

Recommended Energy Upgrades Explained

Fabric First

It is not recommended that a homeowner attempts to improve the energy efficiency of their home by simply adding new technologies (for example heat pumps, photovoltaic panels) on their own.

The key to the successful use of these technologies is that the house is insulated correctly and made as draft free and air-tight as possible.



Insulation and air-tightness are indicated by a measurement called **Heat Loss Indicator** (HLI). For heat pumps to work effectively the HLI must be at a level of less than or equal to 2 W/K. This means that in most cases walls and roofs are fully insulated and older windows and doors replaced.

You can see an energy audit and recommended actions report explained with comments below. It is essential that the homeowner has an audit carried out on their individual home before they decide which measures to take.

Recommended Energy Upgrades Explained: Provided by Energy Co-operatives Ireland Ltd and 2eva for Galway Energy Co-operative Supported By the Sustainable Energy Authority of Ireland

is Publishable Report is provide C's Energy Master Plan and is f e Homeowner's reports are co	ed as part or illustra niidential	of Galway Energy Co-op tive public information p and thus not published	perative purposes here.		Amount of energy needed to heat and power the home per sq metre per year. This key metric determines the efficiency of your home: the lower the number the more efficient your home
ENEI End of Terrace Dwellin Current BER – E2 – Energy Use 3	RGY AUDIT R ng – 1950 – M i1 kWh/m ^{2/} yr	EPORT ass Concrete – 77.68 m – Total Energy Use: 27,266 kWh/	yr		How much energy the home uses overall per year: in general the cost per kWh heat is €0.097 for home heating oil and €0.20 per kWh for electricity.
-		Existing Building D	Deta Is		Level of insulation of each element (per metre
		Building Elements	U-Value (W/m ² .K)	Heat Loss (AU) [W/K]	Indicates how much heat is lost through each building element. When
	Walls Roof	Solid Mass Concrete Pitched Roof – Insulated on Coiling	2.20 0.40	173.62 15.54	this is averaged out for all elements it shows how well the home reta
	Ground Floor	Solid	0.84	32.63	
	First Floor	Non-Heat Loss Floor	0	0	This level is too high: it is recommended to be \leq 1.40 W/m ² K.
	Floor Door Door	Solid Exposed Door Front Solid Exposed Door Rear,	3.00 3.03	5.30	viable, the doors will need to be upgraded
	Windows	Double-glazed Air-Filled	3.10	335.9	
					This level is also too high: it is recommended to be ≤0.73 W/ m ² K . To reduce the HLI to the level needed to make a heat pump viable, the windows will need to be upgraded

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	Existing Heating					
	Heating System		Energy	/	Efficie	ency (%)
Primary Heating System	Non - Conder sing primary pipe vork	; Oil Boiler, cinsulated	Oil		8	7%
Secondary Heating Open Fire System			Manufact Smokeless	ured Fuel		
Domestic Hot Wate	ry heating nersion	Oil		87%		
Cylinder	Cylinder Cylinder Factory Insulated 25n					
Controls	Radiator Cor	ntrols 🗕				
	Domestic Retr	ofit Guidelines (Step by Step) Revised energy	Revised	Annual	CO2
Propose	d Interventions	(kWh/m2/yr)	rating (kWh/m2/yr)	BER Rating	saving (kWh/yr)	savings/yr (kg)
1 Upgrade Existi Minimum U-	ing Windows to Achieve Value of ≤0.73 W/ m²K	13.44	337.56	E1	1,044.02	256
2 Upgrade Existing D Value	Upgrade Existing Door to Achieve Minimum U Value of ≤1.40 W/m²K		332.33	E1	406.27	100
Upgrade Original V Value	Wall to Achieve Minimum U- of ≤0.21 W/m² K	148.20	184.13	C2	11,512.18	2,820
3 Instal 300mm	Insulat on on Flat Ceiling	10.13	174.00	C1	786.90	193
Block E	Existing Chimney	7.01	166.99	d	544.54	133
Install Air To Wate Heating Controls Temp	r Heat Pump (HP) - Upgrade & Hot Water to Full Time & erature Control	87.16	79.83	B1	6,770.59	1,659
5 Install 2kW	Photovoltaic system	48.59	31.24	A2	3,774.47	925
Overall kWh/i	m2/yr Sa y ings Potential	319.76				
Heat Loss Ind	licator post works (HLI)	1.82	W/K			
BER Uplift			WA/h/m2/ur			

			Estimated C	osts Summary							
Measures Estimated Costs (€/m²)/Uni			Estimated Total Co	osts (€)							
3	3 Windows Upgrade				€4,950.00						
4 Doors Upgrade				€4,400.00	efficiency upgrades.	nergy					
2 Wall Upgrade				e	.17,575.00	As Galway Energy Co-op hope to put together a Better Energy Commun	nities				
1	1 Roof Upgrade					€877.50	(BEC) scheme, we use the <i>typical</i> BEC level of grant support: but some				
5*	5* Heating Upgrade (Primary)		(Sy	stem)	€17,600		householders could qualify for up to 80% grant support . The other SEA schemes are based on a fixed sum grant per measure. There are links b	EAI below			
6	6 Install 2kW PV system		2KW	System)	€5,500.00		to the various SEAI grant schemes.				
		Total to a	achieve A3		€	50,902.50					
		VAT @	9 13.5%			€6,871.84	Energy Credit schemes are provided by a variety of energy providers.	Thev			
Sub	Subtotal				€	57,774.34	are calculated on a flat evaluation basis per measure.	, ney			
РМ	Fee					€3,563.18					
Tot	al Build	Costs			<u>€</u>	61,337.51					
ESTIMATED SE Grant @ 30% for participation in REC					€	18,401.25	This is the BER of the home when all the recommended works are carrie	d out			
Val	ue of Ei	nergy Credits				€2,071.00					
<u>Tot</u> Ene	al Cost gy Cre	to Homeowner ir <u>dits</u>	ncluding 30% Gram	t funding and	<u>€</u>	40,865.26	The new energy use per year for the home compared to the energy us	ıse			
							prior to the recommended works being done.				
Minimur	n uplifi	t required from	Better Energy Cc	mmunity Gran	it Scheme		Savings are based on reduction in heating oil costs				
			Savir	gs Summary		This is how long in years it takes for the recommended works to pay for them	colvos				
BER Ra	ning	Energy Use (kWh/m²/yr)	Energy Savings (I Wh/yr)	Cost Saving (€/ /r)*	Simple Payback, including Grant Funding (years)	CO2 Savings	on the basis of annual savings. It does not take into account energy cost inflation which will reduce the payback period. Also the homeowner should note that the				
Curren	i E2	351	()	0.00	-		upgraded home will be healthier and more comfortable.				
A2		31.24	24,839	€2,277.74	18	6,085.55	As a guide A ten-year-old evergreen tree absorbs 14 kg of carbon dioxide				
Based or	n Home	e Heating oil rep	lacement @€0.0	917/kWh		L	per year . So the carbon reduction for these works are the equivalent of 434 trees.				

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