

# Energy Audit of Manorhamilton May 2015

## Introduction

Since 2011, Good Energies Alliance Ireland has been a major player in the campaign against fracking in Ireland. The NorthWest of Ireland is targeted for this industry and the proposed project included much of North Leitrim for exploration and extraction. However, for the past two years, the realization has grown that, if Ireland is not to rely on fossil fuels for its energy needs, alternative (renewable) energy sources must be used and there needs to be more focus on energy efficiency.

GEAI has done much research on the suitability of various renewable energy sources for Ireland, in particular, our Position Paper on Wind Energy in Ireland has been produced.

GEAI then focused on a project to raise awareness of the potential of renewable energies to bring economic and social benefits to rural towns. Manorhamilton was chosen as the pilot town as it is in the epicenter of the proposed shale gas project, Love Leitrim (situated in Manorhamilton) is a partner of GEAI and the local community are aware of the threat of fracking. It was decided to hold a day-long event that would include presentations, workshops and discussions, called 'Renewable Energies - Prosperous Communities' in the Bee Park Resource Centre, Manorhamilton on 24<sup>th</sup> June 2015. The event would explore how the local community could benefit from renewable energy and create a better and more sustainable future for the town.

As a baseline study, it was decided to carry out an energy audit beforehand. The audit would explore details of how local people heat their homes, how much money is spent on heating and transport and the level of interest in energy efficiency (insulation, etc.) The total energy use and cost for the town of 1,300 people would then be calculated.

## Objective

The aim of the survey was to give an idea of how much Manorhamilton spends on energy. This includes electricity, fossil fuels used for heating and hot water and petrol and diesel used for transportation.

## Methodology

For the audit to be statistically valid, a sample of 10% of the total occupied housing stock of 563 houses was needed, and this sample also had to have statistically valid representation of the different types of houses – 2-bedroom, 3-bedroom, detached, semi-detached, etc. The Census 2011 statistics were used to give these background numbers.

Most of the data (48 surveys) was collected by two teams, each of two people, in a door-to-door process. In addition, eight of the surveys were carried out by students in Transition Year, St. Claire Comprehensive School, Manorhamilton. Total number of surveys was 56. The households surveyed were chosen from inside the urban area of Manorhamilton and the boundary for this was taken from the Leitrim County Development Plan 2015 – 2021.

The data from the teams was collected during the evenings of 4 different days, 6<sup>th</sup>, 13<sup>th</sup>, 22<sup>nd</sup> and 26<sup>th</sup> of May. The students from the school were given a week, 4 to 11<sup>th</sup> of May, to fill in and return the questionnaire. Each of the students was given the questionnaire and instructions on how to complete it and was asked to have a discussion with his/her parents and fill it in as accurately as possible.

## Results

### a) Household information

Survey findings regarding the households:

- 52 % of the people surveyed live in semi-detached houses and only 4 % live in apartments;
- Most of the households surveyed have 5 or 6 rooms: 41 % have 5 rooms - 3 bedrooms, a living room and a kitchen and 21 % have 6 rooms;
- Almost half of the household surveyed were built after 2000.

Type of house

|               | No. households | Percentage |
|---------------|----------------|------------|
| Detached      | 13             | 23 %       |
| Semi-detached | 29             | 52 %       |
| Townhouse     | 12             | 21 %       |
| Apartment     | 2              | 4 %        |
| Total         | 56             |            |

Households by number of rooms

|          | No. households |     |
|----------|----------------|-----|
| 2 Rooms  | 2              | 3.5 |
| 3 Rooms  | 6              | 11  |
| 4 Rooms  | 2              | 3.5 |
| 5 Rooms  | 23             | 41  |
| 6 Rooms  | 12             | 21  |
| 7 Rooms  | 6              | 11  |
| >8 Rooms | 5              | 9   |
| Total    | 56             |     |

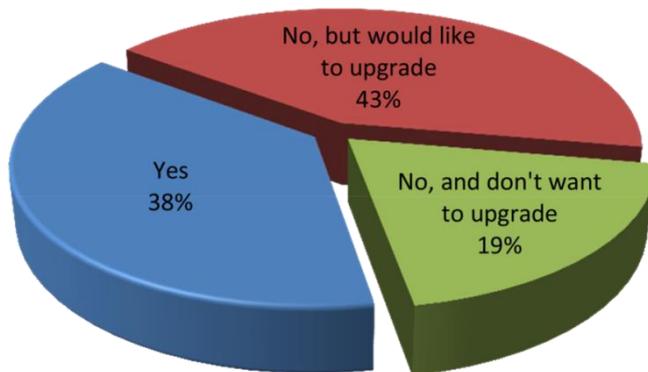
The year the houses were built

|             | No. households | Percentage |
|-------------|----------------|------------|
| Before 1950 | 7              | 13 %       |
| 1950 – 1980 | 13             | 23 %       |
| 1981 – 2000 | 9              | 16 %       |
| 2001 – 2008 | 24             | 43 %       |
| After 2008  | 3              | 5 %        |
| Total       | 56             |            |

## Insulation

From the people surveyed, 38% had already upgraded their households. Out of the remaining ones, 43% haven't done any work, but given the opportunity they would invest in insulation or double glazing to improve on the energy use and just 19% wouldn't consider upgrading as a measure to cut down on energy usage.

Recent upgrading (e.g. insulation, double glazing)



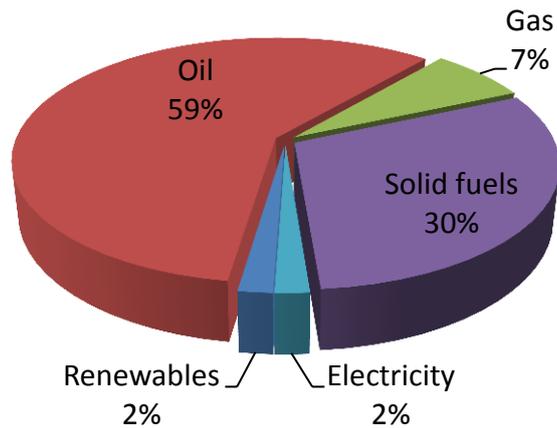
## Heating systems

59 % of the households surveyed have the main heating system running on oil, followed by households with heating systems on solid fuels, 30%. It can be seen that only 1 house uses renewable energy as a main heating source, accounting for 2% of the surveyed households. Our findings are in accordance to Census 2011 which states that use oil is most used for the central heating, followed by coal.

Fuels used for main heating systems - Number of houses:

|             | No. households | Percentage |
|-------------|----------------|------------|
| Oil         | 33             | 59 %       |
| Gas         | 4              | 7 %        |
| Solid fuels | 17             | 30 %       |
| Electricity | 1              | 2 %        |
| Renewables  | 1              | 2 %        |
| Total       | 56             |            |

## Fuel used for main heating



### Types of main heating systems

|                        |    |
|------------------------|----|
| Gas boiler             | 4  |
| Condensing gas boiler  | 0  |
| Oil boiler             | 31 |
| Condensing oil boiler  | 1  |
| Solid fuel boiler      | 10 |
| Wood pellet boiler     | 0  |
| Heat pump              | 0  |
| Storage heaters        | 1  |
| Other electric heaters | 0  |
| Solid fuel stove       | 6  |
| Gas stove              | 0  |
| Oil fired stove        | 1  |
| Other                  | 2  |
| None                   | 0  |
| Total                  | 56 |

Oil boiler is the most common used type for main heating, 31 houses, followed by solid fuel boiler, 10 houses. From the two houses that use other systems for the main heating, one is based on geothermal and the other is an open fire.

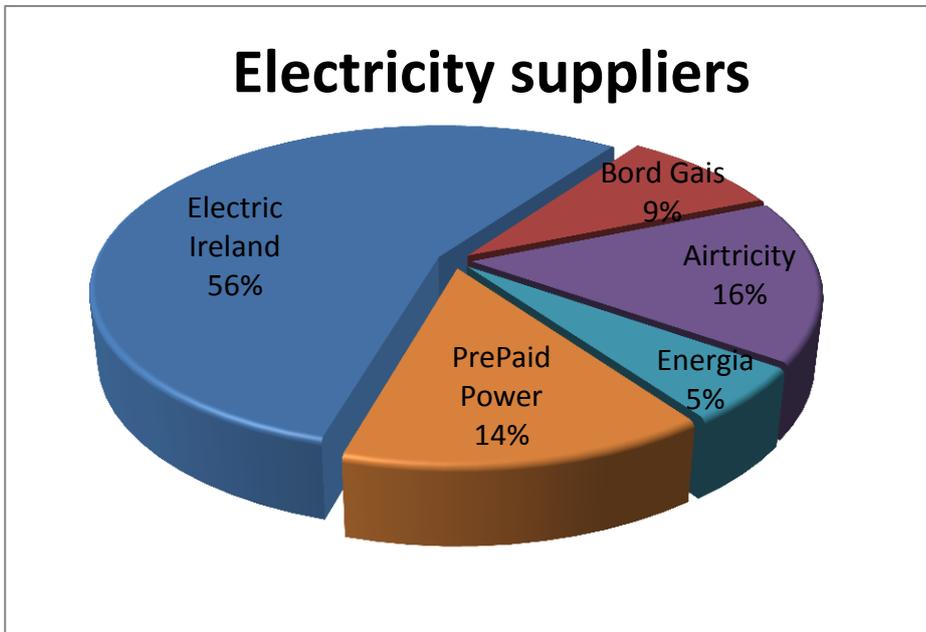
### Back-up heating source

|       | No. households | Percentage |
|-------|----------------|------------|
| Yes   | 42             | 75 %       |
| No    | 14             | 25 %       |
| Total | 56             |            |

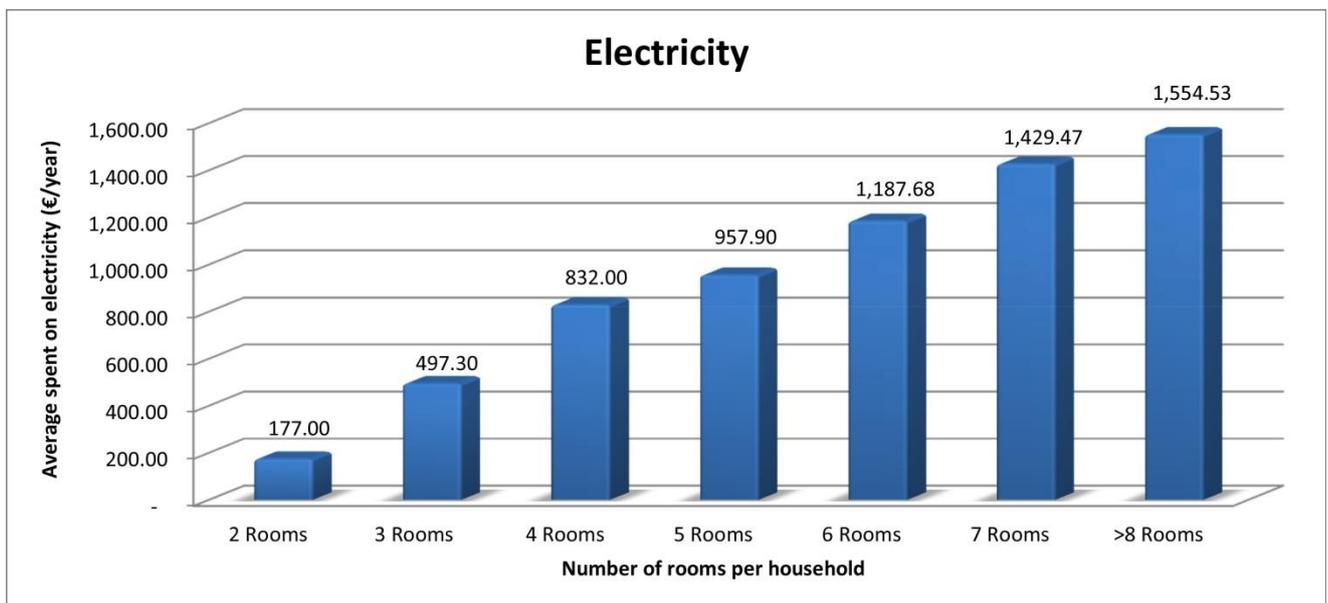
From the 56 house surveyed 42 have a back-up heating source, most common in the form of an open fire.

## Energy consumption

Electricity suppliers

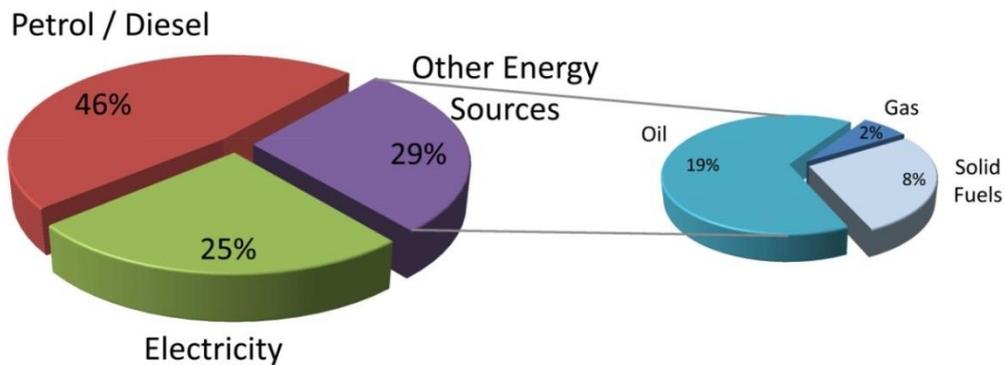


Electricity



As it can be seen from the electricity graph, the bigger the house the more people spent on electricity. We took the data and extrapolated it for the entire town and found that Manorhamilton spends around €550,000 per year for electricity, making an average of approx. €970 per household per year.

### Distribution of energy costs - Manorhamilton



Based on the data gathered we were able to find out what Manorhamilton spends on energy and how the costs are distributed. As it can be seen in the figure above, 46% goes on petrol / diesel, 25% on electricity and 29% on other energy cost, used for heating and hot water. This means almost €2.2 million per year for the entire town.

The average spent per year per household on electricity, oil, gas and solid fuels (excluding transport) is approx. €2,250.

## Conclusions

- The survey done was statistically valid, obtaining information from 10% (56 units) of the occupied house stock of Manorhamilton.
- House-owners were very aware of the value of insulation or double-glazing in cutting down on heating costs and 81% either had already increased the insulation of their homes or would consider doing so in the future.
- A surprising statistic is that transport cost (at 46%) was almost half the total energy cost for households in Manorhamilton. This is a reflection of the lack of public transport in this rural area.
- Electricity accounts for 25% of the total energy costs for Manorhamilton. As can be expected, the bigger the house, the greater the spend on electricity.
- Average energy costs (excluding transport) are €2,250 per household per year, **€1.2 million** for the entire town of 560 households.
- Average transport cost is €1,600 per car per year. Total transport costs for the town is **€1 million** per year
- The total energy costs for Manorhamilton is therefore **€2.2 million** per year.
- This survey highlighted the following:
  - In the absence of suitable and frequent public transport, spending on petrol or diesel per car is almost as much as all other energy sources put together. This is an extraordinary burden on rural household budgets. The burden is additional on those homes (27%) that need more than one car.
  - The survey also highlights the reliance of Irish homes on fossil fuels with 66% of houses using oil or gas for heating. In addition, 30% use solid fuels (including peat).
  - There is huge potential for lowering of energy uses and costs through the implementation of energy efficiency measures, e.g. more insulation, double glazing, domestic solar or other renewable systems