensive for larger pumps, batteries need replacement every 5–10 years

Option 4: Hand pump ($500–$1,500 installed)

A manual hand pump installed alongside your submersible pump:

- Works with shallow to moderate well depths (up to 200 feet with deep-well models like the Simple Pump or Bison)
- No electricity needed — pure mechanical operation
- Produces 2–5 gallons per minute depending on depth
- Installed in a separate casing or alongside the existing pump

Pros: Zero operating cost, works indefinitely, no fuel or batteries Cons: Physical effort required, slow output, not practical for household use beyond drinking/cooking water

Option 5: Water storage ($100–$500)

The simplest and cheapest backup:

- Store 40–80 litres of water per person for a 3-day outage (drinking + cooking + basic hygiene)
- Fill bathtubs before a forecasted storm for flushing water
- Keep several 20L water containers filled and rotated every 6 months
- A 250-gallon intermediate bulk container (IBC tote, $100–$200 used) in the basement provides substantial reserve

Pros: Cheapest option, zero electrical requirements Cons: Limited supply, no running water pressure, requires advance planning

Generator Sizing for Well Pumps

Well pumps have high startup (surge) current — typically 3x their running current. Your generator must handle the surge:

| Pump Type | Running Watts | Surge Watts | Minimum Generator | |----------|----------|----------|----------| | 1/2 HP submersible | 1,000W | 2,500–3,000W | 3,500W | | 3/4 HP submersible | 1,500W | 3,500–4,500W | 5,000W | | 1 HP submersible | 2,000W | 4,000–6,000W | 6,500W | | 1.5 HP submersible | 2,500W | 5,000–7,500W | 7,500W |

If you also want to run lights, fridge, and furnace fan alongside the pump, add those loads to the running watts and ensure the generator handles the pump surge on top of everything else.

Transfer Switch: Non-Negotiable

Connecting a generator to your well pump circuit requires a transfer switch or interlock kit installed by a TSANB-licensed electrician. You CANNOT safely plug a well pump into a generator with an extension cord — submersible pumps are hardwired to their circuit.

The transfer switch:

- Isolates your home from the grid (prevents backfeed that endangers NB Power workers)
- Lets you select which circuits receive generator power
- Handles the 240V requirement for submersible pumps
- Cost: $800–$1,500 installed

Recommended Approach for NB Well Owners

- **Minimum:** Store 80+ litres of water and fill bathtubs before storms
- **Good:** 5,000–7,500W portable generator + transfer switch ($2,500–$4,500 total)
- **Best:** 16–22 kW standby generator with automatic transfer ($8,000–$20,000)
- **Supplement with:** A hand pump for extended outages where fuel runs out

Given NB's history of multi-day outages from ice storms and post-tropical storms, rural well owners should seriously consider at least option 2. The cost of a generator and transfer switch is modest compared to the disruption of being without water for 3–7 days.

Find a Electrical Contractor

New Brunswick Electrical connects you with experienced contractors through the https://newbrunswickconstructionnetwork.com:

- A&S Electric Ltd. ?

- BCB Electric ?
- Blue Energy Ltd ?

View all electrical contractors ?

Q9

How do portable generators cause carbon monoxide deaths and how do I use one safely?

Portable Generator Carbon Monoxide Safety for New Brunswick

Carbon monoxide (CO) from portable generators kills Canadians every year, and the risk is highest during winter power outages — exactly when New Brunswick residents rely on generators most. This is preventable with proper use.

Why Generators Produce CO

Portable generators burn gasoline (or propane/dual fuel) in an internal combustion engine. The exhaust contains carbon monoxide — a colourless, odourless gas that displaces oxygen in your blood. You can't see it, smell it, or taste it.

A single portable generator produces CO concentrations equivalent to **hundreds of idling cars**. A typical 5,000-watt generator produces enough CO to reach lethal levels in a closed garage in **under 5 minutes**.

How CO Poisoning Happens During NB Outages

The pattern is tragically predictable:

- Ice storm or major wind event knocks out power
- Homeowner starts a portable generator
- Generator is placed in the garage (with the door closed or partially open), in the basement, on the porch, or just outside an open window
- CO enters the home through doors, windows, vents, or the attached garage connection
- Occupants develop headache, dizziness, and nausea — but may attribute symptoms to stress or illness
- Within hours (or less), CO levels become lethal

This happens in New Brunswick. After major storms, NB hospitals report CO poisoning cases every time — including fatalities.

Generator Placement Rules

The only safe location for a running portable generator:

- **OUTDOORS**
- **At least 6 metres (20 feet) from any door, window, or vent**
- **With the exhaust pointed AWAY from the house**
- **Never in a garage, even with the door open**
- **Never in a basement, crawl space, or enclosed porch**
- **Never under a carport or overhang where CO can accumulate**

  The 6-metre rule comes from CPSC testing showing CO can travel through open windows and doors and build to dangerous levels at shorter distances.

CO Detector Requirements

The NB Building Code requires CO detectors in homes with fuel-burning appliances. During a power outage with a generator running:

- **Battery-operated CO detectors** continue working during outages — verify yours has fresh batteries
- **Hardwired CO detectors with battery backup** also continue working
- **Plug-in CO detectors without battery backup** do NOT work during outages — which is exactly when you need them most

  Place CO detectors on every level of your home, especially near sleeping areas. Cost: $25–$50 each at any NB hardware store. Combination smoke/CO detectors serve double duty.

If You Suspect CO Poisoning

Symptoms (in order of severity):

- Headache, dizziness, weakness
- Nausea, vomiting, confusion
- Loss of consciousness
- Death

If your CO detector alarms or anyone shows symptoms:

- Get everyone out of the house immediately — including pets
- Call 911 from outside
- Do NOT re-enter the home to turn off the generator
- Open doors and windows if you can do so without going deep into the house
- Get fresh air immediately — CO poisoning reverses with oxygen
- Go to the emergency room even if symptoms improve — delayed effects can be serious

Safe Generator Operation Checklist

- **Place outdoors, 6+ metres from any opening** — yes, even in a blizzard. A generator getting snow on it is fine. A generator killing your family is not.
- **Use heavy-duty outdoor extension cords** — rated for the generator's output (typically 30A). Run cords through a cracked window or door to the items you need to power.
- **Never backfeed through your panel** — connecting a generator directly to your panel without a transfer switch energizes the utility lines and can electrocute NB Power workers. It's also illegal.
- **Install a transfer switch** — a licensed electrician installs this at your panel ($800–$1,500). It safely connects the generator to selected circuits and prevents backfeed.
- **Run the generator on a dry surface** — use a canopy or generator tent ($50–$100) for rain and snow protection. Never run in standing water.
- **Refuel when the generator is OFF and cool** — gasoline spilled on a hot engine ignites instantly. Shut down, wait 5–10 minutes, then refuel.
- **Don't store fuel indoors** — keep gasoline in approved containers in a ventilated shed or detached garage, away from any ignition source.

Transfer Switch: The Proper Solution

A transfer switch ($800–$1,500 installed by a TSANB-licensed electrician) eliminates the temptation to run the generator in the garage with cords running inside. The generator connects to an outdoor inlet box on the exterior of your home, and the transfer switch routes power to selected circuits safely.

Types:

- **Manual transfer switch** ($300–$600 for the switch, plus $500–$900 installation): You physically flip switches to select which circuits get generator power

- **Interlock kit** ($100–$200 plus installation): A mechanical device on your panel that prevents the main breaker and generator breaker from being on simultaneously. Cheaper but less convenient.

The Bottom Line

A portable generator is a valuable tool during NB's frequent power outages. But it must be used outdoors, far from the house, with proper CO detection inside. The combination of a transfer switch, outdoor placement, and battery-operated CO detectors makes generator use safe and convenient. The investment of $1,000–$2,000 for a transfer switch and CO detectors is life insurance in the most literal sense.

Find a Electrical Contractor

New Brunswick Electrical connects you with experienced contractors through the https://newbrunswickconstructionnetwork.com:

- A+ Solar Solutions ?
- A&S Electric Ltd. ?
- Blue Energy Ltd ?

View all electrical contractors ?

Q10

What causes power outages in New Brunswick and how can I prepare?

Power Outage Causes and Preparation for New Brunswick Homes

New Brunswick experiences more power outages than many Canadian provinces due to its geography, weather patterns, and grid infrastructure. Understanding the causes helps you prepare effectively.

Major Causes of NB Power Outages

1. Ice storms (most damaging) NB's location between the Atlantic and the continental interior creates perfect conditions for freezing rain. Ice accumulation of 15–25mm on power lines and tree branches causes widespread damage. Major events:

- January 2017: Southeastern NB, 130,000+ customers without power, some for over a week
- January 2024: Multiple rounds of freezing rain across central and southern NB
- Ice storms typically affect the largest area and take the longest to restore

2. Post-tropical storms and nor'easters The remnants of Atlantic hurricanes and powerful nor'easters bring 80–130 km/h winds and heavy rain. Falling trees and flying debris take down power lines. The Bay of Fundy coast (Saint John to Alma) and Gulf coast (Shediac to Bathurst) are most exposed.

3. Heavy wet snow Spring and late-fall wet snowstorms (March–April, November–December) deposit heavy, sticky snow on power lines. Combined with wind, this breaks branches and overloads lines. Rural areas with overhead lines through forested corridors are most vulnerable.

4. Summer thunderstorms Lightning strikes on transformers and power lines cause localized outages. The Saint John River Valley and southern interior see the most thunderstorm activity. These outages are usually short (1–4 hours) but can damage electronics through surges.

5. Equipment failure Aging infrastructure — transformers, switches, insulators — fails under stress or simply from age. NB Power has been upgrading infrastructure, but rural distribution lines in particular have older equipment.

6. Vehicle accidents Cars and trucks hitting utility poles is a surprisingly common cause of localized outages, especially on rural highways.

Outage Duration by Cause

| Cause | Typical Duration | Worst Case | |-------|-----------------|------------| | Thunderstorm | 1–6 hours | 12–24 hours | | Wind storm | 4–24 hours | 2–3 days | | Wet snow | 4–48 hours | 3–5 days | | Ice storm | 1–7 days | **7–14 days** | | Equipment failure | 1–4 hours | 8–12 hours | | Vehicle accident | 2–6 hours | 12 hours |

Electrical Preparation

Whole-house standby generator ($6,000–$20,000 installed) The ultimate solution. Starts automatically within 10–30 seconds of power loss. Runs on propane or natural gas. Requires:

- TSANB electrical permit
- Automatic transfer switch at the panel
- Propane tank (500–1,000 litre for extended outages)
- Professional installation by a licensed electrician
- Annual maintenance (oil change, exercise run)

Portable generator ($800–$3,000) Manual startup, gasoline-powered, runs essential circuits through a manual transfer switch or interlock kit.

- Transfer switch installation: $800–$1,500 by a licensed electrician
- **Never** connect a portable generator directly to your panel without a transfer switch — this backfeeds the grid and can electrocute NB Power line workers
- Store fuel safely — gasoline degrades in 3–6 months without stabilizer
- Run outdoors only — generator exhaust (carbon monoxide) kills quickly in enclosed spaces

Battery backup systems ($5,000–$15,000) Whole-house battery systems (Tesla Powerwall, Enphase IQ, etc.) store grid or solar power and provide seamless backup. No fuel, no noise, no exhaust. Limited runtime depends on battery capacity and your loads — typically 8–24 hours for essential circuits.

Uninterruptible Power Supply / UPS ($80–$500) Small battery backup for computers, internet equipment, and medical devices. Provides 15–60 minutes of runtime — enough to save work and shut down safely, or keep internet running during a brief flicker.

Non-Electrical Preparation

- **Flashlights and batteries** — LED headlamps ($15–$30) are the most practical option. Have at least 2 per household member.
- **Battery-powered or hand-crank radio** — for NB Power and Environment Canada weather updates when internet is down

- **Water supply** — if you're on a well, no power means no water pump. Store 4 litres per person per day for 3 days minimum (12 litres/person). Fill bathtubs before a forecasted storm for flushing water.
- **Heating backup** — wood stove or pellet stove with manual ignition. A propane or kerosene heater rated for indoor use (with ventilation). Never use a BBQ, outdoor propane heater, or generator indoors.
- **Phone charging** — car charger, portable power bank (20,000+ mAh), or small solar charger
- **Food** — keep freezer full (frozen items maintain temperature longer). A full freezer stays frozen 48 hours without power if kept closed. A half-full freezer: 24 hours.

Surge Protection After Outages

When power is restored after an outage, voltage surges are common as NB Power re-energizes lines. A whole-house surge protector ($300–$775 installed) protects your electronics during restoration. If you don't have one, unplug sensitive electronics before a forecasted storm and wait 10–15 minutes after power returns before plugging them back in.

NB Power Outage Reporting

- **Report outages:** 1-800-663-6272 or NB Power app/website
- **Outage map:** Available on NB Power's website — shows affected areas and estimated restoration times
- **Priority restoration:** Hospitals, water treatment, and main feeder lines are restored first. Rural branch lines serving fewer customers are typically last.

Find a Electrical Contractor

New Brunswick Electrical connects you with experienced contractors through the https://newbrunswickconstructionnetwork.com:

- BCB Electric ?
- A&S Electric Ltd. ?
- Blue Energy Ltd ?

View all electrical contractors ?

Q11

What size generator do I need to power my whole house in New Brunswick during a storm?

Sizing a Whole-House Generator for New Brunswick Homes

Choosing the right generator size depends on your home's total electrical load, which varies significantly based on your heating system, appliances, and whether you have electric hot water.

Calculating Your Load

Start by listing every circuit you want powered during an outage. A typical New Brunswick home with 2,000 square feet might need:

- **Electric furnace or heat pump:** 5,000–15,000 watts
- **Well pump:** 1,000–2,000 watts (starting surge up to 3x)
- **Refrigerator/freezer:** 600–800 watts
- **Lights and electronics:** 1,500–2,000 watts
- **Electric hot water tank:** 4,500 watts
- **Sump pump:** 800–1,500 watts

  For most homes in Moncton, Fredericton, or Saint John, a **22 kW whole-house standby generator** covers the full load comfortably. If you heat with oil or propane and don't have an electric water heater, a **16 kW unit** may be sufficient.

Generator Types and Costs in NB

Portable generators (3,000–12,000 watts) cost $800–$3,000 and can run essential circuits through a manual transfer switch. They require manual startup and refuelling.

Standby generators (16,000–48,000 watts) cost $6,000–$18,000 installed and start automatically within 10–30 seconds of a power loss. They run on propane or natural gas, which is available in areas served by Enbridge or Liberty Utilities.

Installation Requirements

In New Brunswick, generator installation requires:

- **A TSANB electrical permit** — your licensed electrician pulls this before starting work

- **An automatic or manual transfer switch** installed at the main panel, which prevents dangerous backfeed onto NB Power's lines
- **Proper setback distances** — typically 5 feet from windows, doors, and soffit vents per the Canadian Electrical Code and manufacturer specs
- **A propane or natural gas connection** — propane tank installation requires a separate TSANB gas permit

Installation by a licensed electrician in New Brunswick typically runs $2,500–$5,000 on top of the generator cost, depending on transfer switch complexity and fuel line routing.

NB Power Outage Considerations

New Brunswick experiences extended outages from ice storms, post-tropical storms, and heavy wet snow — the January 2017 ice storm left parts of the province without power for over a week. Rural areas along the Miramichi, in Charlotte County, and northern NB near Bathurst and Campbellton tend to see longer restoration times. If you're in a rural area, sizing up by 20% gives you headroom for unexpected loads.

The Bottom Line

For a typical NB home: **16–22 kW standby generator** ($8,000–$20,000 fully installed) or a **7,500+ watt portable** ($1,500–$3,000 plus $800–$1,500 for transfer switch installation) for essential circuits only. Get quotes from at least two TSANB-licensed electricians and confirm they'll handle the electrical permit.

Find a Electrical Contractor

New Brunswick Electrical connects you with experienced contractors through the https://newbrunswickconstructionnetwork.com:

- A+ Solar Solutions ?
- BCB Electric ?
- A&S Electric Ltd. ?

View all electrical contractors ?

Q12

How do I safely use a portable generator during a New Brunswick winter storm?

Safely Using a Portable Generator During New Brunswick Winter Storms

Portable generators save lives during New Brunswick's winter storms — but they also kill people every year across Canada when used incorrectly. Carbon monoxide poisoning, electrocution, and fire are all real risks that can be avoided with proper setup and usage. Whether you're dealing with an ice storm in the Saint John River Valley, a nor'easter hitting the Fundy coast, or a blizzard in northern New Brunswick, these safety rules are non-negotiable.

Carbon Monoxide — The #1 Killer

Carbon monoxide (CO) from generator exhaust is colourless and odourless. It kills quickly — a portable generator produces as much CO as hundreds of idling cars. Every winter, Canadians die from generator CO poisoning during power outages.

Absolute rules:

- **NEVER run a generator indoors** — not in the house, garage, basement, enclosed porch, or any partially enclosed space. Even with the garage door open, CO concentrations can reach lethal levels in minutes.
- **Place the generator at least 6 metres (20 feet) from any door, window, or vent** — and position it so exhaust blows away from the house, not toward it. Wind direction during Maritime storms can shift, so check periodically.
- **NEVER run a generator in a snowbank or snow cave** — some people create windbreaks around generators using snow or tarps. This traps exhaust and creates a lethal CO pocket.
- **Install battery-powered CO detectors** on every level of your home. If you don't have them, buy them before storm season. They cost $25-$40 each at any New Brunswick hardware store and are required by the NB building code in all homes with fuel-burning appliances or attached garages.

  If your CO detector alarms during a power outage: Get everyone outside immediately. Call 911. Do not re-enter until emergency services clear the home.

Electrical Safety — Preventing Backfeed and Electrocution

NEVER plug a generator directly into a wall outlet or your electrical panel using a "suicide cord" (a male-to-male extension cord). This is called backfeeding, and it is:

- **Illegal under the Canadian Electrical Code** and New Brunswick regulations
- **Potentially fatal** — electricity feeds back through your panel, through the meter, and onto NB Power's distribution lines at up to 7,200 volts. Line workers repairing the outage can be electrocuted by your generator.
- **Destructive** — when NB Power restores service, the utility power and your generator collide, destroying the generator and potentially causing a fire

Safe connection methods:

Option 1: Extension cords (simplest) Run individual outdoor-rated extension cords from the generator directly to appliances. Use heavy-duty cords rated for the load:

- 14 AWG cords: Up to 15 amps, max 30 metres (100 feet)
- 12 AWG cords: Up to 20 amps, max 30 metres
- 10 AWG cords: Up to 30 amps, max 15 metres (50 feet)

Don't daisy-chain extension cords or run them through closed windows or doors where insulation can be damaged. Keep cord connections elevated and dry — don't let them sit in snow or puddles.

Option 2: Transfer switch (recommended) A transfer switch is a permanently installed device that safely connects your generator to specific circuits in your home. When you flip the switch, those circuits disconnect from NB Power and connect to the generator. When power returns, you flip back.

- **Manual transfer switch (6-10 circuits):** $500-$1,500 installed by a licensed electrician. Covers essential circuits — well pump, furnace, fridge, some lights.
- **Automatic transfer switch (whole house):** $2,000-$4,000 installed. Detects power loss and switches automatically. Required for standby generators.
- **Interlock kit:** $200-$500 installed. A mechanical device on your existing panel that prevents the main breaker and generator breaker from being on simultaneously. Less expensive than a full transfer switch but still requires a licensed electrician and TSANB permit.

Generator Sizing for New Brunswick Winter Essentials

Prioritize these loads during a winter outage:

| Essential Load | Wattage | Priority | |---|---|---| | Furnace blower fan | 500-800W (running), 1,500W (starting) | #1 — Prevents frozen pipes | | Well pump | 1,000-2,000W (running), 2,000-4,000W (starting) | #1 — No water without it | | Refrigerator | 100-200W (running), 400-600W (starting) | #2 — Food preservation | | Freezer | 100-200W (running), 400-600W (starting) | #2 — Food preservation | | Sump pump | 500-1,000W (running), 1,200-2,000W (starting) | #2 — Flood prevention | | LED lighting (10 bulbs) | 100W total | #3 — Safety | | Phone chargers | 25-50W | #3 — Communication | | Space heater (if no furnace) | 1,500W | Emergency only |

Minimum recommended for winter: A **5,000-7,500 watt generator** covers the furnace fan, well pump, fridge, and lights — the bare minimum to keep a New Brunswick home safe during a multi-day winter outage. Budget: $700-$1,500.

Cold Weather Generator Operation

New Brunswick winter conditions create specific generator challenges:

Starting in extreme cold (-20°C and below):

- Use fresh gasoline — stale fuel from last season may not ignite in cold temperatures. Add fuel stabilizer if storing gas for more than 30 days.
- Synthetic oil (5W-30) flows better in extreme cold than conventional oil. Check your generator's manual for cold-weather oil recommendations.
- Electric start models are much easier to start in cold. Keep the starter battery on a trickle charger before storm season.
- Pull-start models: Pull slowly 2-3 times to prime before pulling hard to start. Choke fully closed for cold starts.

During operation:

- Let the generator warm up for 2-3 minutes before connecting loads
- Add loads one at a time, starting with the highest-surge item (well pump or furnace) to avoid overloading
- Monitor the generator regularly — don't leave it running unattended for hours in a snowstorm without checking
- Keep the generator dry. A basic canopy or lean-to shelter (open on all sides for ventilation) protects the generator from direct snow and ice while allowing exhaust to dissipate safely. Commercial generator tents cost $100-$300.
- **Never refuel while running or hot.** Shut down, wait 5-10 minutes for cooling, then refuel. Gasoline vapour from a hot engine ignites easily.

Fuel management:

- A typical 5,000W generator burns 6-10 litres of gasoline per hour at 50% load
- For a 3-day outage at 12 hours/day of runtime: budget 50-75 litres of fuel
- Store gasoline in approved containers only, in a well-ventilated area away from the home and generator
- **Never store gasoline indoors** — vapour accumulation is explosive
- Propane generators are advantageous in New Brunswick — propane doesn't go stale, stores indefinitely, and starts more reliably in cold weather. A standard 20 lb tank provides 8-10 hours of runtime at 50% load on a 5,000W generator.

After the Storm

When NB Power restores service:

- Turn off and disconnect all loads from the generator
- If using a transfer switch, switch back to utility power
- Let the generator run unloaded for 2-3 minutes to cool down
- Turn off the generator
- If using extension cords, unplug and properly store them
- Drain the carburetor or add fuel stabilizer if you won't use the generator for more than 30 days
- Inspect the generator for any damage from the storm

Legal Requirements in New Brunswick

- **Transfer switch installation requires a TSANB permit** and licensed electrician
- **Backfeeding is illegal** under the CEC and NB electrical regulations
- **Noise bylaws** may restrict generator use in some New Brunswick municipalities — check local bylaws, though most communities waive noise restrictions during declared emergencies
- **WorkSafeNB regulations** apply if using a generator at a workplace

---

Find a Electrical Contractor

New Brunswick Electrical connects you with experienced contractors through the https://newbrunswickconstructionnetwork.com:

- A+ Solar Solutions ?
- A&S Electric Ltd. ?
- BCB Electric ?

View all electrical contractors ?

Q13

What size generator do I need to run my well pump during a power outage in rural New Brunswick?

Generator Sizing for Well Pumps in Rural New Brunswick

If you live in rural New Brunswick — whether in the Kennebecasis Valley, along the Fundy coast, or in the Miramichi region — a generator capable of running your well pump is essential. NB Power outages from ice storms, heavy winds, and nor'easters can last anywhere from hours to days. The devastating ice storms of January 2017 and the post-tropical storms that regularly hit the Maritimes make backup power a necessity, not a luxury, for homes on well water.

Determining Your Well Pump's Power Requirements

Step 1: Find your pump's specifications. Check the pressure tank or the pump controller box in your basement for a label showing horsepower (HP) and voltage. Common well pump sizes in New Brunswick residential wells are:

| Pump Size | Running Watts | Starting Watts (Surge) | Typical Well Depth | |---|---|---|---| | 1/3 HP | 800W | 1,400W | Up to 25 feet (shallow) | | 1/2 HP | 1,000W | 2,100W | 25-100 feet | | 3/4 HP | 1,500W | 3,000W | 100-200 feet | | 1 HP | 2,000W | 4,000W | 150-300 feet | | 1.5 HP | 2,500W | 5,000W | 200-400 feet | | 2 HP | 3,000W | 6,000W | 300+ feet |

The **starting watts** (surge) is the critical number. Well pumps are induction motors that draw 2-3 times their running wattage during the first 1-3 seconds of startup. Your generator must handle this surge or it will trip the overload protection and shut down.

Step 2: Identify your pump type. Most New Brunswick wells use one of two types:

- **Submersible pumps** — The motor sits at the bottom of the well casing, submerged in water. These are standard for drilled wells deeper than 25 feet, which accounts for the majority of rural New Brunswick wells. Typical depths in the province range from 30 to 250 feet depending on geology — granite bedrock areas like the Saint John River Valley often require deeper wells than the sedimentary rock regions of southeastern New Brunswick.
- **Jet pumps** — The motor sits above ground, usually in the basement. These are used for shallower wells and older installations. They're noisier and less efficient but easier to service.

Recommended Generator Sizes

For well pump ONLY:

- 1/2 HP pump: Minimum **3,500-watt generator** ($500-$800)
- 3/4 HP pump: Minimum **5,000-watt generator** ($700-$1,200)
- 1 HP pump: Minimum **6,500-watt generator** ($900-$1,500)

For well pump PLUS basic home circuits (furnace fan, fridge, lights, phone chargers):

- 1/2 HP pump: **5,000-7,500 watt generator** ($700-$1,500)
- 3/4 HP pump: **7,500-10,000 watt generator** ($1,200-$2,500)
- 1 HP pump: **10,000-12,000 watt generator** ($1,800-$3,500)

For whole-house backup:

- A **standby generator (16-22 kW)** with automatic transfer switch covers everything including the well pump. These cost $5,000-$12,000 installed in New Brunswick, but they start automatically when power goes out — critical if you're away from home during a winter storm.

Important Considerations for New Brunswick

Cold weather starting: New Brunswick winters routinely hit -20°C to -30°C. Portable generators with pull-start mechanisms can be extremely difficult to start in extreme cold. Look for models with electric start and keep the battery on a maintenance charger. Propane and natural gas generators start more reliably in cold weather than gasoline models.

Fuel availability during extended outages: During major NB Power outages, gas stations may also lose power. Consider a **dual-fuel generator** that runs on both gasoline and propane. A standard 20 lb propane tank runs a 5,000W generator for 8-10 hours at half load. Keep 2-3 tanks filled before storm season.

Transfer switch requirement: Connecting a generator to your well pump (or any hardwired equipment) requires a transfer switch. The Canadian Electrical Code and TSANB regulations **prohibit** backfeeding through your panel without a proper transfer switch — this is both illegal and extremely dangerous as it can electrocute NB Power line workers repairing the outage. A transfer switch installation by a licensed New Brunswick electrician costs $500-$1,500 depending on the type (manual vs. automatic) and number of circuits.

Generator placement: Run the generator outside, at least 6 feet from windows, doors, and vents. Carbon monoxide poisoning from generators used indoors or in garages is responsible for multiple deaths across Canada every year during winter storms.

What Most Rural New Brunswick Homeowners Choose

The most popular setup for rural New Brunswick homes on well water is a **7,500-watt dual-fuel portable generator** ($1,000-$1,800) with a **6-circuit manual transfer switch** ($300-$600 installed). This covers the well pump, furnace blower, refrigerator, and several lighting circuits — enough to ride out a 3-5 day winter outage comfortably. Total installed cost including the electrician, permit, and TSANB inspection runs $1,800-$3,500.

Find a Electrical Contractor

New Brunswick Electrical connects you with experienced contractors through the https://newbrunswickconstructionnetwork.com:

- A+ Solar Solutions ?
- BCB Electric ?
- Blue Energy Ltd ?

View all electrical contractors ?

Q14

What are the best options for backup power during a New Brunswick power outage?

Best Backup Power Options for New Brunswick Power Outages

New Brunswick experiences some of the most frequent and prolonged power outages in Canada. The January 2017 ice storm left parts of the province without power for up to 10 days. Post-tropical storm Fiona in 2022 knocked out power to over 100,000 NB Power customers. And every winter, nor'easters and ice loading on the province's largely overhead distribution grid cause outages lasting hours to days. Having a backup power plan is not a luxury in New Brunswick — it is a practical necessity.

Option 1: Portable Generator ($500 - $3,000)

This is the most common backup power solution in New Brunswick and the most affordable entry point. A portable gas or dual-fuel generator powers essential circuits through extension cords or, ideally, through a transfer switch.

- **3,500 - 5,000 watt portable**: Powers lights, fridge, phone chargers, sump pump, and a few small appliances. Costs $500-$1,200 at Home Depot Moncton, Kent Building Supplies, or Princess Auto. Runs 8-12 hours on a

tank of gas

- **7,500 - 10,000 watt portable**: Can also power a well pump, freezer, and microwave simultaneously. Costs $1,200-$3,000. Uses 3-5 litres of gas per hour at full load

  Critical safety requirement: Never run a generator indoors, in a garage, or near windows. Carbon monoxide from generators kills multiple Canadians every year. Place the generator at least 6 metres from any window or door.

  Transfer switch ($500-$800 installed by a licensed electrician): Connects the generator to your electrical panel legally and safely. Without one, you are either running extension cords (limited and inconvenient) or backfeeding through a dryer outlet (illegal, violates CEC, and can electrocute NB Power line workers restoring your service). A transfer switch with 6-8 circuits covers most essential loads.

  Option 2: Whole-Home Standby Generator ($5,000 - $15,000 installed)

  A permanently installed standby generator starts automatically within 10-30 seconds of detecting a power outage. These run on natural gas (available in parts of Moncton, Fredericton, and Saint John via Liberty Utilities/Enbridge) or propane (available province-wide).

- **11-16 kW standby** (Generac, Kohler, or Briggs): Powers the entire home except possibly electric heat. Costs $5,000-$9,000 for the unit plus $2,000-$4,000 for installation including a 200A automatic transfer switch, concrete pad, gas connection, and TSANB permit
- **20-24 kW standby**: Powers everything including electric heat or a heat pump. Costs $8,000-$12,000 plus $2,500-$4,500 installation

  Propane consumption for a 20 kW unit at half load is roughly 10-12 litres per hour. A standard 500-gallon (1,900 litre) propane tank provides approximately 5-7 days of continuous operation. Propane delivery is widely available across New Brunswick even during storms — companies like Superior Propane and Irving Energy serve the entire province.

  TSANB permit required: All standby generator installations require a permit and inspection. The electrician handling the automatic transfer switch installation typically manages the permit.

  Option 3: Battery Backup System ($10,000 - $30,000)

  Battery systems like the Tesla Powerwall, Enphase IQ Battery, or Generac PWRcell store electricity and provide seamless, silent switchover when the grid goes down.

- **Single Tesla Powerwall (13.5 kWh)**: Costs $12,000-$15,000 installed. Powers essential loads (fridge, lights, Wi-Fi, sump pump, phone charging) for 8-14 hours depending on usage. Will NOT power electric heat or high-

draw appliances

- **Two Powerwalls (27 kWh)**: $22,000-$28,000 installed. Can power more of the home for a full day or essentials for 2-3 days

  Battery systems pair well with solar panels, which can recharge the batteries during daytime outages — extending backup time indefinitely in theory. However, New Brunswick's winter daylight hours (8-9 hours in December) and frequent cloud cover limit solar recharging capacity during the storms that cause most outages.

Option 4: Hybrid Approach (Best for NB)

The most practical setup for New Brunswick's outage patterns combines:

- A **battery backup** (single Powerwall or equivalent) for short outages under 12 hours — covers the frequent 1-4 hour blips that happen throughout winter. Silent, automatic, no fuel needed
- A **portable or standby generator** for extended outages during major storms. The generator charges the battery, and the battery provides clean, steady power to the home

  This hybrid approach costs $15,000-$25,000 but provides bulletproof coverage for both short flickering outages and multi-day storm events.

Comparison Summary

| Option | Cost (Installed) | Runtime | Auto Start | Noise | Maintenance | |--------|-----------------|---------|------------|-------|-------------| | Portable generator | $1,000 - $1,800* | 8-12 hrs/tank | No | Loud (65-75 dB) | Oil changes, fuel stabilizer | | Standby generator | $7,000 - $15,000 | Days (with fuel) | Yes | Moderate (60-67 dB) | Annual service ($200-$300) | | Battery (1 unit) | $12,000 - $15,000 | 8-14 hrs | Yes | Silent | Minimal (10-year warranty) | | Hybrid (battery + gen) | $15,000 - $25,000 | Unlimited | Yes | Minimal | Annual generator service |

*Includes transfer switch installation

What to Do Right Now

At minimum, every New Brunswick home should have a plan for outages over 24 hours: flashlights, a battery radio, a way to charge phones, and a way to keep pipes from freezing if you heat with electricity. If your home relies on a well pump, sump pump, or electric heat, a generator with a proper transfer switch installed by a TSANB licensed electrician should be a priority before the next storm season.

Find a Electrical Contractor

New Brunswick Electrical connects you with experienced contractors through the https://newbrunswickconstructionnetwork.com:

- A+ Solar Solutions ?
- Blue Energy Ltd ?
- A&S Electric Ltd. ?

View all electrical contractors ?

Q15

What size whole home generator do I need to keep my house running during a New Brunswick ice storm?

For most New Brunswick homes, a 16 to 22 kW whole-home standby generator will keep everything running during an ice storm, including your furnace or heat pump, refrigerator, lights, well pump (if applicable), and a few convenience circuits. If you have a larger home with electric heat, a hot tub, or multiple high-draw appliances, you may need 24 to 48 kW.

New Brunswick is one of the most ice-storm-prone provinces in Canada. The Moncton, Fredericton, and Saint John areas regularly experience multi-day power outages during winter storms, and rural areas can be without power for a week or more. This makes generator installation far more than a luxury here — it's a practical necessity for many homeowners.

How to calculate your needs. Start by listing everything you want to run simultaneously during an outage. A typical breakdown looks like this: furnace blower motor (500-800 watts), refrigerator (200 watts), well pump (1,000-1,500 watts), LED lighting throughout the home (300-500 watts), sump pump (800 watts), and a few outlets for phones and internet equipment (200 watts). That's roughly 3,000 to 3,800 watts of running load — but you need to account for starting surges, which can be 2 to 3 times the running wattage for motors. A 16 kW generator handles this comfortably with room to spare for a heat pump, clothes dryer, or electric range.

The installation requires a transfer switch, which is the critical safety component that prevents your generator from back-feeding electricity into the NB Power grid (which could electrocute a line worker). An automatic transfer switch detects when power goes out, signals the generator to start, and switches your home's load over — all within 10 to 30 seconds. When NB Power restores service, the transfer switch automatically shifts back and shuts down the generator.

TSANB permits are required for generator installation in New Brunswick, as this involves new circuits, a transfer switch, and connection to your main electrical panel. A licensed electrician must perform the installation and pull the permit. The TSANB inspection will verify proper transfer switch installation, correct wire sizing, fuel line clearances (for natural gas or propane units), and safe exhaust ventilation.

Total installed costs in New Brunswick range from $6,000 to $15,000 for a quality automatic standby generator, including the transfer switch, concrete pad, gas connection, electrical work, and TSANB permit. Portable generator setups with a manual transfer switch are a budget option at $2,000 to $4,000, but they require you to be home to start them and refuel them manually during the storm.

Find a Electrical Contractor

New Brunswick Electrical connects you with experienced contractors through the https://newbrunswickconstructionnetwork.com:

- A&S Electric Ltd. ?
- Blue Energy Ltd ?
- BCB Electric ?

View all electrical contractors ?

Disclaimer: This guide is provided for informational purposes only by New Brunswick Electrical. It does not constitute professional advice. Always consult qualified, licensed contractors and your local building authority before starting any construction or renovation project. Information is current as of March 22, 2026 and may change. Visit **newbrunswickelectrical.com** for the latest answers.