Buildings have thermal and electrical loads. Heating ventilation air conditioning (HVAC) accounts for 40% of energy usage in commercial buildings. Leveraging energy storage technologies helps lower operating costs and reduce pressure on the utility grid. Using off-peak electricity for on-peak cooling enables building owners to lower their cooling costs by as much as 40% with thermal energy storage. Thermal energy storage creates ice during off-peak periods when electricity prices are low so that building owners can avoid running air conditioners during on-peak periods, when prices are much higher.

Trane has over 100 years of buildings and energy experience, cutting edge technology and services. Our dedicated people help leverage buildings as a financial and operational resource for the grid by offering grid operators results: energy controls that uniquely address local grid conditions, increased capacity management, dispatchable assets, non-wire solutions, and reduced greenhouse gas emissions.

CALMAC®, a portfolio of Trane

(1) EIA, 2016
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 $14 billion global business committed to a world of sustainable progress and enduring results.

Thermal and Battery Energy Storage

Leveraging thermal and battery energy storage together optimizes renewable energy usage. Energy storage increases the use of renewables up to 50%.

Combining ice and a battery energy storage to address peak demand can reduce the installed energy storage equipment cost by as much as 75% compared to a battery alone.

Thermal Energy Storage is One-Third the Cost of Chemical Battery Systems for C&I Uses

Cost advantages
- 30-year useful life
- No balance of system, interconnection costs
- No degradation

Lower capital costs mean lower financing costs

Thermal and Battery Energy Storage

Leveraging thermal and battery energy storage together optimizes renewable energy usage. Energy storage increases the use of renewables up to 50%. Combining ice and a battery energy storage to address peak demand can reduce the installed energy storage equipment cost by as much as 75% compared to a battery alone.

Case Study: How Thermal Energy Storage Drives Savings from Reduced Peak Demand

Before Thermal Energy Storage:
- Peak building demand was close to 700kW in 2017
- Decided to use Thermal Storage using ice tanks
- Shifting our usage to night hours

After Thermal Energy Storage:
- Thermal Energy Storage reduced the 2018 peak by 100 KW (a reduction of more than 15%)
- Summer monthly bill savings of $1,000

Results

Thermal and Battery Energy Storage

Leveraging thermal and battery energy storage together optimizes renewable energy usage. Energy storage increases the use of renewables up to 50%. Combining ice and a battery energy storage to address peak demand can reduce the installed energy storage equipment cost by as much as 75% compared to a battery alone.

Thermal Energy Storage is One-Third the Cost of Chemical Battery Systems for C&I Uses

Cost advantages
- 30-year useful life
- No balance of system, interconnection costs
- No degradation

Lower capital costs mean lower financing costs

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 $14 billion global business committed to a world of sustainable progress and enduring results.

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 $14 billion global business committed to a world of sustainable progress and enduring results.