

CAPTURING COST SAVINGS AND EMISSION REDUCTIONS WITH HEAT RECOVERY SYSTEMS

Thermal energy waste has been a long-burning issue for the companies that make the products consumers and businesses use every day. It's a significant obstacle in the global race to meet carbon-neutral goals, given that this type of energy – essentially heat that's produced by burning fuel – accounts for an estimated 90 per cent of industrial energy use.

"The heat is basically exhausted through smokestacks when it's no longer of high enough temperature to be used simply for production," explains Robert Triebe, an engineer and chief operating officer at Thermal Energy International Inc., an Ottawa-based company that captures and reuses waste steam and heat from industrial and institutional operations. "So companies are throwing away hundreds of thousands of dollars' worth of energy by effectively sending money right up the stack."

Thermal Energy International's unique mix of proprietary technologies and innovative system engineering and integration takes this rejected, lower-temperature heat and recycles it back into their customers' processes to be used again. This de-



Thermal Energy offers clients solutions for reusing waste heat for cooling, electricity or steam. **BLUBERRIES VIA GETTY IMAGES**

livers carbon reductions along with energy savings and – unlike most carbon reduction efforts that increase net operating costs – an attractive return on investment.

At one cereal manufacturer, for example, Thermal Energy's heat recovery system captures between 80 and 90 per cent of waste heat and condenses water from the stack at a

temperature of 60 degrees Celsius. The resulting hot water is used to feed the plant's boiler – boosting its efficiency – and for washing equipment and the plant itself.

Recent advancements in Thermal Energy's technology integration have allowed the company to also use waste heat to generate cooling, electricity or steam.

"That's a new and exciting innovation for our company today – the ability to convert low-grade waste heat into steam using heat pumps or into cooling using new waste heat chillers, or even into electricity using new organic Rankine cycle technologies," says Mr. Triebe. "This allows our client companies to reuse waste heat in any form, anywhere in their facility."

Beyond cost-savings, Thermal Energy's innovations lower greenhouse gas emissions, says Mr. Triebe. By reusing waste heat, the companies that use Thermal Energy solutions reduce their overall energy use by 15 to 25 per cent.

"That means 15 to 25 per cent fewer emissions, including CO₂ emissions, so in addition to saving money by being more energy efficient, our clients are also meeting their carbon emission reduction targets and addressing climate change," says Mr. Triebe. "As companies step up their efforts to meet their carbon-neutral commitments for 2030 and 2050, Thermal Energy has a tremendous opportunity to help them recover their waste heat and convert it into reusable energy. It truly is an exciting time for us."