



ENERGY SOURCES AT THE US PORT OF ENTRY EGLE PERMIT-TO-INSTALL

Energy Needs at the US Port of Entry (POE)

Once in service, the Gordie Howe International Bridge and the two Ports of Entry will be open to travellers 24 hours a day, every day of the year in all kinds of weather. The bridge and POEs require significant amounts of road lighting, ambient lighting and electronic signs to help travellers navigate their way through the border crossing, while the buildings require lighting, power for computers and other needs as well as a climate-controlled environment for workers and visitors. To ensure a safe environment for vehicles to travel and people to work and a secure border, reliable energy sources are required with back-up options in case of power disruption.

The predominant sources of energy at the US POE will be natural gas and electricity, delivered through DTE's existing utility infrastructure in southwest Detroit. The existing pipelines and wires will connect to the POE through new feeds that will be built as part of the project.

The POE buildings will rely on natural gas for their main source of heating (using a combination of cogeneration and high efficiency condensing boilers) and will leverage an absorption chiller (using the waste heat from cogeneration) for a portion of the cooling while using chillers with cooling towers for the main cooling system.

In addition to these energy sources, Bridging North America (BNA), as part of their maintenance of the bridge and POE, will also rely on backup generators and a small natural gas cogeneration unit to be used in times of power disruption.

How were energy sources selected?

In developing the project's energy requirements, Windsor-Detroit Bridge Authority (WDBA) worked closely with the State of Michigan to identify the energy needs and applicable municipal, state and federal legislation. As the main tenants, US Customs and Border Protection (US CBP) and US General Services Administration were also consulted. This resulted in a set of requirements that included reliability, redundancy in case of power disruption, security considerations, alignment with emission and air quality standards and cost considerations. Additionally, all buildings were required to comply with energy efficiency requirements for LEED® Silver certification and roadway infrastructure including the bridge was designed to an Envision Platinum certification. LEED® (Leadership in Energy and Environmental Design) and Envision are international certification processes used in building and road/bridge design to recognize efficiency, decreasing operational costs, increase asset value and ensure comfort, health and wellbeing for building occupants.

BNA reviewed these requirements as well as the space available within the POE to locate the energy infrastructure. Following a thorough review, BNA selected access to the existing natural gas and electric grid as the most reliable, cost-effective energy source. BNA will utilize natural gas and electricity supplied by DTE, the local utility, at commercial rates.

Why aren't renewable energy sources included?

While reviewed, BNA selected other energy sources. Renewable technologies like wind and solar may not offer the reliability that traditional energy sources offer. As well, wind and solar technologies can require a larger physical footprint while still requiring traditional heating and cooling systems. It is not feasible to design the bridge to include built-in wind turbines. Due to the need for redundancy in case of power disruption, the POE is not able to create its own stand-alone, individual energy grid to meet its energy needs.

Cogeneration Unit

While DTE will be the main source for electricity, a small natural gas burning cogeneration unit is included in the design to provide a portion of the electrical energy and thermal heat recovery as required (typically during peak heating and cooling seasons). The natural gas will be provided through the natural gas service that connects the POE to the existing DTE natural gas grid in southwest Detroit. It is of a small size and while its output will be sufficient for a portion of the POE, it is not large enough to supply something like a factory to distribute or sell energy back to the local utility or nearby residences or businesses.

The cogeneration unit will not be used as a continuous source of energy for the POE. It is intended to provide energy during times of power disruption or peak energy use such as winter and summer days where the waste heat can be used in the buildings.

Cogeneration is a common building industry practice for large facilities with high electricity demand. It is an efficient technology that uses natural gas or another source of fuel to generate electricity and captures the heat that is a by-product of this conversion that would otherwise be wasted (this is where the “co” in cogeneration comes from). This recaptured thermal energy can be used for space heating, cooling and domestic hot water. Capturing and using the heat makes this energy source efficient. It also provides more energy performance and fewer technical challenges than using Georexchange with heat pumps for heating and cooling.

Emissions from the Cogeneration Unit

The cogeneration unit is 1,100 kW and will have similar carbon dioxide (CO₂) emissions to a single diesel tractor trailer while reducing harmful pollutants. Regionally, the cogeneration unit will add less than 0.01 per cent of emissions for the area, and will operate emitting:

- 99% **less** sulfur and nitrogen oxides (NO_x)
- 90% **less** particulates
- 80% **less** carbon monoxide (CO)
- more than 3x the power output.

The anticipated emissions are in compliance with all municipal, state and federal requirements.

Why is the Project Seeking a Permit to Install from EGLE?

In December 2021, BNA submitted an application to the Michigan Department of Environment, Great Lakes and Energy (EGLE) for a Permit to Install for approval on:

- one natural gas fired cogeneration unit
- four diesel fired emergency engines
- one natural gas fired emergency engine
- one diesel fired fire pump
- five natural gas fired boilers and miscellaneous natural gas fired equipment for heat and steam.

This permit is a standard requirement for large-scale infrastructure projects.

As part of its permitting process, EGLE has included a 30-day period where people can submit comments for EGLE's consideration. This public comment period started January 26, 2022, and will close March 14, 2022. It includes a public meeting scheduled for March 1, 2022. BNA's permit application is currently available on the EGLE website for public review, and it includes technical information on how the cogeneration unit and other backup units will be used and anticipated emissions.

Visit https://www.deq.state.mi.us/aps/downloads/permits/PubNotice/NSR_PTIs_Open_for_Comment.pdf to view the submission and to provide comments to EGLE.

A narrated presentation that additional information to this fact sheet is also available on the project website at <https://www.gordiehoweinternationalbridge.com/en/permit-to-install-application-us-port-of-entry-january-26-2022>.

Other Environmental Design Considerations

In acknowledging its Southwest Detroit neighbors, the POE was designed to consolidate the administrative and processing operations within the center to minimize the impact to the community. The POE and bridge will use LED lighting, an energy efficient type of lighting and the lighting will be directional to avoid light spillage into the nearby neighborhoods or night sky. Energy-efficient building design has also been used to capitalize on the use of natural light to reduce daytime lighting needs, low-flow water faucets and toilets to reduce water consumption.

Traffic flow was also a design consideration. With toll collection occurring on the Canadian side of the bridge and direct connection ramps between the POE and I-75, traffic will move in a continuous flow from the freeway, through the POE and on to the bridge. There will be no need to stop until traffic reaches Canada for processing. This flow will eliminate truck queuing along I-75 and Fort Street in normal operating conditions, resulting in less emissions. Should a back-up occur, the US and Canadian POEs have significant capacity to mitigate potential vehicle queuing.

For inbound traffic to the US, all commercial vehicles will exit the POE via I-75. There is no local road option for commercial vehicles to leave the POE.

Approximately 30 acres of extensive landscaping will be found within the US POE, including more than 550 trees inside the perimeter zone. A 100-foot green space buffer will sit between the outside of the perimeter zone and the adjacent streets, with additional plantings of trees, shrubs, tall grasses and pollinator mixes to provide habitat for bees and butterflies.

If you have questions for the project team, please email info@wdbridge.com or call the project team toll-free at 1-844-322-1773.