This Publishable Report is provided as part of The Rathlin Sustainable Island Network study and is for illustrative public information purposes. The building owner's reports are confidential and thus not published here..

ENERGY AUDIT REPORT

Sample Home 8

Detached Home of 87.39m2
Built approx. 2019
Block Cavity Walls, Pitched roof insulated at joists, Oil Central Heating (condensing combi boiler)
Current EPC rating – C (79) – Energy Use 128 kWh/m$^{2/}$yr – Total Energy Use: 11,144 kWh/yr

Existing Building Details

Building Elements		U-Value (W/m^2.K)	Heat Loss (AU) [W/K]
Walls	Concrete Block Cavity 2019	0.30	
Roof	Pitched Roof – Insulated at joists 300mm rockwool	0.13	
Ground Floor	Solid Floor	0.16	
Windows	Double-glazed, argon filled, low e coating, uPVC frames	1.4	
Ext Door	½ glazed composite uPVC door	2.0	

Existing Heating Characteristics			
Heating System		Energy	Efficiency (%)
Primary Heating System	Grant Vortex Combi Outdoor 26	OIL	90.2
Secondary Heating System	Stove	Seasoned Wood	No data
Domestic Hot Water	From primary system	Oil	90.7
Cylinder	No cylinder		
Controls	Time & Temp Zone Control		

Domestic Retrofit Guidelines (Step by Step)						
Proposed Interventions		Energy saving (kWh/yr)	Energy saving (kWh/m2/yr)	Revised energy use (kWh/yr)	Revised BER Rating	CO2 savings/yr (kg)
1	2.5 kWp PV Panels linked to hot water	6,155	76	4,989	A (92)	1,185
	Overall Savings Potential	6,155	76			1,185

Estimated Costs Summary			
Measures		Estimated Costs (£/m²)/Unit	Estimated Total Costs (£)
1	Install 2.5 kWp linked to hot water		£6,000.00
Total to achieve A rating			**£6,000.00**
VAT @ 20%			**£1,200.00**
Subtotal			**£7,200.00**
PM Fee (8%)			**£480.00**
Total Build Costs			**£7,680.00**
Simple Payback			**12 years**

Savings Summary					
BER Rating		Energy Use (kWh/m²/yr)	Energy Savings (kWh/yr)	Cost Savings (€/yr)*	CO2 Savings (kg)
Current C (79)	11,144	128	()	0.00	
Upgrade 1 = A (92)	4,989	52	6,155	£623.90	1,185

*See 'Assumptions' Below

** This represents 45% of the pre-upgrade energy consumption

To illustrate Carbon Dioxide savings: 1 10-year-old evergreen tree will absorb 14kg of CO2 per year (deciduous absorb less). Therefore, the carbon savings of the works would be the equivalent of **planting 85 evergreen trees.**

Savings calculations

Per Annum

Upgrade = Install PV & link to immersion heater

Electricity Generated by PV: 6,155kWh

Savings Hot Water usage 2813kWh x 70% saving = 1969kWh of Kerosene x £0.10	£196.90
Electricity for lighting, fans etc = 2302kWh of electricity x 50% = 1151kWh x £0.2365	£272.21
Electricity exported to 'grid' = 3035kWh x £0.051 =	£154.79
TOTAL SAVED VIA PV PANELS =	£623.90

Assumptions

Kerosene produces 0.257kg CO2 per kWh. This does not include emissions in production and transport

The amount of Carbon that is emitted per kWh Electricity in Northern Ireland is .330kg/kWh[1]

Electricity Rate pence per kWh = £0.2365

Kerosene cost per kWh = £0.10

Seasoned Wood & coal per kWh = £0.08[2]

[1] https://www.daera-ni.gov.uk/sites/default/files/publications/daera/Northern%20Ireland%20Carbon%20Intensity%20Indicators%202021.pdf

[2] https://nottenergy.com/resources/energy-cost-comparison

Rathlin Development and Community Association | Red Bay Boats Cushendall | Rathlin Island Ferry Ltd | Rathlin Cooperative Society Ltd | Rathlin Manor Ltd | The Salt House Hotel Ballycastle | Belfast Harbour Commissioners - Associate partner | Invest Northern Ireland