



Vermont Electric Power Company SF₆ Policy

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The Environmental Protection Agency (EPA) has identified Sulfur Hexafluoride (SF₆) as a greenhouse gas with a global warming potential 23,000 times the effect of an equal mass of Carbon Dioxide and an atmospheric lifetime of 3,200 years. Although the use of SF₆ Gas within specialized electrical equipment is needed to ensure the safe and reliable operation of the high-voltage electric system, Vermont Electric Power Company (VELCO) is committed to reducing SF₆ emissions from its electric power equipment. Reducing emissions of this potent greenhouse gas demonstrates VELCO's commitment to protecting the environment and to promoting innovation within the electric power industry.

VELCO is required to provide annual SF₆ emissions reports to the Environmental Protection Agency (EPA) as part of the EPA's Greenhouse Gas Reporting Program (GHGRP) 40 CFR part 98.300 Subpart DD – Use of Electric Transmission and Distribution Equipment.

VELCO continues to work towards reductions in SF₆ emissions. SF₆ gas is recovered using a SF₆ gas cart; collected SF₆ gas is reused, recycled, or disposed of in accordance with guidelines for proper disposal.

Inspection & Monitoring Procedures

At VELCO, SF₆ is handled by the Asset Maintenance Substation Crew. The VELCO crews follow manufactures' recommendations and procedures when working with SF₆ gas to ensure SF₆ gas is not vented to the atmosphere. When retiring SF₆ equipment the gas is removed from the component and transferred to an approved cylinder. This cylinder then becomes part of the SF₆ gas inventory, or is appropriately retired so as to not increase the quantity of SF₆ cylinders in inventory. Additionally, records are maintained for replacement gas used and the electrical equipment it was used in as a means to track and prioritize repair or replacement of leaking equipment.

As a best utility practice, VELCO inspects all substation components, including SF₆ equipment, on a monthly basis. These inspections include a visual inspection and recording relevant data (i.e. SF₆ gas pressure for breakers). If maintenance is deemed necessary and SF₆ gas must be added, a Maintenance Order will be generated within VELCO's work management process, an outage scheduled as system condition allows, and the leak repaired. If SF₆ gas is needed to achieve the manufacture's recommended

pressure, Asset Maintenance will first weigh the SF₆ cylinder before and after filling the electrical equipment. This will provide an accurate amount of SF₆ gas that was used to replenish the volume released to the atmosphere. As such, this information is used to report annual SF₆ emissions for the EPA GHGRP. Monitoring is also performed by gas pressure monitoring alarms that will notify the VELCO Control Center of a low gas situation so appropriate response actions can be taken in a timely manner.

Emission Reduction Practices

To achieve VELCO's SF₆ emission reduction goal of 0.2% of total nameplate capacity by 2022, we will:

- Reduce overall quantity of SF₆ gas cylinders in inventory.
- Research and implement real-time SF₆ gas pressure monitoring and other applicable technology.
- To reduce nameplate capacity of SF₆ gas both in the project design phase and when performing breaker replacements, VELCO will:
 - Use non-GHG breakers (i.e. vacuum) whenever possible.
 - Research and implement new technologies that reduce SF₆ gas emissions and reduce SF₆ gas nameplate capacity.
 - Develop a timeline of emerging SF₆ alternative technology.
- Review Policy annually and update as needed to reflect changes in technology and market options.
- Perform annual training for VELCO's SF₆ gas handlers (Asset Maintenance Substation Crew and System Protection Technicians) on this Policy and VELCO's emission reduction goals.
- Update the Vermont Agency of Natural Resources periodically on the implementation of these Emission Reduction Practices.

Annual Reporting

As identified above, VELCO is required to report SF₆ emissions annually to the EPA as part of the GHGRP 40 CFR part 98.300 Subpart DD – Use of Electric Transmission and Distribution Equipment. The reporting method used is the electronic Greenhouse Gas Reporting Tool (e-GGRT) located on EPA's website <https://ghgreporting.epa.gov>.

VELCO Asset Maintenance is responsible for gathering information and the submittal of the EPA GHG electronic report. These reports are also made available to the Vermont Agency of Natural Resources.

Reports are submitted by March 31st annually and provide SF₆ emissions estimates for the previous calendar year. The mandatory reporting to the EPA of Greenhouse Gas emissions for electrical utilities (Subpart DD) that exceed a nameplate capacity threshold began in 2011.