It's payback time

Converting from a fossil fuel-fired boiler to an efficient Octopus Ice Stick heat pump will save cash for large building owners.

Before deciding on whether to install an Ice-Stick in a building, the manager or owners will first look at the payback on the new installation. They will compare the cost of the Ice-Stick installation in comparison to fossil fuels, coal, oil and gas.

Ice-Sticks could be installed in Nursing Homes, Leisure Centres, OPW buildings or Hospitals, but in this exercise I will look at the potential payback to a Hotel.

Sports College in Denmark

"DO YOU WANT €90,000 IN YOUR BANK ACCOUNT IN 10YEARS TIME"

Let's take a hotel that currently uses 70,000* litres of oil per year at an oil price of 60 cents per litre.

Annual energy use and cost of oil:

The annual oil expenditure is ***€42,000*** (70,000 litres multiplied by 0.60c/l)

The energy content of oil used is 707,000 kWh/year

(70,000 multiplied by 10.1 kWh/ltr. The energy content of the oil is 10.1 kWh/ltr)

** 70 000 litres of oil = 707 000 kWh @ 85% effectiveness = 600,590 kWh*

This can be heated with an Ice Stick and radiators (SPF=2,5) = 240,380kWh of electricity

This can be heated with an Ice Stick and UFH (SPF=3,5) = 171,597kWh of electricity

Calculate

Use these steps to calculate the annual fuel savings to the hotel:

The *capital cost* of an Ice-Stick including installation to meet this heat requirement would be **€90,000**

The *running cost* of the Ice Stick system is as follows:

Ice-Stick retrofit to radiators is (SPF = 2.5) = 240,380* kWh of electricity

@ €0.1**/unit = **€24,038**

Ice Stick installed with UFH (SPF = 3.5) = 171,597* kWh of electricity

@ €0.1**/unit = **€17,160**

Savings on the fuel costs – (Cost of Oil minus cost of Electricity)

Ice-Stick retrofit	- €42,000 - €24,038 = €17,962
Ice-Stick with UFH	- €42,000 - €17,160 = €24,840

Payback (savings minus cost of installation)

Ice-Stick retrofit	= €90,000 divided by €17,962 = **5.0 years**
Ice-Stick with UFH	= €90,000 divided by €24,840 = **3.6 years**

With the Octopus Ice-Stick there is no storage or delivery of fuel (i.e. oil, pellets or chip).
Also with the Ice-Stick there is no requirement to clean out a boiler and there is little or no maintenance as the compressor is the only moving part of the Ice Stick.

The above example highlights the potential payback by switching from fossil fuel oil to the Ice Stick in terms of economic and environmental benefits.

The Octopus Ice Stick provides the best efficiencies when there is a large heat demand. However, it is very important to size your unit correctly to meet the required heat load of the building.

*** The unit price is based on the Ice Stick using 50% Day and 50% Night rate electricity. This data is based on monitored systems already installed in Ireland. The system provides the heat requirement for the building 24hrs per day without the use of buffer tanks.*

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