



Power where you need it.

**Customer Success Story:** Suncor Energy

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*GPT offers a line of Hybrid systems, combining solar with generators, and can convert any solar system to a hybrid with a thermoelectric or other type of generator.*

\*Formerly Global Thermoelectric

### **Gentherm Global Power Technologies (GPT)**

9, 3700 – 78 Avenue SE

Calgary, Alberta, Canada T2C 2L8

Head Office: 403.236.5556

U.S. Office: 1.800.848.4113

[www.globalte.com](http://www.globalte.com)



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## The Situation

Suncor Energy Inc. is an integrated energy company developing one of the world's largest petroleum reserves – the Athabasca oil sands in northern Alberta, Canada. The company also develops and produces natural gas resources and refines crude oil to market a range of petroleum and petrochemical products, primarily under the Sunoco brand.

Suncor's natural gas business has a facility called the Simonette Gas Plant. Because its primary function is to manage and process sour gas, stringent requirements are in place to shut down the incoming pipeline in the event of a safety concern. This pipeline runs beyond power lines, so remote power solutions are required to monitor and control the Emergency Shut Down (ESD) systems.

## The Challenge

Suncor originally considered Thermoelectric Generators (TEGs) to power the pipeline ESD sites; photovoltaics, however, were preferred because of their minimal environmental footprint and lower capital cost for small electrical loads. Unfortunately, with the narrow, heavily treed pipeline corridor the photovoltaic system was unreliable – especially in winter months. This posed a significant problem for Suncor, as an ESD shutdown could cost the company hundreds of thousands of dollars in lost production. And, in the event of power loss, safety could be compromised as the controlled ESDs could not be remotely accessed through the SCADA system. The potential savings from photovoltaics was only \$1,500 per site.

Operating under a temporary basis, Suncor was under time pressure to find a long-term solution with greater reliability. **Gentherm Global Power Technologies\* (GPT)** was asked to develop a reliable remote power solution for this critical application.

## GPT's Solution

GPT's model 5030 TEG produces 21W of continuous, regulated DC power as long as there is a supply of fuel. This was easy to secure as each Suncor site had a supply of clean, sweet gas used to power and control instrumentation. The TEG was connected to the battery terminals of the existing solar system. Since both solar and TEGs have output blocking diodes, extra wiring was not required.

The TEG covered the electrical demand completely so that the solar panels could be "recycled" into other applications. At present the panels (2 x 100W) remain and Suncor has not yet decided whether it is worth it to remove them.

## Timing

Suncor started to experience solar system failure when the sun was at its lowest on December 21st. GPT was able to provide seven small TEGs within two weeks of the order.

## Results

Since the installation of the TEGs, the system has worked flawlessly. To ensure reliable operation, Suncor subsequently decided to install TEGs at all eight ESD locations. The potential loss of production and safety concerns far outweighed the cost to retrofit the sites.

