

Presentation to CEW January 26th 2021



The Welsh Government Optimised Retrofit (ORP) Approach to decarbonisation of homes

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What Does Optimise Mean?

Optimise (verb)

- Make the best or most effective use of (a situation or resource).



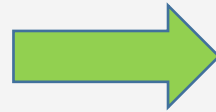
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What is the Optimised Retrofit approach?

What started us on this journey? (one thing leads to another)



(Committee for Climate Change - Net Zero Tech Report p.79)



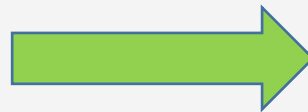
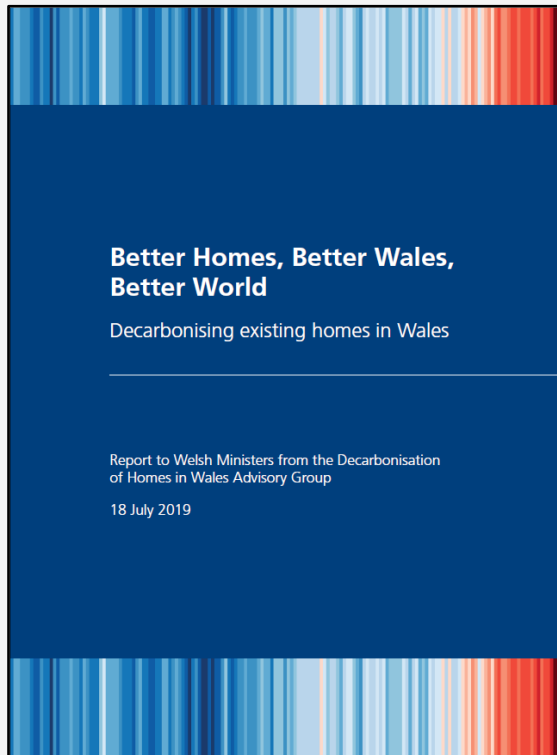
This is set in the context of,

'Critical role of energy efficiency in the near term'

'Early deployment of measures to maximise energy bill and Carbon savings and prepare the stock for low carbon heating.'

- Environment (Wales) Act 2016
- Welsh Ministers have made decarbonisation one of their top six cross government priorities in "Prosperity for All: the national strategy"
- Declaration of a 'Climate Emergency' by Welsh Ministers on 29 April 2019 – pushing towards a 95% target.

Set up independent advisory group led by Chris Jofeh



Action 2.3 – The Welsh Government should urgently commence a 10-year programme to prioritise the retrofit of certain homes.

(a) The Welsh Government should set a target of EPC Band A for homes in social ownership and homes in fuel poverty.

(b) The Welsh Government should incentivise early adopters to retrofit homes to a target of EPC Band A.

The Clear ask from our Minister



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‘Better Homes....’ was an **advisory** report from an independent group led by Chris Jofeh.

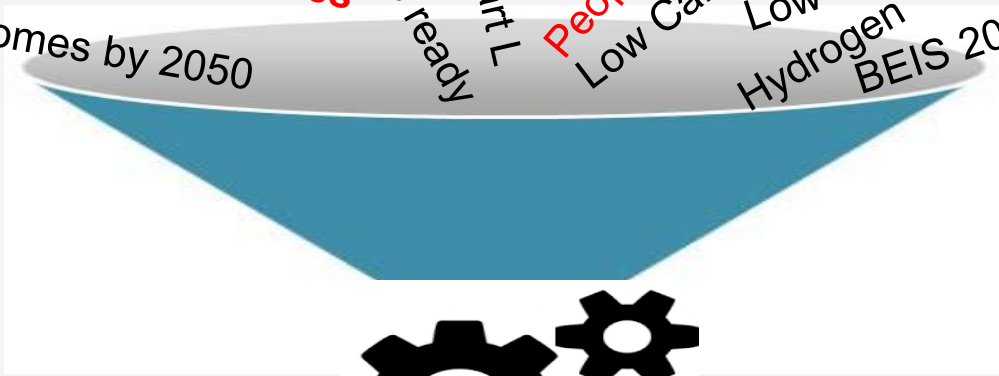
The Minister, in response, said;

- Need to pursue ‘optimised retrofit’ solutions.
- To future proof homes so they are zero Carbon capable, - ready to adopt future solutions and approaches.
- Testing and trialling referred to in the Report will be vital.
- Fuel Poverty impact is critical

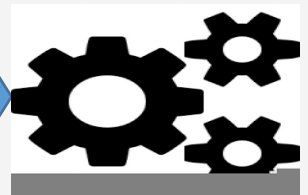
What do we know so far? (today)



Post COVID financial recovery
Heating technology
EPC revision
Stock modelling data
Carbon budgets
Building fabric
People & Behaviour change
UK CCC net zero targets
DAG recommendations
SAP 92 by 2030-Social homes
SAP 92 homes by 2050
Net Zero ready
Part L
Low Carbon gas grid – Bio methane
Renewables
Low Carbon electric grid – 75% by 2030
Hydrogen
BEIS 2050 homes target 15kWh/M2/year



Welsh government policy



Optimised
Retrofit
Approach

What is Optimised Retrofit?



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‘Optimised Retrofit’.

‘The best (value) combination of decarbonised heating and fabric improvements for decarbonisation of a home to make it ‘Net Zero’ ready’ when considering a whole system approach to the three interrelated factors of;

- 1. Building fabric.**
- 2. Heating technologies and Individual Renewables / energy storage.**
- 3. Energy supply grids**

The Challenge

- No increased risk of fuel poverty**
- Every Home is different !!!**
- Even in the world of social housing -**

**Each landlord’s stock is different.
And has different ‘typologies’ within it.**

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This is more than
just money

Goals of Optimised retrofit for Net Zero ready



Avoid over investment at all levels ✓

Solution appropriate to each home (passport) ✓

No regret actions that can be built upon in future ✓

Energy efficient to be robust to fuel cost increases ✓

Best Carbon vs capital cost vs fuel cost performance ✓

DSR flexible and smart (IES), grid connected and progressing along the route to net zero capable in readiness for low Carbon energy supplies ✓

Fabric retrofit Measures

- Draught-proofing
- Well insulated Loft
- Thermally efficient windows and doors
- Airtightness
- Ventilation
- Wall insulation (CWI)
- Wall insulation (EWI)
- Wall insulation (IWI)
- Floor insulation

- Low levels of cost or technical competency
- Moderate levels of cost or technical competency
- Higher levels of cost or technical competency

Technology Measures

- A-rated gas boiler – grid connected
- A-rated LPG boiler with wet heating system
- Smart hybrid heat pump system
- Smart grid connected heating controls (IES)
- Battery storage
- Solar Panels
- Heat storage
- Active homes thermal panels
- Advanced PV Fabric systems



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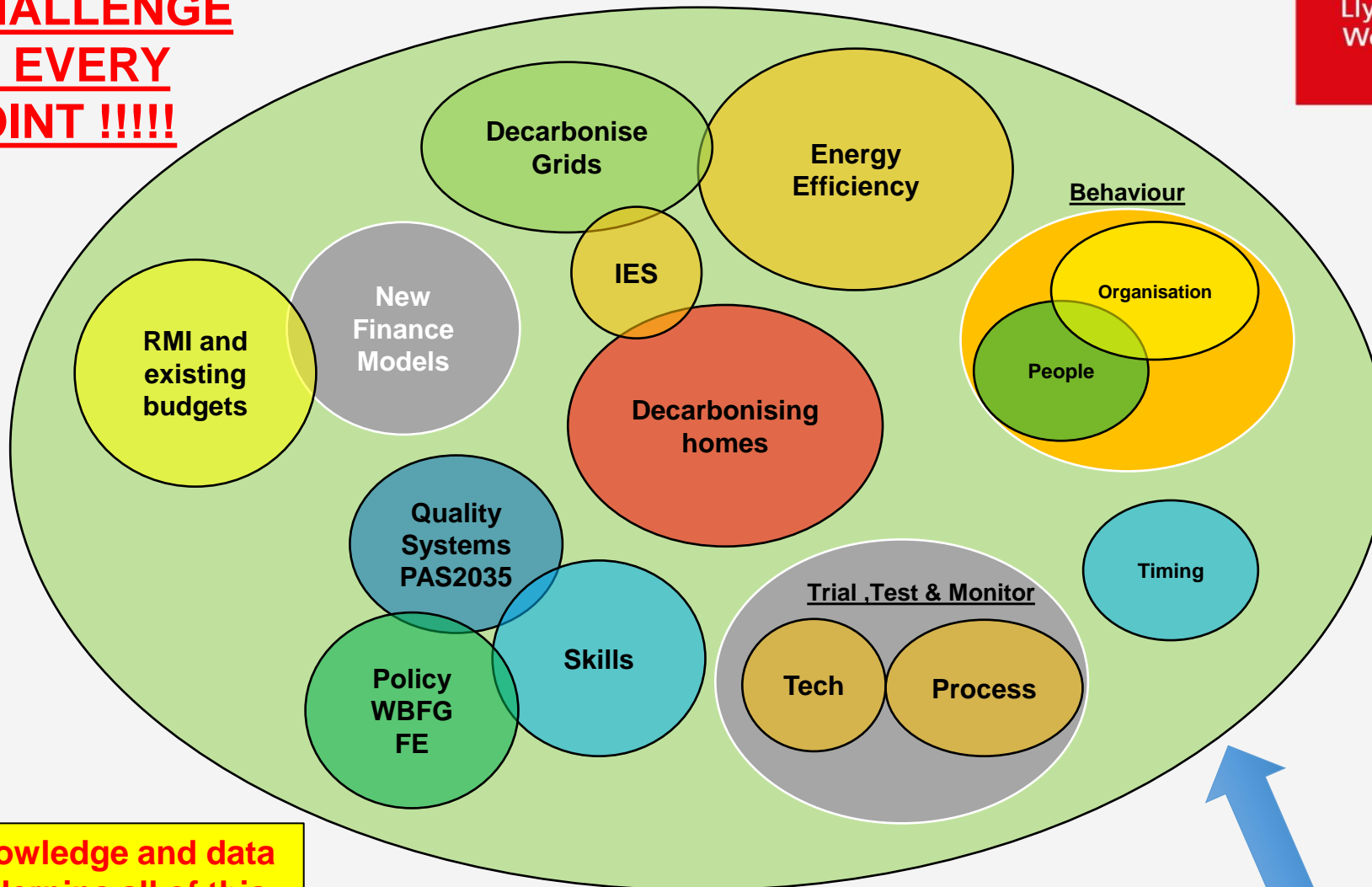
What is the Optimised Retrofit Programme (ORP) all about?

The World of ORP



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CHALLENGE
AT EVERY
POINT !!!!!



Knowledge and data underpins all of this

These are examples of issues you need to consider in every home passport

Available Money, Funding Mechanisms & Innovation



Budget contributions for this financial year have been made by Housing, Innovation and Business & Regions to maximise the economic and innovative elements of the programme:

- £17m from Homes & Places (£15m of General Capital and £2m of Financial Transaction Capital).
- £2m Economic Development Funding
- £500k Innovation funding

Funding (grant or loan?) given for private sector homes if picked up as part of schemes where not including them would impact on success of decarbonising existing social homes.

Schemes must be completed by the end of March 2021

Green-led Economic Recovery



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- ORP is a cross Government initiative which is looking to **maximise local content & SME engagement**
- Retrofitting of homes has long been recognised as a key tool in economic recovery
- Evidence shows that for every £1.4 million of investment in the delivery of domestic energy efficiency, 32.6 jobs are created / supported

(Source: The value case for decarbonising homes in Wales literature review, Cardiff University, 2020)

Green-led Economic Recovery



- Previous housing retrofit projects have demonstrated multiple benefits which could enable a Green-led economic recovery creating:
 - local jobs to build the foundational economy
 - contribute to decarbonisation
 - provide skills
 - tackle fuel poverty
 - provide better homes



ORP 2020-21 Summary



Vale of Glamorgan – Hybrid heat systems in rural off gas homes

Anglesey – Adapting existing RMI plans to include Hybrid heat systems in rural off gas homes

Carmarthen – Trial most economic approach on a house that represents 25% of their stock.

Denbighshire – Taking existing RMI for roof and bring forward planned RMI for rendering and adapting to take opportunity for PV , batteries, EWI

Pathfinder – consortium of 27 landlords to develop a range of systems and tools and trail pathways across a wide range of homes.

- **£20 million.**
- **5 approved Schemes.**
- **New tools for assessing homes.**
- **New systems for delivering decarbonisation.**
- **New Decarb focused procurement frameworks.**
- **Training and accreditation of SME contractors and in house staff focused on FE outcomes.**
- **A range of Decarbonisation pathways to cover most types of homes.**
- **IES to make home DSR capable and monitor, measure and report energy / Carbon improvements.**
- **Identify skills and capacity gaps for future needs.**
- **Develop a commercial system and offer to roll out to private sector**

IES



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Is **NOT** a smart meter or a
convenience gadget such as
HIVE or NEST

IES

Mandatory requirement



- Must be able to connect to energy supply grids and use DSR tariff
- Controls energy in and the use in the home to optimise cost and carbon benefits
- Open source and future proof – can be modular
- Monitors and records energy used in real time to give actual performance of the home / building to demonstrate with data the;
 - Current building energy performance
 - Impacts of any physical measures carried out on the building
 - Demonstrates changes of occupant behaviour (eg effect of energy efficiency advice)



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Questions?