New Jersey Energy Master Plan
*Sustainable and Resilient Infrastructure*

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CALMAC Portfolio
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Ingersoll Rand advances the quality of life by creating comfortable, sustainable and efficient environments.

Ingersoll Rand (NYSE:IR) advances the quality of life by creating comfortable, sustainable and efficient environments. Our people and our family of brands—including Club Car®, Ingersoll Rand®, Thermo King® and Trane®—work together to enhance the quality and comfort of air in homes and buildings; transport and protect food and perishables; and increase industrial productivity and efficiency. We are a $13 billion global business committed to a world of sustainable progress and enduring results.
Our Global Footprint
Manufacturing, Distribution & Office Locations

World-Class Talent in Every Market
More than 40,000 employees globally

Global Footprint and Ingersoll Rand Locations
We have a total of 867 facilities around the world, including 51 manufacturing facilities worldwide.
Thermal Energy Storage

Efficient, cost-effective way to store cooling

- 15-25 kW load shift for 6 to 10 hours
- CALMAC tank is 99% recyclable and designed for 35-40 years
- Works with Trane chilled water system (chiller)
- Integrates with solar energy – compensates for duck curve
- Manufactured in Englewood, NJ since 1947 and acquired by Trane/Ingersoll Rand in 2017

Over 1 Gigawatt of thermal energy storage already installed in 60 countries.
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| Increased grid resiliency | • TES is flexible and enables a smaller transmission and distribution grid by integrating intermittent renewable resources.  
• TES contributes to a greater diversity of energy sources. |
| Incorporating new and developing technologies | • TES helps integrate renewables and reduces / shifts peak  
• TES provides time shifted, emissions-free nighttime wind energy for daytime use during hot summer months  
• TES can be used as an automated demand response asset  
• TES is safe (i.e. non-flammable, no hazardous materials) |
| Overcoming barriers to enhanced infrastructure | • Incentives facilitate deployment of energy storage resources like TES |
| Affordable distribution of energy to all customers | • TES helps reduce customer costs (~40% lower at night\textsuperscript{1})  
• TES tanks are highly durable/efficient with a 30 year useful life, resulting in little maintenance costs and high efficiencies  
• TES lasts 2 to 4 times longer than batteries at a fraction of the cost |

\textsuperscript{1}Analysis of PSE\&G Day-Ahead LMPs
TES is 1/3 the cost of battery systems for C&I

Levelized Technology Cost for BTM Applications\(^1,2\)

- **Cost advantages**
  - ✓ No inverter expense
  - ✓ Lower component costs, including balance of system, O&M
  - ✓ No need for capacity maintenance (augmentation)

- **Lower capital costs mean lower financing costs**

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1. Costs represent average of range presented in LCOS 3.0 for battery technologies.
2. Conservative case that includes full cost of chiller.

*Source: Enovation Partners*
Thermal Energy Storage Programs that Work

**Florida Power and Light Thermal Storage Program**
- Rebate of $600 per kW
- Available on a rolling basis – you can apply for it anytime
- Pays after you’ve run the plant successfully for one month

**ConEdison Demand Management Program**
- Rebates change annually – $2,520 per kW for thermal storage
- Auction dates and installation deadline posted well in advance
- Pays after one summer month’s successful operation

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**Effective program attributes**
- Bill transparency and ease of use
- Pilot programs that provide locational value for BTM DERs
- Published marginal/avoided cost rates and utility incentives for non-wires alternatives
- Storage Incentives through state energy efficiency programs
New Jersey Installations

- **Perth Amboy School District**: Two school installations, with additional sites under consideration. Helps the district save on electricity costs.

- **West Long Branch School District**: Designed for energy cost savings.

- **Rutgers Athletic Center**: 2016 installation to mitigate air-conditioning demands at their basketball arena.

- **CALMAC manufacturing facility**: delivers $12,000 in annual energy savings.

Current electric rates are driving some installations due to ~40% lower nighttime spot market electricity prices.

1Analysis of PSE&G Day-Ahead LMPs
THANK YOU!