

**NYSERDA  
CASE STUDIES:  
Clean Energy**



**BUSINESS  
DEVELOPMENT**

Company Name  
**ENER-G-ROTORS, INC.**

Location  
**ROTTERDAM, NY**

Contact  
**MICHAEL NEWELL**

NYSERDA Funding  
**\$1.6 MILLION OVER  
FIVE YEARS**

Web site  
**WWW.ENER-G-ROTORS.COM**

# Ener-G-Rotors, Inc.



## Background

Ener-G-Rotors, Inc. sells patented devices that are a breakthrough in the economic generation of electricity from low temperature heat. Low temperature heat sources can be found in industrial processes, commercial buildings, solar thermal collectors, geothermal sources, biomass boilers, and combustion engines. The company has an exclusive license for a patented technology called a Trochoidal Gear Engine (TGE™), which is more efficient, cost effective, and durable than existing technologies. The company will soon begin commercialization of the GEN4, a 40 to 60 kilowatt system targeted at the industrial waste heat market. The worldwide market to economically turn this low temperature heat into electricity and achieve greater energy efficiency is estimated at more than \$20 billion.

## Challenge

Every year, billions of dollars of energy are thrown away in the form of waste heat. The U.S. Department of Energy has identified waste heat as the number one opportunity for industrial energy efficiency, estimating its worth at \$6 billion per year. According to the U.S. Environmental Protection Agency, most of that heat is low temperature and often is simply thrown away.



PHOTO COURTESY OF ENER-G-ROTORS

Recovery of waste heat is already a large marketplace. Companies in this space focus on large industrial and high temperature sources of waste heat of one megawatt or more, and more than 400°F, using turbine expanders. That focus results from the limitations of turbines to economically extract value from lower temperature and smaller heat sources. Ener-G-Rotors can economically generate electricity at temperatures and sizes that previously were not possible.

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*“Working with NYSERDA has been a pleasure. I found our contract managers to be very supportive and understanding of what it takes to manage a successful development effort. Ener-G-Rotors would not be where it is today without our collaboration with NYSERDA.”*

—Michael Newell, CEO  
Ener-G-Rotors

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### Solution

Partnering with the New York State Energy Research and Development Authority (NYSERDA), Ener-G-Rotors applied for, and received, a grant to develop its technology. Once developed, Ener-G-Rotors applied for and won subsequent funding through a number of competitive bidding opportunities that would help them demonstrate and market the technology, as well as increase the scale of its systems and expand operations. NYSERDA also provided technical expertise in support of Ener-G-Rotors' manufacturing effort and helped the company identify potential strategic partners.

### Results

Today, the company economically generates electricity at temperatures and sizes that previously was not possible. Ener-G-Rotors has been awarded \$1.6 million in five co-funding contracts from NYSERDA since 2004, all dedicated to demonstrating its technology and its scale-up to industrial size output. The increased efficiency and reduced costs of the company's unique expander and system create a new opportunity for small, low temperature heat-to-electricity conversion with less than a three-year payback.

Ener-G-Rotors was selected as a finalist at the New Energy Symposium Clean Energy Investment Presentations, awarded Best Presentation at the SmartStart Venture Forum, and voted "Most Promising Technology" at Cleantech XXI in San Francisco in 2009. In 2010, the company won the Anaheim Center New Energy Technologies Business Plan Competition, CTSI's Utility Technology Challenge, and 1st Prize in the 2010 Clean Energy Venture Summit held in Austin, Texas.



PHOTOS COURTESY OF ENER-G-ROTORS

Every year, billions of dollars of energy are thrown away in the form of waste heat. Ener-G-Rotors economically generates electricity from low-grade waste heat using its patented technology.

[NYSERDA.org/BusinessDevelopment](http://NYSERDA.org/BusinessDevelopment)  
1-866-NYSERDA

