

CASE STUDY:

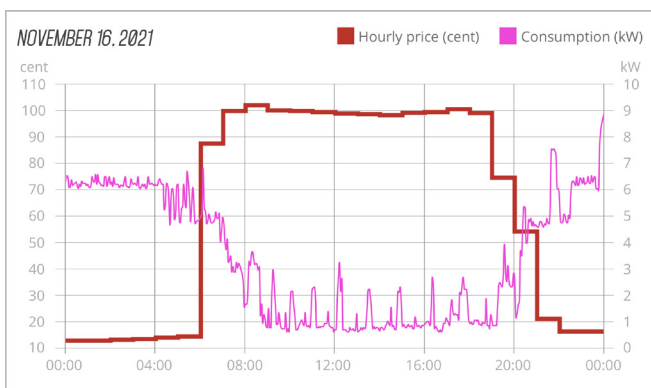
NGENIC TUNE WITH SPOT PRICE ADAPTION

 **HOUSE 1**
UPPSALA, SWEDEN

| | |
|--------------------------|---|
| Living area | 175 square metres in slope house |
| Year of construction | 2003 |
| Heating | Electric boiler with embedded underfloor heating on both floors. Floor heating shunt with ESBE CRX control with indoor sensor. |
| Annual consumption | 24048 kWh (April 2021 - March 2022) |
| Main fuse | 20 A |
| Electricity subscription | Vattenfall flat rate tariff |
| Ngenic Tune | Installed 2014 |
| Residents | Family with 3 children ages 10-13 years |
| Other | <ul style="list-style-type: none">• Electric car 1500 miles/year with home charging• 2 kW solar system installed• Stove for comfort heating installed |

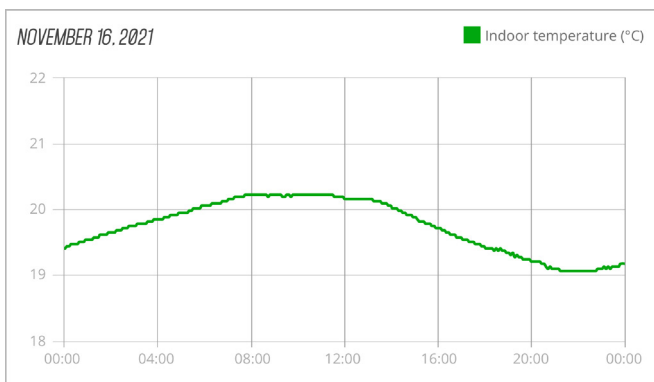
SPOT PRICE ADAPTION

The family switched to an hourly rate plan on 1 December 2021 after having evaluated electricity price adaption with Ngenic Tune in November 2021. Below is a typical control in November (no electric car charging this day):



TEMPERATURE VARIATION WITH SPOT PRICE ADAPTION

The temperature variations have stayed within the comfort limits, same 24-hour period as the control above.



RESULTS

| Month | Consumption | Hourly rate | Comparison price | Saved % | Saved SEK |
|------------|-------------|--------------|------------------|---------|-----------|
| Nov 2021 | 3106 kWh | 69,66 cents* | 90,9 cents | 23 % | SEK 825 |
| Dec 2021 | 3908 kWh | 144,25 cents | 205,18 cents | 30 % | SEK 2976 |
| Jan 2022 | 3802 kWh | 79,64 cents | 115 cents | 31 % | SEK 1680 |
| Feb 2022 | 2875 kWh | 49,84 cents | 90,64 cents | 45 % | SEK 1466 |
| March 2022 | 1550 kWh | 93,31 cents | 149,57 cents | 38 % | SEK 1090 |

*November is charged according to a variable electricity price but calculated according to what an hourly rate would have resulted in. The comparison price is a variable electricity price from the same electrical company during the month. Transfer fees, taxes, VAT and fixed fees are added to the price. VAT is also included in the total savings.

ENERGY SAVINGS

Energy savings from installing Tune were 10-15% in the first year. The family then acquired a plug-in hybrid, which increased energy consumption. It increased further when the family acquired an electric car in 2021. The main reason for acquiring Ngenic Tune was to improve indoor comfort, as the house, due to large windows in the living room and dining room, experienced major temperature fluctuations with overheating, especially on sunny spring days, and then cold evenings with underheating on cloudy and windy days.

REFLECTIONS

The family has not experienced problems with uneven indoor climate due to the electricity price adaption. Initially the price adaption was set a little too high, but was adjusted down before the hourly rate plan came into effect in December 2021.

In the end, the family was surprised that it was possible to save so much money from the electricity price adaption without having to make any changes in lifestyle other than charging the electric car on cheap nights. But since the electric car's consumption is relatively small compared with the house's consumption, it is estimated to have only affected the price a maximum of 5% during the measurement period.

The family has purchased a home battery that was activated after the end of the measurement period, and the contribution from that installation will be followed up on later.