Tionól Réigiúnach an Deiscirt
Southern Regional Assembly

EMPOWER
Interreg Europe

European Union
European Regional
Development Fund

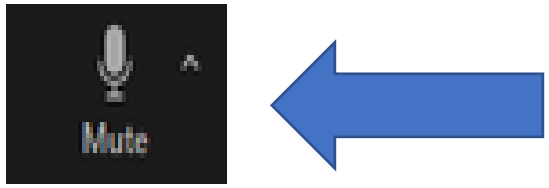
3cea
driving sustainability

Welcome to the EMPOWER Energy Poverty Technical Workshop

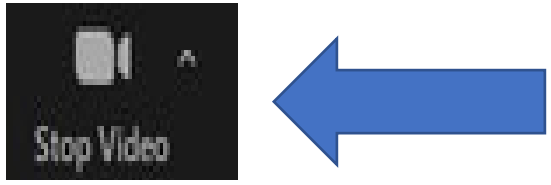
The event will begin at 9:00am Irish Standard Time (10.00 CET)

Zoom - Housekeeping Rules

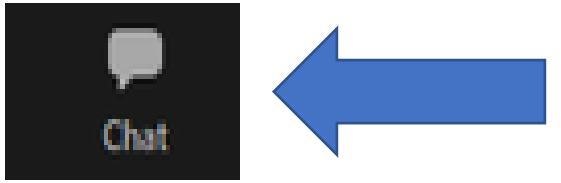
The participant controls appear at the bottom of your screen.



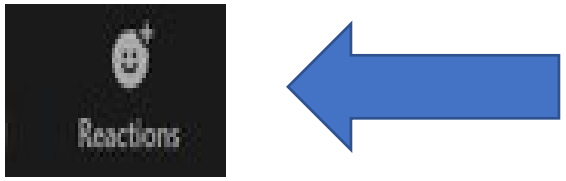
- You will be muted as you enter the Webinar, we please ask you to keep yourself muted if not speaking.
- Join **Audio,** **Mute** and **Unmute** by clicking on the mic symbol at the bottom of your screen. (click the ^ arrow next to **Mute** / **Unmute**): Allows you to change the microphone and speaker that Zoom is currently using on your computer, leave computer audio. You can **unmute** yourself **to ask a question**.



- By clicking on the video symbol at the bottom of your screen, this allows you to **turn on and off your camera.** Again we ask you to keep your camera off unless you wish to ask a question about a specific presentation



- We encourage you to ask **questions and you can also** do this by typing your questions into the **chat box**. We will endeavour to answer as many questions as possible today. Any questions we do not answer will be forwarded to the relevant presenter.



- You can also **react** to any of the presentations today by clicking the reactions button.

Energy Poverty Technical Workshop -23rd March 2022

Wednesday 23rd March 2022 (All times are Irish Time, CET is one hour behind)

09.00	Opening by The Southern Regional Assembly & 3 Counties Energy Agency
09.30	Overview on Energy Poverty in Europe – Dora Biondani, Energy Poverty Advisory Hub, Brussels
10.00	Energy Poverty in Ireland - Dr Niall Dunphy, UCC
10.30	Warmth and Wellbeing Scheme -Eileen O'Connor - Department of Environment, Climate & Communication
	Break
11.15	Build Upon 2 Energy Poverty Identification – Brian Cassidy, Cork City Council
11.45	Energy Cloud Reducing Energy Poverty – Derek Roddy, Energy Cloud and Climote Ireland
	Lunch
13.45	Living Consciously Energy Poverty Behaviour Change Programme – Sergio Gatteschi, Regional Agency, Italy
14.15	A Worthy Winter Reducing Energy Poverty – Sonia Sotero, Santander City Council, Spain
14.45	Act 4 Eco Energy Behaviour Change Programme – Dr Wendy Rowan, Dr Stephen McCarthy, UCC and Sotiris Papadelis, HEBES Intelligence, Greece
15.30	Highlights and close of Day 1 at 16.00

Join Zoom Meeting: https://zoom.us/j/91237962707?pwd=ajlVTVRUZmtCblozSE5xRjFSNXR2Zz09

Welcome and opening remarks

Enda Hogan, Assistant Director

Southern Regional Assembly, IRELAND

Topics

1. Introduction to the Southern Regional Assembly
2. Energy Poverty & the Regional Spatial and Economic Strategy
3. Energy Poverty & ERDF Regional Programmes 2014-2020 and 2021-2027
4. Some challenges

Southern Region

1,585,906
Population

over 648k
Labour Force

3 Cities of regional and international significance

2 UNESCO Learning Cities

3 Smart Gateway Cities

All Tier-1 and Tier-2 Ports of National Significance outside of Dublin

Diverse Industrial Base with established clusters and specialism's

Productive agricultural region and rural areas supported by a significant network of towns and villages.

Universities **2**

5 Institutes of Technology

2 State Airports

Regional Airports **2**

Good quality farmland with High Agricultural Yields – food and beverage

Extensive coastline with significant Marine Resource potential

A region possessing all three of the **National Tourism Corridors**, Wild Atlantic Way, Ireland's Ancient East and Ireland's Hidden Heartlands

WILD ATLANTIC WAY
SLÍ FHIÁIN AN ATLANTAIGH

IRELAND'S ANCIENT EAST

Ireland's Hidden HEARTLANDS

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regional economic and spatial planning

the management of European Regional Development Funding

development implementation and promotion of regional developement activites

acting as the national contact point for EU funded transnational programmes

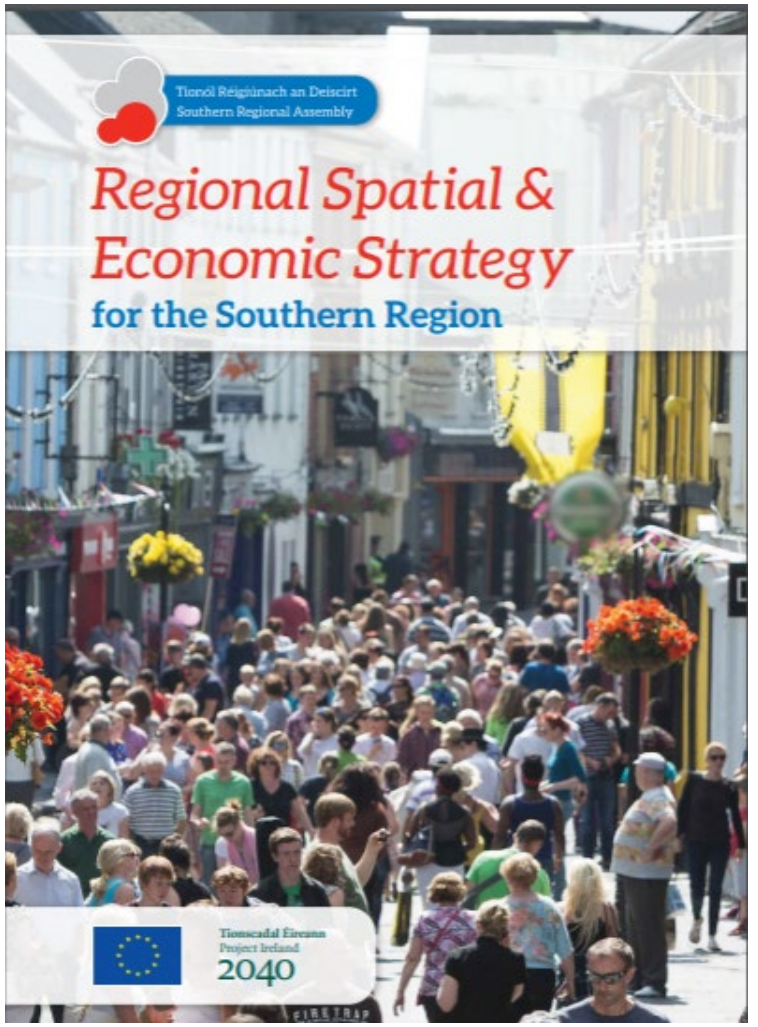
The assembly coordinates actions to support effectiveness in Local Government and public services

Regional Spatial and Economic Strategy for the Southern Region

- Strategic policy document to set out a vision for the strategic planning and economic development of the region to 2031

- Overarching purpose of the RSES is to support the implementation of the National Planning Framework (NPF) & Government Economic Policies;

- Sets the framework for local planning and economic development in the region.



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RPO 90

Regional Decarbonisation

It is an objective to develop a Regional Decarbonisation Plan to provide a framework for action on decarbonisation across all sectors. The Regional Decarbonisation Plan shall include existing and future targets for each sector and shall be prepared with key stakeholders, including the Climate Action Regional Offices, and shall identify the scope and role of the Plan, the requirements for SEA, AA and the timescale for its preparation. Implementation mechanisms and monitoring structures for the Plan should also be established.

RPO 106

Future Proofing and Retrofitting

It is an objective to support implementation of the National Energy Efficiency Action Plan, the implementation of mitigation measures outlined in their respective SEA and AA and investment in initiatives to improve energy efficiency and future proof our Region's residential, commercial, industrial, agricultural and public building stock, including retrofitting in urban and rural areas and reduce fuel poverty. RSES supports the promotion of sustainable buildings that achieve certification under systems such as the Home Performance Index, Leadership in Energy and Environmental Design at local authority level.

RPO 38

Retrofitting Initiative Priorities

a. Local Authorities, through County Development Plan and Local Area Plan objectives, will identify retrofitting initiative priorities within settlements that grew rapidly without corresponding investment in infrastructure and amenities which demonstrate achievement of National Strategic Outcome: Compact Growth;

b. Support initiatives that seek retrofitting infrastructure to existing buildings including smart technologies, energy efficient and micro renewable systems and seek targeted initiatives and actions at a local level for the refurbishment and upgrading of suitable vacant and underused building stock;

c. Support initiatives that retrofit environmental amenities to address adverse effects on biodiversity and the environment;

d. Support initiatives that address fuel poverty.

Southern and Eastern Regional Operational Programme 2014-2020

- Priority 4 included the Better Energy Warmer Homes scheme
- Targeted at low-income households at risk of energy poverty
  - ✓ Improve energy efficiency of the home
  - ✓ Reduce disposable income spent on energy
  - ✓ Improve health and well being
- €82.7m between 2014 and 2019
- Energy efficiency measures in over 20K households

Delivered by SEAI and co-financed by ERDF and the Government of Ireland through the Department of Environment and Climate Change.

Southern, Eastern and Midland Regional Programme 2021-2027

Southern, Eastern & Midland Programme

ERDF **€265,477,481**

National €398,216,222

TOTAL **€663,693,703**

Northern & Western Programme

ERDF **€130,238,540**

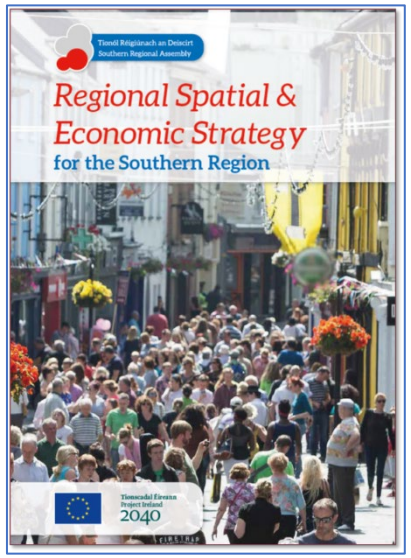
National €86,825,693

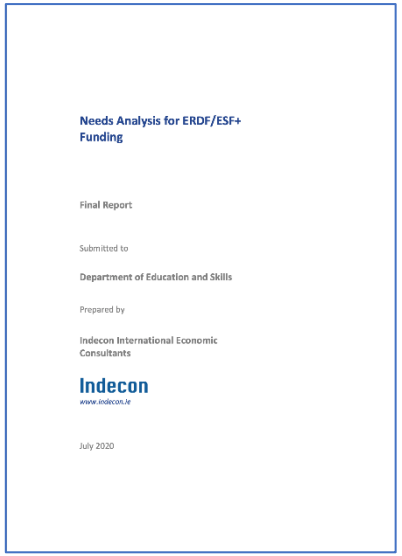
TOTAL **€217,064,233**

Needs Analysis, Public Consultation & Emerging Policies

Key documents include:

- Regional Spatial & Economic Strategies
- Country Specific Reports 2019 & 2020
- Indecon Needs Analysis
- Public Consultation Report
- National Recovery & Resilience Plan
- National Development Plan
- Smart Specialisation Strategy
- Climate Action Plan 2021
- Town Centre First Policy





Southern, Eastern and Midland Regional Programme 2021-2027 [DRAFT]

Policy Objective	Specific Objective	Actions	ERDF
PO1 	RSO1.1 & RSO1.3	○ **Capacity building** within universities and technological universities (TUs) ○ **Accelerating the translation of cutting-edge research** into commercial applications at a regional level ○ **Supporting innovation** diffusion, enterprise innovation and entrepreneurship in the regions ○ Strengthening and developing **functional regional innovation ecosystems**	56%
PO2 	RSO2.1	○ Improving the **energy efficiency** of residential homes for those at risk of energy poverty	30%
PO5 	RSO1.3	○ Supporting an integrated strategic approach to the **regeneration of our towns** using Town Centre First approach	14%

€75m ERDF + €113m national = €188m total funding towards EE and energy poverty

Some Challenges from an ERDF Regional Programming perspective

1. Justification for selection of this type of action and specific objectives above all others under PO2
2. Justification for the form of support – grants versus financial instruments
3. Monitoring performance – design and selection of output indicators and result indicators
4. Evaluation - Effectiveness, Efficiency, Economy

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Southern Regional Assembly – Energy Poverty Technical Workshop

Presenter from 3cea: Colin Simpson Hdip, Msc, MBA,
Commercial and Housing Delivery Manager
Energy Poverty Consultant

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3cea Mission/Vision

3cea Vision

Our region is a leader in sustainable efficient use of locally produced clean energy, delivering low carbon homes, jobs and enterprise.

3cea Mission

3cea will play a strategic role regionally, partnering with its members and supporting all stakeholders on their energy transition journey to 2030 and beyond.

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3cea Project Portfolio

- NZEB101 – Data Monitoring of Deep Retrofits
- H4.0 – Low Carbon Affordable Housing
- Reg Energy – Bio Methane Gas Storage and Consumption
- Greener HGV- Data monitoring and driver training of HGV users
- Steps - Energy Storage Testing and evaluating battery storage systems on site
- MacAirH- Heat Pump Analysis (Pre & Post works)
- Energee Watch –Peer to peer learning with LAs, to accurately define, monitor and verify their sustainable actions
- NHRS – Domestic one stop shop retrofit programme
- BEC Scheme- SMEs, Domestic, Communities, Access grant aid to
- conduct energy saving works

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3CEA Extensively work in the area of Fuel Poverty.

- 3CEA are consultants with vast experience working in Energy Poverty.
- Involved in numerous Fuel Poverty Initiatives with Academia such as UCD, NUIG and various grant institutions, Local Authorities, AHBs and vulnerable private homeowners.
- An Antenna for the Energy Poverty Advisory Hub (EPAH) in Ireland.
- Host webinars and disseminate information relating to Fuel Poverty, on behalf of the EPAH in Ireland.

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European Union
European Regional
Development Fund

EMPOWER
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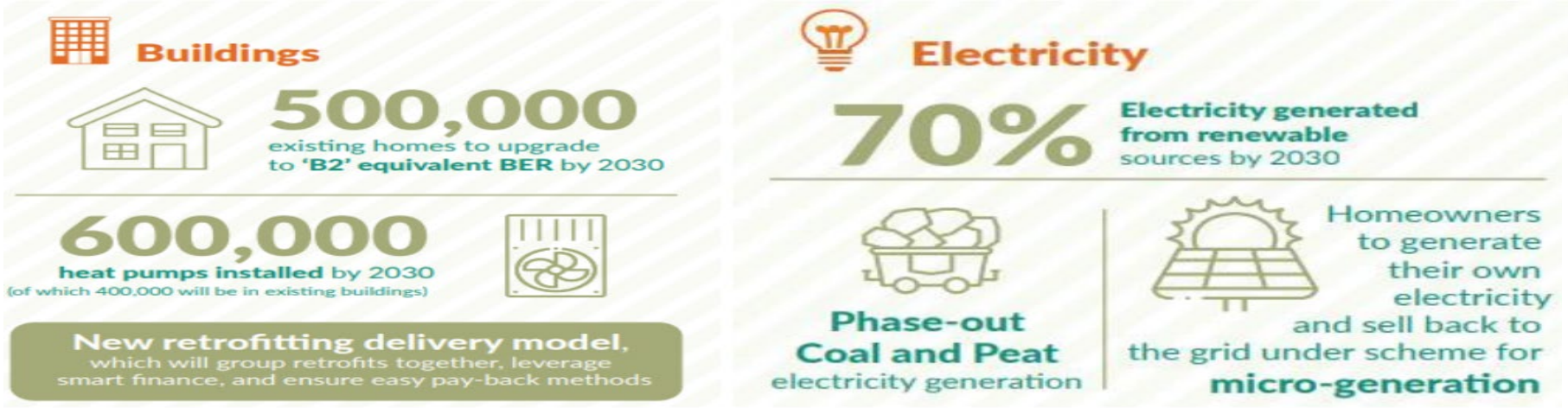
Ireland National Residential Targets

This National Residential Retrofit Plan aims to achieve

- 500,000 homes retrofitted to a Building Energy Rating of B2/ cost optimal or carbon equivalent and
- The installation of 400,000 heat pumps in existing premises to replace older, less efficient heating systems by end-2030.
- We need to greatly increase the depth and volume of retrofits to meet the targets.



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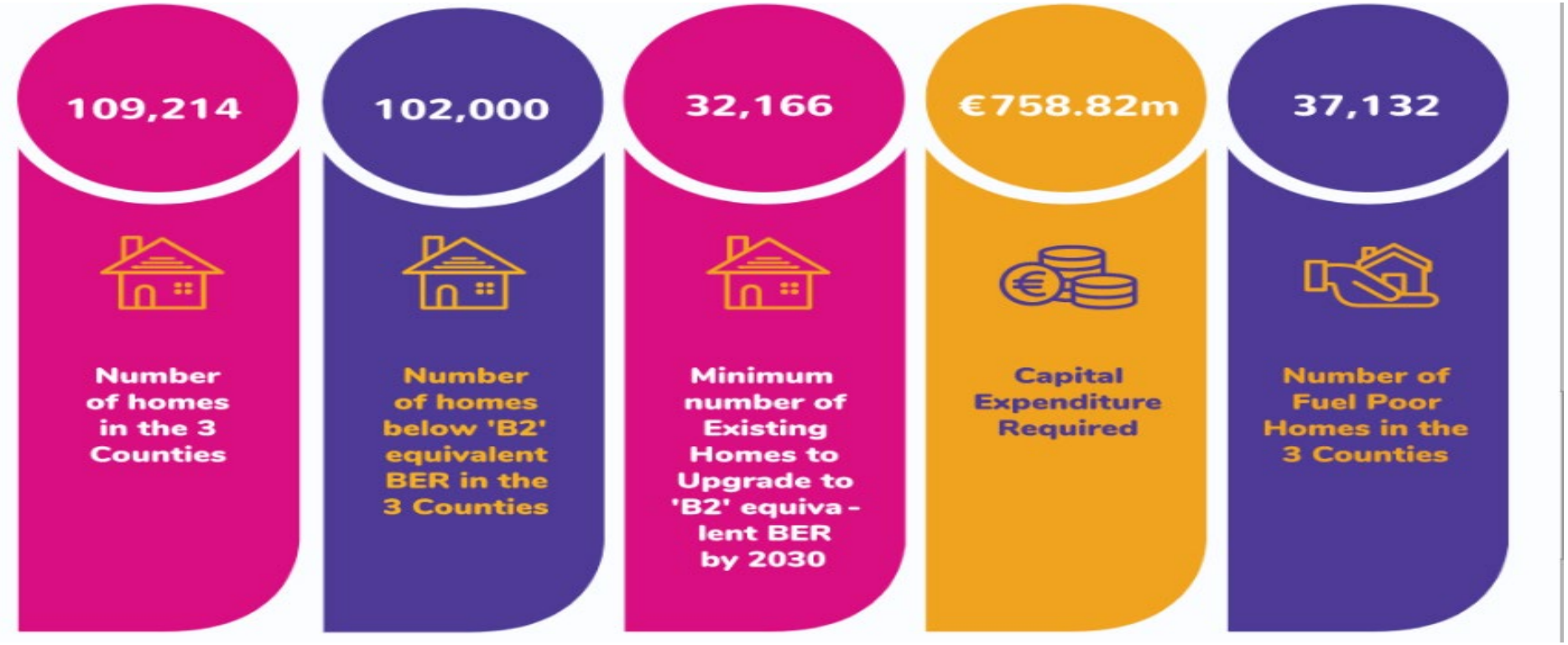
Residential Challenge (3 Counties example)



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3cea Domestic Delivery (2013-2021)

Shallow and Deep retrofits

- Fuel Poverty initiatives
  - SEAIs Deep Retrofit Pilot Programme
  - Better Energy Communities
  - Warmer Homes Programme

3CEA Domestic Delivery 2013-2021					
Delivered Domestic Projects	Total Cost (€)	Grant Funding (€)	Delivered Energy Savings (kWh)	Monetary Savings (€)	Avoided CO2 Emissions (kgCO2)
1175	€ 19,578,848	€ 11,892,572	€ 15,312,966	€ 1,094,877	€ 3,949,214

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3cea: One Stop Shop Process for Deep Retrofit – Customer Journey

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Looking Ahead

Waterford County and City Council have joined the 3 Counties family so a name change and rebrand was required

- Rebrand in June 2022 to become the

•South East Energy Agency

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Thankyou

We look forward to working with you

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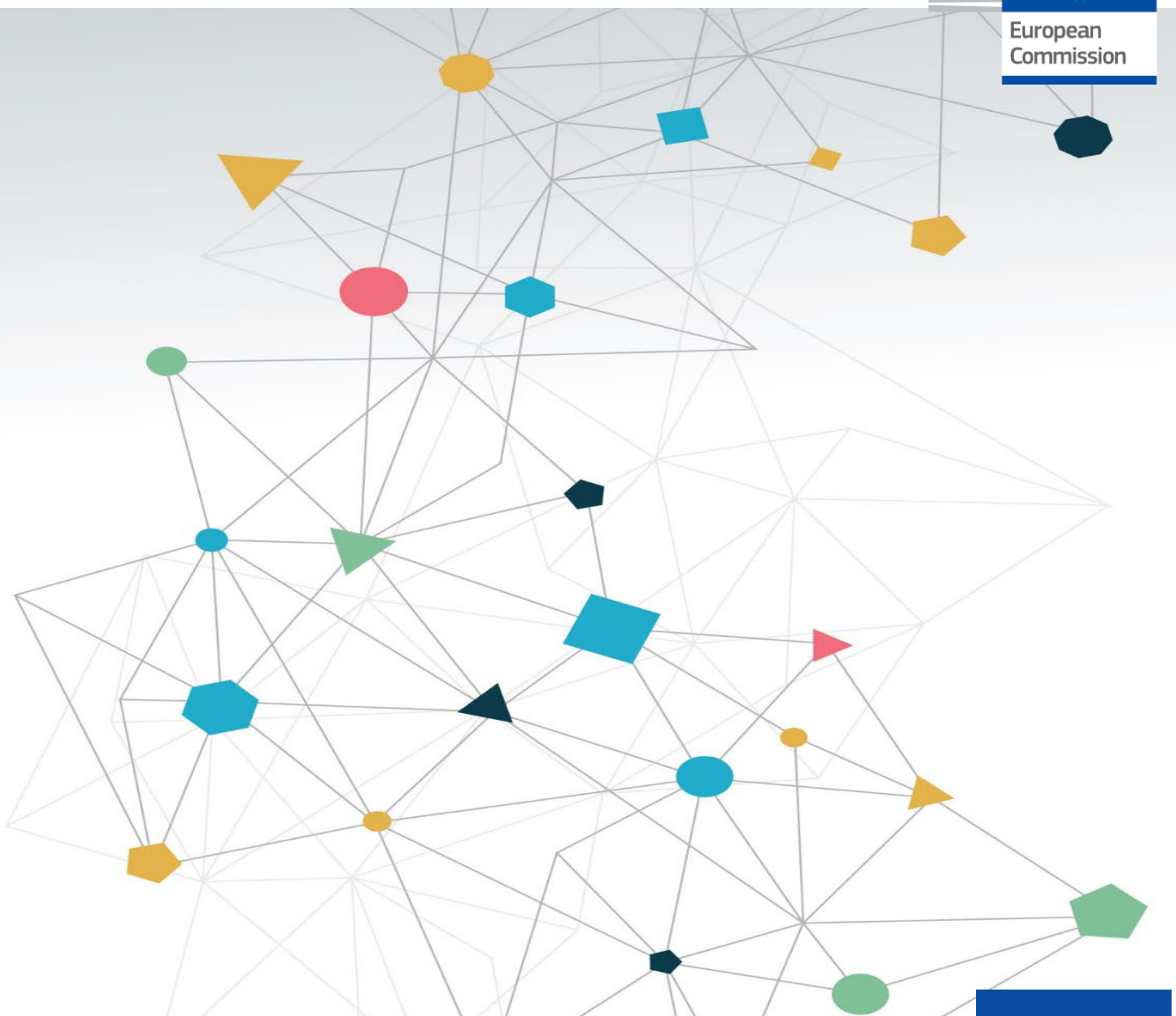


European Commission

EU Energy Poverty Advisory Hub

Energy Poverty

Energy Poverty

According to the European Commission:

“energy poverty is a situation in which households are unable to access essential energy services.”

.

European Commission

It is a socio-technical challenge

- Heating

- Cooling

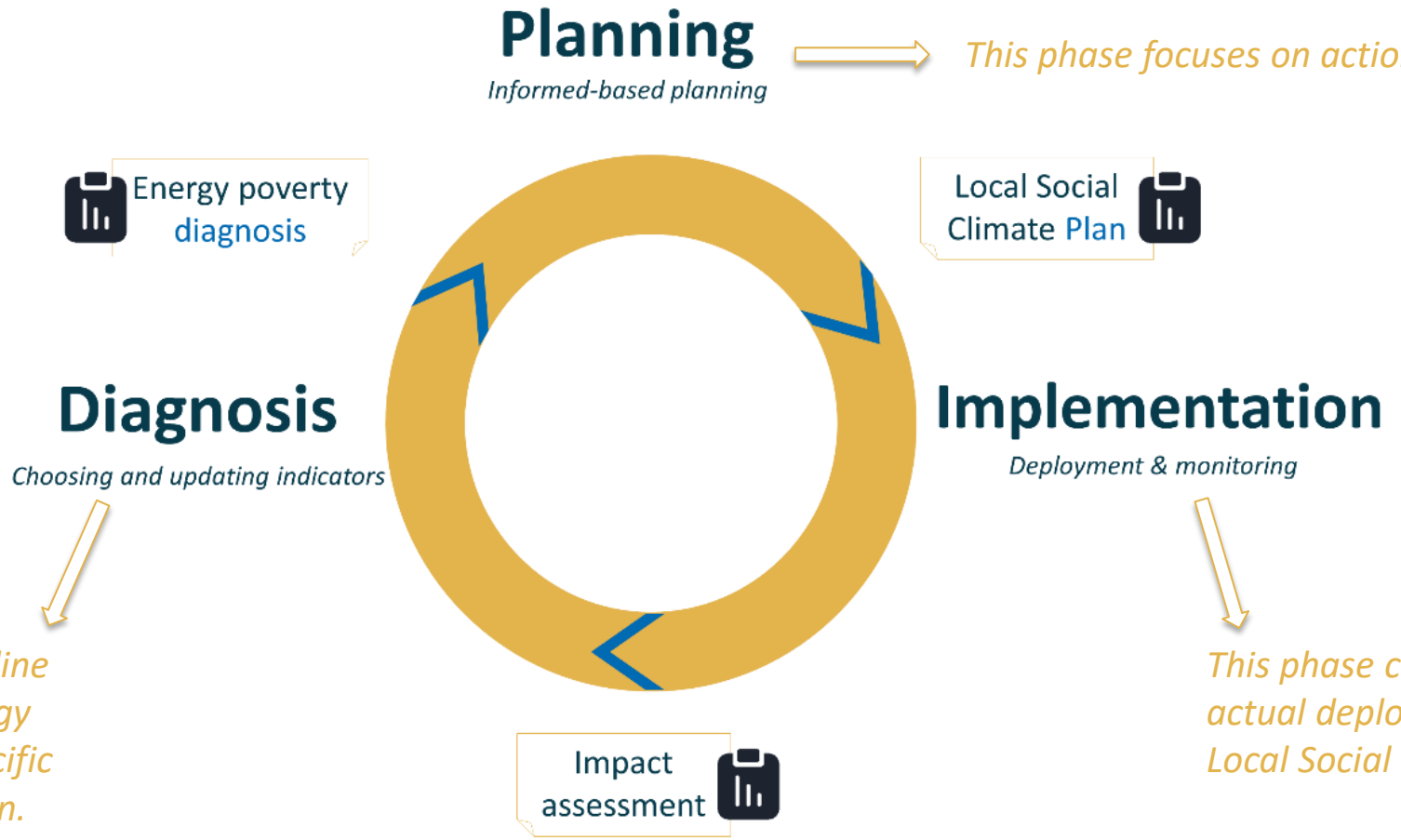
- Vulnerable consumers
- Social inclusion
- Wellbeing

European Commission

Energy poverty - Challenges

European Commission

EPAH methodology



European Commission

EU Energy Poverty Advisory Hub

- Presentation of the initiative
- Offered services (ongoing, available and upcoming)

Energy Poverty Advisory Hub

Consortium

Climate Alliance

AISFOR

NOVA SCHOOL OF SCIENCE & TECHNOLOGY

akaryon
WEBTOOLS • UMWELT • FÖRDERUNGEN

ecoserveis

Antennas

3cea
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ANAT LIKI S.A.

ASHOKA

Cyprus Energy Agency

DOOR

Polska Sieć Energie Cités

SEC

Duration: 2020-2024

European Commission

Foundation

EU ENERGY POVERTY Observatory

Covenant of Mayors for Climate & Energy EUROPE

CLEAN ENERGY FOR EU ISLANDS

European Commission

Mission

The Energy Poverty Advisory Hub, the leading EU initiative run by the European Commission at the request of the European Parliament, is a collaborative network of stakeholders.

Vision Eradicate energy poverty and accelerate the socially just and fair energy transition of local governments.

Mission To become the central platform of energy poverty expertise in Europe

European Commission

What we do

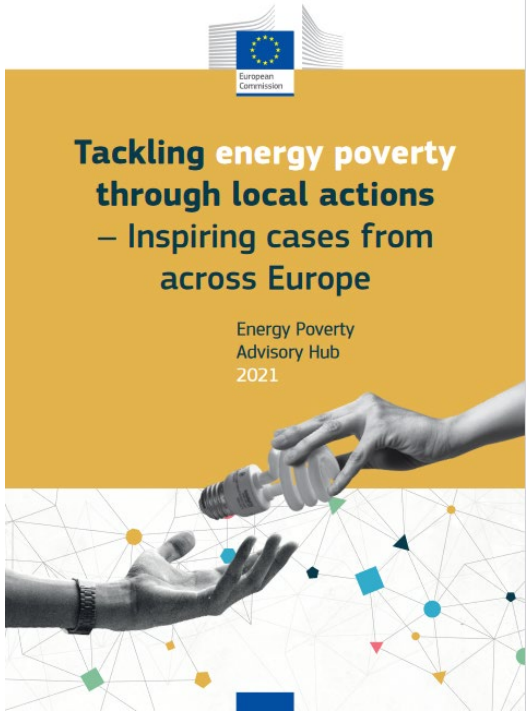
- Focus on the local level
- Create synergies with all layers of governance
- Build a collaborative network

European Commission

What we do - Provide

- Research results, practical solutions and inspiration through

Reports



EPAH Atlas

European Commission

Upcoming - Handbooks

An action-oriented guide to start taking concrete action to combat energy poverty. With different information on:

- ❑ how to diagnose your local energy poverty situation
- ❑ how to plan your actions to reduce energy poverty
- ❑ how to implement your actions

Ongoing research on indicators and build on the experience in the upcoming years.

European Commission

What we do - Provide

- Learning opportunities (Online courses)
- Knowledge sharing environment (International & local events)

European Commission

Available

Introduction to energy poverty and the EPAH – Introductory course

The "Introduction to energy poverty and the EPAH – *Introductory course*" is a short course open to all stakeholders interested in addressing energy poverty. It provides an overview of energy poverty from a practical–political perspective.

The course is open to all, and no prerequisites are needed.

The duration is approximately one hour and is made up of six lessons divided into three modules, which can be taken individually. Participants that complete all the modules will receive a course certificate.

The course is available in English with subtitles in 23 European languages.

Registration to the course is offered continuously. Every 1st and 15th of each month, the registrations will be checked and accepted. The user will receive an automatic notification (via email) with the indications to access the online platform.

To follow the course, you need to create an account to the Energy Poverty Advisory Hub platform and sign up for the course.

Open to all
Available now
Estimated effort: 1 hour
Alternative languages:
Italian
Spanish

Join the course

European Commission

Ongoing - Events

EU
Energy Poverty
Advisory Hub
Launch Event

Conferences, webinars and workshops are/will be organised around Europe with the aim to

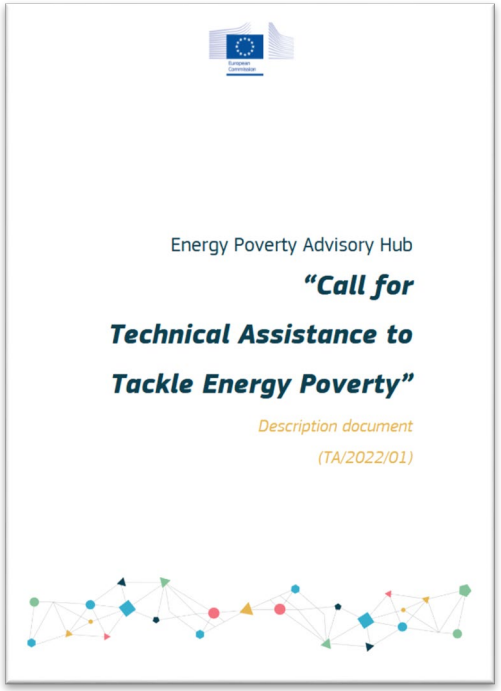
- ❑ increase awareness about energy poverty
- ❑ boost exchange of expertise and knowledge.

European Commission

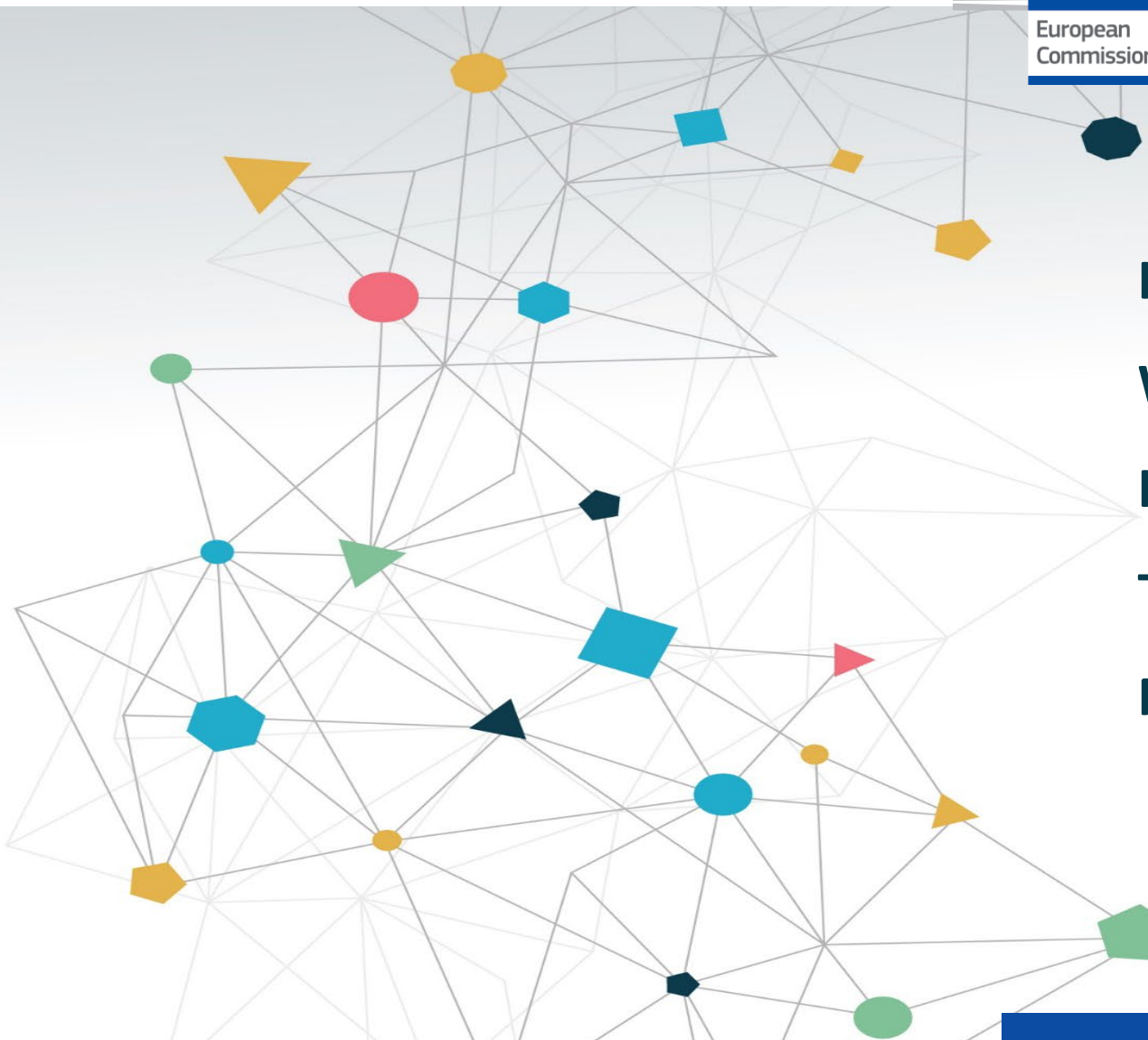
What we do – Support through

❑ Helpdesk

❑ Calls



European Commission



Keep in touch

Website energy-poverty.ec.europa.eu

Helpdesk info@energypoverty.eu

Twitter twitter.com/EPAH_EU

Newsletter https://bit.ly/EPAH-newsletter

Energy Poverty in Ireland

Dr Niall Dunphy

Director, Cleaner Production Promotion Unit

Senior Research Fellow

University College Cork

Environmental Research Institute

Coláiste na hOllscoile Corcaigh, Éire
University College Cork, Ireland

@NPDunphy

Overview

- CPPU is a multi-disciplinary research group based in University College Cork, Ireland
- Co-located in UCC's School of Engineering and Architecture, and Environmental Research institute
- Engaged research on the theme of Society, Sustainability and Energy

EnergyMeasures

Tailored measures supporting energy vulnerable households

H2020 2020 – 24

Low-cost measures & behaviour change

https://energymeasures.eu

EUB SuperHub

accept
active communities & energy prosumers for the energy transition

ENCLUDE
Energy Citizens for Inclusive Decarbonization

XROTOR
X-shaped Radical Offshore Wind Turbine for Overall Cost of Energy Reduction

REALISE CCUS

SAFE WAVE
STREAMLIING THE ASSESSMENT OF ENVIRONMENTAL EFFECTS OF WAVE ENERGY

EnergyPOLITIES

More details:
https://cppu.ucc.ie/research/

Energy Poverty

- Typically described as

'a situation where individuals or households are not able to adequately heat or provide other required energy services in their homes at affordable cost'

(Pye et al., 2015).

- However, there is no one commonly agreed definition.

Energy Poverty Context

- Buildings are responsible for 40% of energy consumption and 36% of GHG emissions in the EU (EC 2020)
- c. 75% of the EU building stock is not energy efficient.
- Energy Poverty affects almost 50m people in the EU (EPOV 2020)
- On average there are 323k excess cold weather deaths annually in the EU and 70k of which could be attributed to indoor cold exposure.

Energy Poverty Context

- Low household income
- High energy prices
- Inefficient energy performance of buildings

Understanding Energy Poverty

Energy poverty can manifest in a number of ways …

'… from excessive energy expenses, which can result in energy debts or to the reduction of other budgets like the food budget, to a rationing of energy consumption and cold homes, with possible effects on health, quality of life and on the quality of buildings'

(Dubois, 2012, p. 107)

Measuring Energy Poverty

Measuring energy poverty is not easy, Thomson, Bouzarovski and Snell (2017, p. 882) note

"It is a private condition, being confined to the home, it varies over time and by place, and it is a multi-dimensional concept that is culturally sensitive"

Measuring Energy Poverty - expenditure based

1. High share of energy costs: proportion of income spent of energy above a established threshold *i.e.,* those who spend too much;
2. Low available income: income after energy costs below established threshold*, i.e.,* high energy spend and/or insufficient income;
3. Insufficient energy spending: absolute energy spending below established threshold *i.e.,* those who self-restrain, the hidden energy poverty.

Bouzarovski *et al.*, 2020

Measuring Energy Poverty - Objective needs

1. Expenditure-based measure of energy poverty do not distinguish those that need to consume the energy and those that do not – they correspond to 'Expenditure Fuel Poverty'.
2. An alternative quantitative measurement, involves a needs assessment through a modelling approach such as that used by DCENR in Ireland.
3. It used data from national household budget surveys, building energy rating (BER) database, and a bespoke residential building stock model, it compared household income to theoretical energy spend required to keep houses heated to WHO recommended norms.

Bouzarovski *et al.*, 2020

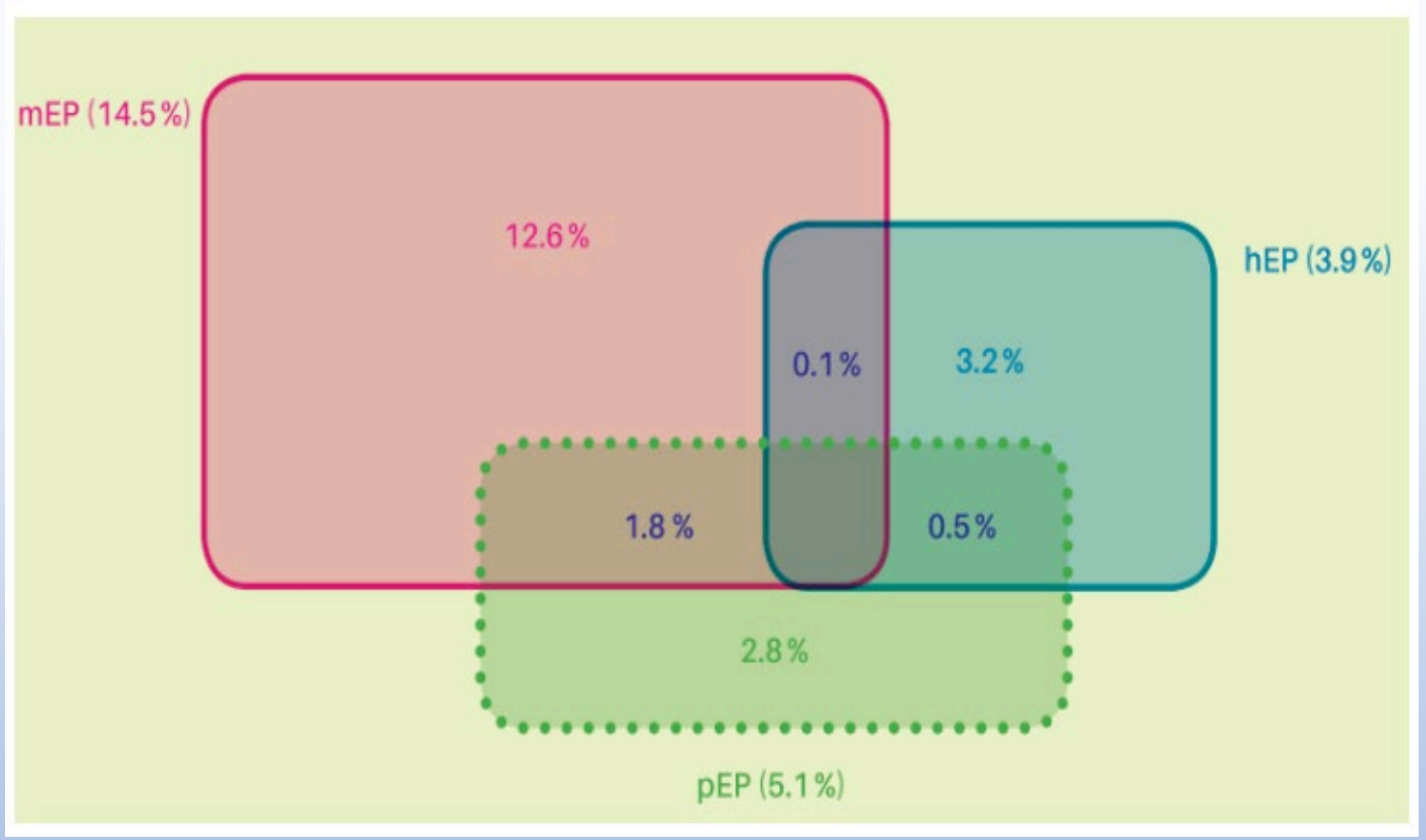
Measuring Energy Poverty - Subjective measures

Surveys of households about energy and relating financial issues e.g.,

1. Adequacy of household heating
2. Difficulty in meeting energy bills
3. Having to go without heat for a period of time.

This type of metric 'is subjective and is entirely based on the household's experience, and its perception of its financial (in)capacity to heat its housing properly' (Meyers et al. 2018, p. 279) – but is this a bad thing?!

Relationship of the different indicators



Overlaps between the three types of energy poverty indicators in Belgium 2015 (Delbeke and Meyer, 2016 p. 14)

Measuring Energy Poverty

1. Self-reported Inability to keep home adequately warm
2. Household arrears on utility bills in the last 12 months – based on households' self-reports
3. Energy expenditure to income > 2x national median
4. Energy expenditure to income < 0.5 national median

Bouzarovski *et al.*, 2020

Measuring Energy Poverty

	Estonia	France	Greece	Hungary	Ireland	Spain
Inability to adequately heat home	2.3%	5.0%	22.7%	6.1%	4.4%	9.1%
Arrears on energy bills	6.5%	6.4%	35.6%	11.1%	8.6%	7.2%
High share of income spent on energy	18.7%	15.0%	16.3%	9.0%	17.6%	14.2%
Hidden energy poverty	18.9%	19.5%	12.8%	9.3%	14.8%	13.0%

Energy poverty rates in selected countries (Bouzarovski et al., 2020)

Supporting indicators

- Demographic factors – households with vulnerable members e.g., young children, elderly (especially those living alone), those with health issues, etc., are more energy vulnerable;
- Energy prices – differential pricing may apply in many cases (for reasons of e.g., geography, bill arrears consumption level, service bundling) meaning that householders will not have equal access to tariffs;
- Income levels – lower income households are more likely to be energy poverty, no matter which way it is measured;

Dunphy, 2020

Supporting indicators

- Household composition – the make-up of the household may render it more susceptible to ‘financial problems in general and energy poverty particularly’;
- Heating system – what type and condition? inadequate and inefficient heating systems will provide poor heating at a higher cost;
- Supply choice – due to lack of choice (e.g., due to geographical and/or socio-political considerations) or supply lock in (such as with district heating systems, or tenancy agreements);

Dunphy, 2020

Supporting indicators

- Building efficiency – age and technical characteristics of a building directly influence its energy performance;
- Level of social supports – the amount of social security support in a household is an indicator of its vulnerability to financial shocks, which could manifest itself as, or intensify existing, energy poverty;
- Tenure (and security of tenure) – Different forms of tenure are associated with varying levels of influence in decision-making and may limit the measures that can be implemented

Dunphy, 2020

Reaching the energy poor

- These energy poverty indicators are useful to quantify and qualify the scale of energy poverty
- This information is essential to appropriately target policy measures
- However the amount of data required means that is is less useful for identifying actual energy poor households
- There is a gap between the macro- and meso-level analysis and the identification of specific energy poor households,

Dunphy, 2020

Reaching the energy poor

- Using gate-keepers such as health professionals, debt advisors, housing associations, advice bureaux, consumer groups, NGOs, municipalities & utilities.
- Bottom-up approach inviting self-referrals through marketing and advertising, social media engagement, outreach events and word of mouth.
- Working with other organisations to share resources on specific campaigns or service provision.

Dunphy, 2020

EnergyMeasures

Tailored measures supporting energy vulnerable households

https://energymeasures.eu

@NRGMeasures

EnergyMeasures is an EU funded project working to improve the energy efficiency of households by

- providing small scale energy measures;
- working with householders to change their energy-related behaviours;
- proving support and advice for householders.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 894759

https://energymeasures.eu/cork

Thank You!!

n.dunphy@ucc.ie
@NPDunphy
www.ucc.ie/cppu

Rialtas na hÉireann
Government of Ireland

Warmth and Wellbeing Scheme

23rd March 2022

Background

- IEA publication in 2015 – capturing the multiple benefits of energy efficiency
- Non-energy routes to energy efficiency upgrades
- Warm Up New Zealand scheme
- Revision of Ireland's Energy Poverty Strategy
- Commitment to invest in measuring the health impacts

Overview

Warmth and Wellbeing is an initiative that aims to establish whether the provision of extensive free energy efficiency upgrades to homes can give a positive effect on health and wellbeing of the people living in the homes.

The pilot scheme provided extensive energy efficiency upgrades, free of charge, to lower income households where someone is living with specified health conditions (example COPD or Asthma).

Overview

We looked for health conditions with following features (not exhaustive list):

- *significant individual impact*
- *significant health system burden*
- *direct association with poor housing conditions/energy poverty*
- *likely to show early benefit from warmer conditions*
- *easily definable cohort*
- *evidence from other initiatives re. likely benefit*
- *aligned with other public health policy imperatives*

A number of possible conditions were identified; ultimately respiratory conditions were selected.

Overview

- The scheme was piloted in a designated health region (community services plus hospital services)
- The scheme is governed by a Steering Group made up of the two Ministries involved (Health and Environment), and an Implementation Team with the executive agencies involved as well as a specialist Research Committee
- The overall operation was supported by professional programme management from an external provider with sectoral expertise
- The scheme overall is led and largely funded by the Ministry of Environment, Climate and Communications

Recruitment

- The Health Service Executive worked to recruit eligible participants in the area.
- Local media was also used to advertise the scheme, as well as through local pharmacies, schools and parishes.
- Information was also made available through local social welfare offices and on all project partners websites.
- Word of mouth eventually became the main route to participation.

Scheme Delivery

Sustainable Energy Authority of Ireland delivered the energy efficiency upgrades under the scheme.

Homes received packages of works including:

- attic and wall insulation
- window and door replacement
- appropriate ventilation
- draughtproofing
- in some cases heating system upgrades or installations.

Works were carried out by contractors working directly for SEAI.

Scheme Delivery

- Different approach required – vulnerable households
- Intention is to make things better, not worse due to the process
- Keeping homeowner at forefront of the process:
  - On-hand support with application
  - Greater communication upfront
  - Greater time spent on visits
  - Speaking in the homeowner's language
  - Learning from the experts, e.g. HSE

Evaluation Approach

Participants who consented to the research element of the scheme were assessed by Health Service Executive public health and tracked over a 3 year period following their upgrade.

HSE collected information on healthcare usage and general wellbeing using a number of approved medical research questionnaires and tools.

Evaluation Approach

London School of Hygiene and Tropical Medicine are carrying out an independent analysis of the health impacts.

They are examining, among other matters, changes in hospitalisation rates and medication usage, general wellbeing and mental health, social participation and overall improvements in quality of life.

A study on the Warm Up New Zealand found a significantly lower mortality rate for participants in the scheme.

Initial Experience of Participants

- Improved living environment – i.e. rooms are no longer damp, no condensation on windows;
- Lower heating bills;
- Fewer hospital visits for exacerbations of respiratory conditions;
- Fewer prescriptions for antibiotics being needed;
- Improved outlook on life and increased likelihood to participate in community;
- Greater sense of personal security in the home

Best practice - Devising the Scheme

Knowing what you want the scheme to be and not to be is fundamental

For example, in Ireland we decided that the scheme should be:

- ✓ A novel opportunity to address energy poverty
- ✓ An opportunity to collaborate with other Government Departments to achieve multiple aims
- ✓ Research and evidence based
- ✓ A pilot scheme (in essence something that was temporary)

The scheme should not be

- ✓ A national scheme
- ✓ Used to try to ‘tidy up’ multiple existing public schemes which also have health benefits
- ✓ A singular answer to climate action in the pilot area identified

Best practice - Devising the Scheme

Service Model

- Is this a novel idea or a replica/evolution of another model?
- Is this likely to build on and be a fit with existing initiatives and platforms?
- Who you partner with should be shaped by your strategic rationale

Rationale and Strategic Context

- Clarity about motivation
- Clarity about strategic objectives (more than it's a 'good thing')
- Need and impact of multiple 'currencies'

Good Governance

- The right structure
- Representations from key partners
- Business Discipline and Project Management

Evaluation Framework

- What is the evaluation process
- Who needs to be involved for externality
- What are the legal/ethical angles
- Timelines for evidence availability

Communications Engagement and Branding

- National
- Regional
- Internal/project
- Strategic Alliances

Best practice - Delivering the Scheme

Why?

- The original rationale needs to be the driving force of why the delivery happens the way it does

What are we doing?

- What can and should be done (the exact type of improvements which are available)?
- What can and should be reported (operational KPIs and strategic KPIs)?

Who calls the shots?

- Who is making strategic versus operational level calls?

Where and for whom?

- Is the focus on a geographical area or a cohort of individuals meeting certain health criteria or certain energy crisis criteria, wherever they live?

Best practice - Delivering the Scheme

How?

- What are the arrangements for actually making the housing upgrades (contractors or public sector staff)?
- What training might they need to deal with a new type of client etc?

When?

- What is the overall timeline for the scheme?
- What are the key milestones to not only deliver but also report on the scheme?

What are we saying?

- Who is making strategic versus operational level calls?

Lessons Learned

Long Haul
Be prepared to dedicate considerable time to this – it is not a quick 2 year pilot
-effective research and dealing with promotion and uptake will take time

Cultural Difference
Do not ignore the different cultures within different Ministries and agencies. These play into the priorities and perspectives they will bring to the project.

Routes to participants
Think outside the box. 'Sales Routes' may not be what you expect

Management
This is a multi-party and multi-agency project by definition which will be hard to manage
Cooperation and buy in should not be assumed

Data
Expect data gaps and have contingencies in place to properly handle them

Delivery Channels
Health worker channels obviously essential but may not be the obvious ones
Community associations/advocacy groups can be equally effective

Partners
Find the right partners but also the right number of partners
-too many partners in what needs to be an agile team will become unmanageable

Benefits
May arise in forms you did not expect.

International Experience
Track how comparable projects are doing internationally.
It is a good network to develop

Customer Experience

Mr. Smyth who is in his 80s has a diagnosis of COPD, is on daily medication which he cannot function without and reported very frequent hospital admissions, sometimes up to 6 in a year.

After the works carried out in their home Mr & Mrs Smyth report that they already see an improvement in their living environment. Where the rooms were once damp with condensation, getting in to bed at night is a much more pleasant experience. They say the house holds the heat now where it didn't before so using the gas is not as expensive. They now look forward to the winter so they can see the full benefits of their home energy upgrade and early signs this year are that the symptoms of Mr. Smyth's COPD are less severe than previous years. They also report a greater sense of personal security having had the windows and doors replaced.

Thank You

Tionól Réigiúnach an Deiscirt
Southern Regional Assembly

EMPOWER
Interreg Europe

European Union
European Regional
Development Fund

3cea
driving sustainability

Coffee Break

The EMPOWER Energy Poverty Technical Workshop will resume shortly.

Tionól Réigiúnach an Deiscirt
Southern Regional Assembly

EMPOWER
Interreg Europe

EMPOWER Technical Workshop

Build Upon 2 Good Practice and Platform Demonstration

23rd and 24th March 2022

We are Cork.

COMHAIRLE CATHRACH CHORCAÍ
CORK CITY COUNCIL

Brian Cassidy CENG, FIEI
Senior Executive Engineer
Cork City Council
Housing Maintenance Department
Energy Efficiency Retrofit Program and Special Projec

Background

- **Irelands commitments under the Paris Accord and subsequent COP fora.**
- Department of Climate Action's targets to decarbonise citizens lives
- Department of Housing targets to improve the energy efficiency of the social housing stock (140,000 units)
- LA's ambition to align its goals with the goals set out in the UN SDG
- National desire to reduce fuel poverty (a growing concern post covid because of rising fuel prices)
- A thirty year program needs a comprehensive national monitoring measuring and reporting system

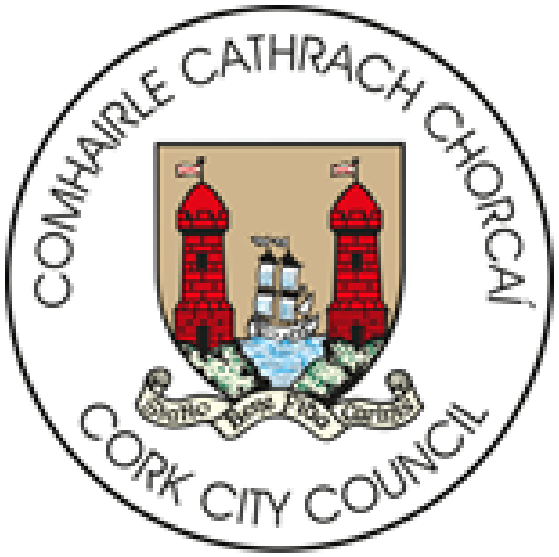
PARIS AGREEMENT

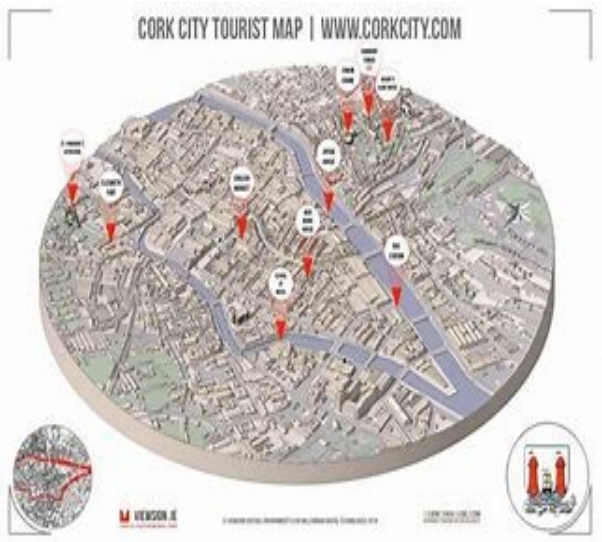
An Roinn Comhshaoil, Aeráide agus Cumarsáide
Department of the Environment, Climate and Communications

SUSTAINABLE DEVELOPMENT GOALS

An Roinn Tithíochta, Rialtais Áitiúil agus Oidhreachta
Department of Housing, Local Government and Heritage

Cork City Council



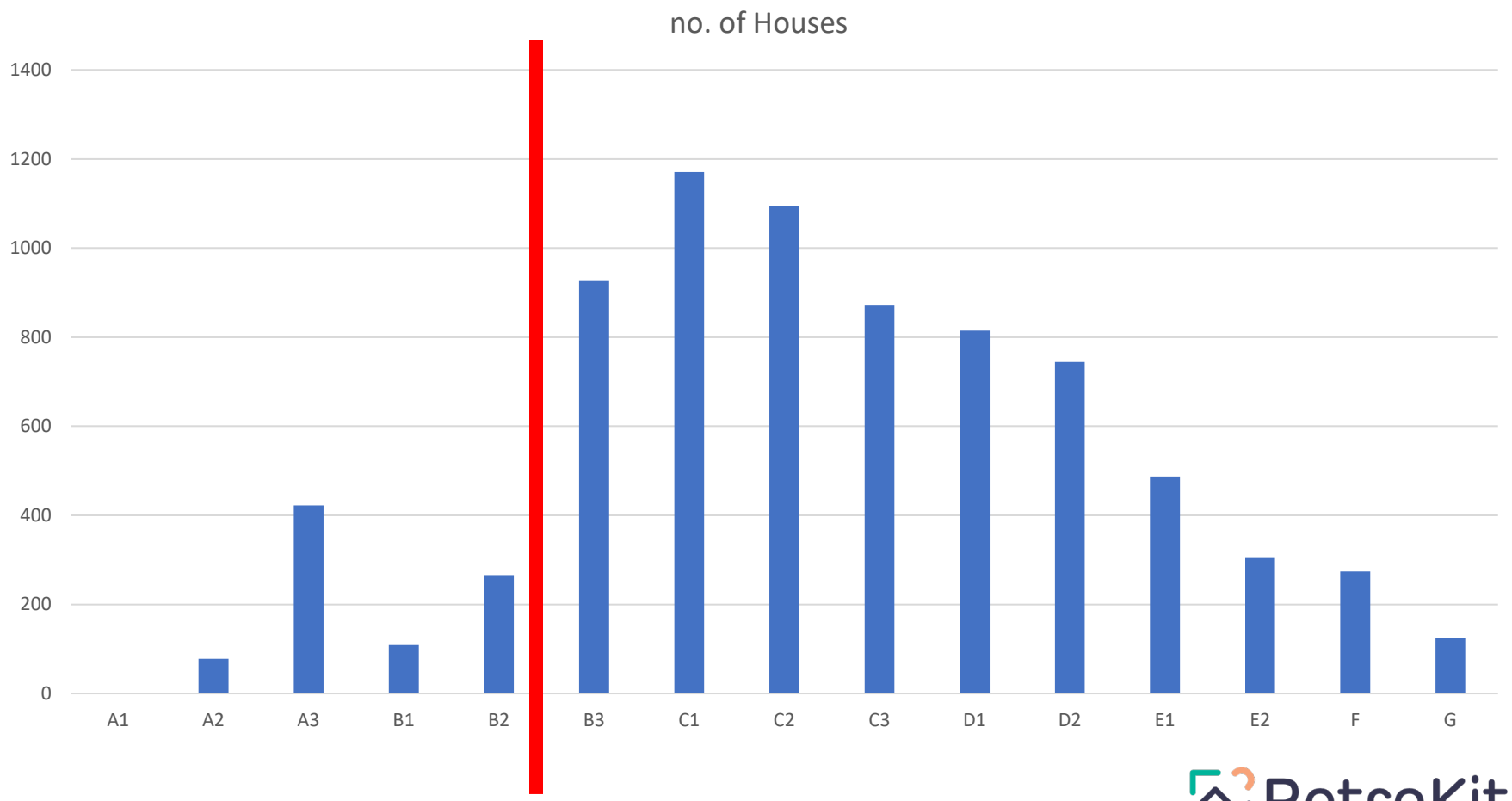


Population: 211,000
Area: 187 sq km
No. of Social Houses: 11,000

Retrofitting Supports Achievement of UNSDG's

Cork City Council Social Housing Stock Building Energy Ratings

BER Rating	no. of Houses
A1	0
A2	78
A3	422
B1	109
B2	266
B3	926
C1	1171
C2	1094
C3	871
D1	815
D2	744
E1	487
E2	306
F	274
G	125



RetroKit
Sustainable Energy Retrofit Planning Toolkit

IGBC
IRISH GREEN BUILDING COUNCIL

WORLD GREEN BUILDING COUNCIL

Irish Green Building Council

- **Member of the World Green Building Council**
- **270 member organisations**

- **Has one common goal to accelerate the transformation of the built environment, related industry and supply chain to one that is sustainable through leadership, research, education, and providing policy input to national and local government.**

- **committed to working effectively and with integrity by being transparent and accountable in all our activities and by adopting best practice procedures.**

- **has embarked on the journey of compliance with the Governance Code, Ireland's code of practice for good governance in the community, voluntary and charity sectors.**

IGBC
IRISH GREEN BUILDING COUNCIL

BUILD UPON
Co-Creating Europe's National Renovation Strategies

BuildUpon

- A Horizon 2020 project that aimed to:
  - Build upon existing resources and initiatives so as to create a greater collective impact in retrofitting.
  - Empower 1,000 key stakeholders – from governments and businesses, to NGOs and householders – across 13 countries, to shape the change needed in our existing buildings.
  - create a collaborative community to help countries design and implement their strengthened national renovation strategies.

- Designed and submitted a renovation strategy to government for each country participating in the project
- Cork City Council a stakeholder

BUILD UPON²

WORLD GREEN BUILDING COUNCIL

Build Upon 2

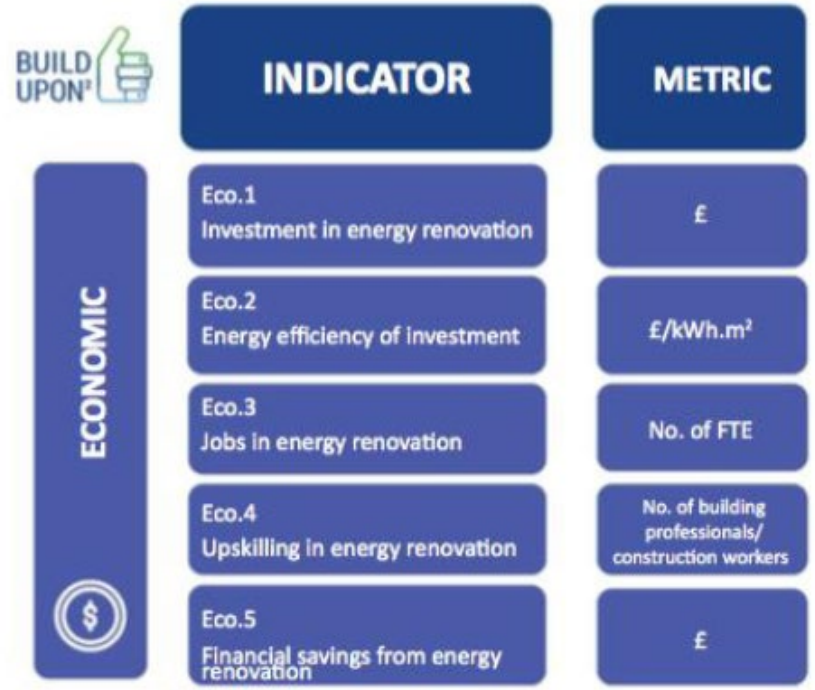
- A Horizon 2020 project coordinated by GBC España with a group of GBCs in WorldGBC's Europe network in partnership with Climate Alliance and BPIE.
- Aims to
  - Empower cities to play a key role in Europes renovation wave
  - give cities across Europe the tools to lead the charge towards net zero carbon by 2050 by unlocking the huge potential of their existing buildings.
  - developing an impact framework that enables cities to measure the diverse benefits of renovation projects across environmental, social and economic factors,
  - identify which of these can be scaled up to the regional and national level.
- IGBC was the Irish partner with Dublin City Council as a lead city and 3x follower cities: Cork, Kilkenny and Laois

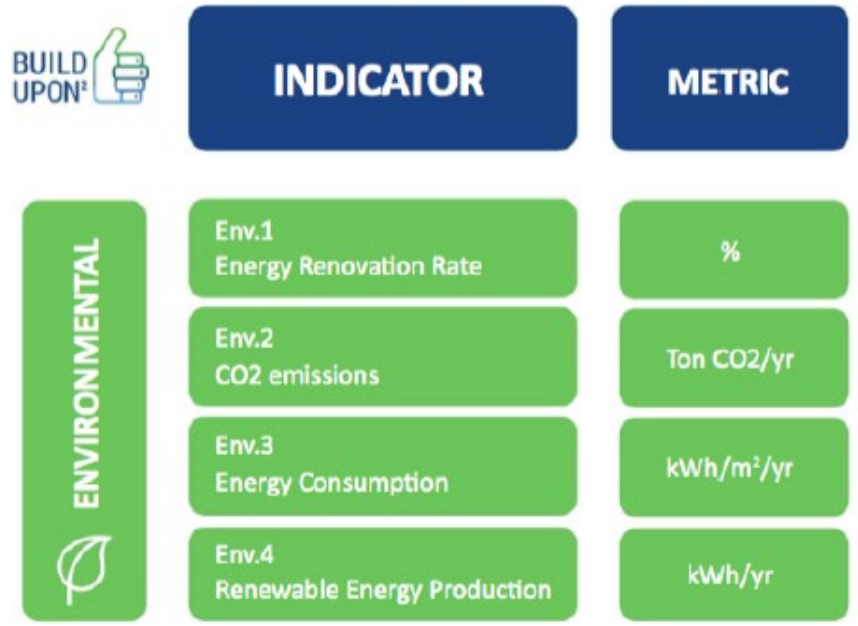
BUILD UPON²

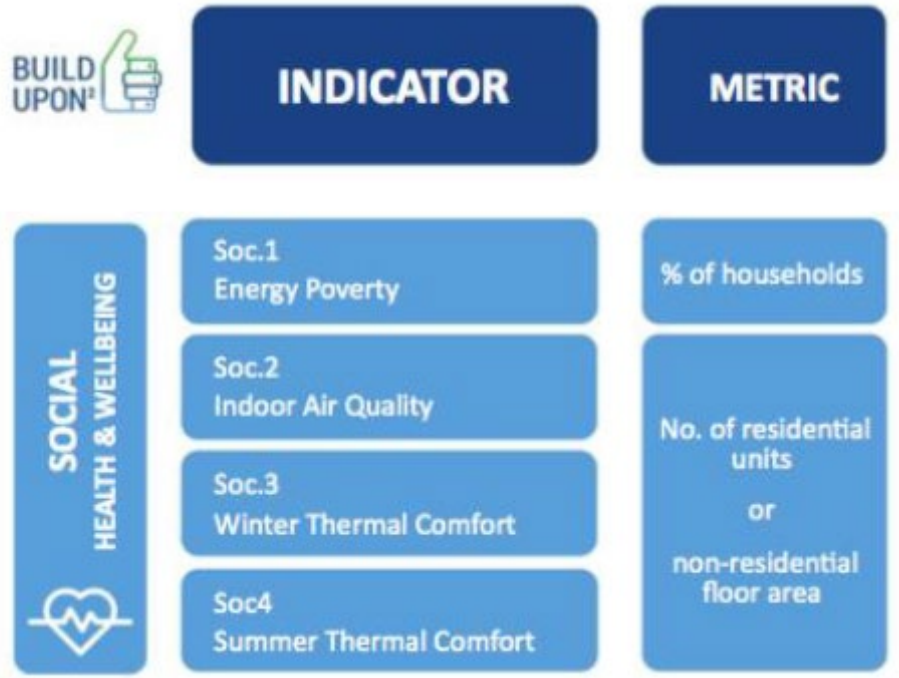
IGBC
IRISH GREEN BUILDING COUNCIL

- IGBC Build Upon 2 – Multi Level Energy Renovation Framework
  - Better quality data on energy renovation
  - Support decision making
  - Prepare Better business cases on energy renovation
  - Support better engagement with a wider audience (co-benefits)
  - 3 sets of indicators
    - Environmental
    - Social
    - Economic

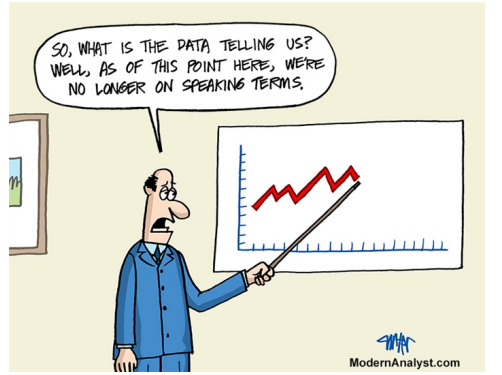
Build Upon2 Framework Indicators







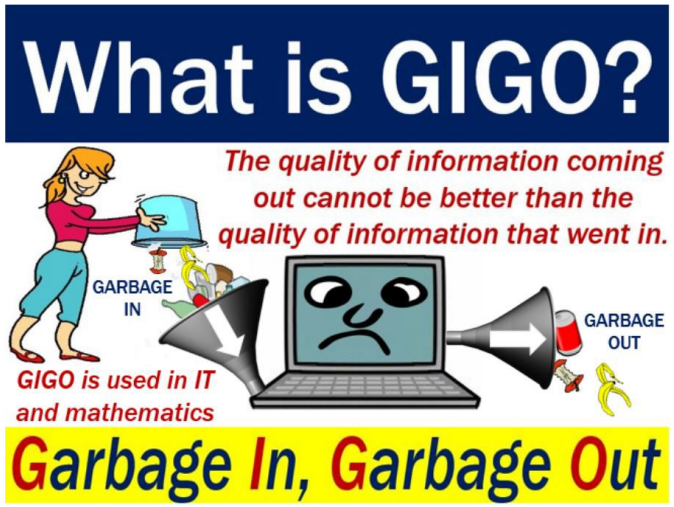
A word of Caution
Data versus Garbage



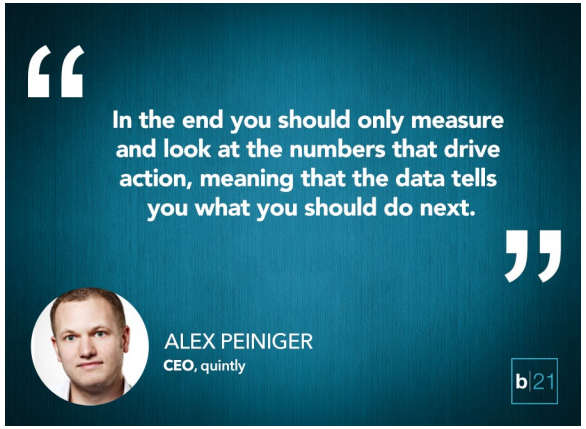
I'm a bit of a freak for evidence-based analysis. I strongly believe in data.

Gus ODonnell

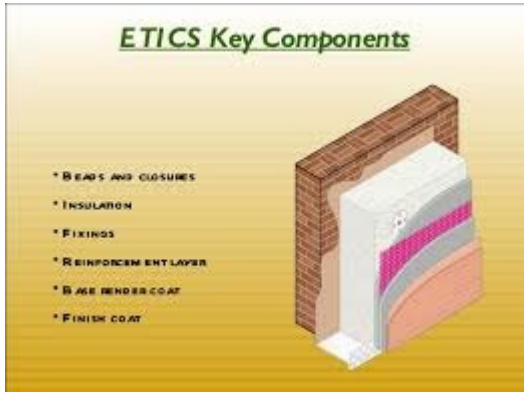
PICTUREQUOTES.com

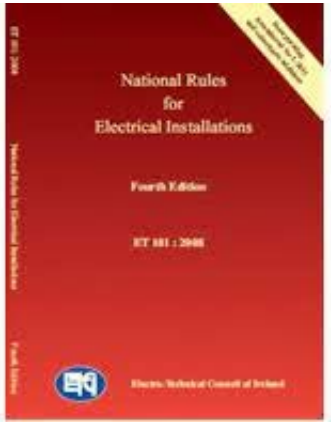


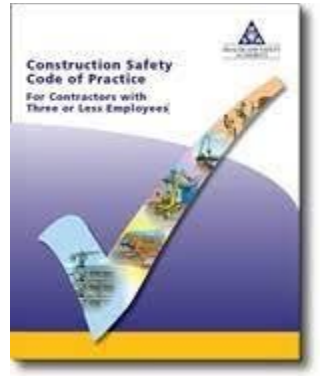
This is Mr Smith from Big Data Mining.
He says he's found an insight.



Irish Standards







LA Achievements to Date

Since 2013 73,500 social housing units have received energy efficiency up grades under four programs

DHLGH sponsored FUP Program Phase One

Attic Insulation
Cavity wall Insulation
Sealing existing windows and doors
BER data capture

An Roinn Tithíochta, Rialtais Áitiúil agus Oidhreachta
Department of Housing, Local Government and Heritage

Tionól Réigiúnach an Deiscirt
Southern Regional Assembly

Regional Assembly Operational Program 2014 - 2020

Vacant housing program

Fabric Upgrade Phase one plus windows and central heating upgrades

Fabric Upgrade Phase 2

Occupied housing similar to vacant housing progamme

Apartment Deep Retrofit Program

As per FUP Phase 2 plus solar and heat pump

An Roinn Tithíochta, Rialtais Áitiúil agus Oidhreachta
Department of Housing, Local Government and Heritage

The Future of Social Housing Deep Retrofit in Ireland

- 2021 sees a step change in how improvements will be made
- 10 year plan to 2030.
- Proceed from shallow to deep retrofit
- 25% of homes to achieve nZEB target by 2030
- 36,500 local Authority homes.
- 2,400 homes in 2021
- €65M allocated in 2021 – of which €20M assigned to the Midlands Retrofit pilot under the “just transition” programme
- Encourages a mix of properties requiring various levels of retrofit to achieve nZEB
- Detailed Data collection on outputs.

LA Social Housing Retrofitting targets

An Roinn Tithíochta,
Rialtais Áitiúil agus Oidhreachta
Department of Housing,
Local Government and Heritage

- Set by DHLGH
- Achieve nZEB standard for existing buildings
- Defined in TGD part L – Conservation of fuel and energy in Dwellings
  - Section 2.3 – Major Renovations
  - Section 2.3.2 – "Where a dwelling undergoes major renovation, the energy performance of the whole dwelling should be improved to Cost Optimal level insofar as this is **technically, functionally and economically feasible**"
  - Section 2.3.3 – "The cost optimal level to be achieved is:
  - a) An energy performance of 125 kWh/m2/yr (B2) when calculated in DEAP as set out in column 2, Table 7
  - or
  - b) Implementing the energy performance improvements as set out in column 3, Table 7 insofar as they are technically, functionally and economically feasible.

Table 7 - Cost Optimal Works activated by Major Renovation

Major Renovation > 25 % surface area[1,2,3,5]	Cost Optimal level as calculated in DEAP (Paragraph 2.3.3 a.)	Works to bring dwelling to cost optimal level in so far as they are technically, economically and functionally feasible (Paragraph 2.3.3 b.)
External walls renovation	The cost optimal performance level to be achieved is 125 kWh/m^2/yr.	Upgrade insulation at ceiling level (roof) where U-values are greater than in Table 5 and Oil or gas boiler replacement[6] and controls upgrade where the oil or gas boiler is more than 15 years old and efficiency less than 86 % and/or Replacement of electric storage heating[7] systems where more than 15 years old and with heat retention not less than 45 % measured according to IS EN 60531.
External walls and windows renovation		
External walls and roof renovation		
External walls and floor renovation		
New Extension affecting more than 25 % of the surface area of the existing dwelling's envelope (see 2.3.6)	The cost optimal performance level to be achieved is 125 kWh/m^2/yr	Upgrade insulation at ceiling level (roof) where U-values are greater than in Table 5 and Oil or gas boiler replacement[6] and controls upgrade where the oil or gas boiler is more than 15 years old and efficiency less than 86 % and/or Replacement of electric storage heating[7] systems where more than 15 years old and with heat retention not less than 45 % measured according to IS EN 60531 and Upgrade insulation at wall level where U-values are greater than in table 5.
Windows Renovation	Not applicable[4]	Not applicable[4]
Roof Renovation		
Floor Renovation		
Roof and windows renovation		
Windows and floor renovation		
Roof and floor renovation		

Notes:

1. *Where works are planned as a single project.*
2. *Where major renovations to walls, roofs and ground floors constitute essential repairs e.g. repair or renewal of works due to fire, storm or flood damage or as a result of a material defect e.g. reactive pyrite in sub-floor hardcore, it is not considered economically feasible to bring these renovations to a cost optimal level.*
3. *Major Renovation of external wall elements should also meet the requirements of Table 5.*
4. *It is not considered technically, functionally or economically feasible to bring the whole building to cost optimal level when replacing the surface area of these elements.*
5. *Subject to the requirements of Table 5 for Material Alterations and window and door replacement.*
6. *Oil or gas boiler replacement should be with a boiler or a renewable energy source with an efficiency as given in section 2.2.2.*
7. *Replacement of electric storage heating should be with a heat generator with an efficiency as given in section 2.2.2.*

How to Achieve Cost Optimal

- **Upgrade insulation at ceiling level (roof)** where U-values are greater than in Table 5

and

- Oil or gas **boiler replacement** and controls upgrade where the oil or gas boiler is more than 15 years old and efficiency less than 86 %
- ***and/or***
- **Replacement of electric storage heating systems** where more than 15 years old and with heat retention not less than 45 % measured according to IS EN 60531
- *and*
- **Upgrade insulation at wall level** where U-values are greater than in table 5.

Table 5 Maximum elemental U-value (W/m^2K)[1, 2,6] for Material Alterations or Material Change of Use

Column 1 Fabric Elements	Column 2 Area-weighted Average Elemental U-value (Um)	Column 3 Average Elemental U-value – individual element or section of element
Roofs Pitched roof - Insulation at ceiling - Insulation on slope Flat roof	 0.16 0.25 0.25	0.35
Walls Cavity walls[4] Other walls	 0.55 0.35	0.6
Ground floors[3]	0.45[5]	
Other exposed floors[3]	0.25	0.6
External doors, windows and rooflights and curtain walling	1.40	3.0

Notes:

1. *The U-value includes the effect of unheated voids or other spaces.*
2. *For material alterations, the U-values relate to the new works.*
3. *For insulation of ground floors and exposed floors incorporating underfloor heating, see paragraph 2.1.2.2.*
4. *This only applies in the case of a wall suitable for the installation of cavity insulation. Where this is not the case it should be treated as for "other walls".*
5. *This U-value only applies where floors are being replaced.*
6. *For buildings of architectural or historical interests or permeable traditional construction, refer to paragaragh 0.6.*

DHLGH Eligible Works and Grants Scheme

A. Eligible Works and Grant Aid available

Item no.	Eligible Works	Maximum Grant Available – Property Type	
		- Mid Terrace (includes 1/2/3/4 story) - Apartments	- End Terrace (1/2/3/4 storey) - Bungalow - Detached House - Semi Detached
1	300mm Attic Insulation including hot press tank and pipe insulation	€1,000	
2	Flat Roof insulation and necessary ventilation in flat roofs of existing extension	€2,000	
3	External Wall Insulation Including ventilation & other necessary works	€12,500	€18,500
3a	Or Dry Lining	€7,000	€11,500
3b	Or Cavity Wall Insulation	€1,000	€1,600
4	Windows and Doors Replacement (see note 1)	€10,000	€10,500
5	Heat Pump and all necessary associated works (See Notes 2 & 3)	€13,000	
6	LED Lighting	€300	
7	BER Certificate	€100	
8	MAX GRANT Mid Terrace (1/2/3/4 Storey/Apartments) End Terrace/Bungalow/ Detached/Semi-detached house)	€38,900 €45,400	

Special Report 11/2020 of the European Court of Auditors: Energy efficiency in buildings: "greater focus on cost-effectiveness still needed".

Funding subject to Pre and Post works BER

- **CO_2 emission saved // BUILD UPON² Env. 2**
- **kWh/m² saved // BUILD UPON² Env. 3**
- **€/kWh/m² saved // BUILD UPON² Eco. 2**

Heat Pump installation subject to maximum values of Heat Loss Indicator (HLI) in line with SEAI Home grants requirements:

- **HLI < 2.0**
- **HLI < 2.3 with maximum U-values**
- **HLI < 2.6 for dwellings with floor area below 55 m2 on a pilot basis with maximum U-values and monitoring of HP Performance by SEAI.**

Sources of Quality Data

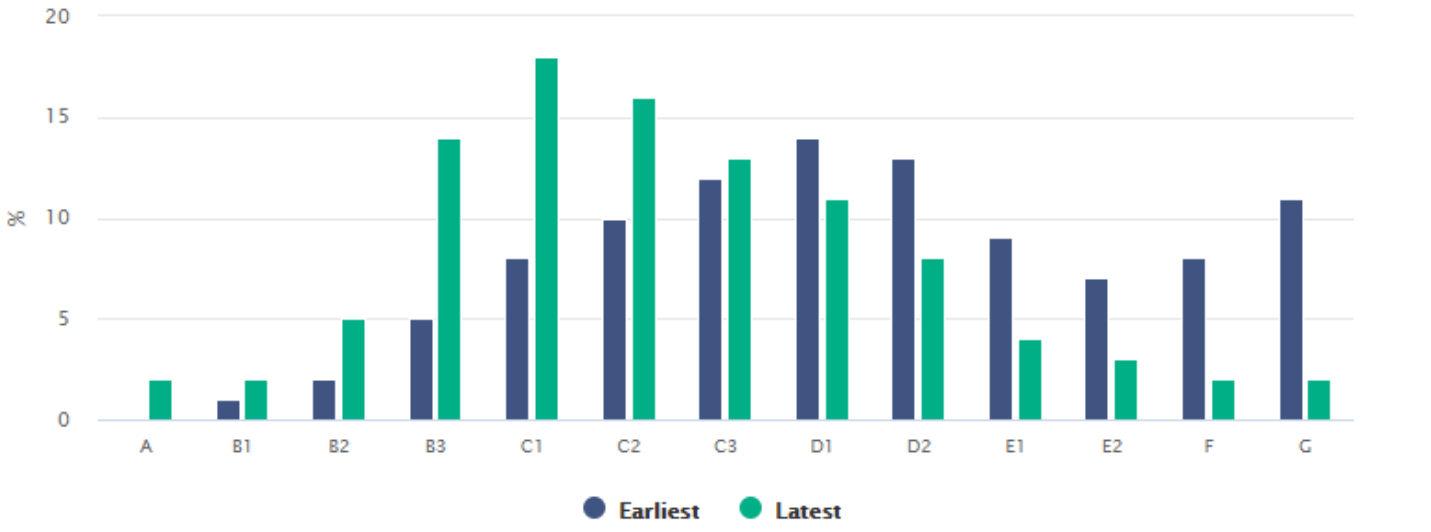
Current:

SEAI BER national data base https://ndber.seai.ie/BERResearchTool/ber/search.aspx

CSO https://www.cso.ie/en/releasesandpublications/er/dber/domesticbuildingenergyratingsquarter12021/

Table 14 examines dwellings that have had more than one BER audit carried out. In their earliest assessment only 8% of dwellings received either an "A" or "B" rating compared with 23% in their most recent assessment. In contrast, 19% of dwellings were rated "F" or "G" in their first BER assessment compared with only 4% in their latest BER assessment (see Table 14 and Figure 2).

Figure 2: Earliest BER compared with the latest BER for dwellings with multiple BERs (2009-2021) - data from Table 14



Source: CSO Ireland

Future:

Indoor Air Quality Indicators

Smart Readiness Indicators

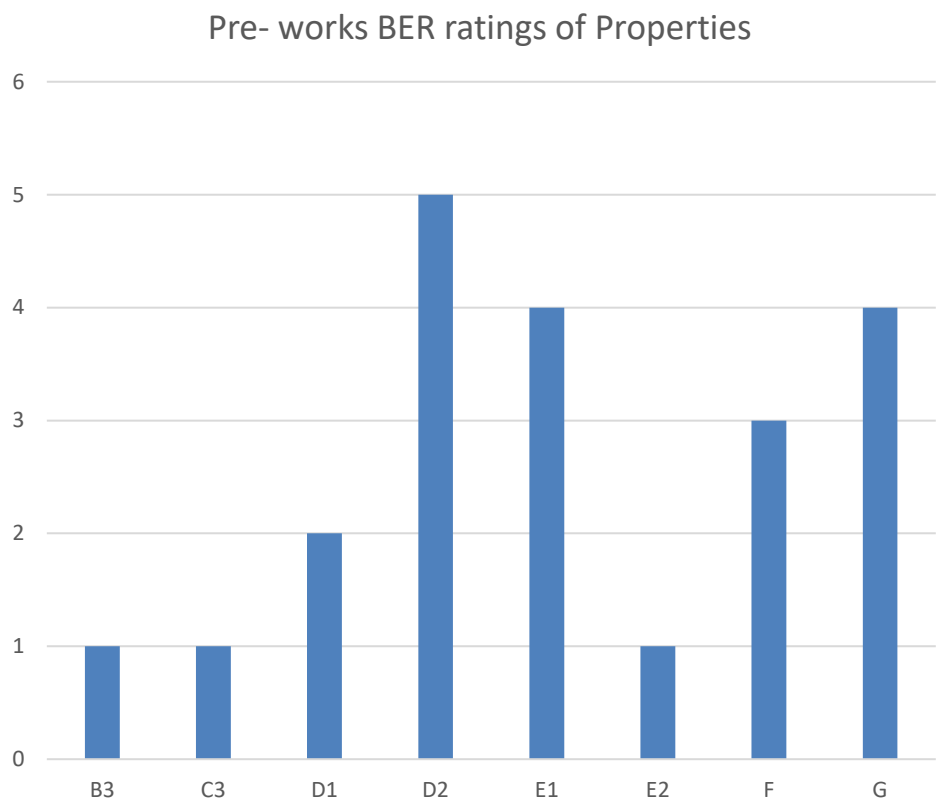
Embodied Carbon

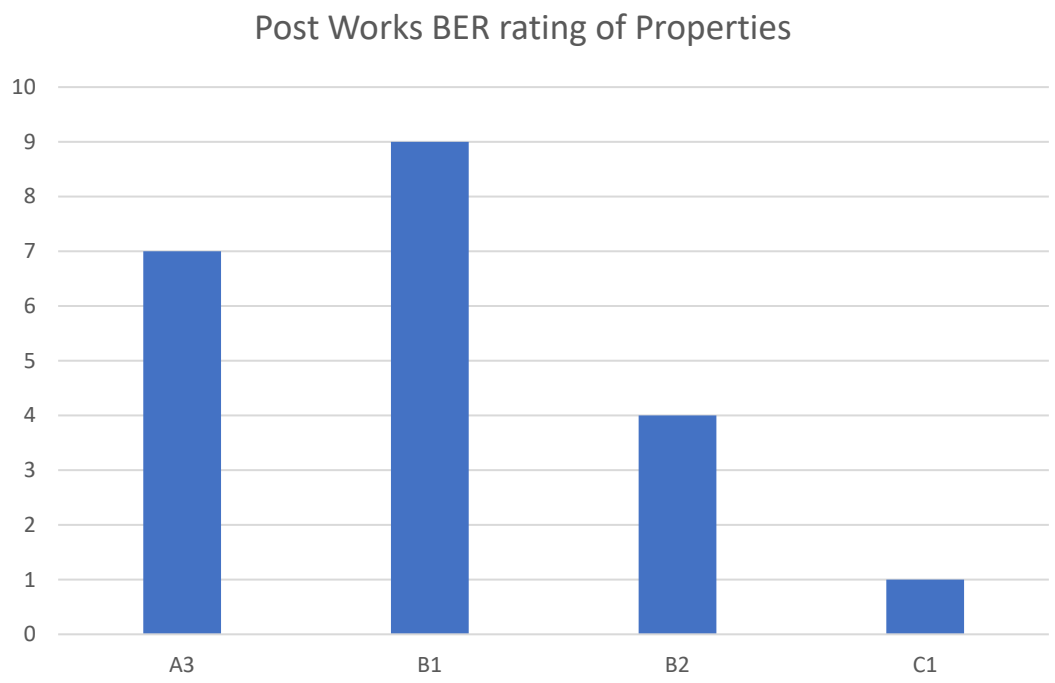
Typical Council Return form to DHLGH on completion of EERP works

Eircode	No of bedrooms	Year Built	Date Works Completed	Pre-works BER Rating (cannot be left blank)	Preworks BER value kWh/m2/yr	Post-works BER Rating (cannot be left blank)	Post-works kWh/m2/yr	Rated energy Savings kWh/m2/yr	300mm Attic Insulation including hot press tank & pipe insulation (total cost)	Flat Roof insulation and necessary ventilation in flat roofs of existing extension (total cost)	Wall Insulation including ventilation & other necessary works (total cost)	Dry Lining (total cost)	Windows and Doors Replacement (total cost)	Photovoltaic Panels (total cost)	Upgrade Existing Boiler and Upgrade or replace radiators (total cost)	Radiators: replace/upgrade (total cost)	Heat Pump (to replace Boiler) and upgrade or replace radiators (total cost)	Installation of room space heating stove	Total Spent on Energy Efficiency works
1	3	1957	10/09/2021	G	503	C1	156.47	346.53	0	0	24,077	0	12,657	0	0	0	0	0	36,734
2	2	1957	10/09/2021	D1	234	B1	86.02	147.98	0	0	20,342	0	12,657	0	0	0	15,796	0	48,796
3	3	1957	10/09/2021	D2	271	B2	124.24	146.76	0	0	22,825	0	12,657	0	0	0	0	0	35,482
4	3	1957	10/09/2021	D1	253	A3	52.51	200.49	780	0	24,019	0	12,657	6,227	7,092	0	0	2,429	53,204
5	2	1957	10/09/2021	D2	281	B1	85.86	195.14	610	0	20,342	0	12,657	0	0	0	15,796	2,429	51,834
6	3	1957	10/09/2021	E1	322	B2	117.18	204.82	0	0	26,052	0	12,657	0	0	0	0	0	38,709
7	3	1957	10/09/2021	G	621	B2	107.36	513.64	0	0	23,732	0	12,657	0	0	0	0	0	36,389
8	2	1957	10/09/2021	D2	254	B1	85.68	168.32	2,622	0	20,342	0	12,657	0	0	0	15,796	2,429	53,847
9	3	1957	10/09/2021	E1	334	A3	71.68	262.32	2,016	0	22,164	0	12,657	6,227	7,092	0	0	2,429	52,586
10	3	1957	10/09/2021	B3	148	A3	59.6	88.4	1,672	0	21,277	0	13,026	5,941	10,384	0	0	0	52,300
11	2	1957	10/09/2021	F	395	B1	81.48	313.52	838	0	18,605	0	13,026	0	0	0	16,261	2,626	51,357
12	3	1957	10/09/2021	G	557	B2	111.19	445.81	0	0	21,038	0	13,026	0	0	0	0	0	34,064
13	3	1957	10/09/2021	F	420	A3	53.14	366.86	1,417	0	21,277	0	13,026	5,941	10,839	0	0	2,626	55,127
14	2	1953	10/09/2021	D2	295	B1	81.15	213.85	0	0	18,605	0	13,026	0	0	0	16,261	2,626	50,519
15	3	1957	10/09/2021	E1	306	A3	52.58	253.42	1,417	0	21,415	0	13,026	5,941	10,384	0	0	2,626	54,810
16	3	1957	10/09/2021	E2	372	A3	52.02	319.98	1,599	0	21,504	0	13,026	5,941	10,888	0	0	2,626	55,585
17	2	1957	10/09/2021	C3	221	B1	86.96	134.04	838	0	18,605	0	13,026	0	0	0	16,741	0	49,210
18	3	1957	10/09/2021	E1	333	A3	54.64	278.36	1,417	0	21,504	0	13,026	5,941	10,620	0	0	2,626	55,135
19	3	1957	10/09/2021	F	417	B1	98.8	318.2	1,417	0	21,415	0	13,026	0	10,839	0	0	0	46,698
20	2	1957	10/09/2021	D2	264	B1	81.22	182.78	838	0	18,605	0	13,026	0	0	0	16,261	2,626	51,357
21	3	1957	10/09/2021	G	562	B1	75.6	486.4	1,599	0	20,080	0	13,026	5,941	11,501	0	0	2,626	54,773

Total Rated Energy Savings = 5587 kWh/m2/yr

Pre and Post Works Energy Ratings of Properties





HAVEN Project – NUI Galway and NSAI

- **Health Impact Assessment of Deep Energy Renovations on Irish Domestic Dwellings**

- Aims to study the health impact and associated benefits of energy renovation (to higher energy efficient standards such as BER B3) in households.

- There are 2 parts to this study;
- (1) 30 homes will have their indoor air quality measured before and after an energy renovation has been conducted
- (2) 150 people will be asked to complete a health questionnaire before and after their home has been renovated. An additional 150 people living in comparable homes to the renovation homes will be asked to complete the health questionnaire at two time points to act as a comparison group.
- This project is sponsored by the Sustainable Energy Authority of Ireland under the SEAI Research, Development and Demonstration fund programme 2019 and it is expected to be completed by March 2023.
- HAVEN website. : https://www.nuigalway.ie/haven/

Go raibh maith agat !!

As Éisteacht

energycloud

EnergyCloud is a social enterprise supported by key stakeholders along the value stream.
From Wind Farm to the Home

energycloud

climote™ clúid housing EIRGRID ESB Kingspan sse Airtricity TU DUBLIN WIND ENERGY IRELAND

Our People

Gabriel D'Arcy
Chairperson,
EnergyCloud

Ciara Ahern
Head of Building Engineering,
TU Dublin

Noel Cunniffe
Deputy CEO,
Wind Energy Ireland

Colm de Burca
Emerging Technology, R&D
Manager, ESB Group

Stuart Hobbs
Head of Energy Services, SSE
Airtricity

Eoin Kennedy
Head of Future
Operations, EirGrid
Group

Cathal Lee
Associate Director,
Instinctif Partners

Siobhan O'Dwyer
Global Head of
Marketing, Kingspan
Group

Derek Roddy
Co-founder & CEO,
climote

Jo Whittall
Director of Property
Services, Cluid

Ambition

€100m

of renewable energy wasted in 2019

energycloud

461,000

homes in fuel poverty across Ireland

EnergyCloud's vision is to reduce renewable energy wastage and divert it to those living in fuel poverty

Customer Proposition (Free xray tank tech and remote control)

Energy Bill (Highlighted Free Hot water value on Bill)

SSE Airtricity
Your bill explained:

1. **Account Number**
This is unique to your account and you may be asked for it when you contact us.

2. **Electricity meter details**

(MPRN)
Meter Point Reference Number
Your MPRN is a unique 11 digit number assigned to your electricity meter.

DG
Your DG number identifies your Distribution Use of System (DUoS) profile - this is a type of standing charge that SSE Airtricity pays to companies who maintain the electricity network.

MCC
MCC is your Meter Configuration Code, which tells us what type of meter you have.

Profile
Profile determines what electricity tariff you pay.

3. **Billing Address**
The property that your bill is sent to.

4. **Supply address**
The property that the electricity is being supplied to.

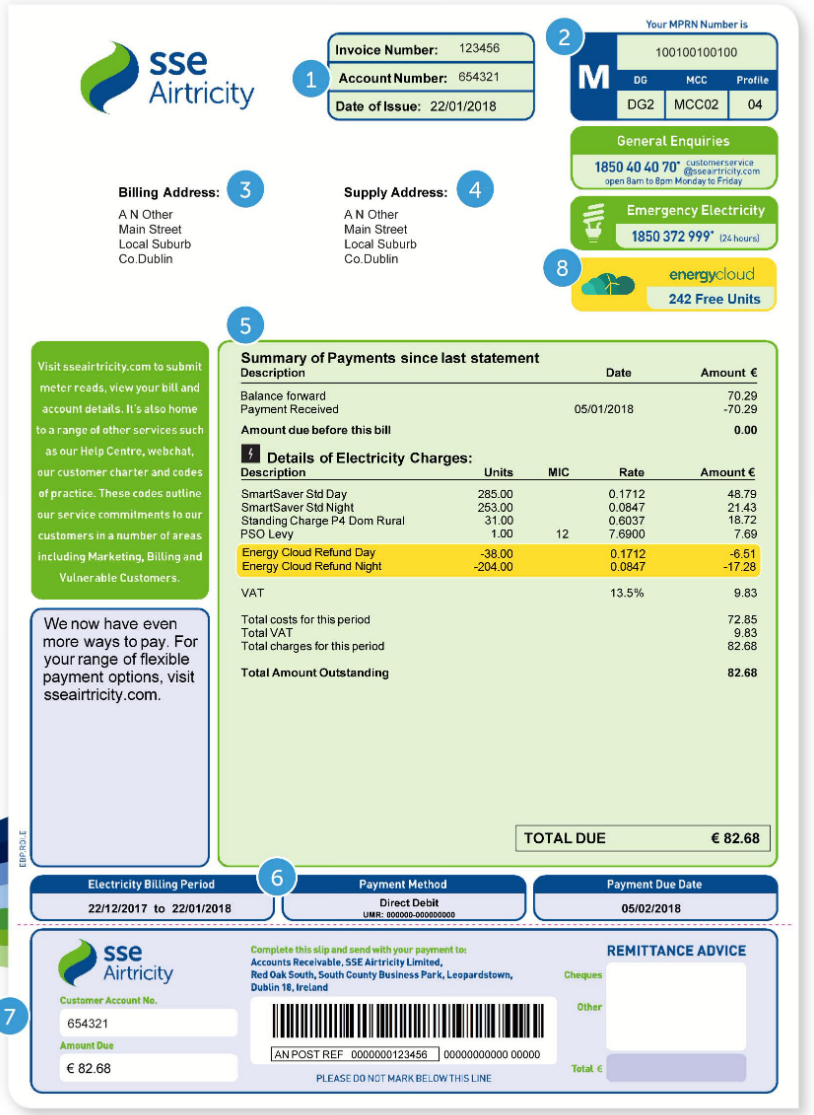
5. **Summary**
This is a is a summary of payments since your last statement. It shows the balance from your last bill (balance forwarded), any recent payments (payments received)and the amount due on the account (if any).

6. **Electricity Billing Period**
The dates that your bill covers.

7. **Remittance Advice**
Detach this to use for non-direct debit payments.

8. **Energy Cloud**
This is the number of free units you have received as part of the Energy Cloud program

Turn over for page 2 of your bill >



sse Airtricity

1 Invoice Number: 123456
Account Number: 654321
Date of Issue: 22/01/2018

2 Your MPRN Number is 100100100100
M | DG: DG2 | MCC: MCC02 | Profile: 04

General Enquiries
1850 40 40 70* customerservice @sseairtricity.com
open 8am to 8pm Monday to Friday

Emergency Electricity
1850 372 999* (24 hours)

8 energycloud
242 Free Units

Billing Address: 3
A N Other
Main Street
Local Suburb
Co.Dublin

Supply Address: 4
A N Other
Main Street
Local Suburb
Co.Dublin

Visit sseairtricity.com to submit meter reads, view your bill and account details. It's also home to a range of other services such as our Help Centre, webchat, our customer charter and codes of practice. These codes outline our service commitments to our customers in a number of areas including Marketing, Billing and Vulnerable Customers.

We now have even more ways to pay. For your range of flexible payment options, visit sseairtricity.com.

5 Summary of Payments since last statement

Description	Date	Amount €
Balance forward		70.29
Payment Received	05/01/2018	-70.29
Amount due before this bill		0.00

Details of Electricity Charges:

Description	Units	MIC	Rate	Amount €
SmartSaver Std Day	285.00		0.1712	48.79
SmartSaver Std Night	253.00		0.0847	21.43
Standing Charge P4 Dom Rural	31.00		0.6037	18.72
PSO Levy	1.00	12	7.6900	7.69
Energy Cloud Refund Day	-38.00		0.1712	-6.51
Energy Cloud Refund Night	-204.00		0.0847	-17.28
VAT			13.5%	9.83
Total costs for this period				72.85
Total VAT				9.83
Total charges for this period				82.68
Total Amount Outstanding				**82.68**

TOTAL DUE € 82.68

6 Electricity Billing Period: 22/12/2017 to 22/01/2018 | Payment Method: Direct Debit UMR: 000000-0000000000 | Payment Due Date: 05/02/2018

7 sse Airtricity
Customer Account No. 654321
Amount Due € 82.68
Complete this slip and send with your payment to: Accounts Receivable, SSE Airtricity Limited, Red Oak South, South County Business Park, Leopardstown, Dublin 18, Ireland
AN POST REF 0000000123456 00000000000 00000
PLEASE DO NOT MARK BELOW THIS LINE
REMITTANCE ADVICE
Cheques
Other
Total €

All figures and values shown are for illustrative purposes only.

How Partnerships work

Cluid Trial

Deploy technology solutions to heat hot water in Clúid properties

Surplus renewable energy from wind farms diverted to properties

Using existing hot water tank

Expand to Clúid's 8,300 homes, reducing fuel poverty for over 21,000 residents

Pilot Scheme Plan

- Pilot scheme identified with Clúid Housing
- Use existing hot water tank to provide free hot water
- Improve standard of living & reduce burden of costly energy bills
- Will inform the extent of a large-scale roll out
- 460,000 homes in poverty could consume 89% of surplus night time wind
- Governments €2/400m bill credits could have paid for infrastructure

energycloud

Tionól Réigiúnach an Deiscirt
Southern Regional Assembly

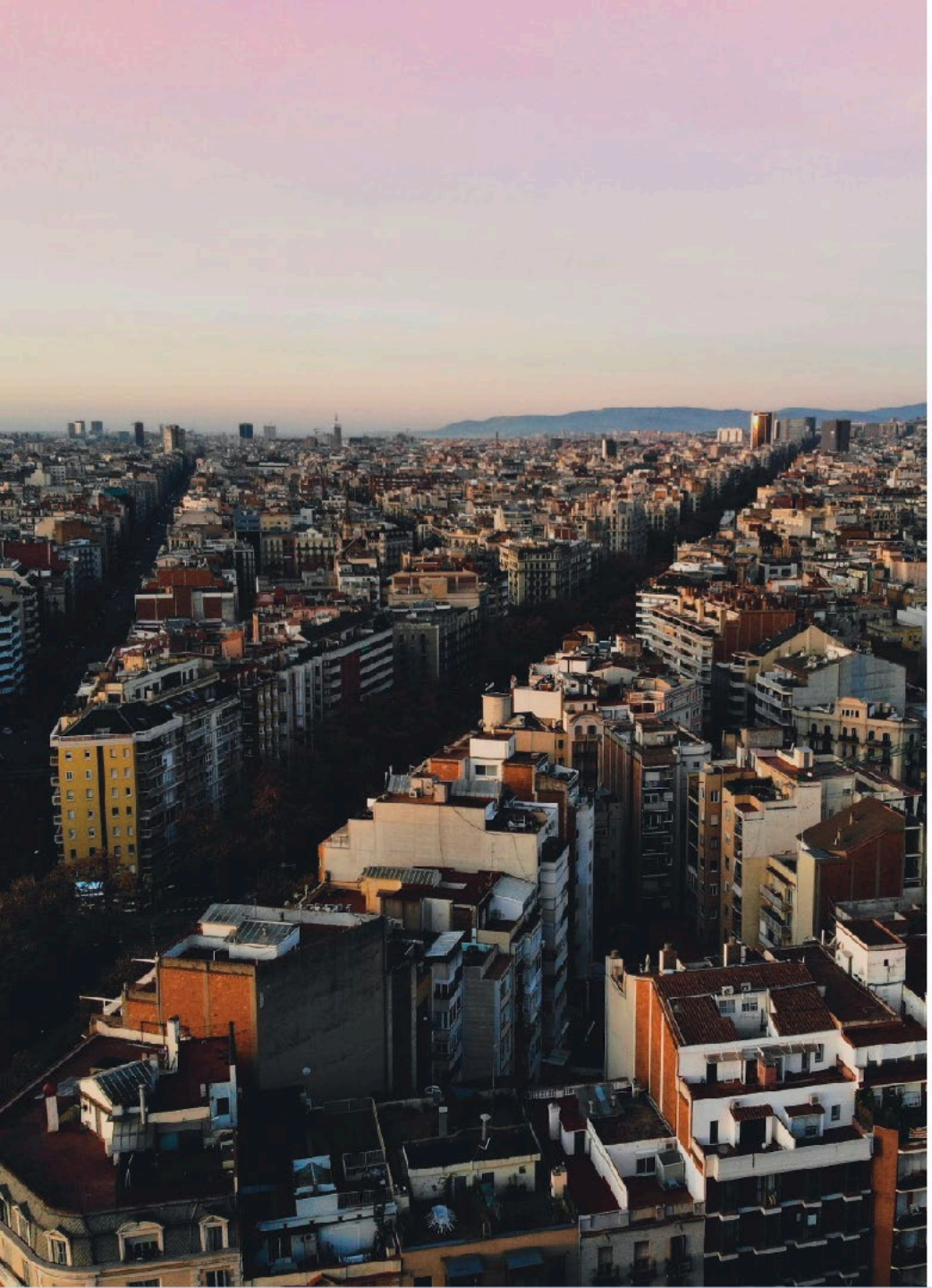
EMPOWER
Interreg Europe

European Union
European Regional
Development Fund

3cea
driving sustainability

Lunch Break

The EMPOWER Energy Poverty Technical Workshop will resume shortly.



EMPOWER

Energy Poverty Good Practice

Fighting energy poverty in public housing

The Italian experience

Cork, 23 March 2022

Partner 4 - ARRR
Sergio Gatteschi
sergiogatteschi@yahoo.it

Who: Leading Actors

- Casa S.p.A. is a joint-stock company with full public participation and public control constituted by the Municipalities of the Florentine Area which are also its current shareholders. Casa S.p.A. provides the public housing management service.
- Federcasa associates 74 entities that, throughout Italy, have been building and managing social housing built with public funds, but also with their own funds and subsidized loans, throughout Italy. These are autonomous institutes for public housing, entities in the process of transformation and companies that manage a wealth of over 850 thousand accommodations intended for users with low or medium income.

Fighting Energy Poverty in Firenze

- Casa SpA Commitment : progressive replacement of the old social housing with new wooden buildings in A Class
- Support from the University for smart meters and computing systems
- Commitment of the Municipality of Florence to install a hot water production system with solar energy that lasts 12 months a year in a block of public housing consisting of 150 apartments, thanks to a large water deposit capable of retaining heat.
- The Replicate project is in the executive phase, we are certifying the centralization of the plants following which we will proceed with the third lot in which the solar panels are foreseen (in the delivery phase) - after the pilot test has been carried out in the meantime

Living Consciously handbook (2017)

- Casa S.p.A. has drawn a handbook entitled "Living Consciously" which constitutes a manual made available to assignees E.R.P. where all the good practices in energy saving and waste management are summarized.
- The manual contains all the descriptions of the main and most common components of the systems serving the accommodation, starting from the measuring instruments (gas meters, electricity, water) up to the internal equipment (chronothermostats, thermostatic valves, lamps, taps, etc ..). For the latter, in particular, there are also precise indications on good use aimed at correct maintenance and reducing consumption.

Where and when: A network for the quality of living and social life

- The "Education for Citizenship and Living" project was born with the main objective of resilience in the lifestyle of the tenants of public residential buildings.

- From a proposal by Federcasa, the project saw since 2020 to nowadays the involvement in three cities - Florence, Milan and Trento - of the municipal administrations, of the managing bodies - Casa Spa, MM Spa and ITEA Spa - and of the tenants assigned to six buildings of public housing, producing a system of guidelines and best practices for a resilient lifestyle with respect to housing, common spaces, services and the neighborhood.

Manual for conscious living in houses, buildings and cities – February 2021

- The "Manual for conscious living in houses, buildings and cities", the result of the "Education for citizenship and living" project, was created with the main objective of introducing the possible applications of the resilience paradigm in the lifestyle of tenants of public housing buildings.

Why: aim of the campaign

- The wealth of cities also lies in the conservation of the housing stock and in the strength of its communities.
- Federcasa and its companies pursue a noble goal: to give everyone a roof, with the will to defend the weakest part of our society and protect the most needy families; but today this is no longer enough, it is important to take care of the environment, of the neighborhoods and educate citizens for a better quality of living.
- **Guaranteeing them dignity and making them more responsible is a very important purpose that should be in the objectives of any civil society.**

How: The resources at the service of a strong political will

- Since 2018 Casa S.p.A. has implemented its organizational structure with the new **Social Management Office** whose activity and operation consists in taking charge of the social dimension of the assets; the Office manages situations of social and social / health fragility, of conflicts, deals with the promotion of the active participation of tenants especially through support for self-management, promotes the enhancement of peaceful coexistence, compliance with regulations and finally manages and takes care of the accompaniment to living. (100.000,00 euro/year)

- Two external contracts : one with **Controradio** (10.000,00 euro per year) , important radio and multimedia station, one with an expert consultant, **Valentina Daddato** (10.000,00 euro per year) .

- Two handbook, one regarding the common good, one mainly concerning how save energy

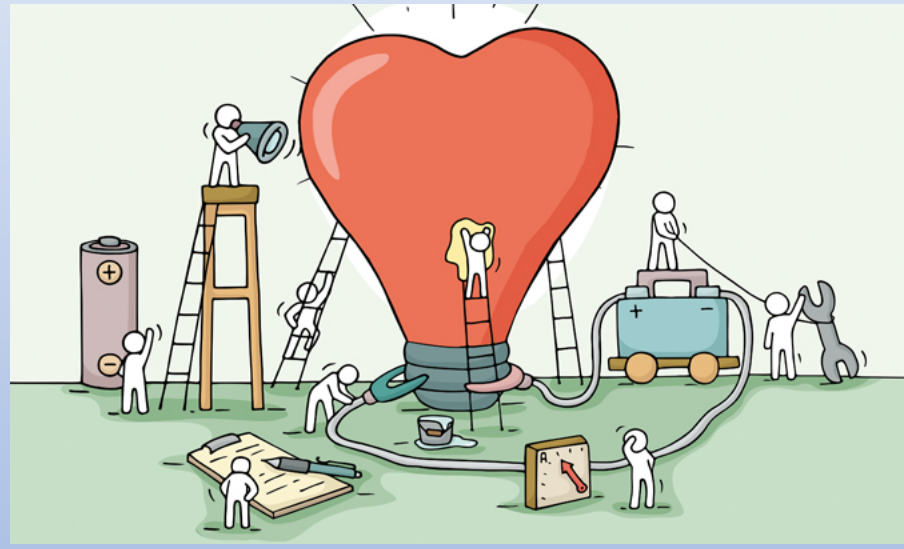
The common good

- Recognizing the value of assigning accommodation is the first step towards the awareness of having been recipients of a benefit that is, first and foremost, a **common good.**
- Education in living can be expressed and realized, therefore, through paths aimed at enhancing and spreading the awareness that the common good is housing, the building in all its parts but also, the complex of virtuous behaviors, the system relationship and the quality of life that inevitably derives from it.

The Good Practice

As part of the recognition of the **common good,** action is developed to encourage virtuous behavior both with regard to coexistence between tenants and to take care of the buildings in which one lives. Casa Spa casa spa has been running a campaign since 2020 among the tenants of public housing to develop:

- a better coexistence between tenants;
- awareness of the common good;
- understanding what are the best behaviors in order to avoid wasting energy, to save water, to run waste management;



The structures where the initiative took place

- The building entirely in wood in Viale Giannotti. The social house has 78 apartments with integrated design that develops since the preliminary phase of the project all the aspects: architectural, structural, energetic, plants, acoustic and economic. Instrumental verifications of the energetic performances of the building (both in winter and summer regime). To collect data are used Heat flow meter, Thermal camera, Thermo-hygrometer, Thermo-hygrometer - datalogger USB and sensors elaborated by the university of Firenze.

- A big social housing in Via Signorelli (Firenze) where important energy efficiency interventions have been carried in the last three years.

1. Interview with Valentina D'Addato project manager of the Education for Living project

What was your role in the project?

I was in charge of the design and project management of the Education for living project

In particular, what did you do?

I took care of the first phase of this implementation: training and prototyping.

The training was aimed at 6 Casa Spa operators, of which 3 engaged in corporate management and one person for each of the other three offices involved: litigation, assets and self-management.

The path was structured in two main phases:

- 4 theoretical and practical training sessions, with the aim of learning about the approach, tools and methodologies contained in the manual, co-designing subsequent workshop sessions with tenants and trying tools borrowed from service design and design thinking,
- 4 learning by doing meetings held in parallel with the direct participation of Casa Spa operators in the prototyping on the territory.

How was the project conducted?

The prototyping of the methodology and the application of the tools was conducted on the first case study in Viale Giannotti and saw the participation of 10 tenants, in addition to the 6 operators of Casa Spa.

In these 4 sessions, training on the one hand and prototyping on the other, participatory activities were conducted with the aim of engaging tenants, creating a cohesive community of collaborative inhabitants, enabling them to use the tools contained in the manual and triggering a relationship. and positive conversation between them, with the support of the operators who, in the meantime, had the opportunity to directly experience the methods and approaches illustrated in the manual.

2. Interview with Valentina D'Addato project manager of the Education for Living project

What were the main issues addressed?

The thematic areas of the manual are four and each of them consists of a section dedicated to reference good practices, a selection of useful national and international tools available and at least one tool designed ad hoc:

- - Care and maintenance of the common good, with the "Table for the co-management of the common good",
- - Sense of belonging and community, with identity and the "Pact of coexistence, the living we like",
- - Diversity as an opportunity and resource, with the "Showcase of resources, skills and favors" and "Activities and rituals",
- - Relationship with the city and the neighborhood, with the "Neighborhood maps".

The 4 workshop sessions with the tenants followed the same structure of the manual, at the first meeting four working tables were formed, one for each of the project themes, four work teams, each of which has deepened its thematic area and ad hoc tool available, and has become its ambassador. In fact, this prototyping aims to start from the enabling of a small number of ambassadors of the cultural and behavioral change taking place, who will then in turn enable their neighbors day after day for collaborative living, thanks to initiatives, tools and rituals. learned.

In fact, collaborative living allows you to live better, take care of spaces and others, better manage resources and reduce waste, build belonging and a sense of community, trigger dynamics of mutual help and mutual support, learn to dialogue and confront each other in a way constructive as a new approach to solving critical issues.

Greater collaboration and sharing undoubtedly means a better use of resources, including energy, reduction of waste and greater economic and environmental sustainability.

In this first phase of the project the following media activities were implemented:

- **4 video and radio broadcasts, one per lesson on Viale Giannotti**
- **22 video and radio broadcasts with Controradio, a media that has a large audience in Tuscany.**

How will the project continue?

- **The project started in June 2020 and it is still ongoing. The most of the project has to begin, as Casa SpA is going to involve all the social housing buildings in the Municipalities of the metropolitan area of Firenze.**
- **In April will be held a meeting with the presentation of the experience with the 10 tenants in Viale Giannotti and the 6 employees and managers of Casa Spa personnel. The aim is to expand the experience into more social houses buildings.**

Challenge

- **The main challenge was to enable people to have a constructive and proactive exchange, abandoning the most common ways of destructive confrontation and resistance to dialogue.**
- **Participants were used to a single mode of frontal confrontation and it was necessary to invest time and effort in showing a different, collaborative and participative approach, in which everyone could add value to the previous contribution and which uses collective intelligence to deal positively with critical situations.**
- **This approach was initially received with scepticism and reticence, this resistance to change will be repeated at the beginning of each new change process within a new context, but the proposed strategy foresees a necessary and physiological time to overcome this initial resistance.**

How transferable/replicable is the Good Practice

- **We believe that the "Living consciously" project is absolutely exportable. The project deals with issues common to all European cities, namely the difficulties due to multi-ethnic coexistence in the same buildings, energy poverty, the need to create a common, social and supportive feeling, to address the problems of the poorest and most disadvantaged classes. . The project was already born with a multicultural approach.**
- **In order to really trigger positive change, it is necessary to innovate in terms of human behaviour and positive relationships between the people who inhabit a context.**
- **Collaborative living means living better, in a context that enables positive and constructive relationships, but it also means producing a positive impact from an economic and environmental point of view, thanks to the possibility of sharing resources among people who successfully cooperate with each other and adopt more collaborative and sustainable behaviours**

Thanks for the attention!

Partner 4 - ARRR
Sergio Gatteschi
sergiogatteschi@yahoo.it

Cork, 22 March 2022

European Union
European Regional
Development Fund

SANTANDER CIUDAD

escan s.l.
the energy consulting

EMPOWER
Interreg Europe

EMPOWER

Energy Poverty Good Practice

A worthy winter

Santander City Council
Sonia Sotero Muñiz
ssotero@santander.es

Energy Poverty
Technical Workshop

Good Practice Description (I)

- Campaign to reduce the risk of a heating crisis (fuel poverty) by supporting biomass boilers at local level
- Replacement of an old coal boiler by a centralized biomass boiler:
  - Residential building: a 12 flat building of social housing for the elderly in the center of Salamanca, Spain
  - Centralized coal boiler approaching the end of its useful life
  - Centralized biomass boiler:
    - elderly residents did not want an individual boiler because they feared they would not be able to manage it
    - the community wanted a renewable solution

Good Practice Description (II)

- Main features:
  - Two-boilers cascade system
  - 2 buffer tanks (1000 & 1500 L)
  - 3 smart meter
  - ADSL connection
  - individual radiator meters
  - further reduction of CO_2 emissions
  - boosting the local economy

Funding and resources

- Initial investment: 72,600€ (purchase & installation)
- National subsidies: 42,000€ (including energy monitoring system)
- ESCO company:
  - makes the investment
  - guarantees savings
  - takes the risks
- Owners are paying the same price before & after the replacement

Evidences of success

- Fewer operating hours, reducing energy consumption and providing the same heat
- Annual energy savings: 37%
- Annual economic savings: 7,000€
- Reduction of CO_2 emissions: 60%
- Renewable and local fuel
- System that does not cause problems for elderly residents

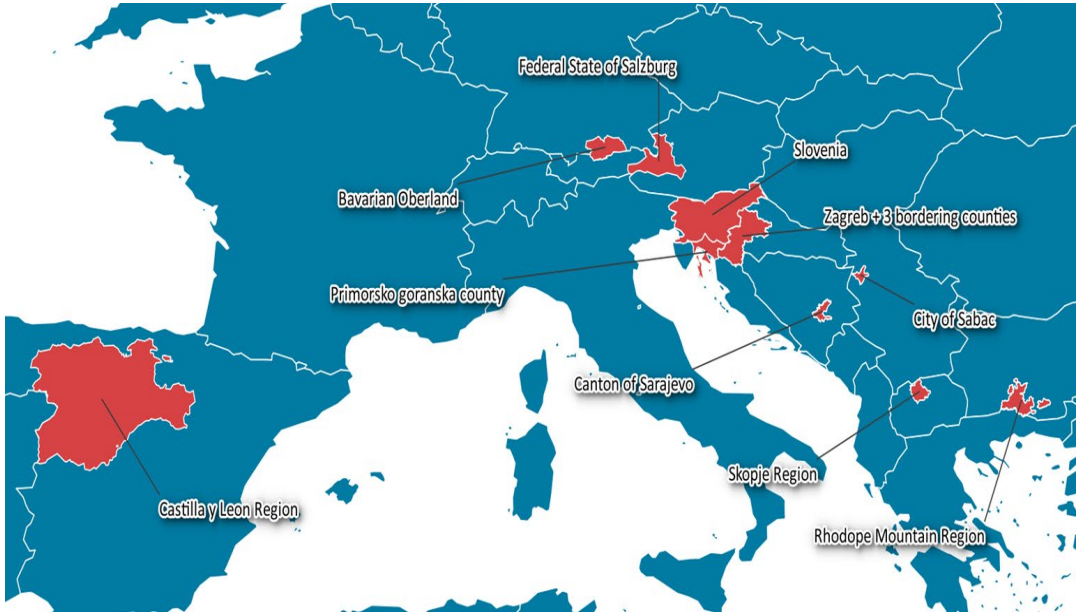
New heating system in use	Biomass centralized boiler (pellets) 300 kW
Previous replaced heating system	Coal boiler 320 kW
Building type	Residential
Useful energy demand (kWh/m².a) – Before and after building shell renovation	Before: 365 kWh/m² After: 260 kWh/m²
Installed capacity (kWth) – Before and after	Before: 320 kW After: 300 kW
Input energy – Before and after	Before: 1,179,230 kWh After: 728,000 kWh
Initial investment (purchase and installation)	72,600 € for the client
Yearly savings on the energy bill (compared to previous system)	27 % in EUR after the amortization in 10 years
Yearly energy savings (compared to previous system)	37 % in MWh
Yearly CO_2 emission reductions (only heating system replacement)	60% CO_2

Main Challenges

- Use renewables: solar panels + biomass -> only biomass
- Old building -> some problems on the boiler room floor

Transferability of this Good Practice

- Replacing fossil fuel heating with renewables requires **informing consumers** about the economic and environmental benefits
- The identification of **local** biomass **suppliers**: boosting the local economy and reducing transport costs
- Actions in the residential sector are easily transferred to other sector such as public buildings, schools, sport centers…
- These simple renovation measures are being carried out in 10 European regions as well



REPLACE - Making heating and cooling efficient, economically resilient, clean and climate-friendly - YouTube

Thank You – Any Questions

Energy Poverty
Technical Workshop

EMPOWER

Energy Poverty Good Practice

ACT4ECO

University College Cork & HEBES Intelligence.

Dr Wendy Rowan & Dr Stephen McCarthy (UCC, Ireland)

Sotiris Papadelis & Sophia Theodoropoulu (HEBES Intelligence, Greece)

Good Practice Description

- ACT4ECO is an **open e-learning platform** empowering EU citizens to make sustainable household consumption choices developed by a consortium of 9 partners in a H2020 funded project including University College Cork.
- The ACT4ECO platform is **freely** available to all EU Citizens and is a **behavioural change** project which aims to empower citizens to reduce their energy consumption in the household.
- The ACT4ECO platform seeks to bring users through a **ladder of change** from motivation to exploration and finally to action and behaviour change.

Good Practice Description

- ACT4ECO is a free energy efficiency training platform.
- With 22 steps and counting on how to reduce the carbon footprint in the home.
- The more the home energy consumer knows the easier it is for them to make decisions and act.

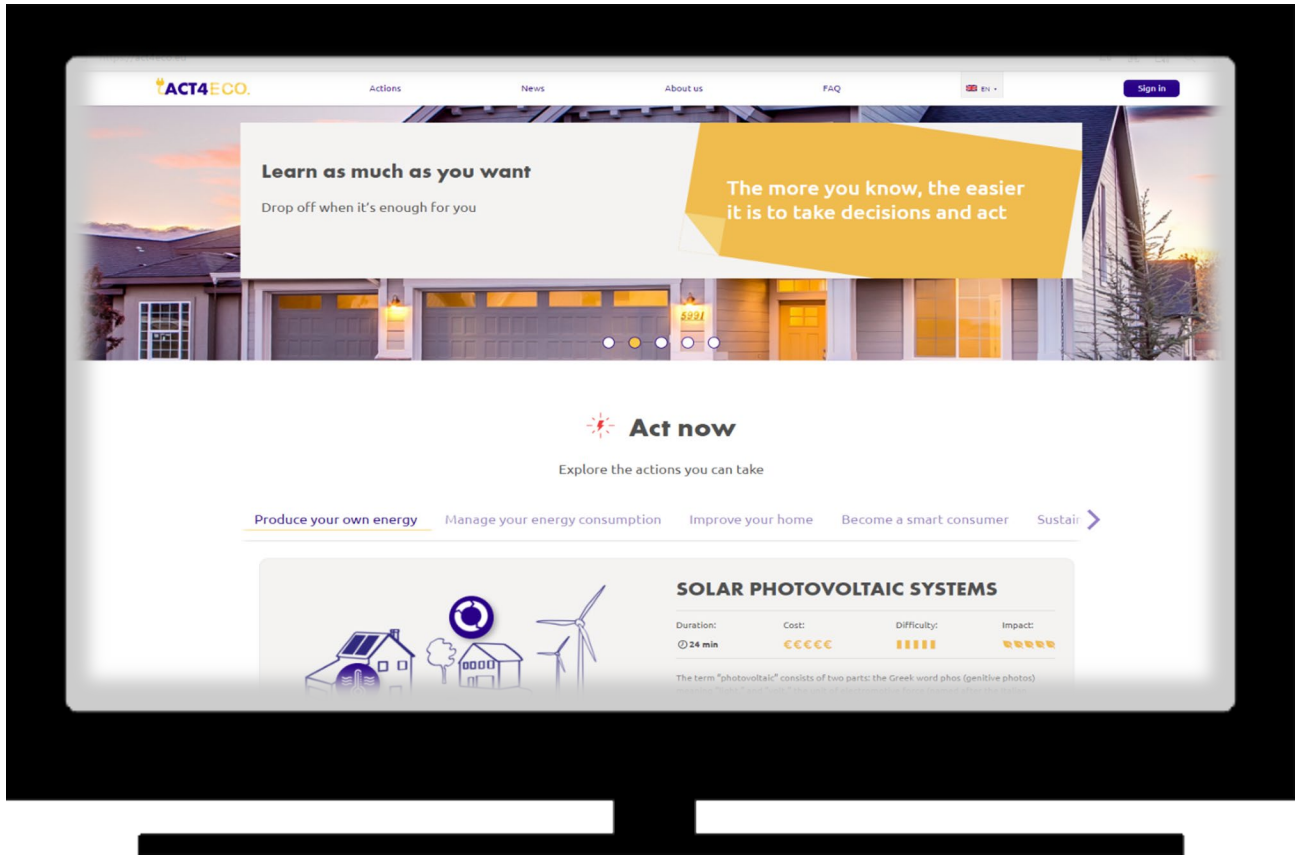
Benefits of Good Practice

- The platform is free to use and offers **self-paced online training** in topics such as my energy consumption, improving the home, becoming a smart consumer, sustaining efficient energy use and producing your own energy.

- Aims to enhance citizen's knowledge on how to **consume energy more consciously** in their everyday lives and in turn reduce environmental impacts from energy consumption.

Demonstration

Act4Eco find us at:
[Act4eco - https://act4eco.eu/](https://act4eco.eu/)



Benefits of Good Practice

- ACT4ECO educates on how to improve the energy efficiency of the home and how to **change consumption behaviour**.
- Each of the 5 Action sections helps the energy consumer go through **graduated steps learning** how to make change happen.
- Climbing the ladder for change from **Motivation**, to **Exploration** and finally **Action**.

How transferable/replicable is the Good Practice

- To date, the platform has been translated into **12 languages** and has over **10,000 registered users.**
- This good practice is easily accessed by all EMPOWER project partners and is easily **transferable and replicated** in other EU Regions.

Become a Smart Consumer

Learn about producing your own energy

How transferable/replicable is the Good Practice

- The ACT4ECO group are open to collaborations with organisations, funders, authorities and others in making this platform better serve the European energy and climate transition.

- **Act4Eco** community are interested in the expansion of the platform – regarding available content and languages.

- If you want to know more about the Act4Eco project, please contact the community coordinator - Lars Klüver (DBT) email: lk@tekno.dk

Next Steps

- Platforms like ACT4ECO help consumers make their first steps towards improving the energy efficiency of their homes
- There is an additional need for services that provide personalized guidance to home owners so that they plan, prioritize and implement energy efficiency interventions
- This is a market gap but not necessarily a market opportunity
- Some funding for energy efficiency could support:
  - services that facilitate intermediate actors (such as small ESCOs) to reach and support a large number of home owners themselves
  - innovations from ESCOs that target residential buildings and aim at achieving real impact

Next Steps

- Communication of best practices and impact on savings.
- National repositories of data on energy efficiency measures and their impact.
- Leveraging private funds for energy efficiency investments at scale needs impact data (rather than engineering assessments).

Next Steps

- Include mitigation of energy poverty in the objectives of energy efficiency support schemes.
- Improve energy efficiency of the homes of people that struggle with their energy bills (if they own the building).
- Combine grants with on-bill financing schemes to capture some of the value from an energy retrofit and redistribute it people that struggle with their energy bills (if they rent the building).
- Link (part of) the cost of the retrofit to the building, but allow people that struggle with their energy bills to “own” the savings even when they move to another house

Interested parties wishing to pursue joint research in this area, please contact -

Wendy Rowan & Stephen McCarthy (UCC)
email: wendy.rowan@ucc.ie & stephen.mccarthy@ucc.ie

Sotiris Papadelis & Sophia Theodoropoulu (HEBES Intelligence, Greece)
email: spapadelis@hebes.io & stheodo@hebes.io

Thank You – Any Questions

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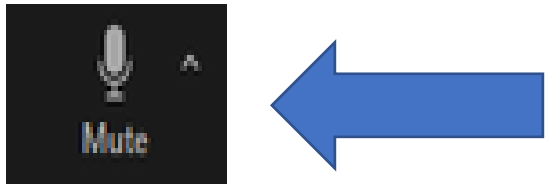
Welcome to the EMPOWER Energy Poverty Technical Workshop

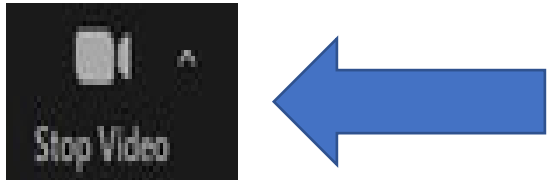
The event will begin at 9:30am Irish Standard Time (10.30 CET)

Zoom - Housekeeping Rules

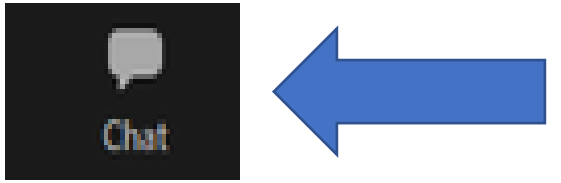
The participant controls appear at the bottom of your screen.



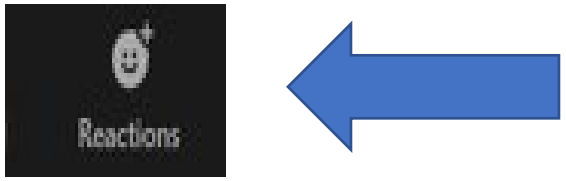
- You will be muted as you enter the Webinar, we please ask you to keep yourself muted if not speaking.
- Join **Audio,** **Mute** and **Unmute** by clicking on the mic symbol at the bottom of your screen. (click the ^ arrow next to **Mute** / **Unmute**): Allows you to change the microphone and speaker that Zoom is currently using on your computer, leave computer audio. You can **unmute** yourself **to ask a question**.



- By clicking on the video symbol at the bottom of your screen, this allows you to **turn on and off your camera.** Again we ask you to keep your camera off unless you wish to ask a question about a specific presentation



- We encourage you to ask **questions and you can also** do this by typing your questions into the **chat box**. We will endeavour to answer as many questions as possible today. Any questions we do not answer will be forwarded to the relevant presenter.



- You can also **react** to any of the presentations today by clicking the reactions button.

Energy Poverty Technical Workshop - 24th March 2022

Thursday 24th March 2022 (All times are Irish Standard Time, CET is one hour behind)

09.30	Opening by 3 Counties Energy Agency
09.40	Citizens Energy Advice Reducing Energy Poverty – Vlasta Krmelj, Energap, Slovenia
10.10	Smart Invent Energy Poverty Identification – Żaneta Latarowska, Mazovia Energy Agency, Poland

Break

11.10	Energia su Misura Energy Poverty Behaviour Change Programme – Anna Realini, RSE, Italy
11.40	Retrokit Planning Toolkit Identifying Energy Poverty – Xavier Dubuisson/Shay Kavanagh, Ireland
12.10	Highlights and Insights from event and close of event at 12.30

Thank you for joining us.

Join Zoom Meeting: https://zoom.us/j/98096300946?pwd=RmhtRWdVWVIzd056MWZWS3Nkay96QT09

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Energy Poverty Good Practice

Citizens Energy Advice

ENERGY AGENCY OF PODRAVJE
dr. Vlasta Krmelj
24th March, Cork

Energy Poverty Technical Workshop

Good Practice Description

Energap offers free energy advice service and energy retrofit support for marginal groups and those experiencing energy poverty.

Good Practice Description

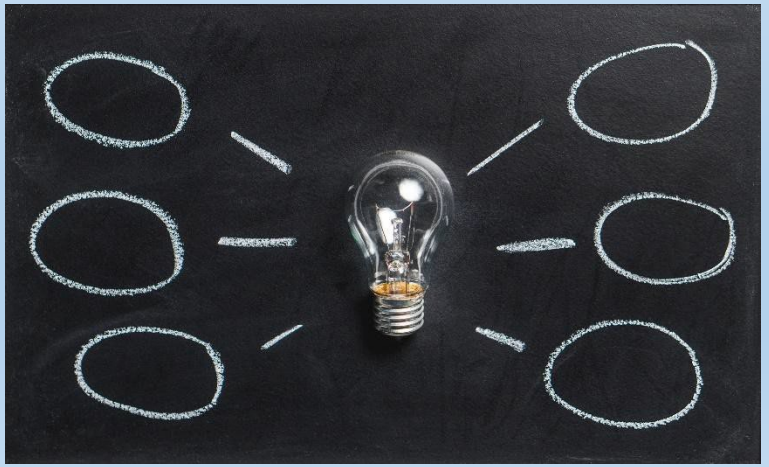
Energap offers advice and information on:

- soft measures how to save energy (closing windows, ventilation, turning off lights ...)
- energy-efficient construction or renovation of residential buildings,
- restoration of heating systems,
- possibilities of co-financing and obtaining loans for the implementation of measures in the field of RES and EE,
- investments in heating systems,
- installations or the replacement of joinery,
- installation of wood biomass central heating combustion plants,
- installation of solar heated systems,
- purchases of economical white goods, etc.

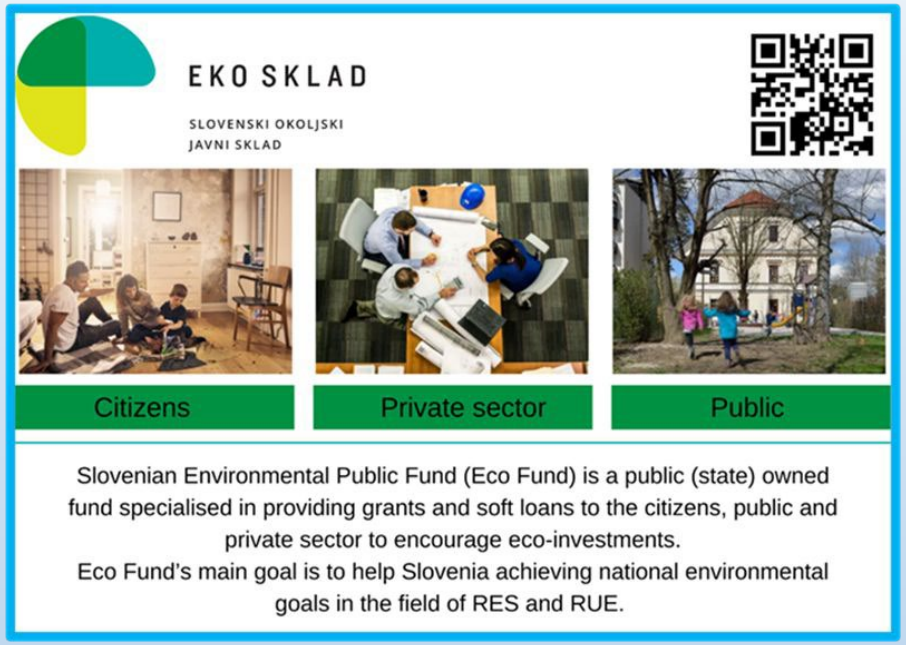
What sets us apart from other similar Good Practices

The agency's advice is special in that:

- it offers free advice and assistance for citizens in several areas,
- the possibility of getting a free energy certificate,
- thermal camera inspection,
- assistance in applying for financial subsidies,
- agency advisors cooperate with the Slovenian Red Cross organization,
- Energap also cooperating whit Slovene Energy Advisory Network (ENSVET), managed by the EcoFund.



Funding for advisory service



- The advisory service is financed by municipality and Eco fund.
- Citizens can get from Eco fund up to 50 % of subsidies and energy poor can get up to 100 % of subsidy.
- Citizens who are receiving welfare can register for a free home visit by an energy advisor.

Evidence of success of the Good Practice

It the year 2021 600 tips were given in person and over the phone.

Reduces CO_2 due to renovations with grants from EcoFund.

Challenges with Good Practice

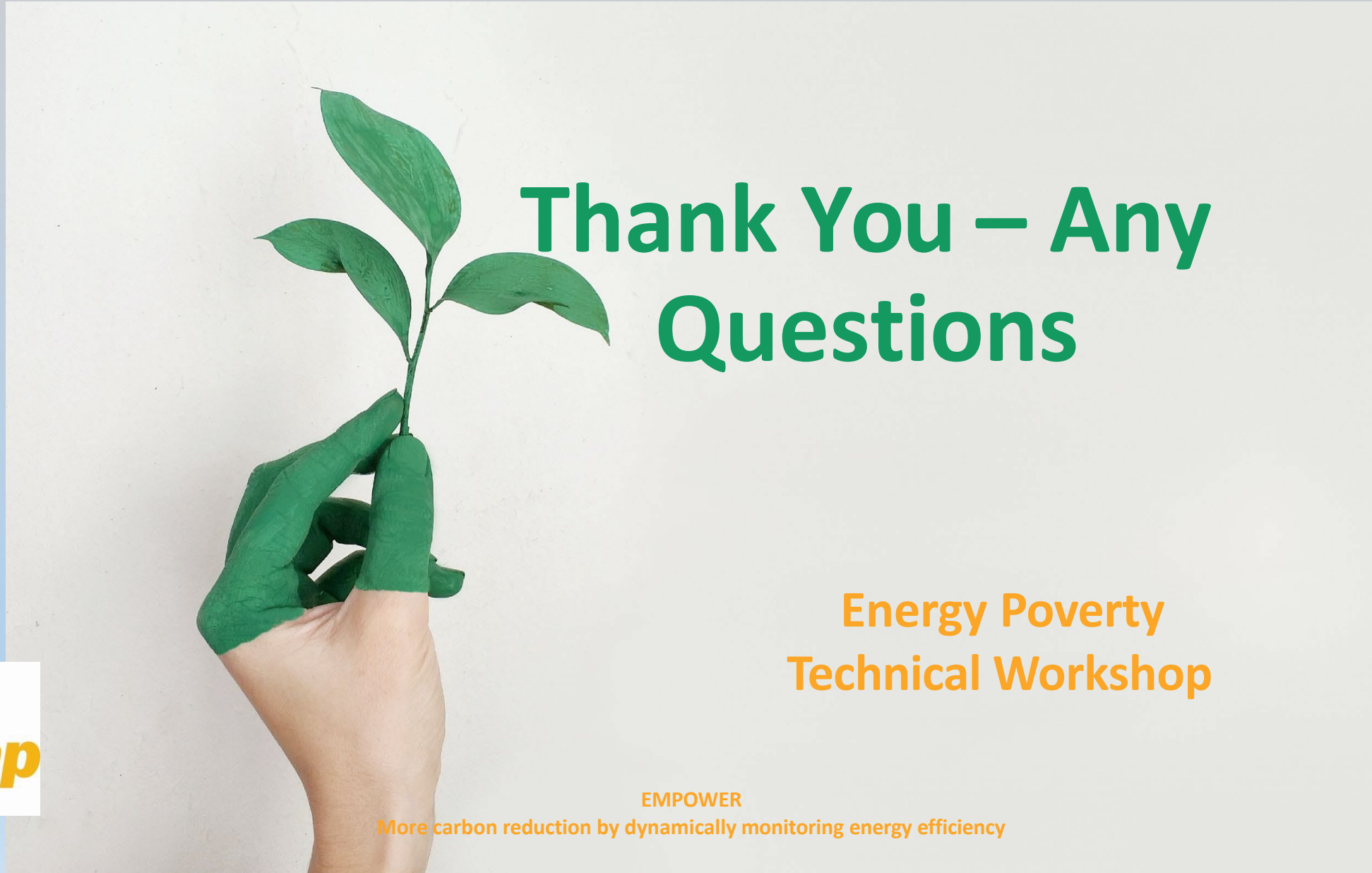
It is a problem to attract people to take their time for the advices or workshops.

Therefore, advisory services are organized not only in city centers but also in villages, at homes, in schools, via web.

How transferable is the Good Practice

If you have an energy consultant, it is very easy to transfer this practice to your city or country.

The Agency is in the process of establishing the OSS - One Stop Shop for energy issues for the surrounding municipalities. Something similar could be feasible in other countries and regions.



Thank You – Any Questions

Energy Poverty Technical Workshop

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Energy Monitoring/Energy Poverty Good Practice

Smart Invent Application

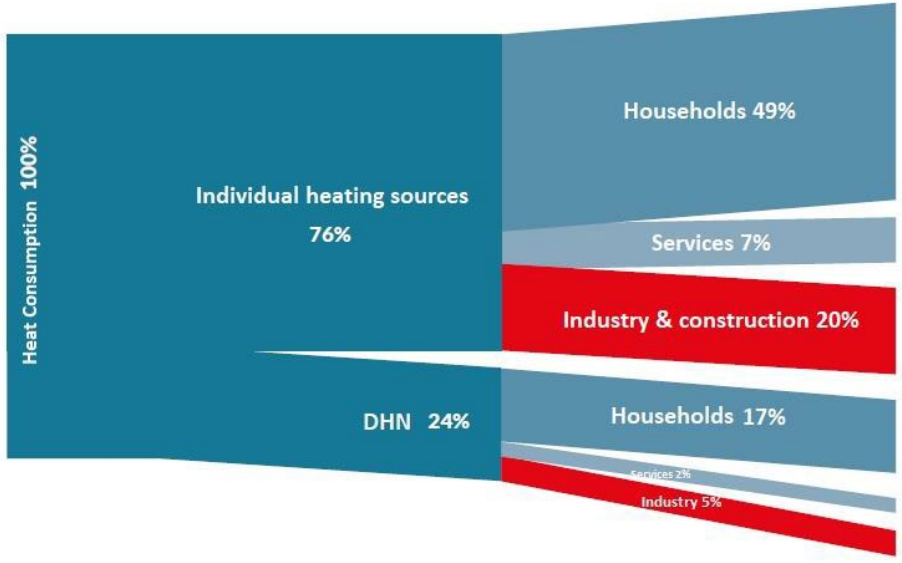
Mazovia Energy Agency
Żaneta Latarowska
z.latarowska@mae.com.pl

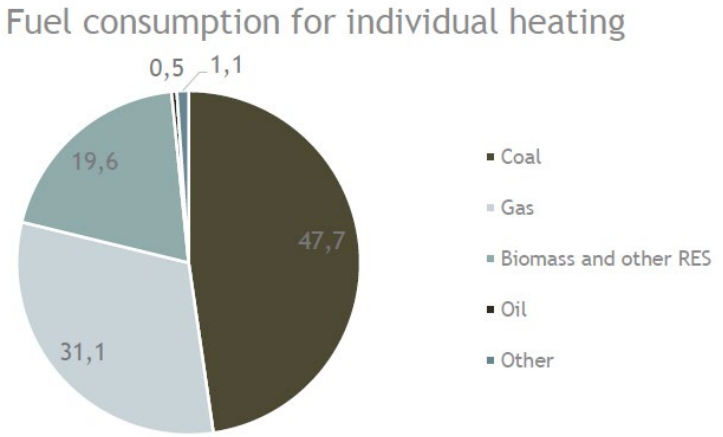
Energy Poverty Workshop

Background

- *In 2020, energy poverty in Poland increased to 21.4%, i.e. by nearly 14%. against 2019 - indicates the Polish Economic Institute.*

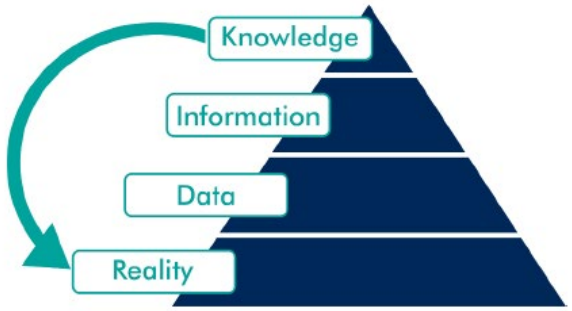
• *In Poland as much as 76 % of the heat is generated in individual heating systems, only the remaining 24 % is produced in district heating systems. Solid fuels dominate in heat production in Poland. Polish households burn 87% of the coal allocated to all households in*





Background

- *One of the main barriers to clean heating is not only the lack of a comprehensive strategy for this area, but most of all the lack of publicly available data describing the condition of this sector, especially the identification of households that need more support in improving air quality, as well as their lives due to low income.*
- *There is a lack of data on the state of energy efficiency of buildings, individual heat sources, energy poverty and many others. It is also a big problem in the allocation of public funds for mitigation measures. This data can help allocate accurate funds and identify the exact areas in need of support.*



Background

- *With the Mazovian Anti-Smog Resolution that states that from 1st January 2023, it is not allowed to use boilers for coal or wood that do not meet the requirements for classes 3, 4 ,5 according to PN-EN-303-5-2012, the Management Board of the Mazovian Voivodeship approved the implementation of the "Mazovian Instrument for Air Protection Support (MIWOP)".*
- *The aim of the program is to improve the living conditions of the inhabitants of Mazovia by improving air quality and supporting municipalities in the implementation of the anti-smog resolution in Mazovia.*
- *The program co-finance collecting information on the type and quality of domestic heat sources will be the first stage of preparing a project and receiving funds for the replacement of heating devices and thermal modernization of buildings for interested persons.*

Good Practice Description

Mazovia Energy Agency invented SMART INVENT APLICATION to help municipalities implement the activities. The system works on the basis of

1. web application (through which residents can complete surveys)

2. central application (main database with the ability to process generate reports and manage the system)

3. mobile application (intended for mobile devices such as smartphone/tablet, currently only for field inventory mainly intended for interviewers may be extended for residents' use)

- *The application, based on the uploaded address database from the municipalities cities and TERYT data, as well as surveys supplemented by residents, updates the data itself and generates all reports currently resulting from the MIWOP guidelines (building insulation status, heat source, heat source efficiency etc). Based on those available, collected data in the system administrator can select households with a inefficient/old heat source and an uninsulated building as needing urgent intervention.*
- *This application is the only one in Mazovia that comprehensively collects and analyzes data that can be used not only to identify problematic buildings, but also to identify energy poor households, and can also be helpful in monitoring air quality and intervening in violation of related regulations*

Good Practice Description

*The **web application***

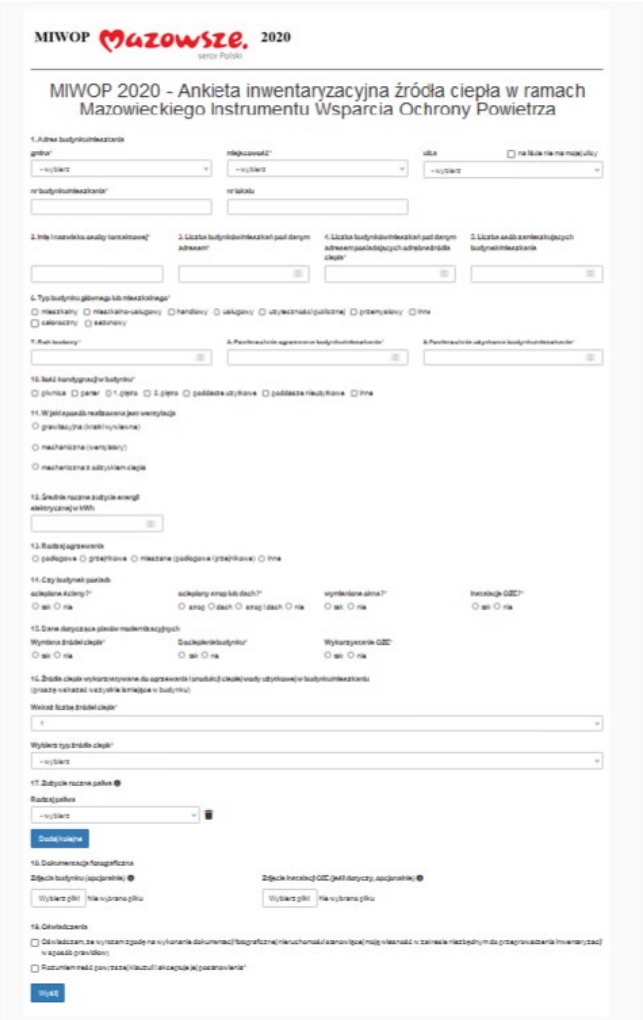
(through which residents can complete online survey)

16 Questions regarding:

- *Building structure data*

  (type of building, year of construction, heated area, cubature etc.)
- *Building thermomodernization status*

  (insulated walls, ceiling/roof, windows replaced)
- *RES installations*
- *Data on modernization plans and barriers occurred*
- *Heat sources used for heating and domestic hot water production*
- *Annual fuel consumption*
- *Income level status*

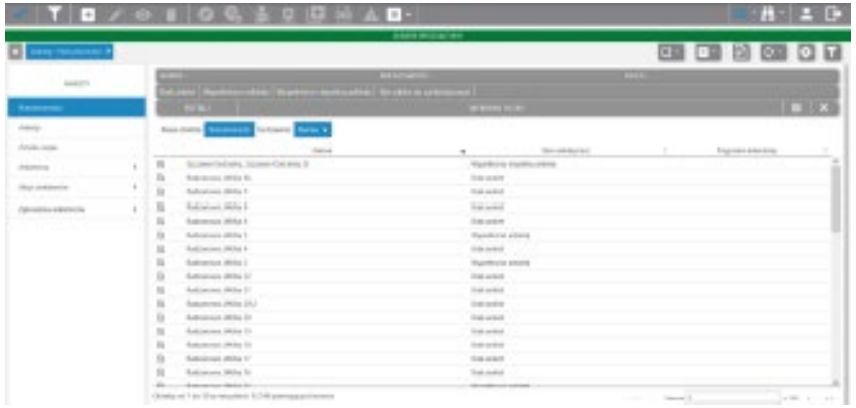

MIWOP Mazowsze. 2020

MIWOP 2020 - Ankieta inwentaryzacyjna źródła ciepła w ramach Mazowieckiego Instrumentu Wsparcia Ochrony Powietrza

Good Practice Description

*The **central application** (main database and management system)*

- *ability to process and generate reports*
- *ability to add, edit and delete data*
- *ability to assign the interviewers*



Good Practice Description

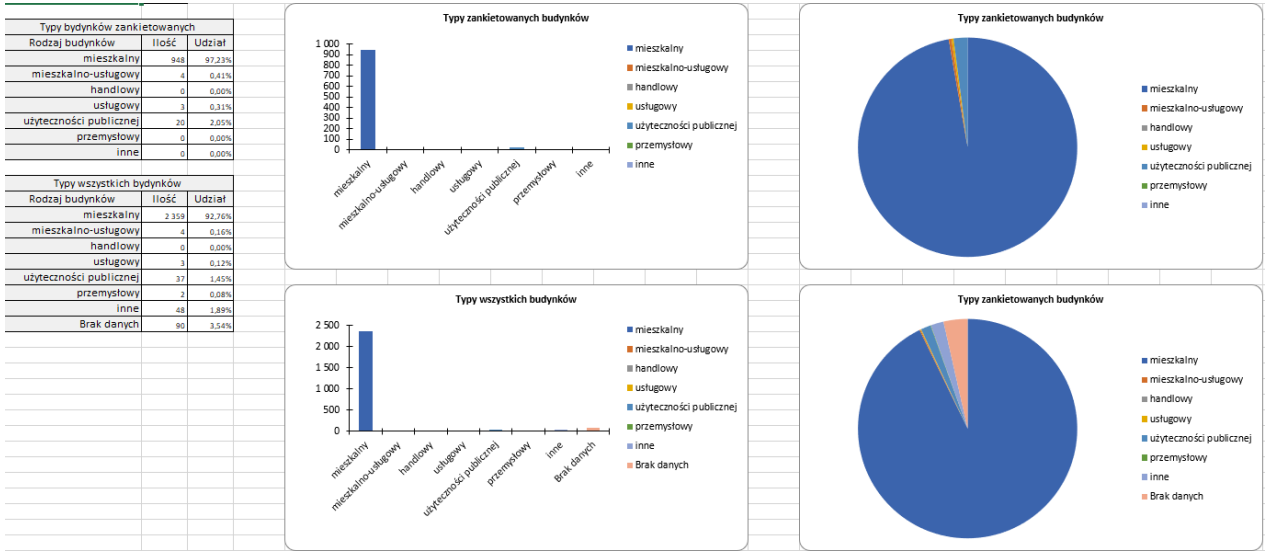
*The **mobile application** (intended for mobile devices such as smartphone/ tablet)*

- *currently only for field inventory*
- *ability to take pictures and check data*
- *may be extended for residents use*

Good Practice Description

Reports available:

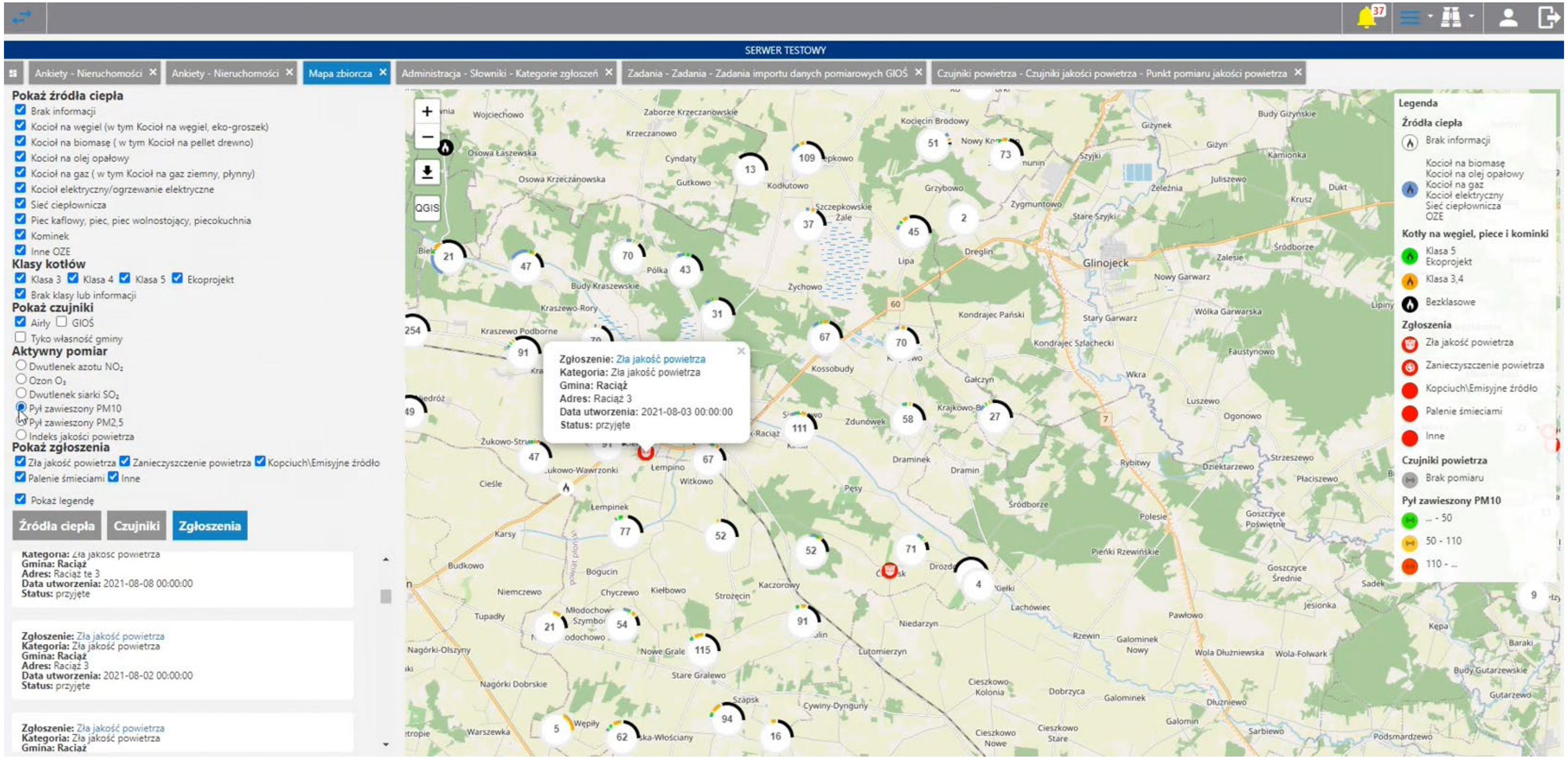
- *Inventory attendance*
- *Building age structure*
- *Type of buildings*
- *Insulation of buildings*
- *Planned modernization*
- *Use of renewable energy sources*
- *Fuel consumption*
- *Heat sources with technical data analysys (class, year of production, power, efficiency)*
- *Total usable area by heat sources*



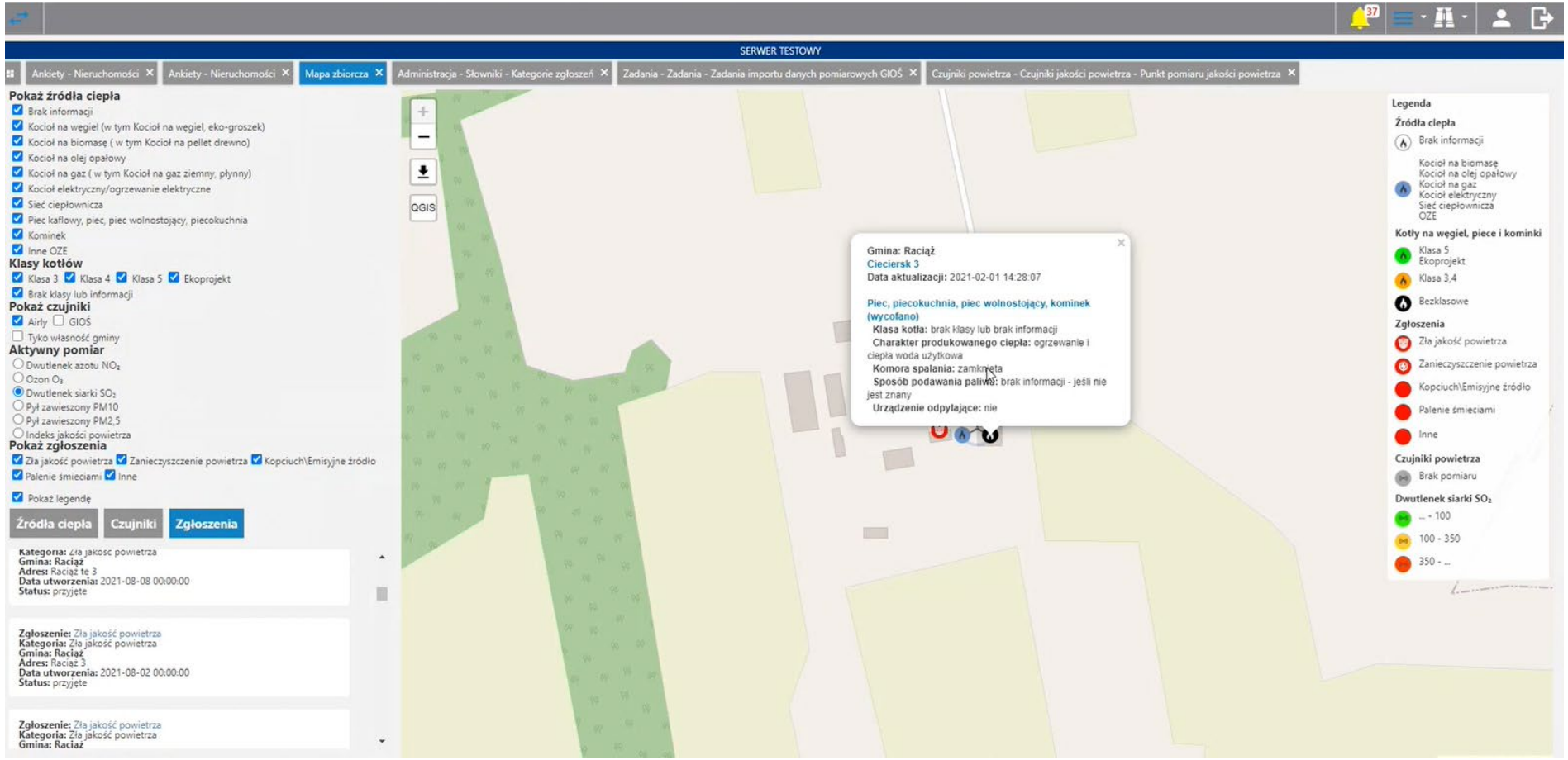
Typy bydynków zankietowanych		
Rodzaj budynków	Ilość	Udział
mieszkalny	948	97,23%
mieszkalno-usługowy	4	0,41%
handlowy	0	0,00%
usługowy	3	0,31%
użyteczności publicznej	20	2,05%
przemysłowy	0	0,00%
inne	0	0,00%

Typy wszystkich bydynków		
Rodzaj budynków	Ilość	Udział
mieszkalny	2 359	92,76%
mieszkalno-usługowy	4	0,16%
handlowy	0	0,00%
usługowy	3	0,12%
użyteczności publicznej	37	1,45%
przemysłowy	2	0,08%
inne	48	1,89%
Brak danych	90	3,54%

Good Practice Description

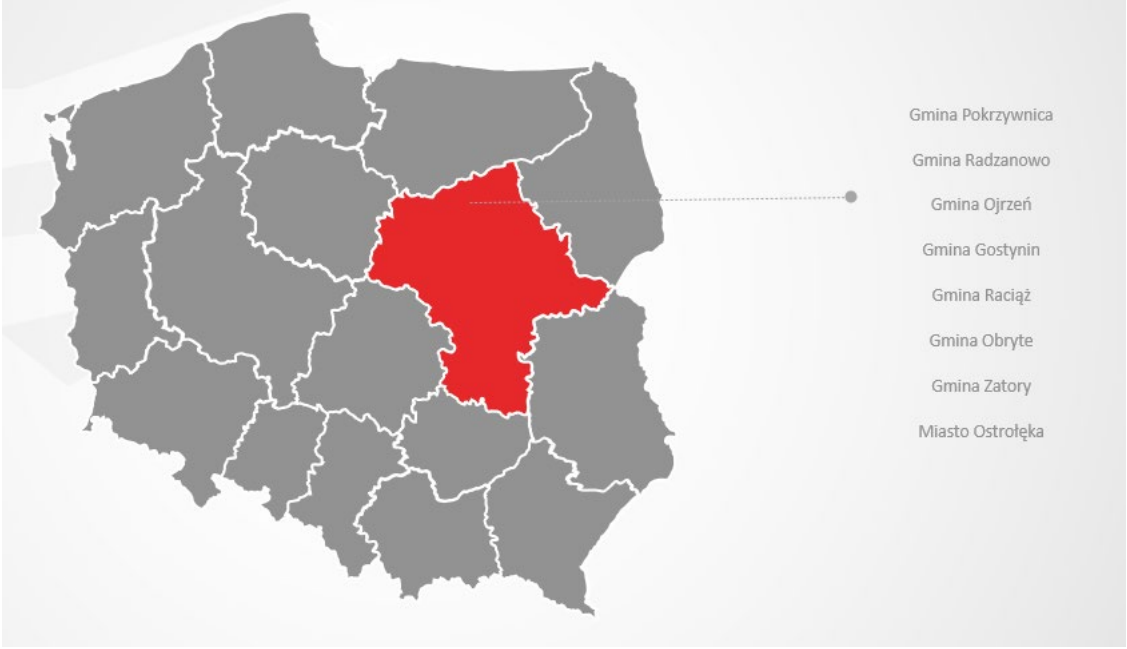


Good Practice Description



Good Practice Description

- *To date 7 municipalities, 1 city and almost 25,000 buildings have utilised this good practice*



Good Practice - what's next?

- *The first goal was to identify buildings that need thermo-modernization and replacement of heating devices and to influence the currently created framework for recruitment and allocation of funds in the new financial perspective in order to launch subsidies for the above-mentioned activities in the relevant areas in an appropriate amount and the final acquisition of funding for households, which will help to undertake these actions and implement imposed rules resulting from Mazovian Anti-Smog Resolution.*
- *Work on the application is still in progress. It is planned to link the application with the newly created government platform regarding the emissivity of buildings and the quality of air sensors. There are also further plans to flag households with a inefficient heat source and an uninsulated building as needing intervention. The next step will be to categorize these properties in terms of revenue. Currently, all this data is in the system, it is only necessary to run the alert and functionality.*
- *… then, interventions and changes?*

Good Practice challenges

- ***Challenge 1****: low attendance- the public's inclination to participate in the inventory*
- ***Solution 1****: Thanks to participation in the inventory and sharing of data, residents have the opportunity to receive funding for the replacement of heating devices, thermal modernization of the building or other activities.*

- ***Challenge 2****: The problem of residents with filling in the data*
- ***Solution 2*** *: During the inventory, thanks to the Smart Invent mobile application, in the field there were interviewers who came from house to house to help with filling in the data and were able to fill them in with the residents.*

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How transferable/replicable is the Good Practice

- *The solution is very transfarable and easy to use and implemented in diffrent areas*
- *It can be used in municipalities, small and big cities – pilots conducted*
- *Depending on changes in regulations, it will be possible to adapt the applications to the current framework*
- *App can be extend with additional functionalities, e.g. mobile application can be used for further interventions*

Smart Invent
INWENTARYZACJA ŹRÓDEŁ CIEPŁA

Thank You !
Any Questions?

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Coffee Break

The EMPOWER Energy Poverty Technical Workshop will resume shortly.

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Energy Poverty Good Practice

Energia su Misura

Italy

3 Counties Energy Agency - Energy Poverty Consultant
Energia su Misura, Italy
Simone Maggiore – Realini Anna
povertaenergetica@rse-web.it

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www.3cea.ie

RSE – who are we

RSE SpA (formerly CESI RICERCA SpA, ERSE SpA) since 2005, has as mission research activity of national and international interest within the electro-energetic sector

RSE SpA is completely owned by GSE SpA, public company that promotes renewables developing within Italian energetic system.

~320 researchers within 4 departments

Research on all aspects of energy sectors: power generation, energy security, regulation, energy efficiency, environmental impacts, electricity market, energy scenarios…

Energy Efficiency Research group – focus:

- Energy Efficiency in industrial processes
- Energy Efficiency in tertiary sector
- Energy Efficiency in residential sector
- Consumers characterization and behaviour
- Energy efficiency in transportation and mobility

} **Energy Poverty**

RSE – what we do on Energy Poverty

What we have done:

- Energia su Misura ➔ energy poverty in social housing
- ASSIST 2gether – Horizon 2020 project (coordinators of the pilot actions)

What we are doing:

- Statistical analysis of energy poverty in Italy, proposal and update on EP indicators;
- Studies on minimum energy needs of households, with a focus on vulnerable ones;
- Analysis on the correlation between energy poverty and health;
- Evaluation of the relationship between sustainable mobility and energy poverty;
- Policy analysis at Italian and European level.

Projects funded by:
- **the Italian Ministry of Ecologic Transition**
- **the EU Commission**
- **other public bodies**

Good Practice Description

Description

- Aims to support vulnerable families living in social housing owned by the local governments.
- Reduce energy costs.
- Through the reading of energy bills and the installation of smart devices connected to electrical appliances and the central electricity meter.

The project activities are developed as follows:

- Identifying energy poor and vulnerable families.
- Engaging the identified families, install an energy consumption monitoring kit..
- Monitoring energy consumption and providing personalised advice according to consumption habits.
- Providing a detailed report with personalised advice.
- Post analysis – feedback provided on how to optimise their energy consumption through behavioural and low-cost energy efficiency measures.
- Additionally public events completed to raise awareness about energy poverty, vulnerability and about energy efficiency.

Good Practice Description

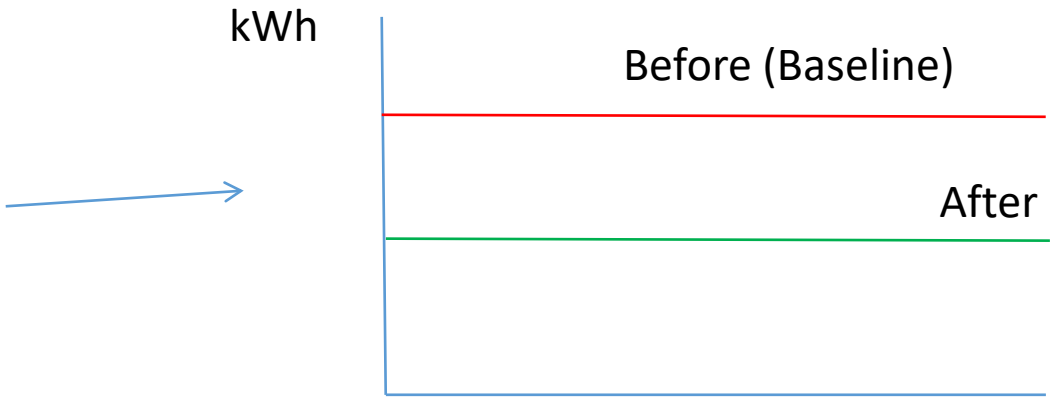
Monitoring of electricity consumption for both vulnerable and «average» households:

- Building of typical load curves;
- Definition of the household habits in terms of electric appliances use.

Goals:

<u>Energy Efficiency:</u>
Replacement of old electric appliances with more efficient ones (if possible)

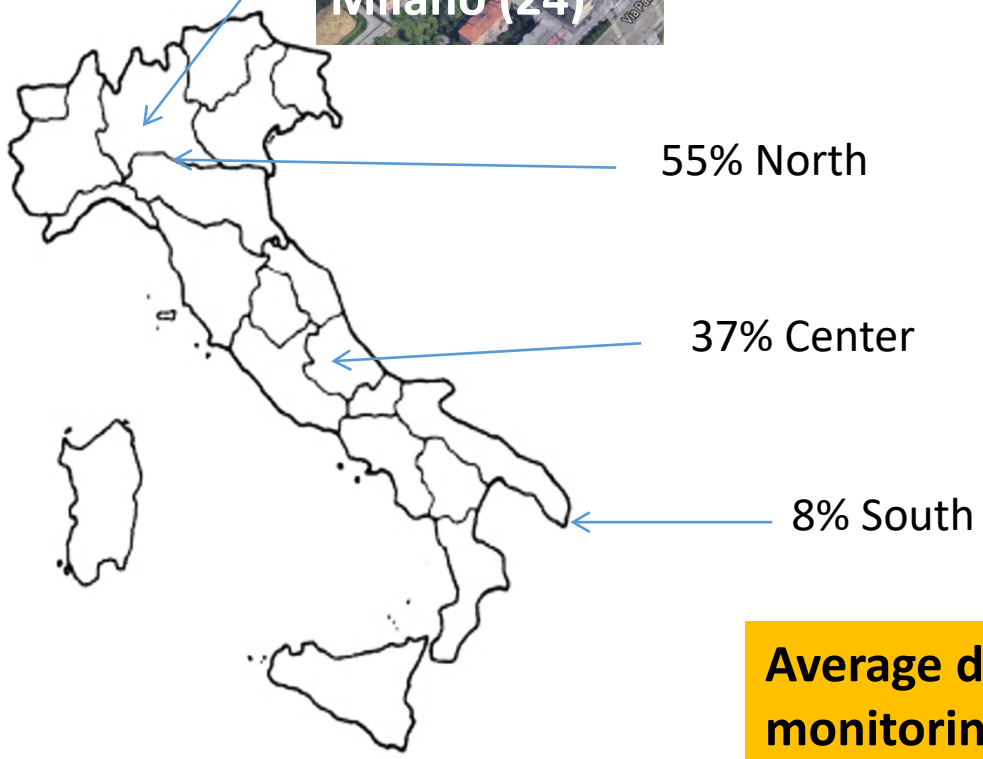
<u>Energy saving</u>
Energy waste reduction



Good Practice Description

Statistical analysis of Italian families («Household budget survey», ISTAT)

Geographic location
Household structure
Income/Expenditures



Total number of households: 67

Average duration of monitoring: 225 days

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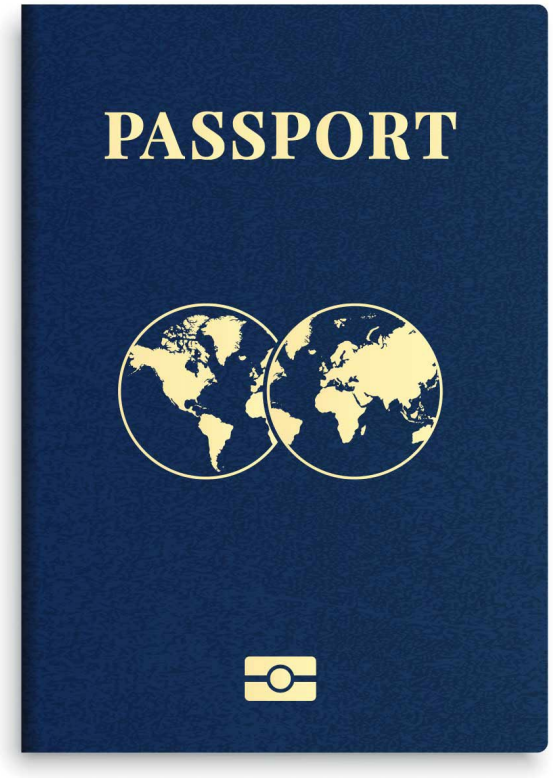
Good Practice Description

The video of the project

RSE Progetto Energia su Misura - in Inglese

https://www.youtube.com/watch?v=gDUTHLNvZAw

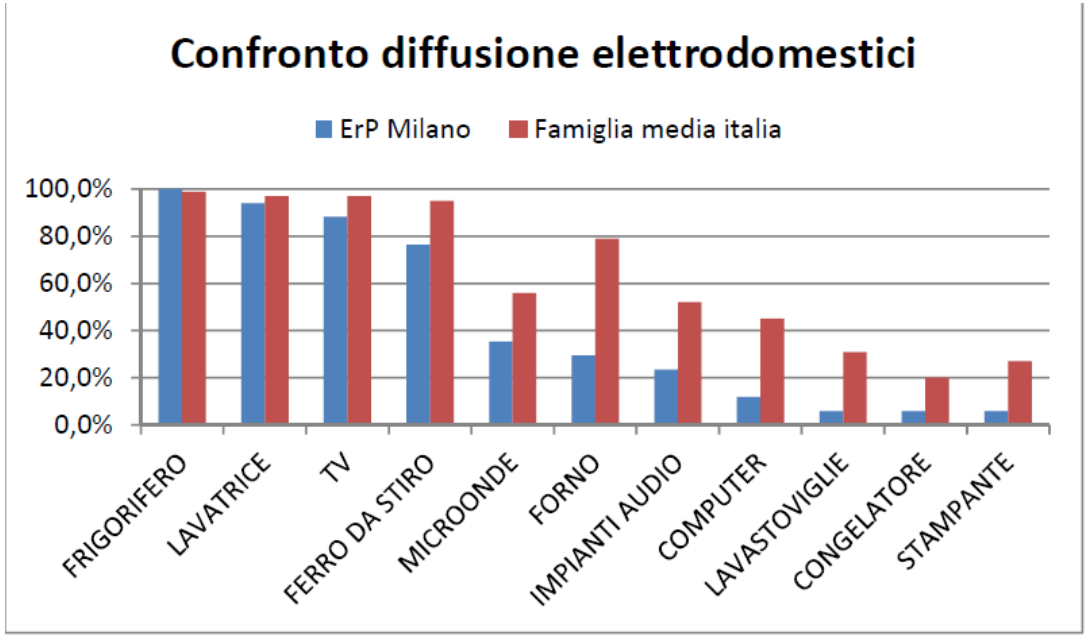
Good Practice Description



Household characteristics:

- Houses <50 m^2, with 2 rooms and a bathroom
- >70% single people, most of them elderly (>70 y.o.)
- 65% are women;
- 23% are working in the sectors service, while the others receive some sort of subsidies.

Good Practice Description

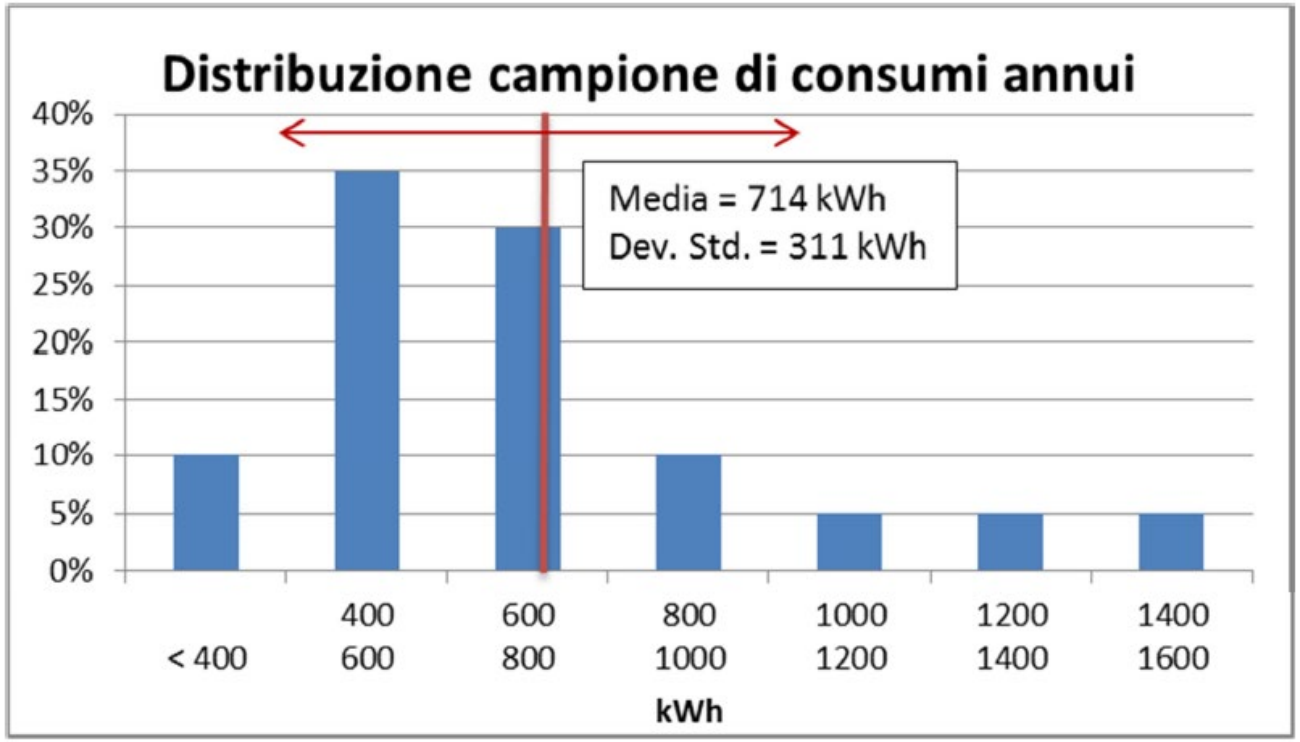


Comparison between people in social housing (blue) and average Italian household (red – based on statistics data) on the ownership of electric appliances (translation: Fridge, Washing machine, TV, Ironing machine, Microwave oven, Oven, Stereo, Computer, Dishwasher, Freezer, Printer)

<u>People in social housing:</u>

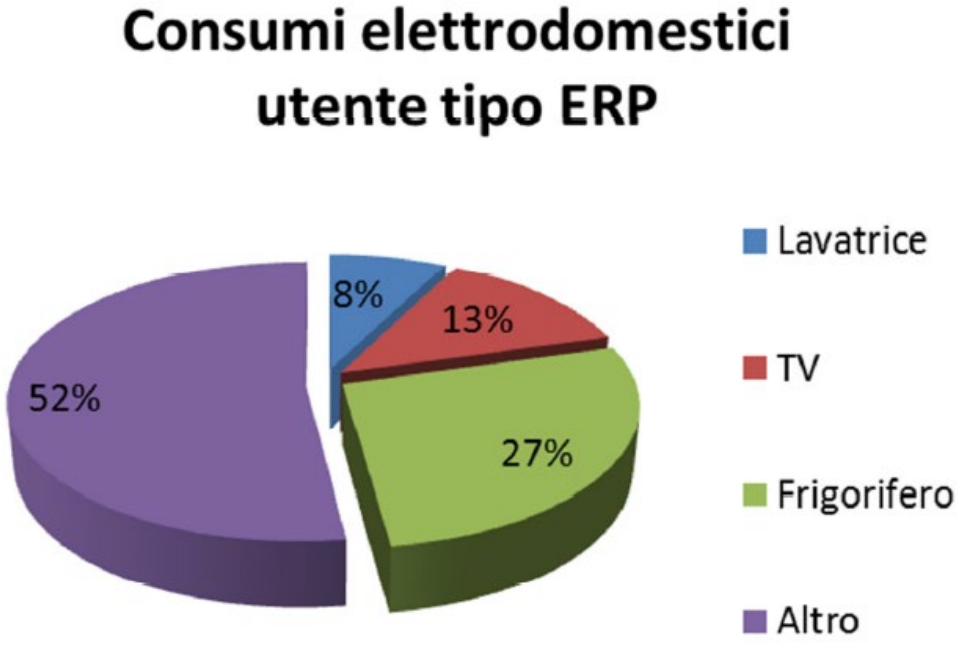
- All users own a fridge (200 – 260 kWh/y) and a TV (that is on up to 11 h/day);
- 90% of the households have a washing machine (used 1–3 times per week);
- 8% of the households have a dishwasher;
- Less than 35% of the househods have either a oven and/or a microwave oven;
- Most of the electric appliances are obsolete and not efficient.

Good Practice Description



Average annual electricity consumption for social housing: 714kWh/y (average for Italian households: approx. 2500kWh/y). Standard deviation: 311kWh/y. This has been calculated from the monitoring campaign and it was confirmed by electricity bills. None of the families had air conditioning and most of them didn't go on holiday during summer.

Good Practice Description



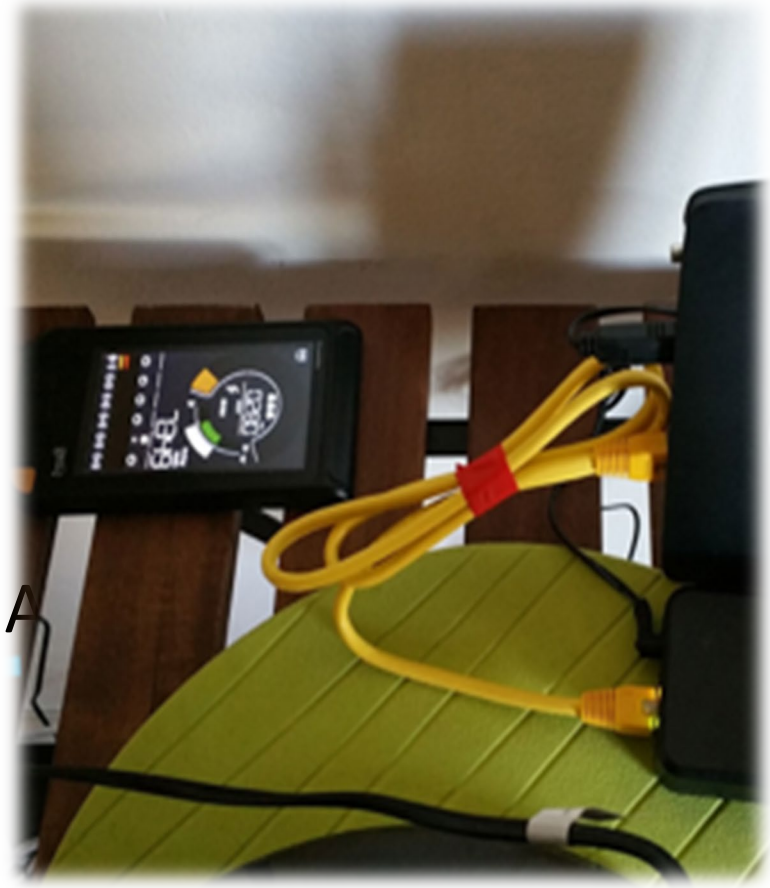
<u>Electric appliances consumption for social housing:</u>

- Washing machine: 8%
- TV: 13%
- Fridge: 27%
- Other (lighting and other electric appliances): 52%

Benefits

The project provides the following benefits:

- Consumption awareness
- Behaviour change
- Low-cost energy efficiency measures at household level
- Efficiency refurbishment at building level
- Available financial support
- Policymaker awareness
- Reduced energy consumption
- Reduced energy bills
- Reduction in Carbon emissions



Conclusions

The main advantage of the project is that it is based on real monitoring data, that allow to critically analyse the issue.

One of the main issues is to find long-term solutions not just to reduce energy consumption through low-cost measures and paying part of the bills, but also to invest on building efficiency.

The main barrier is related to the fact that vulnerable households either are not owners of their apartment or don't have access to financial support to renovate the house.

How transferable/replicable is the Good Practice

Replicable nationally/internationally to help reduce Energy Poverty and improve the thermal comfort of vulnerable Energy Poor tenants.

Thank You – Any Questions

Simone Maggiore – Realini Anna
povertaenergetica@rse-web.it

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RetroKit
Sustainable Energy
Retrofit Planning Toolkit

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European Union

RetroKit

The role of one-stop-shops and digitalisation in upscaling home energy upgrades to tackle fuel poverty

EMPOWER Workshop, Cork
March 2022

Who is RetroKit?

Cleantech start-up emerging from 25 years of practice in sustainable energy engineering.

Our mission is to upscale energy renovation, putting innovation and digitalisation at the service of climate action across Europe.

Developed with support from

“146 millions homes will need to be renovated within 30 years to achieve climate neutrality”

European Academies' Science Advisory Council, 2021

75%

Share of European homes with poor energy performance

20%

Share of residential sector in EU’s GHG emissions

16%

Share of Europeans suffering from fuel poverty

RetroKit

The Irish Energy Upgrade Opportunity

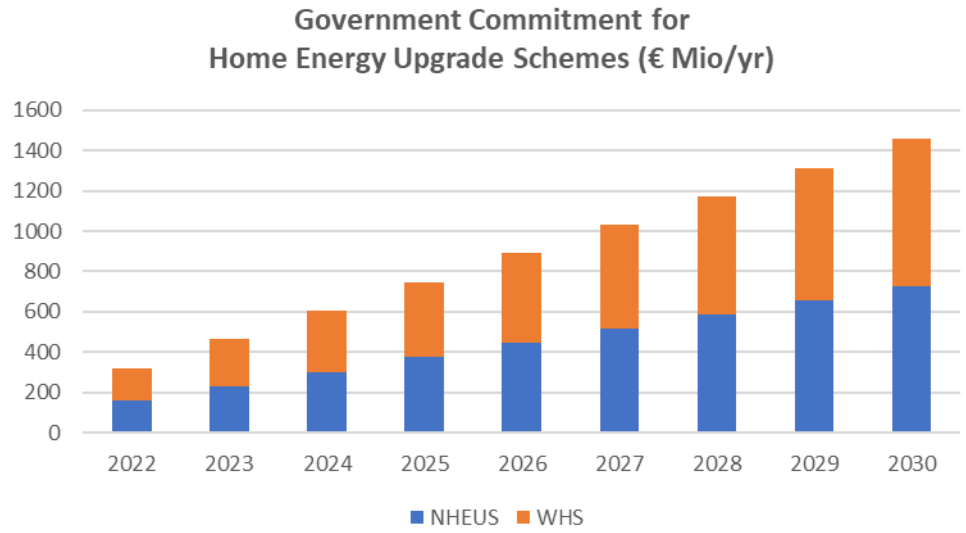
We now have a clear government commitment!

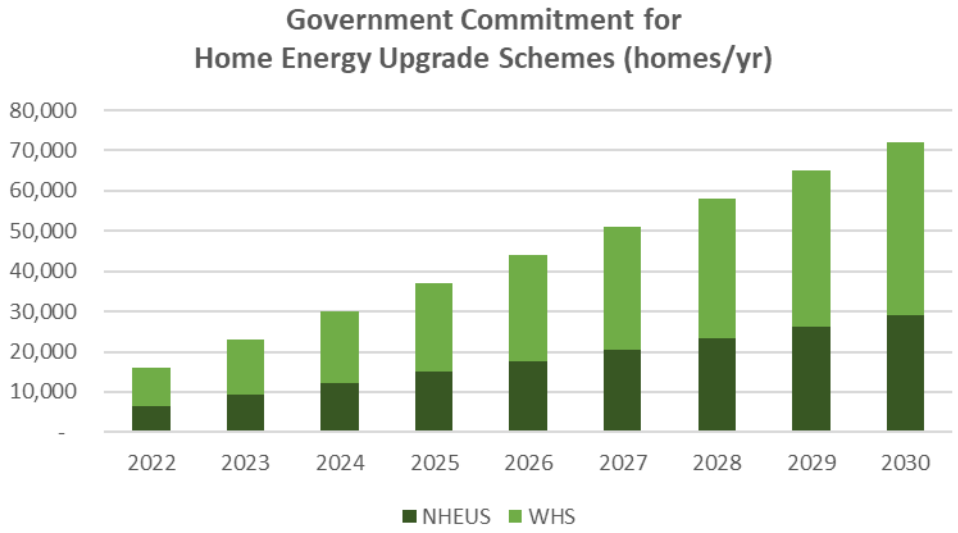
By 2030:

- €8 billion by 2030 committed in the NDP

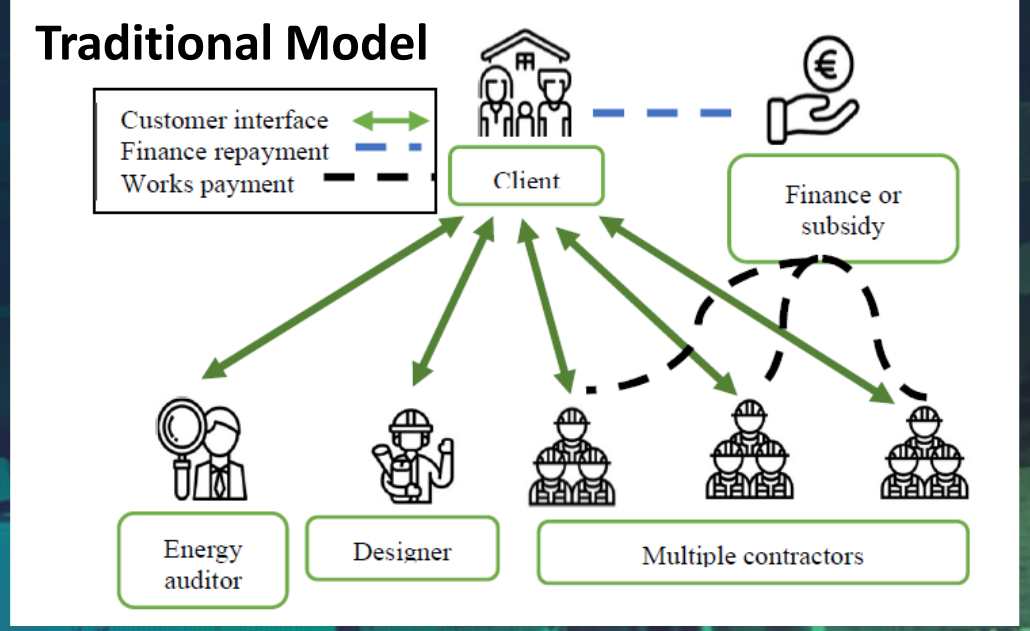
- 50% for Warmer Homes Scheme
  - *fully funded, €109 million in 2022*
  - *circa 235,000 home upgrades by 2030*
- 50% for National Home Energy Upgrade Scheme
  - *One-stop-shop, hassle-free delivery model*
  - *Up to 50% funding, 'commoditised grants'*
  - *Circa 160,000 home upgrades*

- Almost 80% of the Climate Action Plan target
- Estimated total investment required: €25 billion

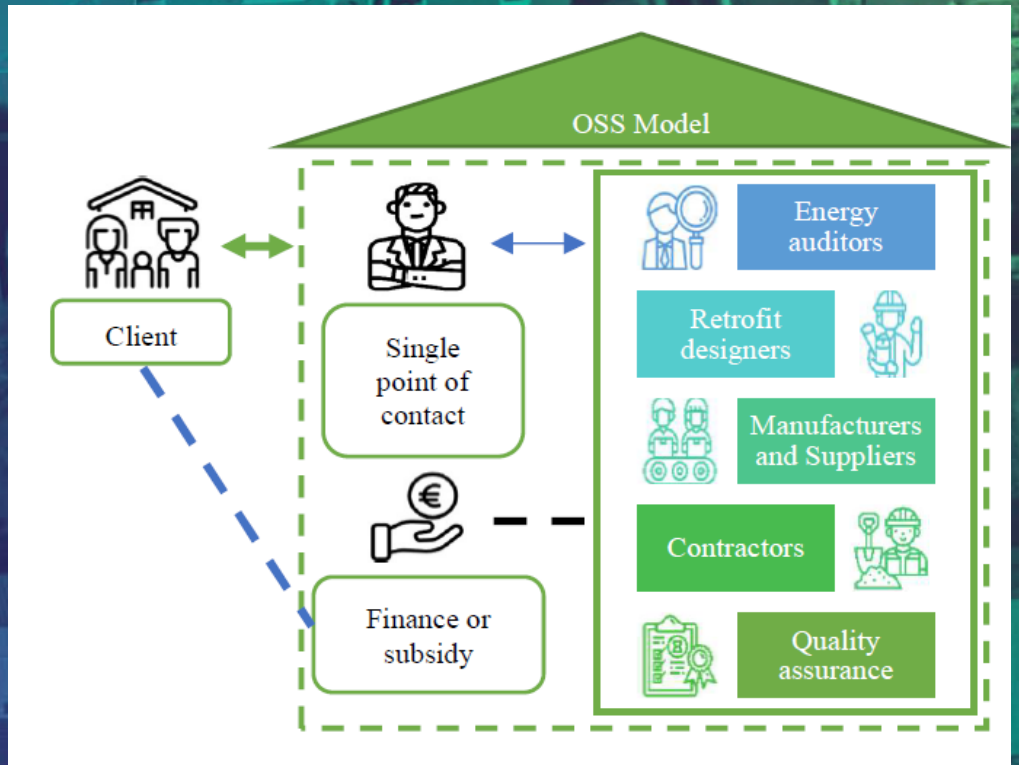




The One-Stop-Shop Model



Source: O. McGinley, P. Moran, J. Goggins, 2020



RetroKit develops digital solutions that generate value for the whole energy renovation value chain

Increase productivity

Evidence-based

Secure & always on

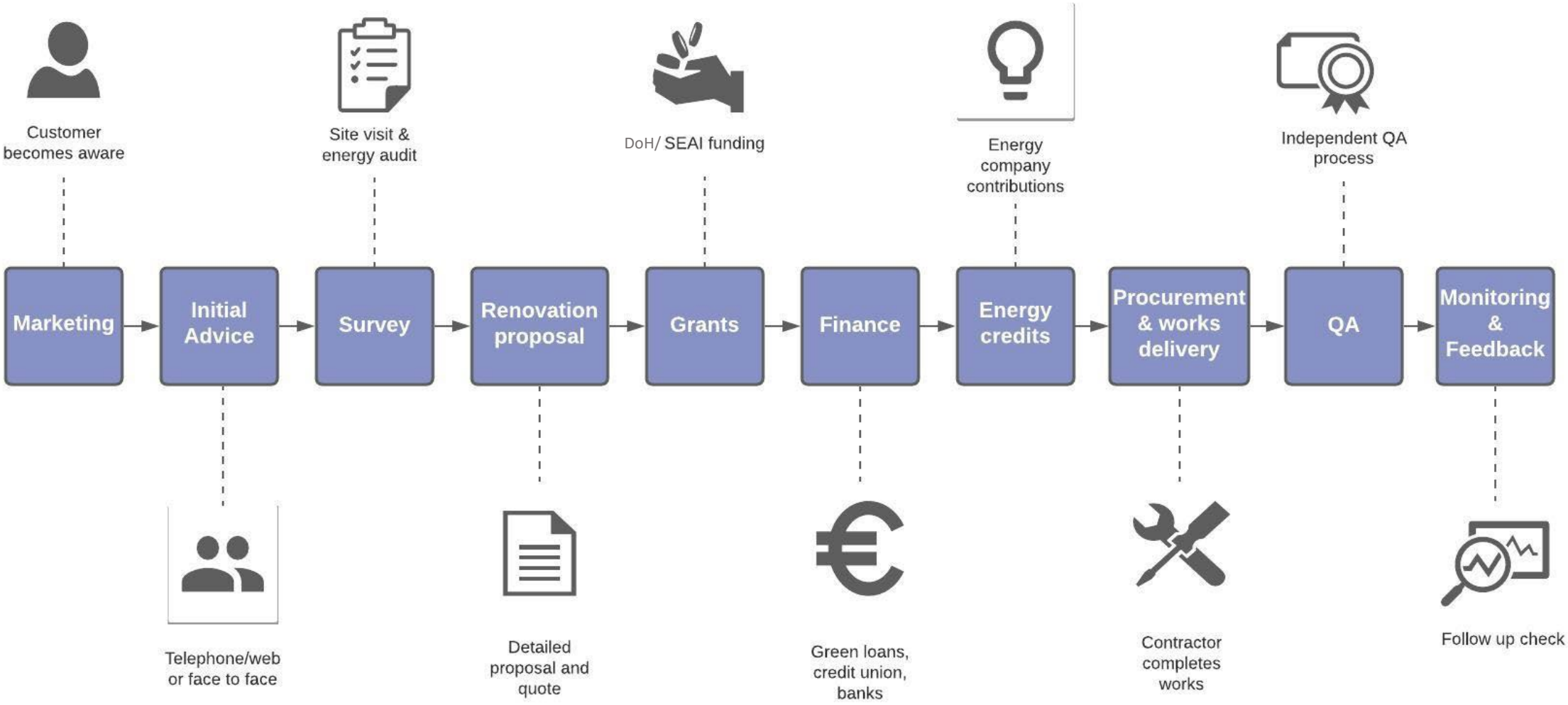
Tailored

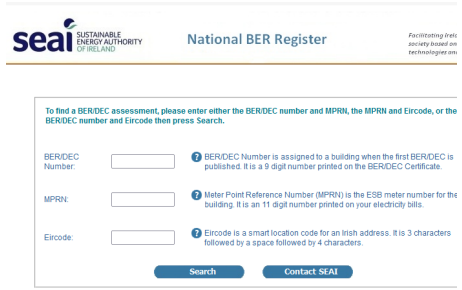
User-centric

RetroKit

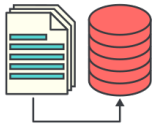
End-to-end data-driven process

Source: TURNKEY RETROFIT

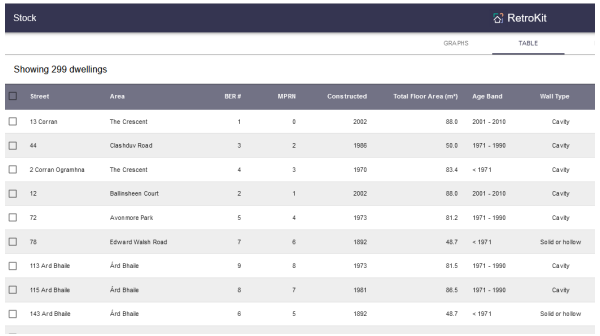




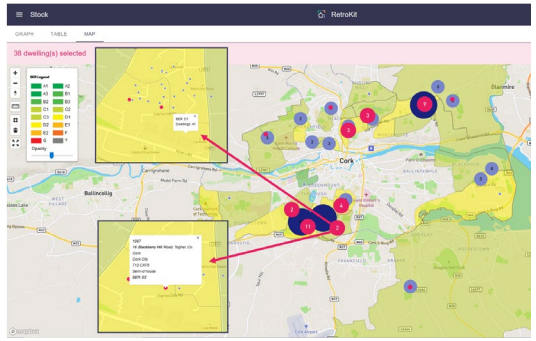
NAS Trusted Partner API



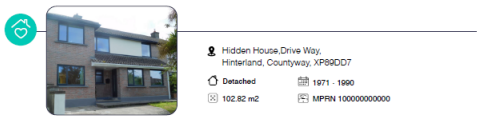
BER Database



Project Management



The One-Stop-Shop Platform



Hidden House,Drive Way,
Hinterland, Countyway, XP99DD7
Detached
1971 - 1990
102.82 m2
MPRN 100000000000

Measure Specifications

Caveats

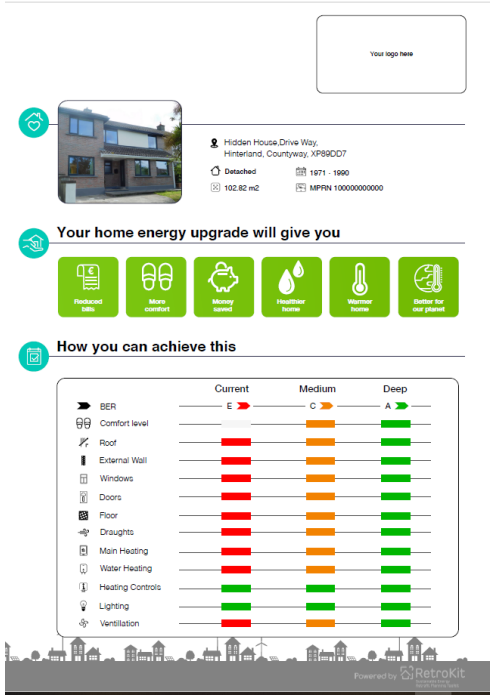
This is an outline of the assumptions for the performance values of each measure, it is not a detailed specification and it is based on the data contained within the BER rating. The key for RetroKit is that the minimum performance value detailed is at least met. The specifier may wish to use alternative materials etc to achieve these values (e.g. insulation type etc).
Variable units are generally shown as sqm and based on areas from the BER file following the measurement methodology in DEAP and do not consider any planned extensions or alterations to the property.
Variable units for heat emitter measures, LED lighting and shallow sealing are based on the floor area of the dwelling.
All inaccessible roofs, (eg flat roofs, sloping ceiling and room in roof) are treated as roofs that are upgraded by insulating internally. For flat roofs it may be preferable to upgrade to a warm roof by insulating externally.

1. 70 mm internal wall insulation to solid wall, u-value 0.27

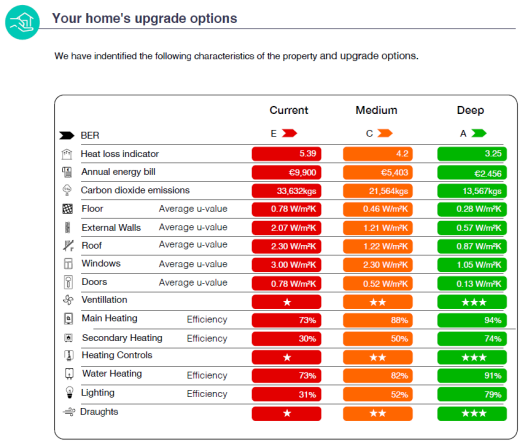
70 mm internal wall insulation to solid wall, u-value 0.27; Remove and replace skirting and window boards; 82.5mm insulated plasterboard; skim finish; paint walls, skirting and window boards
MINIMUM PERFORMANCE VALUE EXPECTED IN RETROKIT CALCULATIONS
Retrofitted wall U value = 0.27W/m2K
KEY REFERENCES FOR DESIGN AND INSTALLATION STANDARDS
SEAI Domestic Technical Standards and Specifications (DTSS);
NSAI Standard Recommendation 54;
DHPLG Technical Guidance Document to Part L;
BRE: BR 443
Always adhere to relevant building regulations.
SUMMARY OF DESIGN/INSTALLATION STANDARDS
Follow NSAI Agrement Cert requirements and SEAI DTSS as well as all manufacturer specifications.
VARIABLE MULTIPLIER
Wall area, sqm
Variable Unit 337.15

Powered by RetroKit

Home Energy Upgrade Specs



Home Energy Upgrade Plan



Your home's upgrade options

We have indentified the following characteristics of the property and upgrade options.

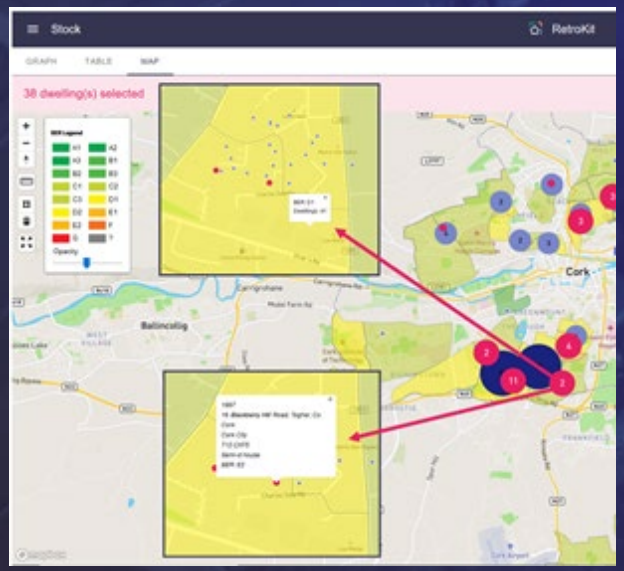
		Current	Medium	Deep
BER		E	C	A
Heat loss indicator		5.39	4.2	3.25
Annual energy bill		€9,900	€5,403	€2,456
Carbon dioxide emissions		33,632kgs	21,564kgs	13,567kgs
Floor	Average u-value	0.78 W/m²K	0.46 W/m²K	0.28 W/m²K
External Walls	Average u-value	2.07 W/m²K	1.21 W/m²K	0.57 W/m²K
Roof	Average u-value	2.30 W/m²K	1.22 W/m²K	0.87 W/m²K
Windows	Average u-value	3.00 W/m²K	2.30 W/m²K	1.05 W/m²K
Doors	Average u-value	0.78 W/m²K	0.52 W/m²K	0.13 W/m²K
Ventillation		★	★★	★★★
Main Heating	Efficiency	73%	88%	94%
Secondary Heating	Efficiency	30%	50%	74%
Heating Controls		★	★★	★★★
Water Heating	Efficiency	73%	82%	91%
Lighting	Efficiency	31%	52%	79%
Draughts		★	★★	★★★

Renovation Scenario Analysis

Solutions we are piloting

To support community one-stop-shops for energy retrofits

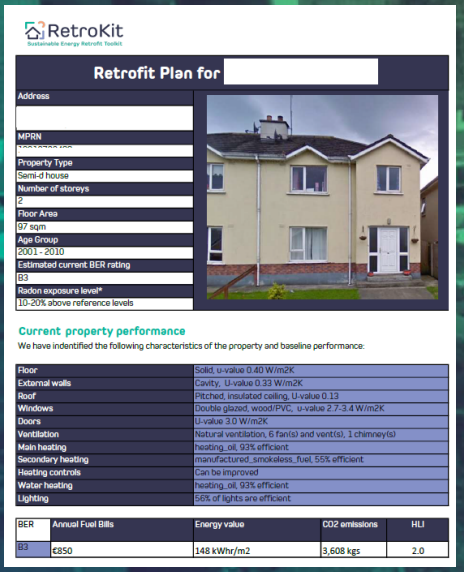
Energy Masterplan



Energy Clinic

Surveying & auditing

Home Energy Upgrade Plans


RetroKit
Sustainable Energy Retrofit Toolkit

Retrofit Plan for

Address	
MPRN	
Property Type	Semi-d house
Number of storeys	2
Floor Area	97 sqm
Age Group	2001 - 2010
Estimated current BER rating	B3
Radon exposure level*	10-20% above reference levels

Current property performance

We have indentified the following characteristics of the property and baseline performance:

Floor	Solid, u-value 0.40 W/m2K
External walls	Cavity, U-value 0.33 W/m2K
Roof	Pitched, insulated ceiling, U-value 0.13
Windows	Double glazed, wood/PVC, u-value 2.7-3.4 W/m2K
Doors	U-value 3.0 W/m2K
Ventilation	Natural ventilation, 6 fan(s) and vent(s), 1 chimney(s)
Main heating	heating_oil, 93% efficient
Secondary heating	manufactured_smokeless_fuel, 55% efficient
Heating controls	Can be improved
Water heating	heating_oil, 93% efficient
Lighting	56% of lights are efficient

BER	Annual Fuel Bills	Energy value	CO2 emissions	HLI
B3	€850	148 kWhr/m2	3,608 kgs	2.0

Dingle HUB

CARBERY HOUSING ASSOCIATION

Comharchumann Forbartha Mhúscraí
Péarla na Mumhan

Cavan County Local Development

A Good Practice in the Fight Against Fuel Poverty?

€9 billion will be invested in upgrading homes affected by fuel poverty by 2030:
RetroKit is a tool to support evidence-based decision-making in optimising this investment

335,000 fuel poor homes are to be upgraded by 2030:
RetroKit helps upscaling renovation projects, by improving productivity & reducing cost

Massive public investment in our housing infrastructure must deliver impact:
RetroKit provides data underlying good governance, monitoring progress and managing quality

Developing RetroKit's digital infrastructure and applications is a significant investment:
4+ years in development, with a significant human and financial resources

A Good Practice in the Fight Against Fuel Poverty?

Evidence of Success?
Trust from public investors and market-fit demonstrated with early adopters in key segments

Challenges overcome:
Keeping the show on the road – support from LEO, SEAI, EI, etc. & rapid commercialisation
From consultants to tech entrepreneurs – training, mentoring, learning by doing
Developing solutions our clients' want – listening, co-design, rapid MVP cycles

Replication in other regions:
RetroKit's complies with EU directives (EPBD and EED) and standards
Ireland's EPC system – the foundation block of RetroKit's platform - is exemplary in EU

Your next steps

Get in touch with Xavier (+353 86/0476124; xavier@retrokit.eu)

Find out more on www.retrokit.eu, LinkedIn and @RetroKit_EU

Visit us at stand J15 at SEAI's Energy Show (30-31 March, Dublin RDS)

Let's talk about partnerships for the Interreg North West Europe Call 1

Tionól Réigiúnach an Deiscirt
Southern Regional Assembly

EMPOWER
Interreg Europe

European Union
European Regional
Development Fund

Thank You

3cea
driving sustainability