# 2 Story Farm House in SERVE Region

Case Study

## Summary

Houses built before the 1950's were typically built with no insulation at all. It is usually the case that they are difficult and costly to heat. With newer technology of external insulation and grants to make them affordable, this type of building can be transformed. One of the key benefits of retrofitting your house with energy efficient measures is the instant change in the thermal comfort that your house offers. This case study looks at a large two-storey farm house situated in the SERVE Region. Its primary heating is with a 25 year old oil boiler and the house is very poor in terms of energy efficiency. Through energy efficient measures, the home owner could reduce the energy requirement of the house by 70%.

The measures that could be implemented are:

External Wall Insulation
Attic Insulation
Heating Controls
Boiler Upgrade
Energy Efficient Lighting
Wood Burning Stove (in place of open fire)

Reducing the energy requirement of the house by 70% equates to a 70% saving in oil annually. Therefore, in monetary terms, this homeowner is now saving ~€1,900every year. This case study illustrates in more detail how this saving could be realised.

## The SERVE Project

The SERVE Project is an EU funded project that aims to reduce the energy consumption of what is known as the "SERVE" area in North Tipperary. North Tipperary County Council is administering the project through the provision of grants for homeowners. The grants will help to upgrade the homes making them more energy efficient and less reliant on fossil fuels such as oil, coal, peat etc. The Tipperary Energy Agency works as the technical partner in the project.

SERVE
Sustainable Energy for the Rural Village Environment

Comhairle Contae Thiobraid Árann Thuaidh
North Tipperary County Council

CONCERTO

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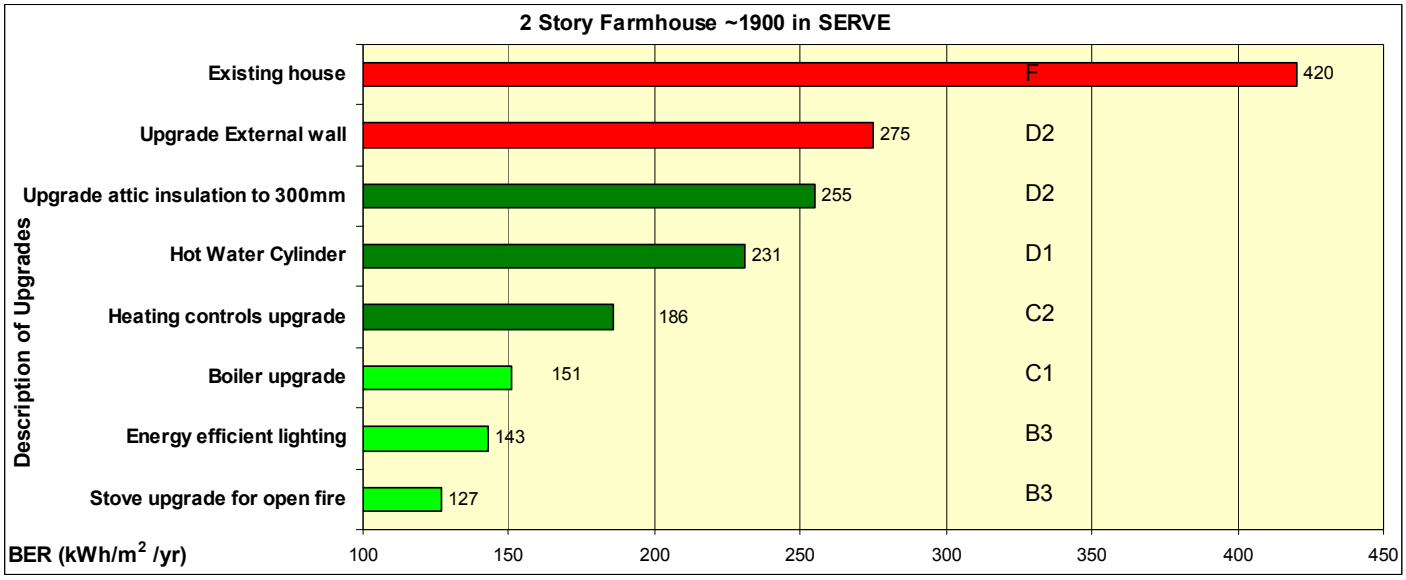
# Upgrades

**The following upgrades could be completed, and are typically recommended on a house of this type by Tipperary Energy Agency.**

| | Upgrades | Cost | HES Grant | SERVE Grant |
|---|---|---|---|---|
| 1. | Upgrading of the roof insulation (to 330mm fiberglass) | €600 | €250 | |
| 2. | Upgrading of the wall insulation (external solid stone wall) | €12,600 | €4000 | €4000 |
| 3. | Installation of heating system controls (thermostats, programmer, radiator valves) | €1200 | €500 | |
| 4. | Upgrading of hot water cylinder to high efficiency cylinder | €300 | | €100 |
| 5. | Upgrading the boiler (new efficient condensing boiler, with efficiency of >94% | €1300 | €200 | €300 |
| 6. | Installation of energy efficient lighting | €100 | | €30 |
| 7. | Installation of high efficiency wood burning stove | €900 | | €650 |
| | SERVE Energy Efficiency Grant | | | €1000 |

**By upgrading the house by these 7 methods, the energy requirement to heat the house would be reduced by 70%. This can be seen in the following graph:**




# Result

**As can be seen in the graph, the energy required to heat the house could be reduced dramatically. The results are as follows:**

| | Original House | House with Upgrades | Savings/annum |
|---|---|---|---|
| 1. | Energy Rating of F | Energy Rating of B3 | 293 kWh/m2/yr |
| 2. | €3100 Annual Energy Bill | €1200 Annual Energy Bill | €1900 |
| 3. | 15 Tonnes CO2 emissions | 7 Tonnes CO2 emissions | 8 Tonnes CO2 |

**The total cost of the actions would be approximately €17,350 (including BER), the Home Energy Saving scheme grant would be approximately €5,150 (including BER) and the SERVE Grants for the above measures would be approximately €6,080. This means the homeowner would have to pay €6,120, giving a payback of just over 3 years.**

# Further options under the SERVE Grant Scheme:

1. Installation of lighting controls
2. Installation of a solar panel (SERVE and Greener Homes Scheme Grants available).

**These measures could take a further 20% (€200) off the energy bill, giving the house a B2 rating.**