SERVE Social Case Study for Retrofitted Homes

Case study no.5

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Table of Contents

1. Case study basic information

The name of the householder in case study no.5 is William Armitage; he lives on a farm with his wife and three children. The area of the house is 192m² and it is situated in a quiet rural area in North Tipperary.

"It's fairly rural; we're farmers so we are in the middle of the countryside".

The house was built in the early 1960's by the householders' father. Originally a bungalow, a dormer was added to the house in the 1970 and the windows were replaced approximately twenty years ago.

2. Situation of household before and after retrofitting

The Armitage household had the following measures added to their home:

- High efficiency boiler
- High efficiency cylinder
- Heating controls
- Two wood burning stoves
- Attic insulation
- External wall insulation
- Solar panels

Energy consumption and costs comparison

Prior to the retrofit, the household in case study no.5 was being heated by two open fires and oil central heating. Although timber has been and remains the main fuel source for burning in the household, due to the availability of turf to the householder, it is burned sometimes.

> *"We'd never use coal, we'd have a bit of turf ... my aunt has a plot of bog, we'd help her ... she'd give us a trailer ... but there's still turf in the shed from a few years back".*

For this householder there wasn't an obvious reduction in fuel consumption. Although a good deal of oil was being used before the retrofit, the tank tended to be filled on a regular basis along with the agricultural diesel, so the householder can't put an estimate on the usage. Similarly with the timber consumption, as the timber is cut on the farm, it's difficult to measure the usage.

> *"We cut the timber here ourselves, we would have noticed we were using less timber ... I'd say we were using a fair bit of oil ...when we are getting a fill of agricultural diesel, we'd check the oil tank ... when it was gone, we would fill it ... but we are definitely using less".*

Preceding the high efficiency boiler, the oil central heating was run by an oil range in the kitchen. Although this range remains plumbed in, it is usually only used for cooking on occasions.

> *"My wife usually uses the electric cooker ... if we were putting on a roast or if there was a crowd coming, she uses the range".*

Now with a stove in the kitchen and in the sitting room, this household is using less timber. The timber is brought in, in a bucket, which is being refilled less frequently.

> *"It's definitely more fuel efficient ... I'd say the stove needs a lot less timber to heat the place".*

The solar panels were not initially planned upon, but as the upstairs ceiling in the dormer was being removed for the insulation, it was the ideal time to install them. The panels provide hot water for use in the household in the summer months.

> *"Last summer we hardly had to put the boiler on at all to heat the water … maybe if it was raining or cloudy".*

Quality of living-comparison

With the previous heating system the house was quite cold, the children's bedrooms had some mould in them and they were damp. Once the heat went off with the timer at night, a half hour later the house felt as if the heat had never been on. In the extreme cold weather, sometimes the heat needed to be left on all night, to avoid the pipes bursting. The insulation was poor and the heat tended to disappear when it was turned off.

In comparison to this, now the house is warm and comfortable. The external wall and attic insulation have ensured that the bedrooms are no longer damp and the heat generated in the house is retained.

> *"Even in the mornings when you come into the kitchen … you'll still feel the heat … the house holds the heat a lot better".*

Other aspects

The householder does feel that if he was in a position to do the windows it would have increased the energy efficiency of the house, but as they were replaced at a previous stage this was not an option explored.

> *"The windows were not as efficient as they should have been … if we were doing them now, we would have gone for triple glazing or double glazing with gas in between".*

3. Main reasons/motivations for household retrofitting

The Armitage household first heard about the SERVE project in the local paper, following on from a discussion about the project, Mrs. Armitage attended an information night about SERVE in the local town. Although the householder feels there was ample information available regarding the project, he does think that if there hadn't already been an existing interest in retrofitting the house, the project may have easily passed by without any notice.

It had been decided prior to hearing about the SERVE project that work needed to be done in the house. The dampness in the children's bedrooms was an issue on top of the agenda and the householders had been considering dry lining the bedroom walls. When they heard about the project, the householders began the process almost immediately. Being a farmer, he has experience in applying for different farm related schemes and he has learned over the years at a cost, to always apply straight away. In the case of SERVE, the householder feels getting started was a bit difficult, but once the initial stage was finished the rest of the process ran relatively smoothly.

> *"There seemed to be a lot of hoops to go through… there was a lot of paperwork back and forth before we could start … once we got in and going, there was no hassle".*

Certainly the need for more comfort and warmth in the house was the motivation behind doing the work. The householders knew the work had to be done, and therefore it was in their own self interest that they apply to SERVE. Without the grant, the measures installed in the house would not have been as extensive; certainly the high efficiency boiler and heating controls would not have been installed. In which case, the economic input that SERVE provided allowed for the house to have quite a list of measures installed in the retrofit.

> *"We were talking to contractors and they were saying you should get this done and that done … it was bit like the solar panel, we hadn't planned on solar but if all the plaster had to come down, then it was the ideal time to do it".*

With energy prices rising all the time, this householder feels it's no longer economical to be so reliant on these energy sources. Additionally from an environmental perspective, being a farmer and father of three children, this householder is very aware that we have just one environment in which to live and he feels we must look after it, especially for future generations.

> *"I mean it's the only environment we have to live in … we have to look after it … It's not just economic … I mean we're only here for a short time and it has to be there for our kids and grandkids you know".*

The contractors involved with the work were sourced quite locally. The insulation company came from a town in south Tipperary, as the workmanship was known locally and the price was more competitive than another company closer to the household. In general this householder would support the local economy as he is a dairy farmer in the area.

"I would, because I'd hope they'd support me".

4. Main barriers/problems encountered

Financial problems

The householder did not have any financial problems with the retrofit; he had the finance needed for all the work up-front. Although it was a big investment considering all the work done in this household, the householder feels it was value for money.

"It's not like a new car, depreciating in value … you know… you're buying it and it's still value for money".

Technical problems

This householder didn't have any major technical issues with the retrofit. However there were two small issues. Firstly, some of the insulation installed in the attic was incorrect and the householder had to bring this to the attention of the installer.

"I'd know what should and shouldn't be done … I quizzed your man about it … he went away … he came back the next day … he took it down and put up different stuff".

Potentially this incident could have delayed the work, if the householder hadn't noticed the wrong insulation had been installed, it may have had to be redone after the second BER, which would have led to delays in the final finish date.

Secondly, there was a slight problem with fitting some of the external wall insulation. The problem developed when fitting the insulation into the sides of the existing windows; fortunately this was rectified easily enough.

Other

No other issues were raised regarding the SERVE retrofit.

5. Overall satisfaction with installed measures

Subsidies

The householder felt that there was a quite a lot of paperwork involved before the work could commence. Having been involved in schemes before, he actively pursued the application for the SERVE grants and he found the grants adequate towards all the measures being installed.

> *"Of course you'd always like more … you know what I mean … but I was happy … we wouldn't have done as much as we did without them".*

Technical issues

There are no major technical issues involved with the measures installed in this retrofit. Considering all the measures installed, everything is working well. The householder did find the heating controls to be *"a bit fiddly at the start",* but he is used to them now.

> *"It's probably something we don't make full use of …. We don't have them timed to come on, say a half an hour before bedtime or anything … as the house is so warm now … really in truth, there probably wasn't need for all those different zones".*

Quality

The householder is quite happy with the standard of work that was done. Apart from the issue with the insulation, he feels the quality of the workmanship was good.

> *"I'd say we're happy enough with the work we had done … it seems to be good quality … we had an airlock in the system and the lad came back and fixed it no problem".*

Whilst doing the external insulation, there was plenty of interest from passersby and plenty of comments. The householder recommended the work to people who seemed interested.

> *"I don't know if any of them got to do it … I had a stream of callers looking at the job as it was going on".*

Value for money

The householder certainly feels that the work was value for money; it was an investment for the future and a guarantee of a warmer, more sustainable home, for his family.

6. Conclusion

The householder in case study no.5 lives with his wife and three children on a farm in a rural area in North Tipperary. He had a series of measures included in his home, including solar panels and external wall insulation. The householders' decision to apply to SERVE was initially based on the fact that work needed to be done to the house in any case. As a result of the grants available though, more work than anticipated was contracted. The householder feels that the measures installed have given good value for money and made the house warmer and more comfortable. Furthermore the householder feels that from an environmental perspective the measures are ensuring a more sustainable future for the members of this household.