



## Project: Town Hall Heat Pump Project

### **The Opportunity**

*Replacement of an aging propane heating system and central air conditioning equipment servicing the town hall offices with central air heat pumps.*

The south section of the town hall complex was built in 2006. The building's heating and air-conditioning systems were installed at that time and in 2025 were approaching the end of their useful lives. The older section of the town hall complex is a renovated nineteenth-century schoolhouse that is currently serviced by a ground source heat pump. The 2019 Municipal Climate Action Plan called for replacement of fossil fuel heating systems in town-owned facilities with ground source or air source heat pumps.

The propane heating system emitted 8.85 metric tons of CO<sub>2</sub>e (carbon dioxide equivalent) in 2023.<sup>1</sup> Burning fossil fuels releases greenhouse gases, which significantly contribute to climate change through global warming, extreme weather events, and rising sea levels. Switching from propane to an electrically powered heating and air-conditioning system would significantly reduce the town's GHG emissions. The electricity provided by Central Hudson emits some greenhouse gases, but at a much lower global warming rate than propane. However, since the town hall now receives electricity from its own solar array, no outside fuel is required. The building systems will produce no emissions at all.

The refrigerant used in the original air-conditioning equipment was R-22, which has a very high Global Warming Potential (1,810). GWP is a measure of how much energy the emission of 1 ton of a gas will absorb over a given period of time, relative to the emission of 1 ton of carbon dioxide (CO<sub>2</sub>). The larger the GWP, the more that a given gas warms the Earth compared to CO<sub>2</sub> over that time period.<sup>2</sup> The new heat pumps use 454B refrigerant which has a much lower GWP of 466. Since the refrigerant is contained within the equipment the only concern is the potential for leaks in the system that would produce fugitive emissions. The risk increases as the system ages.



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<sup>1</sup> Town of Gardiner 2024 Local Government Greenhouse Gas Inventory

<sup>2</sup> U.S. EPA: **Understanding Global Warming Potentials**

## **The Solution**

*The solution was to install a new heat pump HVAC system and a heat pump water heater.*

The Town of Gardiner hired Hot Water Solutions (HWS) to decommission and remove the existing propane furnace, air handlers, compressors, and water heater, draining the R-22 refrigerant using certified handlers, and to install new air source heat pumps, air handlers, and a hybrid electric water heater.



## **Funding**

*The \$57,426.17 project was funded by NYSERDA and a \$1,606.87 contribution from the town.*

- Climate Smart Gardiner earned a 4-Star Designation Grant of \$175,000. \$55,819.30 of the grant was used for this project
- A NYS Clean Heat rebate of \$9,250 from Central Hudson is included in the contract price.

## **Benefits**

*This project has created significant benefits.*

- Greenhouse gas emissions will be reduced by 8.85 metric tons annually.
- Air pollution created by propane will be reduced by 100%.
- Propane purchases will be discontinued, saving the town \$3,000 annually.
- The ongoing savings will help make the town more affordable for residents.

## **Thanks**

*This project was completed with the hard work, collaboration and support of the local community:*

- NYSERDA
- Central Hudson Gas & Electric
- Town Supervisors Michael Hartner and Marybeth Majestic, the Gardiner Town Board and Town staff
- The Hudson Valley Regional Council
- Hot Water Solutions
- The Climate Smart Gardiner Task Force

*If you are interested in participating in a project like this, please consider joining the Climate Smart Gardiner Task Force by sending an email to [climatesmartgardinerny@gmail.com](mailto:climatesmartgardinerny@gmail.com).*

