Case Study

Solar Thermal Air Conditioning

Solar thermal assisted compression technologies providing effective and efficient process cooling.

SolX Energy Ltd. technology – instrumental in increasing the efficiency of the total combined buildings at a Cable & Wireless (BTC) facilities, based in the Bahamas. Our innovative, combined compression and solar thermal technology is designed to harvest the free energy from the sun, creating free thermal energy to better assist the refrigerant compression process.

Image 1: Example BTC installation (source: PowerPlus Bahamas)

Customer Situation

Electricity consumption is fast becoming the largest overhead for Cable & Wireless and they were keen from the outset to install ThermX across their whole BTC facility.

The engineering team however were understandably a little cynical in regards to the efficiency claims of ThermX, and therefore initially agreed to a 6-month in-house, closed door evaluation in early 2014.

Solution

Replacement of all existing air conditioning units with ThermX thermal HVAC technology.

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Benefits

*Reduced electricity overheads
*Reduced ongoing equipment maintenance costs
*Extended lifespan of equipment
*Reduced CO2 production

> *"We projected energy efficiency improvements of around 50% from the outset. At the follow up meeting however, they told our evaluation system performance was much greater and totally smashed our own projections, more importantly their expectations."* – Mark Crabtree, CEO, SolX Energy Ltd.

In Cable & Wireless's own testing facility, the average daylight saving were continuously in-excess of 50% below the solar assisted system.

The in-house evaluation ultimately led to a $3.2 million 4-phase installation program. Phase-1 of which relates to the data in this document, and includes 12 individual office and data room facilities. Phases 2-4 will follow which includes an additional 250 ThermX systems across similar buildings.

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	Daily Usage in KWh		% change
	2016	**2014**	**vs 2014**
CAMPERDOWN	2,580.0	4,304.5	40.1%
DELAPORTE	1,186.4	1,656.1	28.4%
EIGHT MILE ROCK	1,219.3	1,810.7	34.1%
PERPALL TRACT	1,715.3	2,446.5	29.9%
PIONEERS WAY	1,336.2	1,984.3	31.7%
LYFORD CAY	370.0	722.8	48.8%
MARATHON MALL	170.0	223.9	24.1%
PINEWOOD	450.9	627.1	28.1%
SETTLERS WAY	214.7	318.8	32.4%
SOUTH CENTRAL	897.0	1,424.5	37.0%
JFK	1,764.9	2,376.8	25.7%
LUCAYA	714.2	1,060.6	31.7%
Sub-total	**12,618.7**	**18,956.5**	**32.7%**

Figure 1: Average kWh building consumption (source: Bahamas Telecommunications)

Cable & Wireless's commenced tracking energy consumption data on all facilities, both prior and following overall completion of Phase-1. The data here represents the average kWh used in each building, both prior to the installation of ThermX, and following installation.

All energy consumption data included in this document was provided directly from the Cable & Wireless and/or BTC engineering department.

Data shown in yellow represents zero data available for 2014. In this case 2015 data was used as the comparable.

Chris Micallef, UK Technical Director added *"ThermX achieves efficiencies as high as 70% on variable refrigerant flow systems, including staged, inverter, screw type and digital scroll. Most Caribbean islands benefit from well over 8-hours of unbroken sunshine every day over and average year. This alone with the high electricity costs in this area of the world make our technology the perfect solution for commercial energy reduction. The fact is the hotter it gets the more efficient ThermX becomes, therefore ongoing maintenance issues are also significantly reduced"*

Project Partners

- Cable & Wireless
- BTC
- SolX Energy Ltd
- PowerPlus Bahamas

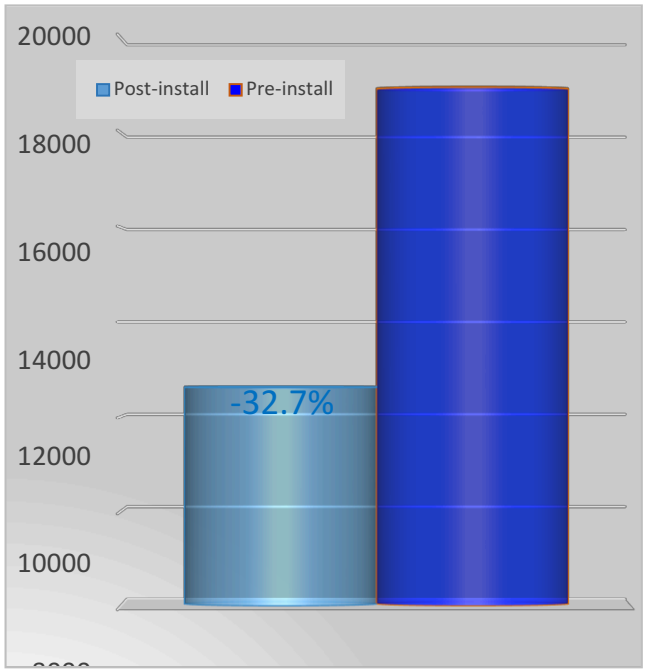

Figure 2: A clear 32.7% total building efficiency improvement

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Energy earns, or simply burns
…the choice is yours