

BER Advisory Report Guidance Document

BER Assessor Guidance Document for the Updated DEAP
Advisory Report Tool

Version 1.1



Advisory Report Guide

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Sustainable Energy Authority of Ireland

SEAI is Ireland's national energy authority investing in, and delivering, appropriate, effective and sustainable solutions to help Ireland's transition to a clean energy future. We work with the public, businesses, communities and the Government to achieve this, through expertise, funding, educational programmes, policy advice, research and the development of new technologies.

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Contents

| | |
|--|-----------|
| 1. INTRODUCTION..... | 4 |
| 1.1 How to use this document:..... | 4 |
| 2. OVERVIEW OF THE ADVISORY REPORT BUILDER | 4 |
| 2.1 Logic & Approach of Upgrade Recommendations | 5 |
| 2.1.1 Fabric First Approach & the HLI..... | 5 |
| 2.1.2 Other Measures..... | 5 |
| 2.1.3 Renewables..... | 5 |
| 2.2 Generating Upgrade Measures | 6 |
| Table 1: Minimum & Target Potential Ratings | 6 |
| 3. GENERATING AN ADVISORY REPORT | 8 |
| 3.1 How to Generate the Advisory Report..... | 8 |
| 3.1.1 Step-by-step guide to generating an advisory report | 8 |
| 3.1.2 Re-creating a published advisory report in NAS..... | 12 |
| 3.2 Overview of Energy Upgrade Measures..... | 15 |
| Table 2: Overview of Energy Upgrade Measures | 15 |
| 3.2.1 Energy Upgrades..... | 17 |
| 3.2.2 Simple Energy Upgrades | 17 |
| 3.2.2 Cost Optimal Energy Upgrades..... | 17 |
| 3.2.3 Additional Energy Upgrades | 17 |
| 3.3 Optimal & Threshold Values for Generating Upgrade Measures | 17 |
| 3.3.1 Error Warnings & Notifications | 18 |
| 3.3.2 Cost Indicators for Package Measures | 19 |
| 4. THE INFORMATION WITHIN THE ADVISORY REPORT EXPLAINED | 20 |
| 4.1 Advisory Report Page 1 | 20 |
| 4.2 Advisory Report Page 2..... | 21 |
| 4.3 Advisory Report Page 3..... | 22 |
| 4.4 Advisory Report Page 4..... | 23 |
| 4.5 Energy Efficiency Indicators..... | 24 |
| 5. REFERENCES | 25 |
| Appendix A: List of available upgrades | 25 |
| A1. Available Fabric Upgrades | 25 |
| A2. Available Heating Upgrades..... | 27 |
| A3. Available Ventilation Upgrades..... | 31 |

| | |
|--|----|
| <i>A4. Available Lighting Upgrades</i> | 32 |
| <i>A5. Available Renewable Upgrades</i> | 32 |
| Appendix B: Error warnings and notifications | 33 |
| <i>B1. Advisory report builder notifications</i> | 33 |
| <i>B2. Upgrade measure dependencies</i> | 33 |
| Tables: Category ID Tables..... | 34 |
| <i>T1. Dwelling Type ID</i> | 34 |
| <i>T2. Primary Circuit Loss ID</i> | 34 |
| <i>T3. Fuel Type ID</i> | 34 |

1. Introduction

The BER Advisory Report accompanies the BER certificate. It provides guidance to Homeowners and prospective buyers on the potential upgrades that may be installed to improve the overall BER rating of the property.

The updated advisory report provides a personalised roadmap for the homeowner based on the inputs within the BER assessment. It includes information for homeowners on how to upgrade their home to a target of a B2 energy rating (or better), in line with the targets within the Climate Action Plan.

The advisory report has been generated and designed as a tool to;

1. Promote the value of obtaining a BER and advisory report as a first step in a homeowner's retrofit journey,
2. Deliver a personalised package of upgrade measures to homeowners that will support them in getting their home to a B2 rating.
3. Create awareness and understanding among homeowners on how improving their BER can improve the comfort and energy performance of their home, decrease their home heating bills and decrease their carbon footprint that will in turn increase the value of the BER within the marketplace.

The updated advisory report is the first step for a Homeowner in their retrofit journey. The information included within the updated advisory report is intended to assist them in understanding their home's current energy performance and the potential to improve it.

The updated advisory report includes:

- Colour coded performance indicators for the home's current status and its potential following the installation of recommended upgrades,
- A recommended package of upgrades to improve the dwelling to a target of a B2 or better,
- A 'fabric-first' approach to achieving an improved BER where appropriate,
- Approximate cost indicators and grant availability for individual upgrades,
- Clearer, more targeted advice on simple measures that may be considered by the homeowner in order to improve the energy efficiency of their home.

1.1 How to use this document:

This document provides guidance for BER assessors on how to use the advisory report builder and in understanding the information contained within the advisory report including.

- Logic and approach of the recommendations
- Upgrades and recommendations.
- Minimum and target BER improvements
- Advisory report builder.
- Errors, warnings solutions

2. Overview of the Advisory Report Builder

The advisory report builder allows BER assessors to generate a tailored report based on the dwelling inputs in DEAP.

The range of upgrades available for selection within the advisory report builder will depend on the BER inputs for the dwelling being assessed. Typically, a lower rated house will have more measures listed as it will take more measures to upgrade the house to reach its target upgrade.

2.1 Logic & Approach of Upgrade Recommendations

The advisory report will offer homeowners a logical roadmap and starting point to an improved BER and practical starting point with regards to upgrading their home.

Generally, Homeowners are aware of the types of measures that are available on the market but require guidance on which updates are appropriate for their own home and the impacts specific upgrades can have.

Overall, the report will promote a 'fabric first' approach to home energy upgrades by prioritising (where applicable) building fabric upgrades to reduce energy demand, followed by efficient heating systems and then the installation of renewables.



2.1.1 Fabric First Approach & the HLI

The advisory report builder makes default recommendations (where appropriate) to improve the Heat Loss Indicator (HLI) as a first step. The HLI is an indication of the total heat loss (through ventilation, floors, walls, roofs, windows and doors) per m² of the total floor area and is calculated within DEAP.

The "fabric first" approach ensures potential upgrades to the building's fabric are targeted as the initial and most effective first step towards upgrading the energy efficiency of a dwelling. This approach will maximise the energy efficiency of the dwelling and minimise the energy demand for heating. This in turn will ensure the dwelling's HLI and insulation levels are improved to an optimum standard.

SEAI recommend this approach when advising on retrofit measures for improving the BER of a dwelling.

2.1.2 Other Measures

'Other measures' include energy efficiency measures that can be undertaken alongside or following fabric upgrades to further increase energy efficiency within the dwelling, such as lighting, upgrading the heating system, ventilation etc.

2.1.3 Renewables

Before advising a Homeowner to consider in the investment of renewable technologies, consideration of the energy performance of the whole home should first be considered. SEAI recommend the following approach to upgrading your home, before considering investing in renewable technologies.

1. To firstly ensure the dwellings insulation has been upgraded to maximise its energy efficiency, which includes insulating walls, the attic and ensuring that other measures such as windows and doors have been considered,
2. Upgrading the heating system, or consider the installation of a heat pump (based on the target HLI),
3. Then consider the installation of renewable technologies such as solar PV, solar thermal and wind.

The recommendations are just one potential pathway to an improved BER, however, there are many variations that an assessor can choose depending on what they deem appropriate for the dwelling that they are assessing.

It must be noted that these recommendations are advisory and for guidance only, and that completing any of the recommendations is solely at the homeowner's discretion.

SEAI have a number of Home Energy Grants available to Homeowners. More information on available grants can be found [here](#).

2.2 Generating Upgrade Measures

The Advisory Report builder provides indicators for both **minimum** and **target** potential ratings for the improved BER. BER assessors will need to ensure that a sufficient list of measures has been selected within the advisory report builder in order to meet the minimum rating and generate a report.

Table 1: Minimum & Target Potential Ratings

| Current | Minimum | Target | | |
|---------|---------|--------|-----------------|---|
| G | D2 | B2 | Current: | Current BER rating for the dwelling. |
| F | D2 | B2 | | |
| E2 | D1 | B2 | Minimum: | The lowest potential rating required to allow for publication. |
| E1 | C3 | B2 | | |
| D2 | C2 | B2 | Target: | The ideal potential rating for the dwelling. This is aligned with the 'cost optimal' requirement as set out for major renovations in Part L of the Building Regulations and with retrofit targets in the Climate Action Plan. |
| D1 | C1 | B2 | | |
| C3 | B3 | B2 | | |
| C2 | B3 | B2 | | |
| C1 | B2 | B2 | | |
| B3 | B2 | B1 | | |
| B2 | B2 | B1 | | |
| B1 | B1 | A3 | | |
| A3 | A3 | A2 | | |
| A2 | A2 | A1 | | |
| A1 | A1 | A1 | | |

2.2.2 Minimum Potential Rating

The minimum BER uplift must be met in order to publish the report. The minimum uplift required is dependent on the current BER and is based on a percentage algorithm value that is achievable through a range of upgrade measures available for selection for a particular dwelling.

2.2.3 Target Potential Rating

The target BER for dwellings is a B2 rating or better.

The B2 target is informed by the Climate Action Plan, which has a target to get “circa 500,000 existing homes to upgrade to a B2 Building Energy Rating by 2030”. In addition, Part L of the building regulations sets out requirements for ‘major renovation’ as follows:

Where a dwelling undergoes a major renovation, the energy performance of the whole dwelling should be improved to the cost optimal by achieving a B2 or by implementing the energy performance improvements as set out in the Building Regulations Part L Technical Guidance Documents. Major renovations are defined in the Building Regulations Part L Technical Guidance Documents Section 0, General Guidance 0.5 Definitions, and means the renovation of a dwelling where more than 25% of the surface of the dwelling envelope undergoes renovation.

Ideally, the advisory report should include recommendations to achieve the target rating or better. The target rating is the minimum rating to aim for in generating the publication. In some instances, however, it may not be appropriate, or it may be particularly challenging to achieve this target rating. Therefore, it is not a mandatory requirement to achieve this.

Where the target is not achieved, assessors will receive a warning notice in the builder, however assessors may still proceed to publish the report, as long as the minimum rating is achieved.

The above [Table 1](#) provides an overview of the minimum and target potential ratings requirements and recommendations.

3. Generating an Advisory Report

The functionality to generate the advisory report is only available to registered BER assessors. The below information provides a step-by-step overview of the process on how to generate a copy of the updated advisory report.

3.1 How to Generate the Advisory Report

The functionality to generate the advisory report will only be enabled for BER assessments which are 100% complete and that have been sent to NAS.

3.1.1 Step-by-step guide to generating an advisory report

Step 1: Send to NAS

The 'Send to NAS' function in DEAP can be found by clicking on the "View Assessment" icon in the top right-hand corner of the assessment screen in DEAP. This will bring the assessor to the view assessment page.

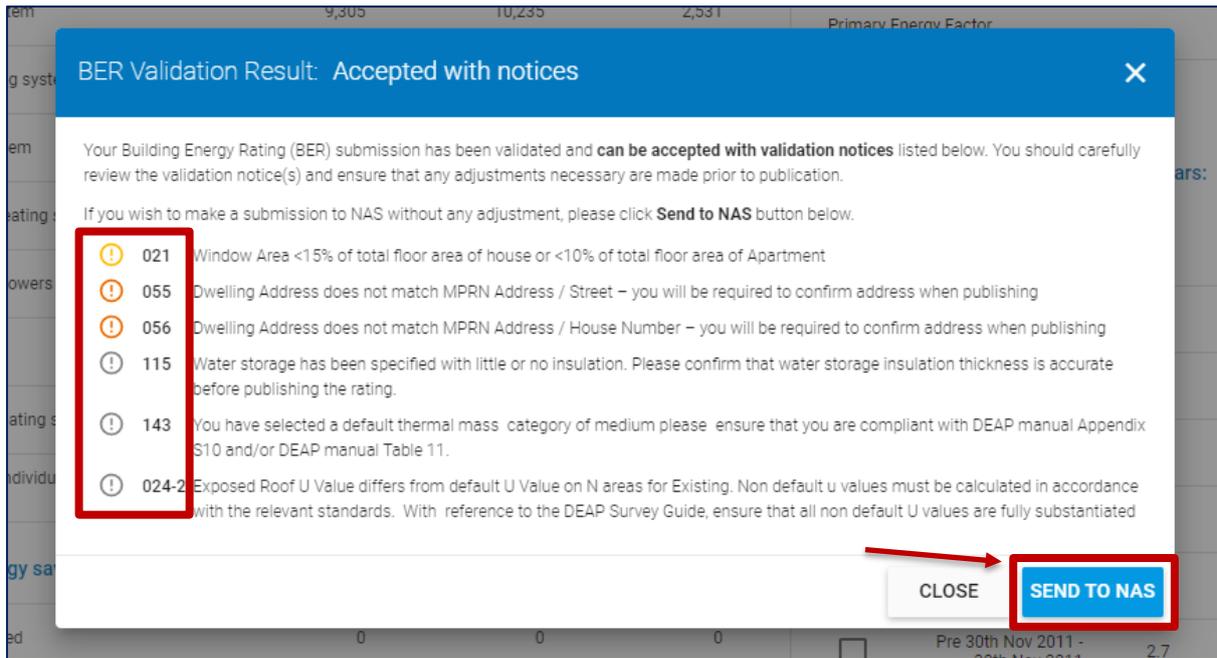
The screenshot shows the DEAP Survey interface. The top navigation bar includes 'seai SUSTAINABLE ENERGY AUTHORITY', 'DEAP4 > Survey', and a location pin. The main content area is divided into tabs: FLOORS, ROOFS, WALLS, ROOMS, DOORS, WINDOWS, and GLOBAL FACTORS. The 'FLOORS' tab is active, displaying a table of storey data. The sidebar on the right shows 'Completeness 100% total', 'Performance BER E2', and energy metrics: 364.17 kWh/m²/yr and 95.69 kgCO₂/m²/yr. A red box highlights the 'View Assessment' icon in the top right corner, and a red arrow points to it.

| Storey | Type | Description | U/F Heating | In Roof | Age Band | Exposed Perimeter [m] | Area [m²] | U-Value [W/m²K] |
|--------|----------------------|-------------|-------------|---------|-------------|-----------------------|-----------|-----------------|
| 1 | Ground Floor - Solid | Existing GF | No | No | 1950 - 1966 | 35.37 | 71.33 | 0.840 |
| 2 | Non-Heat Loss Floor | | No | No | 1950 - 1966 | | 51.89 | 0.000 |
| 3 | Non-Heat Loss Floor | | No | Yes | 1978 - 1982 | | 17.25 | 0.000 |

The 'Send to NAS' button in DEAP will only be enabled when the survey is at 100% completeness, with all the relevant supporting documentation and evidence uploaded. The 'Send to NAS' button can be found in the top banner of the 'View assessment' page.

The screenshot shows the DEAP View Assessment interface. The top navigation bar includes 'Assessment', 'DWELLING REPORT', 'VIEW SURVEY', 'SEND TO NAS', 'VIEW SURVEY IN NAS', and 'GENERATE ADVISORY REPORT'. The 'SEND TO NAS' button is highlighted with a red box. Below the navigation bar, there are tabs for 'RESULTS', 'BUILDING', 'VENTILATION', 'WATER', 'HEAT', 'LIGHTING', and 'SOURCE'. The 'RESULTS' tab is active, displaying 'Delivered energy [kWh/yr]', 'Primary energy [kWh/yr]', 'CO2 emissions [kg/yr]', and 'Current Fuel Factors'. A red arrow points to the 'SEND TO NAS' button.

When the 'Send to NAS' button is selected, DEAP will display a list of validation notices. The assessor should carefully review each of these validation notices prior to sending the assessment to NAS and ensure that any adjustments necessary are made prior to publication.

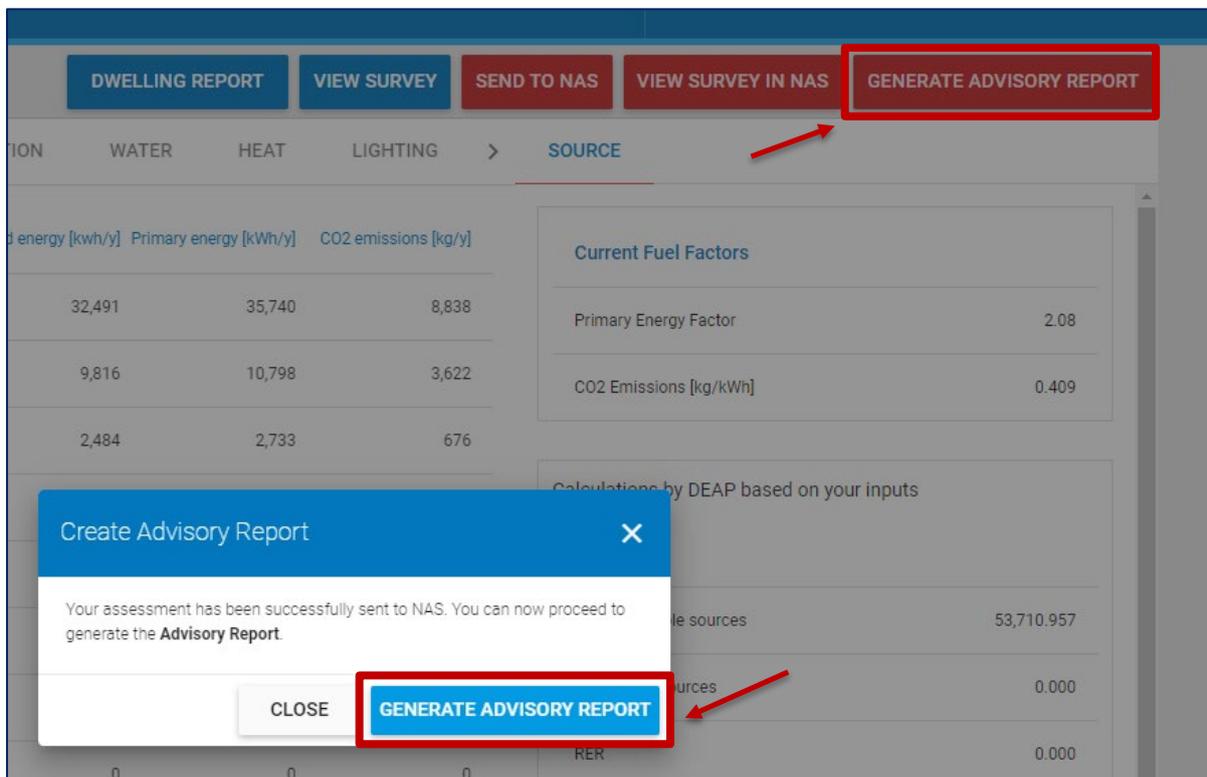


Once all validation notices have been reviewed, click the '**Send to NAS**' button.

Step 2: Accessing the Advisory Report Builder

Only when the assessment is at 100% completeness and after the survey has been sent to NAS will the '**Generate Advisory Report**' become enabled on the '**View assessment**' screen in DEAP.

To generate a copy of the updated advisory report and to access the report builder, click on the '**Generate Advisory Report**' button.



Step 3: Generating the Advisory Report

Clicking on the 'Generate Advisory Report' button brings the assessor to the advisory report builder. From here, the assessor can select and de-select from the upgrade measures as appropriate.

The Upgrade Builder:

The Upgrade Builder page will automatically open once the advisory report builder is accessed from DEAP. This is the main workspace within the builder.

The builder will automatically select a number of default upgrade measures for the assessor. These pre-selected upgrades are based on the BER inputs. These should be reviewed to ensure they are appropriate for the particular dwelling and can be changed if required based on the assessor's observations during the site survey or based on discussions with the homeowner.

| Category | Measure | Status |
|----------|---|-------------------------------------|
| Fabric | External doors 1.4 W/m ² K average U-Value | <input checked="" type="checkbox"/> |
| | Floor insulation 0.36 W/m ² K average U-Value | <input type="checkbox"/> |
| | Floor insulation 0.18 W/m ² K average U-Value | <input type="checkbox"/> |
| | Floor insulation 0.15 W/m ² K average U-Value | <input type="checkbox"/> |
| | Roof insulation: pitched (at ceiling) 0.16 W/m ² K, pitched (on slope) 0.20 W/m ² K, room in roof (on side) 0.20 W/m ² K, flat 0.22 W/m ² K average U-Value | <input checked="" type="checkbox"/> |
| | Wall insulation 0.35 W/m ² K average U-Value | <input type="checkbox"/> |
| | Wall insulation 0.27 W/m ² K average U-Value | <input checked="" type="checkbox"/> |
| | Wall insulation 0.18 W/m ² K average U-Value | <input type="checkbox"/> |
| | Windows double glazing 1.4 W/m ² K average U-Value | <input checked="" type="checkbox"/> |
| | Windows triple glazing 0.8 W/m ² K average U-Value | <input type="checkbox"/> |
| Heating | New boiler with heating controls | <input type="checkbox"/> |
| | Air-to-air heat pump with fully integrated heating controls | <input type="checkbox"/> |
| | Air-to-Water or Ground-to-Water or Water-to-Water heat pump with fully integrated heating controls | <input checked="" type="checkbox"/> |
| | Exhaust air heat pump with fully integrated heating controls | <input type="checkbox"/> |
| | Install closed room heater or stove with flue. Min 60% efficiency | <input checked="" type="checkbox"/> |

Upgrade Impact Summary:

| Current | Potential |
|----------------------|---------------------|
| Energy Value: 493.07 | Energy Value: 96.58 |
| Current: 5.847 | Potential: 2.068 |
| Current: N/A | Potential: 0.39 |

Expected Upgrade: Minimum BER: D2, Target BER: B2

Notifications: 0

Summary: Investment cost: 30,000 - 50,000

The information provided on the right-hand side of the upgrade builder provides the assessor with up-to-date information on the estimated 'upgrade impact' the selected suite of measures has on the inputs within the BER.

Upgrade impact summary results display the current and potential energy impact for the BER, energy value, HLI and RER, along with an overview of the minimum and target potential ratings, notifications displaying indicators for errors and warnings and cost indicator for the package of measures selected.

The screenshot shows the 'seai' Upgrade Builder interface. The main area lists energy upgrade options categorized by 'Fabric' and 'Heating'. The 'Fabric' category includes upgrades for Door, Floor, Roof, Wall, and Window. The 'Heating' category includes upgrades for Space Heating and Heating Control. On the right side, there is a summary panel titled 'Upgrade Impact' which shows 'Current BER: G' and 'Potential BER: B1'. Below this, it lists 'Energy Value' (493.07 Current, 95.58 Potential), 'CO₂e' (5.847 Current, 2.068 Potential), and 'RER' (N/A Current, 0.39 Potential). It also shows 'Expected Upgrade' (D2 Minimum BER, B2 Target BER), 'Notifications' (0), and a 'Summary' section with a price range of '30,000 - 50,000 investment cost'. A red box highlights the summary panel, and a red arrow points to the 'View Draft' button in the top right corner.

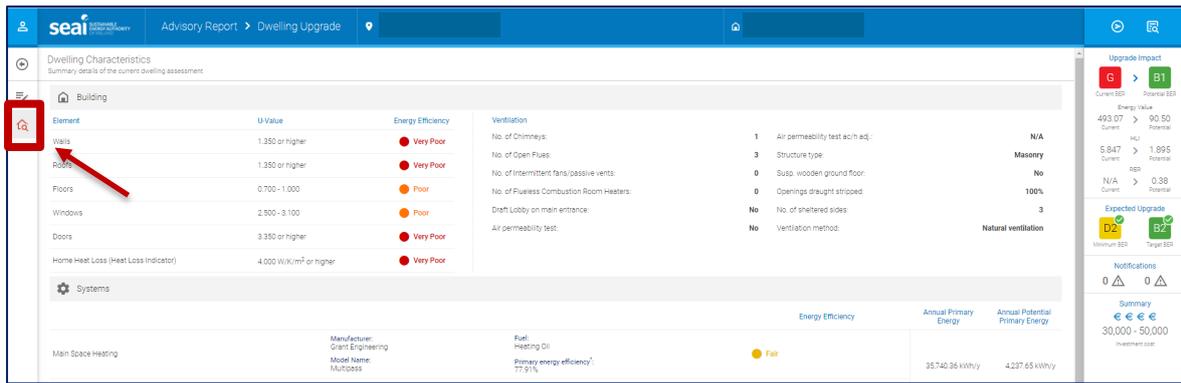
Please note: the minimum BER will need to be reached in order to publish the report.

An assessor can also view a "Draft" copy of the Advisory report by clicking the "View Draft" tab in the top right-hand corner of the builder screen, this will download a "Draft" copy which you can save or print locally on the assessor's own PC system.

This screenshot is similar to the one above, showing the 'seai' Upgrade Builder interface. However, the 'Dwelling Characteristics' tab is selected in the left-hand menu bar. The main area still shows the energy upgrade options. The summary panel on the right is also visible. A red box highlights the 'View Draft' button in the top right corner, and a red arrow points to it.

The Dwelling Characteristics Tab:

The 'Dwelling Characteristics' page can also be accessed from the left-hand menu bar within the advisory report builder. The dwelling characteristics tab will summarise details of the current dwelling assessment, based on the DEAP inputs. This is a useful reference to refer to when an assessor is determining the most appropriate upgrades for the dwelling.

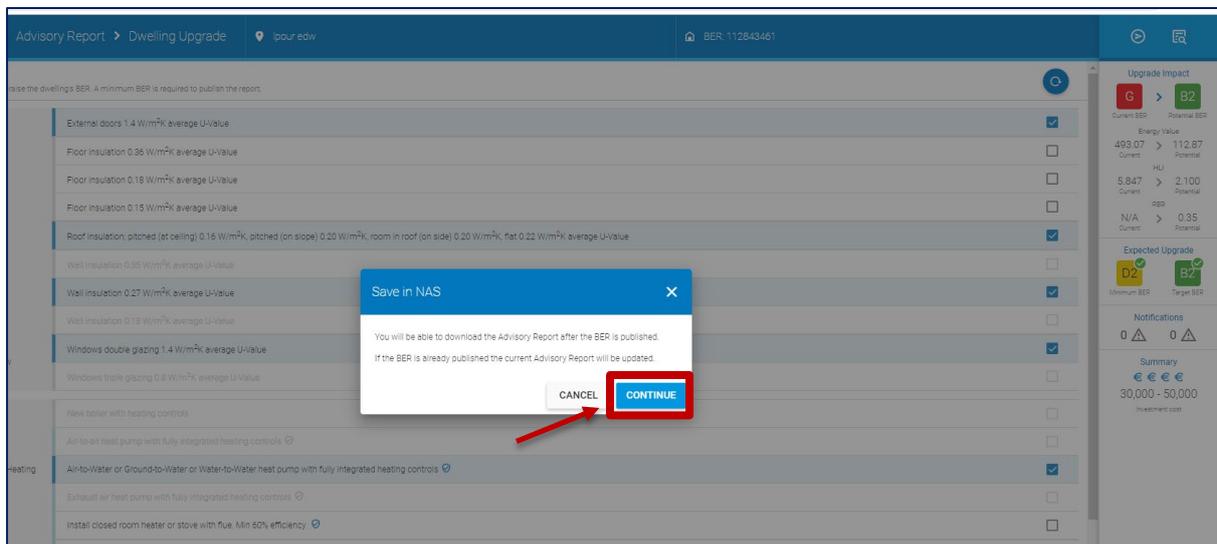


Step 4: Publishing a PDF of the Advisory Report

When the appropriate package of measures has been selected, the advisory report is generated by first selecting the "save in NAS" symbol in the top right-hand corner of the screen.



And secondly by clicking "CONTINUE" in the Save in NAS pop-up screen



By clicking this, it will save in NAS. The assessor can now log in to NAS to finalise publication of the BER and advisory report as normal.

3.1.2 Re-creating a published advisory report in NAS

It is possible to recreate a new format advisory report for any DEAP 4 published assessment (published in DEAP 4 since Sept. 2019) without having to pay a re-publication fee.

When re-creating a new format advisory report, ensure that no changes have been made to the dwelling since the previous publication as this may impact on the choice of recommendations for the advisory report.

Please note the following in relation to re-creating advisory reports:

- It is not possible to re-create a new format advisory report from a DEAP 3 published assessment. To create a new format advisory report from a DEAP 3 published assessment, then the BER must be republished using DEAP 4 and with due consideration for any changes that may have been made to the dwelling since its initial publication.
- It is no longer possible to re-create an advisory report in the old format for either DEAP 3 or DEAP 4 published assessments,
- Re-creating an advisory report will only change the contents of the advisory report – there will be no changes to the BER assessment itself. To update the BER assessment, re-publish the assessment to generate a new BER certificate and advisory report.
- The re-created advisory report will replace the previously published advisory report and will become the official advisory report associated with the BER.

To recreate an already published advisory report then the assessor can do so in NAS.

Step 1: Log into NAS

Once logged into NAS, go to the “*Search ratings*” section. Enter the required BER number or MPRN and select ‘*Search*’.

Home Rating Upload Search Ratings NYP Rejects Repairable Public MPRN Utility Admin

You are here: NAS > Ratings > Search Ratings

Search Ratings

BER Number:

MPRN:

Eircode:

Your Ref.:

Public Search:

Date of Issue: Between And

Development Name:

Developer Name:

Client Name:

ResultID:

Assessor Name:

Assessor Number:

Type Of Rating:

Status:

Include Expired Ratings:

Within the search results page for the searched BER, click on the “*Published*” status on the right-hand side of the search results for the most recent BER publication.

Home Search Ratings NYP Rejects Repairable Public MPRN Utility

You are here: [NAS](#) > [Ratings](#) > [Search Ratings](#) > [Search Results](#)

Search Results

| BER Number | MPRN | Result ID | Your Ref. | Address | County | Processed/ Issued | Type Of Rating | Errors/ Notices | XML | BER Cert | Advisory Report | Status |
|------------|------|-----------|-----------|---------|----------------|-------------------|----------------|-----------------|-----|----------|-----------------|-----------|
| | | | | | Waterford City | 29/06/2021 15:00 | Existing | x 2 | | | | Published |

Step 2: Recreating the advisory report

Within the BER details page, click on the 'Re-create AR' tab.

Home Search Ratings NYP Rejects Repairable Public MPRN Utility

You are here: [NAS](#) > [Ratings](#) > [Search Ratings](#) > [Search Results](#) > [Notice Details](#)

Notice Details

BER Number:

MPRN:

Your Ref.: T695 (Copy2)

Status: Published

Download AR :

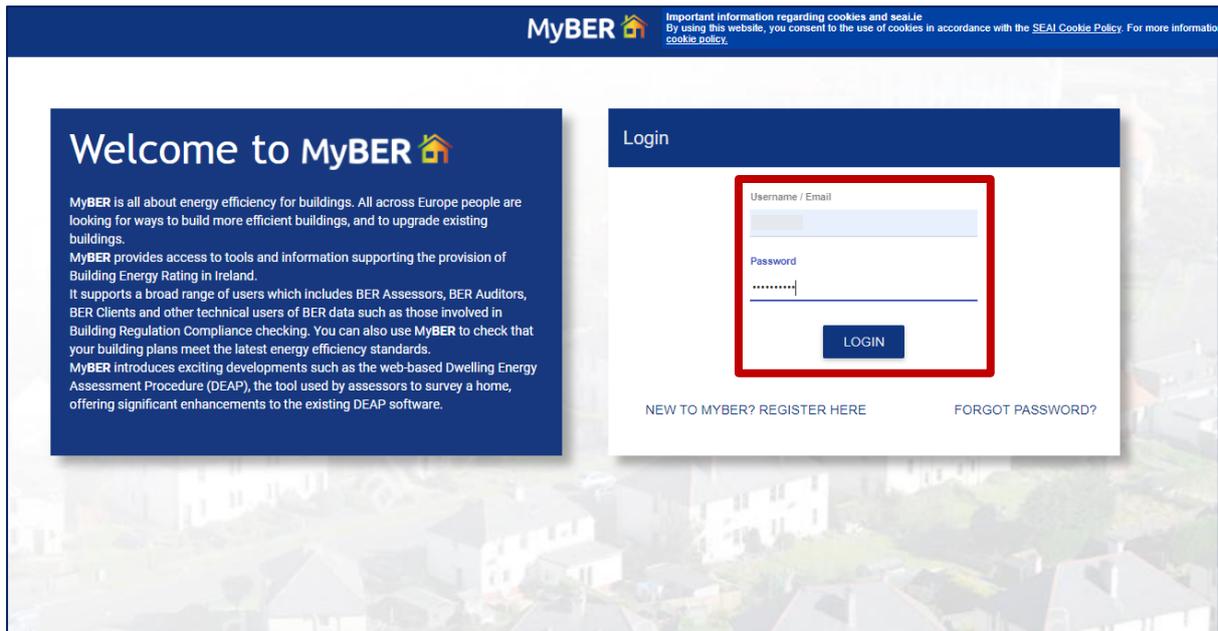
Re-create AR

| Code | Description | Type | Severity |
|------|---|--------|----------|
| 055 | Dwelling Address does not match MPRN Address / Street – you will be required to confirm address when publishing | Notice | 1 |
| 021 | Window Area <15% of total floor area of house or <10% of total floor area of Apartment | Notice | 2 |

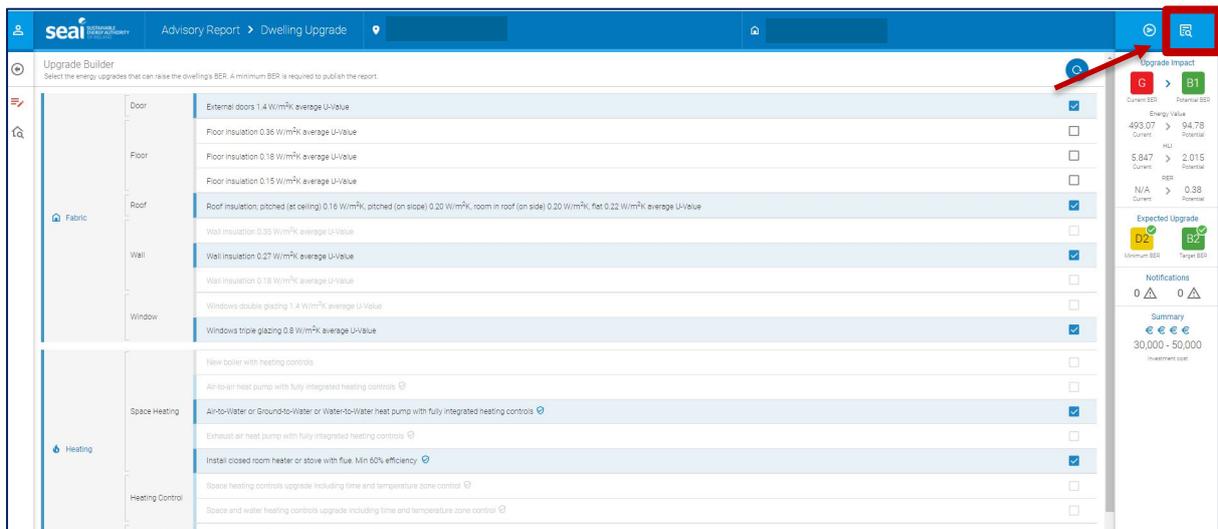
[More Info on Errors / Notices](#)

Download:

The assessor will automatically be redirected to the DEAP log in page.



Once logged in, the assessor will be brought directly to the advisory report builder where any relevant changes can be made. Following the same procedure as in “[Step 3](#)” of generating an advisory report, the assessor can send the re-created advisory report to NAS for publication by selecting the ‘save to NAS’ button on the top right-hand corner of the screen.



The re-created advisory report will replace the previously published advisory report and will become the official advisory report associated with the BER.

3.2 Overview of Energy Upgrade Measures

The advisory report builder will automatically select a number of upgrade measures that are based on the inputs within the BER. The below provide further information on the logic behind the criteria for selection and an overview of the full list of upgrade measures that are available within the advisory report tool.

Table 2: Overview of Energy Upgrade Measures

| ID | Upgrade | Description | Category |
|----|-------------|--|--------------|
| 1 | Fabric | Doors – 1.4W/m ² K | Cost Optimal |
| 2 | | Floor Insulation – 0.36 W/m ² K (<i>generally applicable for suspended floors</i>) | Additional |
| 3 | | Floor Insulation – 0.18 W/m ² K (<i>generally applicable for new floors</i>) | Additional |
| 4 | | Floor Insulation – 0.15 W/m ² K (<i>applicable for u/f heating</i>) | Additional |
| 5 | | Roof insulation; pitched (at ceiling) 0.16W/m ² k, pitched (on slope) 0.20 W/m ² K, flat 0.22 W/m ² k | Cost Optimal |
| 6 | | Wall insulation - 0.35W/m ² K (generally applicable to CWI upgrades or IWI upgrades for pre-1950s dwellings with stone or brick single leaf construction. | Cost Optimal |
| 7 | | Wall insulation - 0.27 W/m ² K | Cost Optimal |
| 8 | | Wall insulation - 0.18 W/m ² K | Cost Optimal |
| 9 | | Windows double glazing 1.4W/m ² K | Cost Optimal |
| 10 | | Windows triple glazing 0.8W/m ² K | Cost Optimal |
| 11 | Heating | Air to Air Heat pump with fully integrated heating controls - 350% efficient *Choice of this selection will apply an electric immersion 100% efficiency to the water heating | Additional |
| 12 | | Air to water, Water to water or ground source Heat pump with fully integrated heating controls - 350% space heating efficiency, 200% water heating efficiency | Additional |
| 13 | | Exhaust air Heat pump with fully integrated heating controls 350% space heating efficiency, 200% water heating efficiency | Additional |
| 14 | | Replace water heating with hot water only heat pump 200% efficient, and hot water controls | Additional |
| 15 | | Electric heating system upgrade including time and temperature zone control | Additional |
| 16 | | Biomass boiler 77% efficient including time and temperature zone control | Additional |
| 17 | | Gas/Oil boiler 90% efficient including time and temperature zone control | Additional |
| 18 | | Solid fuel boiler and heating controls upgrade. minimum 75% boiler efficiency for space and water heating | Additional |
| 19 | | Space heating controls upgrade including time and temperature zone control | Additional |
| 20 | | Space and water heating controls upgrade including time and temperature zone control | Additional |
| 21 | | Install Gas room heater with 90% efficiency | Additional |
| 22 | | Install solid fuel closed room heater or stove with min 60% eff. | Additional |
| 23 | | Cylinder insulation | Simple |
| 24 | | Cylinder Thermostat | Simple |
| 25 | Ventilation | Install mechanical ventilation heat recovery system | Additional |
| 26 | | Whole-house extract ventilation | Additional |
| 27 | | Draught Stripping | Simple |
| 28 | | Draught seal the suspended wooden ground floor | Additional |
| 29 | Lighting | Lighting with efficacy 66.9 lumens | Simple |
| 30 | Renewables | Solar hot water heating system | Additional |
| 31 | | Solar Photovoltaic (PV) electricity System 2Kwp | Additional |

3.2.1 Energy Upgrades

The above [Table 2](#) gives an overview of the full choice of energy upgrades within the advisory report builder. Only measures applicable to the dwelling being assessed will be available for selection and will depend on the BER inputs in the dwelling assessment. Measures are categorised as 'simple', 'cost-optimal' or 'additional'.

These categories are described as follows:

3.2.2 Simple Energy Upgrades

"Simple measures" as described in the advisory report as 'quick, cheap and easy' also describe a number of 'quick wins' the Homeowner can implement if they are not ready to invest in the full package of works. These are tailored towards the dwelling, and include items such as draughtproofing, low energy lighting, upgrading the cylinder thermostat controls and installing cylinder insulation. These simple measures will be automatically selected in the advisory report builder where appropriate.

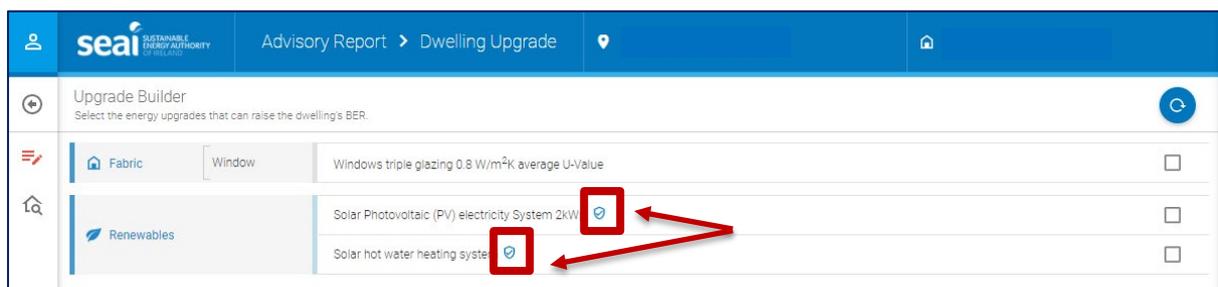
3.2.2 Cost Optimal Energy Upgrades

"Cost-optimal measures" are recommended based on the 'cost-optimal level', which is defined as the energy performance level which leads to the lowest cost during the estimated economic lifecycle, taking into account energy savings and investment, operating and maintenance costs.

3.2.3 Additional Energy Upgrades

"Additional measures" include other measures that will increase the energy efficiency of the dwelling such as ventilation, renewables and heat system upgrades. Such measures are a good starting point for Homeowners starting their journey to upgrade their home.

Additional energy upgrades can be identified within the advisory report builder by the 'shield' symbols. Additional measures can be selected and de-selected for the dwelling, depending on the upgrade requirements.



3.3 Optimal & Threshold Values for Generating Upgrade Measures

When generating recommendations for the dwelling, the advisory report will use the data within the BER assessment as a benchmark in order to propose potential upgrades. The software selects these automatically, however the assessor can deselect these and choose other available options that they may deem to be more appropriate for the dwelling.

Thresholds are a range of values for a particular element or system that if outside the parameters given will trigger an upgrade option, more detail on these can be found in the tables in [Appendix A](#).

Note: Any prompted energy upgrade measures within the advisory report builder are based on inputs within the BER and are triggered if they are above the predetermined threshold values for the individual element, however, the recommended upgrade outcome for building fabric is based on an area-weighted average U-value of all elements within the individual element type i.e., for roofs upgrade outcome based an area-weighted average U-value of all roof types within the dwelling. This applies to all element types.

| Optimal & Threshold Values – Building Fabric | | |
|--|---------------------------------------|--------------------|
| Upgrade | Upgrade options available (Threshold) | Optimum |
| Wall | >0.44 | 0.35 / 0.27 / 0.18 |
| | >0.36 | 0.27 / 0.18 |
| | >0.27 | 0.18 |
| Roof | ≥0.20/0.35/0.35 | 0.13/0.16/0.20 |
| Windows | >1.49 | 1.4 / 0.8 |
| | >0.89 | 0.8 |
| Doors | ≥2.7 | 1.4 |
| Floors | >0.45 | 0.36/0.18/0.15 |
| | >0.27 | 0.18 / 0.15 |
| | >0.24 | 0.15 |

The BER assessor is best placed to determine if the pre-selected recommendation is appropriate for the dwelling. An assessor may choose to de-select, select alternatives, or select additional measures for inclusion in the final package of measures to appear in the report.

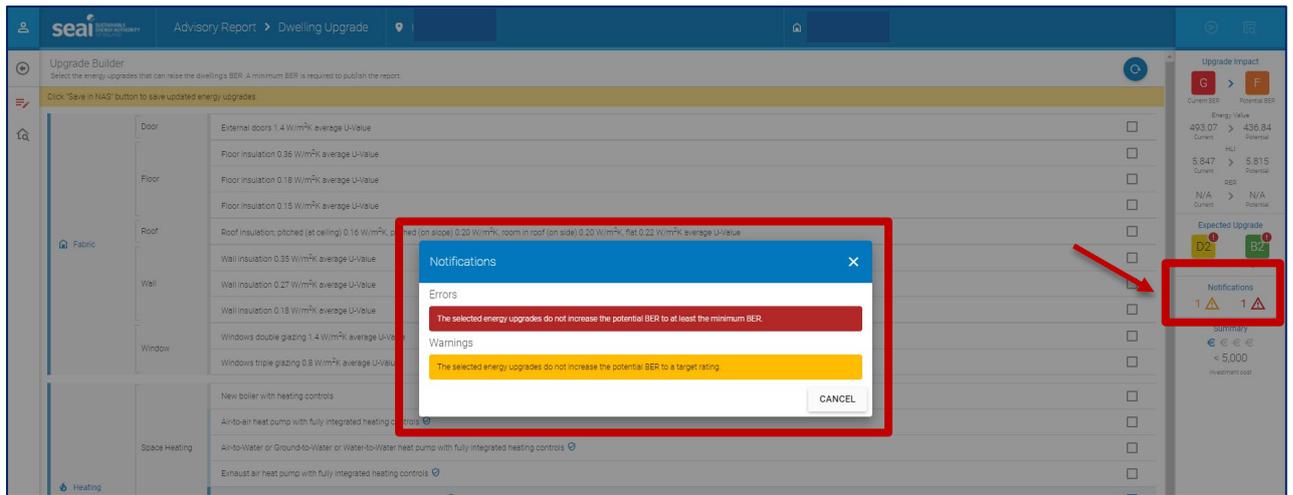
For further reading on optimal and threshold values please refer to [Appendix A](#).

3.3.1 Error Warnings & Notifications

Error and warning notices are provided to assist the assessor when selecting a package of upgrades.

A **red** triangle indicates that there are one or more errors present. An error indicates that not enough energy upgrades have been selected to bring the potential rating equal to or above the expected minimum rating. Errors will not prevent publication.

A **yellow** triangle indicates that there are one or more warning notices. A warning notice advises the assessor that not enough energy upgrades have been selected to improve the potential BER to the target.



A full list of error warnings and notification can be found [Appendix B](#).

3.3.2 Cost Indicators for Package Measures

Cost indicators are displayed for the full package of measures and update as measures are added or removed and is based on the below criteria. The investment cost indicators are guidelines only. Actual costs will vary depending on house size, specification, and market conditions.

Cost indicators may be calculated based on a partial upgrade if for example, some sections of the building element are already adequately insulated.

| Cost Legend: | Cost Indicators: |
|--------------|------------------|
| € | <5,000 |
| €€ | 5,000 – 15,000 |
| €€€ | 15,000 – 30,000 |
| €€€€ | 30,000 – 50,000 |

4. The Information within the Advisory Report Explained

4.1 Advisory Report Page 1

Page 1 provides an overview to the Homeowner of the dwelling's current rating and its energy performance. It also provides an overview of a recommended package of upgrades and their impact on the dwelling's current energy performance.

Home Energy Upgrade Advisory Report

BER No. []

Your Home's Energy Performance Potential

BER [G F E2 E1 D2 D1 C3 C2 C1 B3 B2 B1 A3 A2 A1]

Loss of heat from your home

| Category | NOW | POTENTIAL |
|---------------|-----------|------------|
| Roofs | Very Poor | Good |
| Walls | Fair | Good |
| Windows | Poor | Good |
| Floor | Poor | No Upgrade |
| Space heating | Very Poor | Very Good |
| Water heating | Very Poor | Very Good |
| Renewables | Very Poor | Very Good |

GRANTS AVAILABLE?

subject to availability, terms and conditions

For further information visit www.seai.ie/grants or call 01 8082100

Compare your home's performance | Before and after upgrades

| | | | |
|--|-----------------|--|------------------------|
| Your home's current energy performance | NOW F | Your home's potential energy performance | POTENTIAL B2 |
|--|-----------------|--|------------------------|

Benefits of upgrading your home

- INCREASE your home's value
- INCREASE your home's comfort
- REDUCE your energy bills

SAVE

CO₂ | TONNES
6.8
= the same as planting 485 tree(s) each year

To find out more visit www.seai.ie

seai SUSTAINABLE ENERGY AUTHORITY OF IRELAND

Dwelling rating information
Current rating indicator

Potential rating indicator
After upgrades

Dwelling heat loss (HLI) and performance visuals
Heat loss now & potential

Available grants and links to additional information

Dwelling energy performance
Current & potential

Benefits to the Homeowner

4.2 Advisory Report Page 2

Page 2 contains the package of energy upgrade recommendations including the cost and comfort indicators and the available grants for each upgrade measure.

Home Energy Upgrade Advisory Report

Your journey from **BER F** to **BER B2**

Your BER assessor has recommended a package of energy upgrades that maximise the energy performance of your home. The recommendations are for guidance only and can be completed at your own discretion. The recommendations are just one potential pathway to an improved BER and it is open to you to discuss alternative packages with your professional advisors.

Package of energy upgrades to save money, make your home more comfortable and protect the environment

| Recommended Package of Energy Upgrades | Cost (Approx.) ⁴ | Grant Available ⁵ | Comfort |
|---|-----------------------------|------------------------------|-----------|
| External doors 1.4 W/m ² K average U-Value ^{1, 2} | € € € € € | ✓ | ★ ★ ★ ☆ ☆ |
| Roof insulation; pitched (at ceiling) 0.16 W/m ² K, pitched (on slope) 0.20 W/m ² K, room in roof (on side) 0.20 W/m ² K, flat 0.22 W/m ² K average U-Value ^{1, 2} | € € € € € | ✓ | ★ ★ ★ ★ ☆ |
| Wall insulation 0.27 W/m ² K average U-Value ^{1, 2} | € € € € € | ✓ | ★ ★ ★ ★ ★ |
| Windows double glazing 1.4 W/m ² K average U-Value ^{1, 2} | € € € € € | ✓ | ★ ★ ★ ★ ☆ |
| Air-to-Water or Ground-to-Water or Water-to-Water heat pump with fully integrated heating controls ³ | € € € € € | ✓ | ★ ★ ★ ★ ☆ |

1. Major Renovation is defined in the Building Regulations Part L Technical Guidance Document and means the renovation of a dwelling where more than 25% of the surface of the dwelling envelope undergoes renovation. Where a dwelling undergoes a major renovation, the energy performance of the whole dwelling should be improved to the cost optimal level by achieving a B2 or by implementing the energy performance improvements as set out in the Building Regulations Part L Technical Guidance Document.

2. This energy upgrade will reduce your home's heat loss and is an important first step to improving the energy efficiency of your home.

3. A dwelling should have low heat loss to ensure the heat pump runs efficiently. An ideal heat loss indicator (HLI) is less than 2.0 W/(K m²). An upper HLI limit applies to SEAI grants. Where the HLI is between 2 and 2.3 W/(K m²), additional heat pump grant eligibility criteria apply.

4. Investment Cost Legend:

- € < 5,000
- €€ 5,000 - < 15,000
- €€€ 15,000 - < 30,000
- €€€€ 30,000 - 50,000

5. A grant for this type of upgrade is available at the time of publication of this report. Grant availability is subject to eligibility criteria and should be checked to see if the works to your own home meet the eligibility criteria. Eligibility criteria are subject to change.

GRANTS AVAILABLE?

subject to availability, terms and conditions

For further information visit www.seai.ie/grants or call 01 8082100

www.seai.ie

Page 2/4

Current dwelling rating & potential after upgrades

Recommended upgrade package

Approximate Energy upgrade cost Denoted by the € symbol
 € = less than €5,000
 €€ = €5,000 - <€15,000
 €€€ = €15,000 - <€30,000
 €€€€ = €30,000 - €50,000

4.3 Advisory Report Page 3

Page 3 gives the homeowner a breakdown of simple measures applicable to their home, if they are not ready to implement the full range of upgrades at that time. Performance information is also provided for individual and potential measures.

Home Energy Upgrade Advisory Report

Start your journey to upgrade your home

If you're not ready for the maximum SEAI grant, consider picking one or two energy upgrades, selecting areas with the poorest performance.



GRANT APPLICATION

To start your application today visit www.seai.ie/grants

Simple energy upgrades - quick, cheap, easy

Draughtproofing
Draughtproofing, fitted to windows, doors and loft or attic hatches, improves airtightness and thermal comfort, reduces heat loss, improves noise insulation and reduces dust ingress.

Potential impact of the recommended energy upgrades

| Energy upgrade | Now | | Potential | |
|--|-----------------------------|-------------------|-----------------------------|-------------------|
| | Value | Energy Efficiency | Value | Energy Efficiency |
| Home Heat Loss Indicator (HLI) ¹ | 3,901 W/(K·m ²) | Poor | 2,097 W/(K·m ²) | Good |
| External doors (average U-Value ²) | 3,030 W/m ² K | Poor | 1,400 W/m ² K | Very Good |
| Roof insulation (average U-Value ²) | 2,300 W/m ² K | Very Poor | 0,160 W/m ² K | Good |
| Wall insulation (average U-Value ²) | 0,600 W/m ² K | Fair | 0,270 W/m ² K | Good |
| Windows double glazing (average U-Value ²) | 2,700 W/m ² K | Poor | 1,400 W/m ² K | Good |
| Air-to-Water or Ground-to-Water or Water-to-Water heat pump with fully integrated heating controls (Primary Energy Efficiency ³) | 0% | Very Poor | 100% | Very Good |
| Renewable Energy Ratio (RER) | 0% | Very Poor | 37% | Very Good |

1. The Home Heat Loss Indicator (HLI) is a summary of the overall performance of the home. It includes all the fabric and ventilation upgrades listed in the report.
 2. A U-value is a measure of the heat loss through the building fabric. The higher the U-value, the greater the heat loss.
 3. Primary energy efficiency is the efficiency divided by the primary energy conversion factor.
 4. Indicators are based on the average elemental U-values in the RER and where partial upgrades occur, average U-values may remain above the optimum U-value.

www.seai.ie

Page 3/4

Grant link information

Simple energy upgrades

Table of upgrade areas

Energy efficiency now & potential

Element/technology Potential energy efficiency after upgrades

Present element/technology energy efficiency

4.4 Advisory Report Page 4

Page 4 gives a brief description of the dwelling. It details how to use the advisory report and also highlights important information regarding ventilation, building regulations, cost indicators and documentary evidence requirements for the BER.

Home Energy Upgrade Advisory Report

Your Home's Details
Home Address

House Details
Year of construction: 1969
Dwelling type: End of terrace house
Total floor area: 76.08 m²

About the Home Energy Upgrade Advisory Report
This document is a first step to assist you in engaging with a professional to determine suitable energy upgrades for your home. It was prepared by a BER assessor using general assumptions and information from your BER assessment. The improvement in the BER has been estimated based on the assumption of certain values for energy upgrades and is provided as an indicator only. This document is for information only and does not constitute professional or legal advice. The homeowner waives and releases any and all claims against SEAI and/or the BER assessor arising from the contents of this advisory report.

Use this document to:
Better understand how your home performs and how to make it more comfortable and affordable to run.
Provide information on home energy upgrades to discuss further with a professional or contractor.
Identify small simple steps you can take to improve the comfort of your home, if grant supported works aren't suitable for you right now.
Start the grant application process with SEAI, who may have substantial support available.

Recommended Energy Upgrades
The recommendations contained within your advisory report have been generated based on the data inputs contained within your BER assessment. SEAI recommends you seek professional advice and use suitably qualified installers to assess the suitability of the recommendations for your own particular home. SEAI and the BER assessor accept no responsibility for and give no guarantees, undertakings or warranties concerning the accuracy, completeness or fitness-for-purpose of the information contained herein and do not accept any liability whatsoever arising from the contents hereof. Further information on upgrading your home is available in **S.R. 54:2014 Code of Practice for the Energy Efficient Retrofit of Dwellings**, available from www.seai.ie.

Building Regulations
The aim of the building regulations is to provide for the safety and welfare of people in and about buildings. Where applicable, works should be completed in accordance with the relevant Building Regulations. The primary responsibility for compliance with the requirements of the Building Regulations rests with the designers, builders and owners of buildings. Technical Guidance Documents for the Building Regulations and other supporting documents are available from the Department of Housing, Local Government and Heritage website at www.housing.gov.ie.

Costs
The investment cost indicators are guidelines only. Actual costs will vary depending on house size, specification and market conditions. Cost indicators may be calculated based on a partial upgrade if some sections of the building element are already adequately insulated.

Please consider the environment before printing this document.
BER Privacy Notice: www.seai.ie/publications/BER-Privacy-Notice.pdf

Ventilation
Care should always be taken to ensure sufficient levels of ventilation in each room. Signs of inadequate ventilation are persistent condensation and mould growth and should be addressed in the first instance. It is important not to permanently close or cover over air vents as they are required to provide ventilation. Further guidance on ventilation provision when carrying out retrofit works is available in Section 10 Ventilation of S.R. 54:2014 Code of Practice for the Energy Efficient Retrofit of Dwellings.

Radon
Radon is a naturally occurring radioactive gas. In certain cases radon can accumulate in a building to such a concentration that it is deemed to constitute a potential health hazard. Radon is deemed to be a risk factor for lung cancer. A radon test is low cost and non-disruptive. The only way to know if a home has a radon issue is to test. Retrofitting provides an opportunity to test for and remediate for radon, where indicated. Further information on radon, including testing, is available on the EPA website www.epa.ie.

Heat producing Appliances
It is important to ensure that there is an adequate air supply to all heat producing appliances e.g. any fixed appliance (including a cooker or an open fire) which is designed to burn solid fuel, oil, bio-fuel or gas and to provide permanent ventilation for all non-room sealed combustion appliances. Useful health and safety information can be found on the Carbon Monoxide safety website: www.carbonmonoxide.ie. Further guidance on air supply for heat producing appliances is available in Section 7 and Section 10 Ventilation of S.R. 54:2014 Code of Practice for the Energy Efficient Retrofit of Dwellings.

Evidence for BER
Documentary evidence of energy upgrades is required for your BER and should be retained and provided to your BER assessor to ensure the energy performance uplift is captured in your BER. Your BER Assessor can advise you on documentary evidence requirements. Further information is available on <https://www.seai.ie/home-energy/building-energy-rating-ber/>.

Dwelling details

Homeowner advice on how to use the advisory report

Homeowner advice on the information contained within the advisory report and further relevant links

www.seai.ie Page 4/4

4.5 Energy Efficiency Indicators

The advisory report contains colour coded performance indicators for the home's current status and its potential following the installation of recommended upgrades.

The following table details the values applicable for the performance indicators for each dwelling element.

| Energy efficiency bands | | | Very Poor | Poor | Fair | Good | Very Good |
|--|--------------|-----------------------|-----------------|-----------------|---------------|------------------|-----------------------|
| Home Heat Loss (Heat Loss Indicator) ¹ | | W/(K·m ²) | > 4.000 | 4.000 - 3.000 | 3.000 - 2.300 | 2.300 - 1.000 | < 1.000 |
| Roof U-Value ² | | W/m ² K | > 1.350 | 1.350 - 0.380 | 0.380 - 0.310 | 0.310 - 0.130 | < 0.130 |
| Walls U-Value ² | Cavity Walls | W/m ² K | > 1.440 | 1.440 - 0.830 | 0.830 - 0.460 | 0.460 - 0.210 | < 0.210 |
| | Other Walls | W/m ² K | > 1.350 | 1.350 - 0.720 | 0.720 - 0.390 | 0.390 - 0.210 | < 0.210 |
| Floor U-Value ² | | W/m ² K | > 1.000 | 1.000 - 0.700 | 0.700 - 0.530 | 0.530 - 0.300 | < 0.300 |
| Windows U-Value ² | | W/m ² K | > 3.100 | 3.100 - 2.500 | 2.500 - 1.900 | 1.900 - 1.100 | < 1.100 |
| Doors U-Value ² | | W/m ² K | > 3.350 | 3.350 - 2.700 | 2.700 - 2.100 | 2.100 - 1.800 | < 1.800 |
| Space Heating – Primary Energy Efficiency ³ | Main | % | < 64 | 64 - 73 | 73 - 78 | 78 - 82 | > 82 |
| | Secondary | % | < 18 | 18 - 27 | 27 - 45 | 45 - 59 | > 59 |
| Space Heating Controls | | | No time control | Limited control | Basic control | Advanced control | Very advanced control |
| Water Heating Primary Energy Efficiency ³ | | % | < 64 | 64 - 73 | 73 - 78 | 78 - 82 | > 82 |
| Lighting – Average Efficacy | | Lm/W | < 15.00 | 15.00 - 25.00 | 25.00 - 50.00 | 50.00 - 60.00 | > 60.00 |
| Mechanical Ventilation Efficiency | | % | < 50 | 50 - 60 | 60 - 70 | 70 - 80 | > 80 |
| Whole-house extract ventilation – Specific Fan Power | | W/l/s | > 0.50 | 0.50 - 0.45 | 0.45 - 0.40 | 0.40 - 0.35 | < 0.35 |
| Renewable Energy Ratio | | % | 0 | 0-5 | 5 - 10 | 10 - 20 | > 20 |

1. The Home Heat Loss Indicator (HLI) is a summary of the overall performance of the home. It includes all the fabric and ventilation upgrades listed in the table.

2. A U-value is a measure of the heat loss through the building fabric. The higher the U-value, the greater the heat loss.

3. Primary Energy Efficiency is the efficiency divided by the primary energy conversion factor.

5. References

Appendix A: List of available upgrades

Appendix A provides further information on the logic behind the criteria for selection and an overview of the full list of upgrade measures that are available within the advisory report tool. Thresholds are a range of values for a particular element that when outside of its parameters will trigger an upgrade option.

Please refer to the list of [Tables](#) for more information/legends on ID number reference for dwelling types, primary circuit loss type and fuel type.

A1. Available Fabric Upgrades

| No | DEAP Reference | Description | Measure | Triggered at | Situation applied |
|----|----------------|--|--------------|---|--|
| 1 | FABRIC | Doors 1.4W/m ² K | Cost optimal | $\geq 2.7 \text{ W/m}^2\text{K}$ | If the door U-value is equal to or above 2.7W/m ² K then this measure will become available to the assessor |
| 2 | | Floor Insulation 0.36 W/m ² K <i>(Generally applicable for suspended floors)</i> | Additional | $>0.45\text{W/m}^2\text{K}$ | If the floor u-value is above 0.45W/m ² K, a floor upgrade of 0.36/0.18/0.15W/m ² k becomes available for a selection to the assessor. |
| 3 | | Floor Insulation 0.18 W/m ² K <i>(Generally applicable for new floors)</i> | Additional | $> 0.27\text{W/m}^2\text{K}$ | If the floor u-value is above 0.27W/m ² K, a floor upgrade of 0.18/0.15W/m ² k becomes available for a selection to the assessor. |
| 4 | | Floor Insulation 0.15 W/m ² K <i>(Applicable for replacement floors with underfloor heating)</i> | Additional | $> 0.24\text{W/m}^2\text{K}$ | If the floor u-value is above 0.24W/m ² K, a floor upgrade of 0.15W/m ² k becomes available for a selection to the assessor. |
| 5 | | Roof Insulation; pitched (at ceiling) 0.16W/m ² k, pitched (on slope) 0.20 W/m ² K, flat 0.22 W/m ² k | Cost Optimal | (At ceiling) $\geq 0.20\text{W/m}^2\text{K}$ (All other) $\geq 0.35\text{W/m}^2\text{K}$ | This applies to roof types pitched (at ceiling), pitched (on slope) and flat roof, cost optimal options become available for selection to the assessor under the following parameters – • Roof Insulation at ceiling with a U-value equal to or above than 0.20W/m ² K - recommends an insulation upgrade to improve the U-value to 0.16W/m ² K |

| | | | | | |
|----|--|--------------|-------------------------|--|---|
| | | | | | <ul style="list-style-type: none"> • Roof insulation on slope with a U-value equal to or above than 0.35W/m²K – recommends an insulation upgrade to improve the u-value to 0.20W/m²K • Roof insulation flat roof with a U-value equal to or above than 0.35W/m²K – recommends an insulation upgrade to improve the U-value to 0.22W/m²K |
| 6 | Wall insulation - 0.35W/m ² K <i>(Generally applicable to CWI upgrades or IWI upgrades for pre-1950s dwellings with stone or brick single leaf construction)</i> | Cost Optimal | >0.44W/m ² K | Any wall type with a u-value is above 0.44W/m ² K an upgrade to a value 0.35/0.27/0.18W/m ² K becomes available for selection. | |
| 7 | Wall insulation - 0.27 W/m ² K | Cost Optimal | >0.36W/m ² K | Any wall type with a u-value is above 0.36W/m ² K an upgrade of wall to a value 0.27/.18W/m ² K becomes available for selection. | |
| 8 | Wall insulation - 0.18 W/m ² K | Cost Optimal | >0.27W/m ² K | Any wall type with a u-value is above 0.27W/m ² K or worse an upgrade of wall insulation 0.18 W/m ² K becomes available for selection. | |
| 9 | Windows - Double glazing 1.4W/m ² K | Cost Optimal | >1.49W/m ² K | If the window u-value is above 1.49 W/m ² K an upgrade of double glazing 1.4./0.8W/m ² K becomes available for selection. | |
| 10 | Windows - Triple glazing 0.8W/m ² K | Cost Optimal | >.89W/m ² K | If the window u-value is above 0.89 W/m ² K an upgrade of double glazing 0.8W/m ² K becomes available for selection. | |

A2. Available Heating Upgrades

| No | DEAP Reference | Description | Measure | Triggered at | Situation applied |
|----|----------------|--|------------|--|---|
| 11 | HEATING | Air to air heat pump with fully integrated heating controls - 350% efficient (<i>Choice of this selection will apply an electric immersion 100% efficiency to the water heating</i>) | Additional | Is individual Space Heating AND Individual Main System Efficiency <=100% | If the main heating system efficiency is below or equal to 100%, an upgrade of air-to-air heat pump with fully integrated heating controls becomes available for selection. |
| 12 | | Air to water, water to water or ground source heat pump with fully integrated heating controls - 350% space heating efficiency, 200% water heating efficiency | Additional | Is individual Space Heating AND Individual Main System Efficiency <=100% | If the main heating system efficiency is below or equal to 100%, an upgrade of air to water, water to water and ground source heat pump with fully integrated heating controls becomes available for selection. |
| 13 | | Exhaust air heat pump with fully integrated heating controls 350% space heating efficiency and 200% water heating efficiency | Additional | Is individual Space Heating AND Individual Main System Efficiency <=100% | If the main heating system efficiency is below or equal to 100% an upgrade of exhaust air heat pump with fully integrated heating controls becomes available for selection. |
| 14 | | Replace water heating with hot water only heat pump 200% efficiency, and hot water controls | Additional | Is individual Hot Water and individual Main system efficiency is <=100% | If the main hot water system efficiency is below or equal to 100% - an upgrade of a hot water only heat pump and hot water controls including a cylinder thermostat becomes available for selection. |

| | | | | | |
|----|--|--|------------|--|--|
| 15 | | Electric heating system upgrade including time and temperature zone control | Additional | Must be individual Space Heating AND Main Space Heating Fuel type ID 16,28 AND Main System Efficiency \leq 100% AND Temp Adjustment = 0.3 OR Space Heating System Control Category 1,2 OR Space Heating System Response Category 4,5 | If the main space heating is electric with an efficiency below or equal to 100% with a control category ID of 1,2 and a response category of 4,5, an upgrade of electric heating system upgrade including time and temperature zone control becomes available for selection. |
| 16 | | Biomass boiler including time and temperature zone control | Additional | Must be individual Space Heating Dwelling Type ID 6,7,8,9 AND Energy Value \geq 100 AND Individual Main System Efficiency $<$ 77% | If the main space heating efficiency is below 77%, with a dwelling type ID of 6,7,8,9 AND an Energy Value \geq 100 Kwh/m ² /yr, an upgrade of biomass heating system upgrade including time and temperature zone control becomes available for selection. |
| 17 | | Installation of a Gas/Oil boiler 90% efficient plus space heating controls upgrade including time and temperature zone control | Additional | Must be individual Space Heating AND Main space heating Fuel type ID 16,28 AND Main System Efficiency =100% or Main space heating fuel type = Any Efficiency $<$ 86% | If the main space heating is electric with an efficiency equal to 100% or main space heating is any fuel type with an efficiency of below 86%, an upgrade of gas/oil boiler efficiency of 90% including time and temperature zone control becomes available for selection. |
| 18 | | Solid fuel boiler and heating controls upgrade. Minimum 75% boiler efficiency | Additional | If Main Space Heating Fuel type ID 6, 7, 8, 9, 10, 15 and Main System Efficiency is \leq 70% | If the main space heating is solid fuel boiler with an efficiency equal to or below 70%, an upgrade of 75% efficient solid fuel boiler including time and temperature zone control becomes available for selection. |

| | | | | | |
|----|--|--|------------|--|---|
| 19 | | Space heating controls upgrade including time and temperature zone control | Additional | If Main Space Heating Fuel type ID 2, 3, 4, 5,6,7,8,9,10,11,12,13,14,15 and Temp Adjustment = 0.6 or Space Heating System Control Category 1,2 and Heat System Efficiency Adjustment Factor is less than or equal to 1.0 | If the main space heating is oil, gas or biomass and with limited controls then this option becomes available for space heating. |
| 20 | | Space and water heating controls upgrade including time and temperature zone control | Additional | If Main Space Heating Fuel type ID 2, 3, 4, 5,6,7,8,9,10,11,12,13,14,15 and Temp Adjustment= 0.6 or Space Heating System Control Category 1 or 2 and Heating System Efficiency Adjustment Factor is less than or equal to 1.0 or Heating System Efficiency Adjustment Factor >= 0.95 | If the main space heating is oil, gas or biomass and with limited controls then this option becomes available for space and water heating. |
| 21 | | Install gas room heater with 90% eff. | Additional | If individual Space Heating AND secondary fuel is gas system efficiency <= 40% | If the secondary heat has an efficiency equal to 40% and the fuel is gas, an upgrade of a gas room heater or stove with min 90% efficiency becomes available for selection. |
| 22 | | Install solid fuel closed room heater or stove with min 60% eff. | Additional | If individual Space Heating AND secondary fuel being solid fuel system efficiency <= 30% | If the secondary heat has an efficiency equal to 30%, an upgrade of a solid fuel closed room heater or stove with min 60% efficiency becomes available for selection. |

| | | | | | |
|----|--|---------------------|--------|---|--|
| 23 | | Cylinder insulation | Simple | <p>If the temperature factor unadjusted = 0.6 and water storage volume is > 60 litres and insulation type = loose jacket and insulation thickness is ≤40</p> <p>OR</p> <p>Insulation type = 0 and manufacturer's declared loss factor is unavailable, If the temperature factor unadjusted = 0.6 and water storage volume is > 60 litres and insulation type = spray foam and insulation thickness is ≤20</p> <p>OR</p> <p>Insulation type = 1 and manufacturer's declared loss factor is unavailable</p> | <p>If the cylinder is over 60 litres with no insulation or a lagging jacket insulation of ≤ 40mm, and in the case of factory insulation ≤20mm, - The simple upgrade option of cylinder insulation becomes available.</p> |
| 24 | | Cylinder thermostat | Simple | <p>If the temperature factor unadjusted = 0.6 AND water storage volume > 60 litres AND primary circuit loss ID 3,4</p> | <p>If there is a cylinder with over 60litres, with a boiler, uninsulated/insulated primary pipework and no cylinder thermostat, an upgrade of cylinder thermostat becomes available for selection.</p> |

A3. Available Ventilation Upgrades

| No | DEAP Reference | Description | Measure | Triggered at | Situation applied |
|----|--------------------|---|------------|--|--|
| 25 | Ventilation | Install mechanical ventilation heat recovery system | Additional | Ventilation method = natural Ventilation | If there is natural ventilation, an upgrade to install mechanical ventilation heat recovery system with an SPF=1 and Efficiency=85% becomes available for selection. |
| 26 | | Whole-house extract ventilation | Additional | Ventilation method = natural Ventilation | If there is natural ventilation, an upgrade of whole-house extract ventilation system with an SFP=0.25 becomes available for selection |
| 27 | | Draught Stripping | Simple | No air permeability test AND percentage draught stripped < 100 | If no air permeability test is available and the draught stripping is below 100%, draught stripping becomes available for selection |
| 28 | | Draught seal the suspended wooden ground floor | Additional | Suspended wooden floor = Yes (unsealed)) | If there is a suspended unsealed floor, draught sealing the suspended wooden ground floor becomes available for selection |

A4. Available Lighting Upgrades

| No | DEAP Reference | Description | Measure | Triggered at | Situation applied |
|----|-----------------|-------------|---------|--|--|
| 29 | Lighting | Lighting | Simple | Lighting design = none OR Average efficacy is < 50 Lumens/Watt | If there is no lighting design or the average efficacy is below 50 Lumens/Watt, lighting with an efficacy of 66.9 lumens/watt becomes available. |

A5. Available Renewable Upgrades

| No. | DEAP Reference | Description | Measure | Triggered at | Situation applied |
|-----|-------------------|---|------------|---|---|
| 30 | Renewables | Solar hot water heating system | Additional | Solar hot water heating = none AND Dwelling Type ID is not 3,4,10,11 | If there is no solar hot water heating system and the dwelling is not ground floor, midfloor or basement dwelling, an option of a solar water heating system will become available, South facing, aperture area 3m ² |
| 31 | | Solar Photovoltaic (PV) electricity System 2KWp | Additional | No renewable technology with following criteria: Energy produced/delivered = 0 AND Energy type ID = Renewable Electrical | If there is no renewable electrical technology, an upgrade for Solar Photovoltaic (PV) electricity system 2Kwp, south facing becomes available for selection. |

Appendix B: Error warnings and notifications

Advisory report builder error warnings and notifications are based on the user selection of upgrade packages or can be assigned to a specific upgrade measure.

B1. Advisory report builder notifications

The list of error messages that may be displayed within the advisory report builder and the scenarios in which they appear is as follows:

- If no upgrades are selected, the following error message will be displayed: *"No energy upgrades have been selected"*. This will not prevent publication provided the minimum BER target has been achieved.
- If no upgrades are applicable, the following error message will be displayed: *"No specific energy upgrades are advised"*. This will not prevent publication.
- If more than 15 measures are selected, the following error message will be displayed: *"The number of energy upgrades selected exceeds the maximum limit of 15 energy upgrades. Please change the selection"*. If more than 15 measures are selected, assessor will need to delete some measures to bring the count back down to 15 in order to publish.
- If no additional measures are selected, the following error message will be displayed: *"No additional energy upgrades have been selected"*. This will not prevent publication provided the minimum BER target has been achieved.
- If the selected measures do not increase the BER rating to the minimum requirement, the following error message will be displayed: *"The selected energy upgrades do not increase the potential BER to at least the minimum BER"*. This will prevent publication as the minimum BER upgrade has not been achieved.
- If selected measures do not increase the rating to a target rating, the following error message will be displayed: *"The selected energy upgrades do not increase the potential BER to a target rating"*. This will not prevent publication provided the minimum BER target has been achieved.
- If more than 1 heat pump is selected, the following error message will be displayed: *"Please select 1 energy upgrade for heat pumps"*. If not updated, this will prevent publication.

The following notifications may also appear for the following individual upgrade measures:

- Heat pumps upgrades may display a conditional warning that is based on the heat loss indicator (HLI). The following notification will be displayed when HLI is greater than or equal to 2.3: *"HLI higher than the required value for selection of heat pumps"*
- Where a heat pump has been selected as an upgrade and the HLI is between 2 and 2.3, the following notification will be displayed: *"Where the HLI is between 2 and 2.3 W/Km², additional criteria apply for heat pump grant eligibility"*.

B2. Upgrade measure dependencies

Energy upgrade measures can be selected independently within the advisory report builder. In some cases, selecting an upgrade measure automatically selects one or more other upgrade measures e.g., some fabric measures are selected automatically for certain heating or renewable measures.

The following outlines measure dependencies found within the advisory report builder:

- Floor insulation measures: if roof insulation is selected as a measure, builder will automatically select the windows upgrade measure for double glazing 1.4 W/m²K, applicable wall insulation and draught seal a suspended wooden ground floor, where applicable
- Where a new boiler with heating controls measure is selected, the report builder will automatically select a roof insulation measure and applicable wall insulation measure
- Where a windows upgrade measure is selected, the report builder will automatically select draught-stripping, roof insulation and an applicable wall insulation measure
- Where a biomass boiler is selected as a measure, the report builder will automatically select roof insulation and an applicable wall insulation measure

- Where PV is selected as a measure, the report builder will automatically select roof insulation, an applicable wall insulation measure, a windows upgrade measure with double glazing 1.4 W/m²K and air-to-water Heat Pump measure
- Where solar water heating is selected as a measure, the report builder will automatically select roof insulation, an applicable wall insulation measure, a windows upgrade measure with double glazing 1.4 W/m²K and an air-to-water heat pump measure.

Tables: Category ID Tables

[Appendix A](#) provides information on the full list of upgrade measures and threshold values within the advisory report builder.

Please refer to the list of tables below for more information on corresponding ID numbers and references, referred to in [Appendix A](#) for dwelling types, primary circuit loss type and fuel type.

T1. Dwelling Type ID

| Dwelling Type | |
|------------------|---------------------------|
| Dwelling Type ID | Dwelling Type Description |
| 1 | House |
| 2 | Apartment |
| 3 | Ground-floor apartment |
| 4 | Mid-floor apartment |
| 5 | Top-floor apartment |
| 6 | End of terrace house |
| 7 | Mid-terrace house |
| 8 | Semi-detached house |
| 9 | Detached house |
| 10 | Maisonette |
| 11 | Basement dwelling |

T2. Primary Circuit Loss ID

| Primary Circuit Loss | |
|----------------------|--|
| ID | Value |
| 1 | None |
| 2 | Electric immersion heater |
| 3 | Boiler uninsulated primary pipework, no cylinder thermostat |
| 4 | Boiler insulated primary pipework, no cylinder thermostat |
| 5 | Boiler uninsulated primary pipework, cylinder thermostat |
| 6 | Boiler insulated primary pipework, cylinder thermostat |
| 7 | Combi boiler |
| 8 | CPSU (including electric CPSU) |
| 9 | Boiler thermal store in single casing (cylinder thermostat) |
| 10 | Separate boiler and thermal store (<1.5m insulated pipework) |
| 11 | Separate boiler and thermal store (uninsulated pipework) |
| 12 | Separate boiler and thermal store (>1.5m insulated pipework) |
| 13 | Community heating |

T3. Fuel Type ID

| Fuel Type | | |
|--------------|--------------------|-----------------------|
| Fuel Type ID | Fuel Type Category | Fuel Type Description |
| 1 | None | None |
| 2 | Gas | Mains gas |

| | | |
|----|---------------------|--|
| 3 | Gas | Bulk LPG |
| 4 | Gas | Bottle LPG |
| 5 | Oil | Heating oil |
| 6 | Solid Fuel | House coal |
| 7 | Solid Fuel | Anthracite |
| 8 | Solid Fuel | Manuf. Smokeless fuel |
| 9 | Solid Fuel | Peat briquettes |
| 10 | Solid Fuel | Sod peat |
| 11 | Solid Fuel | Wood logs |
| 12 | Solid Fuel | Wood pellets (bags) |
| 13 | Solid Fuel | Wood pellets (bulk) |
| 14 | Solid Fuel | Wood chips |
| 15 | Solid Fuel | Solid multi-fuel |
| 16 | Electricity | Electricity |
| 17 | Electricity | Electricity |
| 18 | Electricity | Electricity |
| 19 | Electricity | Electricity |
| 20 | Group Heating | Waste combustion |
| 21 | Group Heating | Biomass or biogas |
| 22 | Group Heating | Waste heat |
| 23 | Group Heating | Electricity |
| 24 | Group Heating | Standing charge |
| 25 | Group Heating costs | Heat from boilers |
| 26 | Group Heating costs | Heat from CHP |
| 27 | | |
| 28 | Electricity | Electricity |
| 29 | Biofuel | Biodiesel from renewable sources only |
| 30 | Biofuel | Bioethanol from renewable sources only |

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