



Gas Turbine

# Integrated Energy System in Remote Co-op Application (Gas Technology Institute)

## Benefits of Integrated Energy Systems

### Capital Cost Reduction

Pre-engineered systems can cut CHP system capital costs by 15% to 30%.

### Shorter & Less Expensive Installation

IES can reduce CHP system installation time by as much as two-thirds, and provide corresponding installation cost savings.

### Replicability

System designs are suitable for multiple applications in facilities around the country.

### Optimize Facility Energy Use

Pre-engineered systems allow facility operators to manage power generation, cooling, and heating to optimize energy use as well as reduce electricity use during peak periods.

### Simplified Systems

The use of a "Standardized" Organic Rankine Cycle generator eliminates the need for a water-based Rankine Cycle, which has experienced freezing problems.

### System Performance

This technology has the ability to provide electric generating capacity with virtually zero additional fuel usage, and virtually zero additional emissions.

### Program Contact:

Therese Stovall  
Oak Ridge National Laboratory  
(865) 574-0329  
stovalltk@ornl.gov  
<http://www.eere.energy.gov/de/>

## Project Overview

Gas Technology Institute (GTI), of Des Plaines, Illinois, will partner with Basin Electric to utilize waste heat from an existing pipeline compressor station's gas turbine to generate electricity via an organic Rankine cycle. This project seeks to improve the economics by developing a standardized approach to integrate components of known reliable technologies into a comprehensive configuration that can be replicated and meet market concerns.

### Benefits:

- Develop DE ownership and contracting models attractive to utilities, waste heat suppliers, and developers.
- Provide voltage support to the distribution system that serves a local hospital.
- Allow designers to modularize the components, reducing field installation costs and risks, while shortening construction periods.
- Concept could be used at other pipelines and compressor stations, as well as many other locations where waste heat is available.



## Objectives

- Provide a demonstration of the combined technologies into a prototype, with a real-time, web-based monitoring and control system, which can be replicated at numerous, similar compressor sites.
- Partnering of critical stakeholders—the partnership of the local utility with the pipeline to produce electricity—which would then be integrated into the overall system to produce firm power at a competitive rate.
- Leverage economy of scale by standardizing the modularization and increasing production volumes to reduce unit price.

### Project Contact:

John Kelly  
Gas Technology Institute  
Director, Distributed Energy Group  
(847) 768-0665  
john.kelly@gastechnology.org

