RESULTS OF DEMONSTRATION AT COLRUYT SUPERMARKET

INTRODUCTION

Three ColdShift controllers have been installed on commercial freezers in the sales area of a Colruyt supermarket in Halle (Belgium). The ColdShift controllers operated in cost optimization mode, with live BELPEX day ahead hourly market prices, at two different temperature settings. Alternatively, the ColdShift controllers were run with electricity prices varying per 15 minutes, at two different temperature settings.

COST SAVING RESULTS

Cost saving results were calculated as the average electricity price during "on" periods of the refrigeration demand, compared to the overall average electricity price over the same period (which would have been realized when the freezers were not equipped with ColdShift)

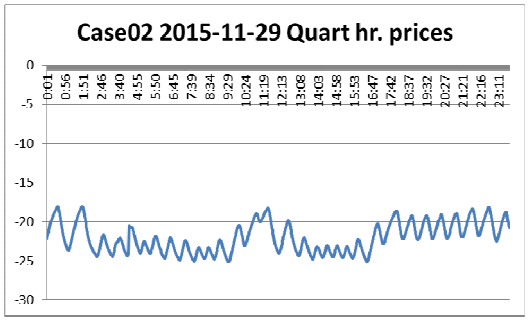
Period of demonstration	Electricity price	Temperature range	Cost saving result
17/11/2015 - 18/11/2015	BELPEX hourly	-18 °C / -21 °C	0,6 %
06/12/2015 - 08/12/2015	BELPEX hourly	-18 °C / -25 °C	6,0 %
30/11/2015 - 02/12/2015	15 minute prices	-18 °C / -21 °C	4,1 %
27/11/2015 - 29/11/2015	15 minute prices	-18 °C / -25 °C	11,2 %

TEMPERATURE CONTROL

The freezer temperatures were controlled by the ColdShift controllers, with an average temperature of -19,3 ºC for the small temperature range and average temperature of -21,0 ºC for the large range. The average temperature measured before the ColdShift controllers were installed was -21,5 ºC. The ColdShift controllers thus effectively raised the average temperature, and thereby increased the energy efficiency for the production of cold (C.O.P).

FAIL SAFE

In the unlikely event that the ColdShift controller no longer operates, the freezer either falls back to it's original thermostat control or to a continuous freeze mode. Both fall back scenarios were successfully demonstrated.



Temperature control example, range -18 ºC / -25 ºC

CONCLUSION

With an electricity price that varies per 15 minutes – the near future of our energy market – the ColdShift controller has demonstrated a cost reduction of 11,2 %. The controller has shown to be fail-safe, and in this demonstration improved the cold production's energy efficiency (C.O.P).

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