

Energy Community
Renovation Wave
Thursday 18th March 2021

*Ireland's experience in
implementation of public
building renovations*



Overview

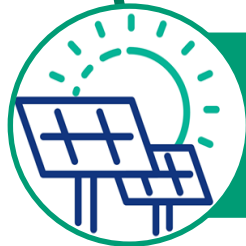


Sustainable Energy Authority of Ireland

Ireland's energy will be sustainable, secure, affordable and clean



1. Use Less



2. Use Clean

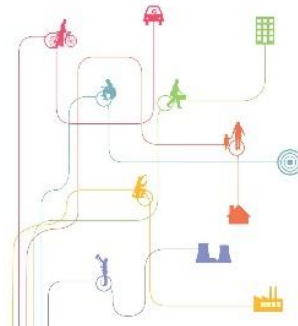


3. Innovate

Public sector policy and legal drivers - Transition to 2030 & 2050

To 2020

- EU
 - Energy efficiency directive
 - Energy performance of buildings directive
 - Renewable energy directive
- National
 - NEEAP 2009 onwards
 - Public sector Energy Efficiency Strategy 2017
 - SI 542 of 2009
 - SI 426 of 2014
 - Funding ad hoc



To 2030

- EU
 - European Green Deal
 - National Energy Climate Plan
 - Long Term Renovation Strategy
 - Renovation Wave
 - Increased investment & governance
- National
 - **Climate Action Plan 2019**



EU and public sector targets - transition to 2030 & 2050

2020

EU

- 20% Greenhouse Gas emissions
- + 20% renewable energy
- + 20 energy efficiency



2030

- 40% GHG emissions (55% proposed)
- + 32% renewable energy
- + 32.5% energy efficiency



2050

Zero greenhouse gas emissions

Public sector will be exemplar

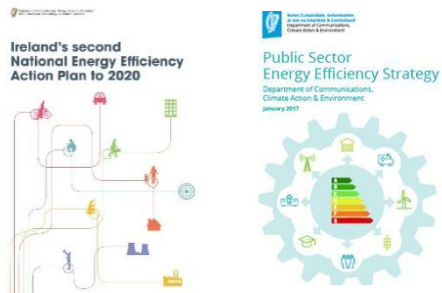
33% energy efficiency improvement



50% energy efficiency improvement
50% absolute greenhouse gas reduction *

All 12,000 public buildings to be B rated

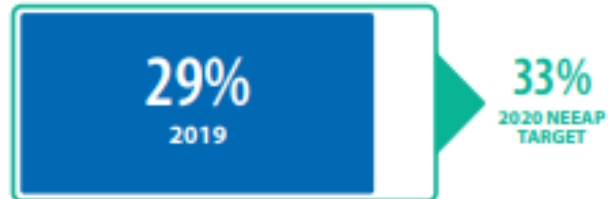
Benchmarking buildings, Climate mandate



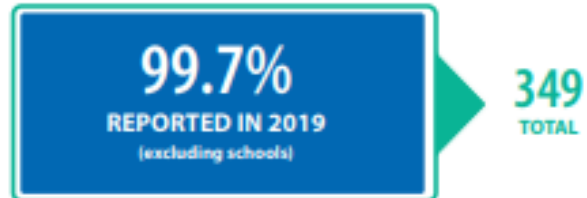
Monitoring & Reporting system to 2020

Current Position

ENERGY EFFICIENCY IMPROVEMENT



PUBLIC BODY REPORTING RATE



SCHOOL REPORTING RATE

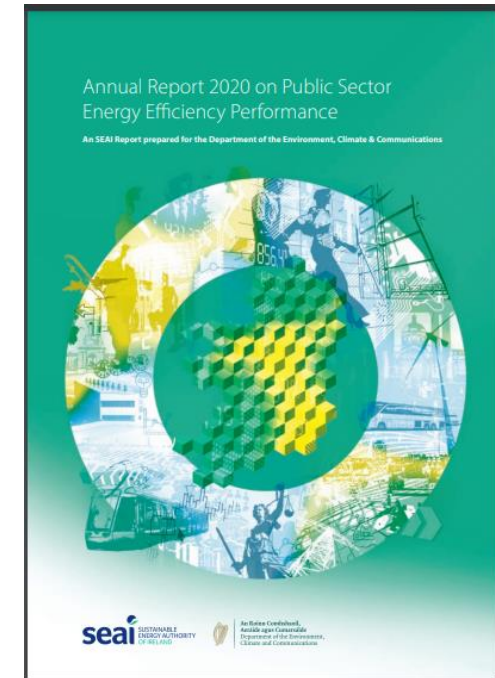
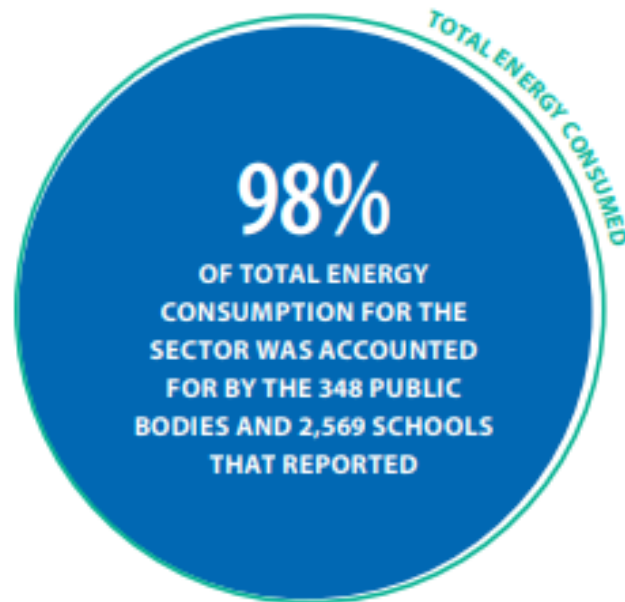


FIG. 16: TOTAL ENERGY-RELATED CO₂ EMISSIONS OVER TIME¹⁶

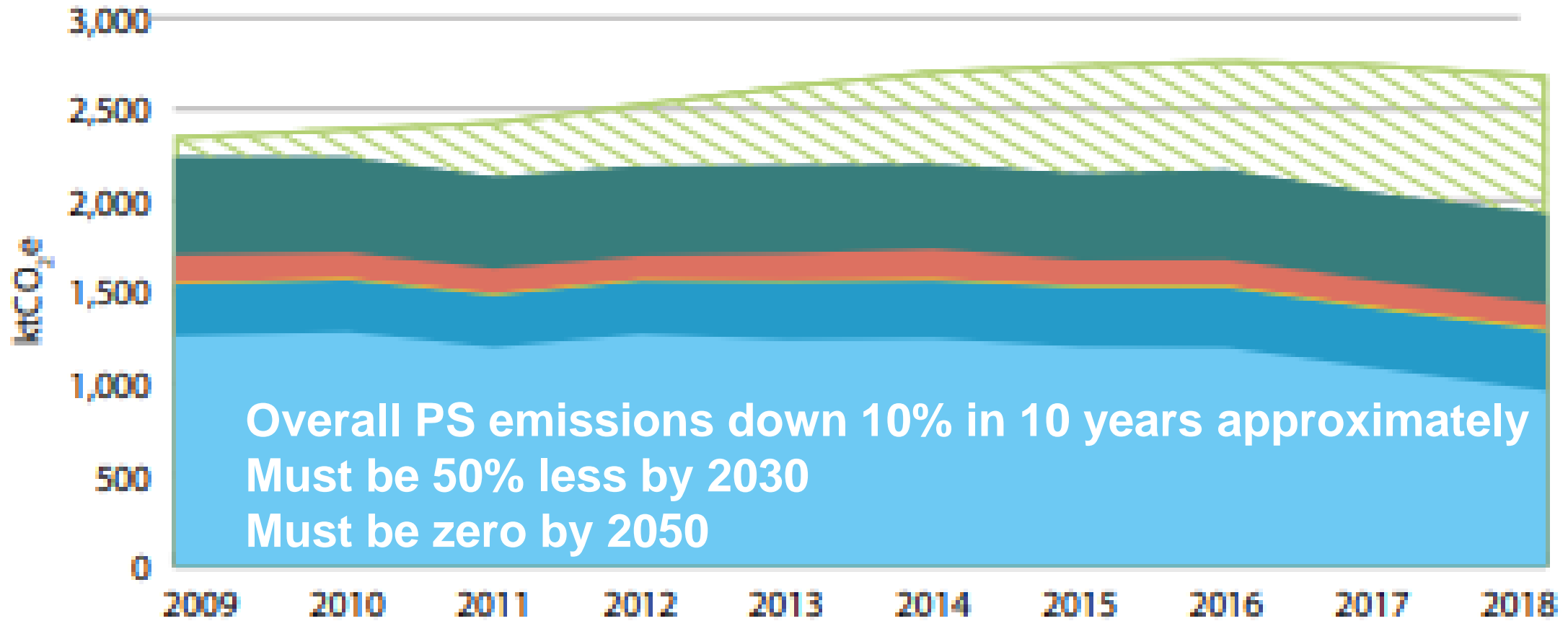
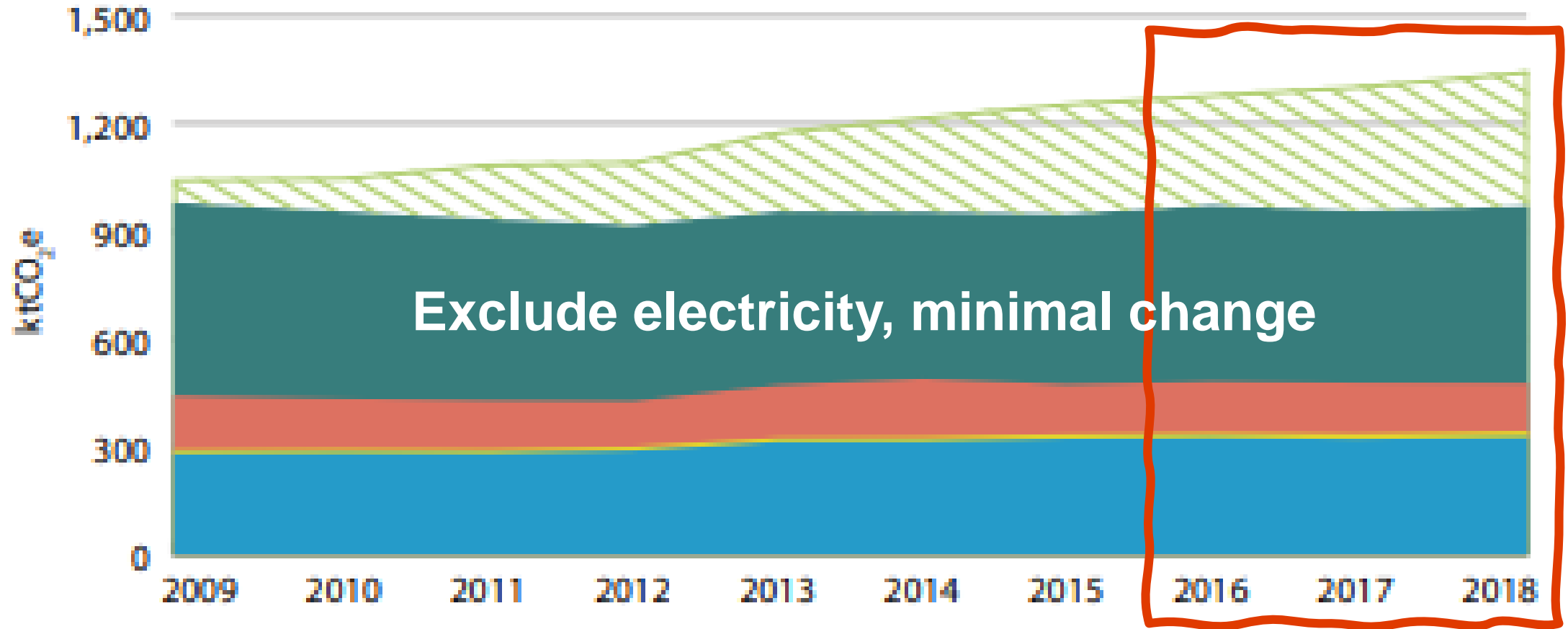
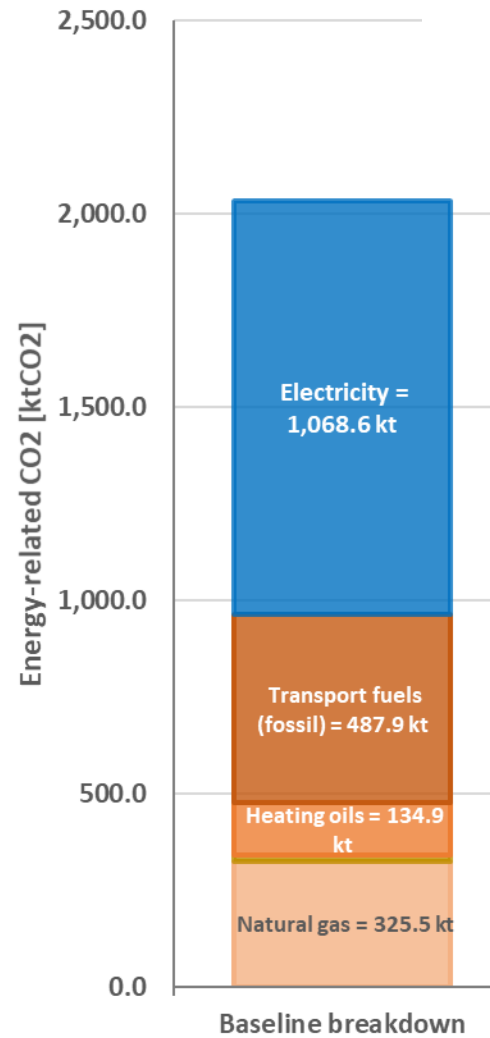


FIG. 17: ENERGY-RELATED CO₂ EMISSIONS OVER TIME, EXCLUDING ELECTRICITY-RELATED EMISSIONS¹⁶



Public sector energy-related CO2 emissions analysis



CO2 reduction if IRL achieves 70% renewable electricity by 2030

Additional GHG reductions required to meet target:

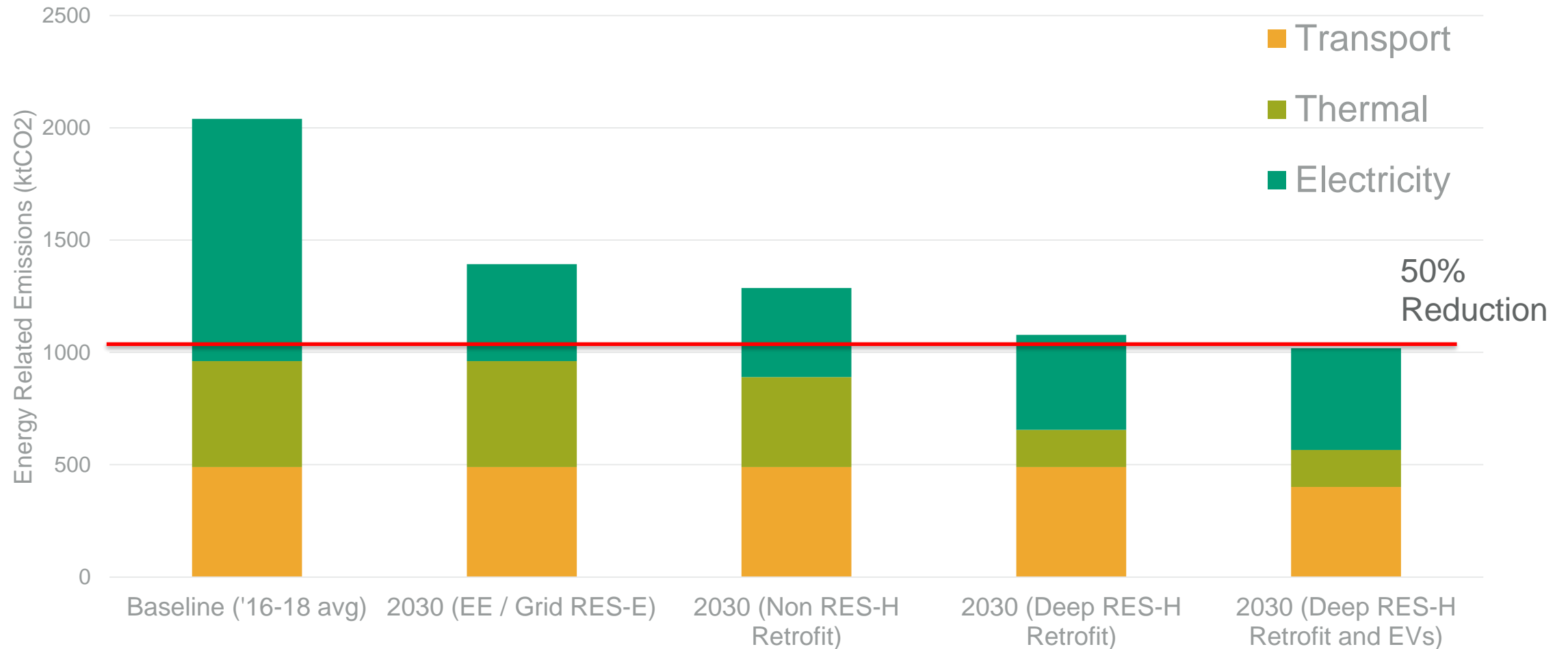
- Demand reduction / moderation
- Fuel switching to renewables
- Electrification of heat & transport

≈ pathway to zero-by-2050

What will the impact of B rating target ?

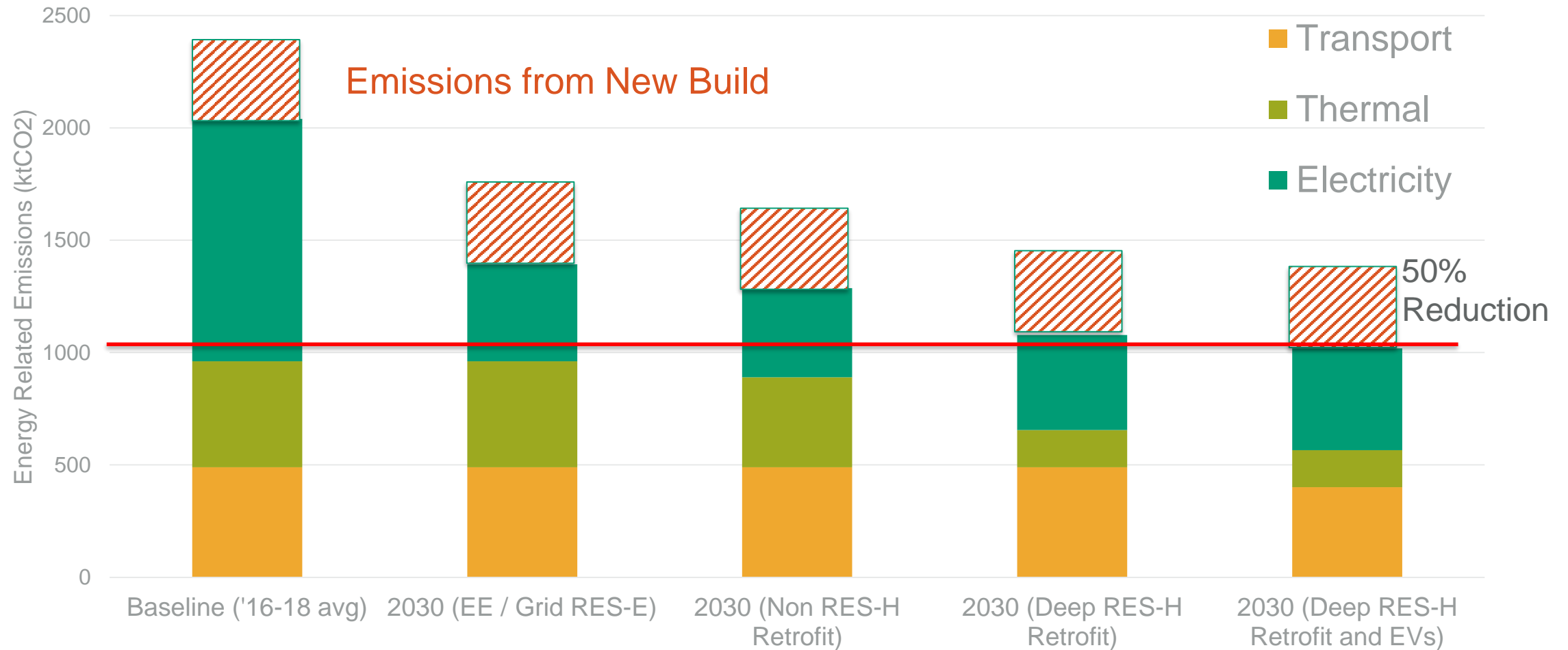
2030 50% CO2 Target - Scenarios

Public Sector Decarbonisation Scenarios



2030 50% CO2 Target - Scenarios

Public Sector Decarbonisation Scenarios



SEAI Enabling Grants

'Brains not Bricks'

Grant	Typical %
<i>Public Sector</i> – 'Pathfinder' Energy Bureau	50%
<i>Business and public sectors</i> - EXEED Certified Grant – For Energy Efficient Design	50 – 70% (Large to Small Company)
<i>Business and Public Sectors</i> - Project Assistance Grant	50% for Stage 1, 75% for Stage 2
<i>All sectors</i> - Sustainable Energy Community(SEC) Energy Master Planning Grant	Up to 100%
<i>TBC - Decarbonisation Zones</i>	<i>TBC</i>

SEAI Capital Grants

Grant	Typically %
<i>Public Sector</i> – ‘Pathfinder’ Capital Projects	50%
<i>Business and Public Sector</i> - EXEED Certified	30% - 50% of incremental cost
<i>Business and Public Sector</i> - Support Scheme for Renewable Heat (SSRH)	30% for heat pumps 15 year banded tariff for biomass
<i>All sectors</i> - Local Energy Action Fund	220k per project (SEC/ LA)
<i>All sectors</i> - Communities Capital Grant	30 – 50%
<i>All sectors</i> - Energy RD&D Fund	Dependent on activity – up to 100%
<i>Domestic (local authorities lead)</i> - National Home Retrofit Scheme	35% - 50% (One-Stop-Shop)

Does not include SEAI Warmer Homes (fuel poor sector), or the Local Authority Social Housing Retrofit Programmes

Long term financing

- Carbon Action Fund – 150m in 2018, to launch again in 2021 – all sectors
- National Development Plan
 - 800m for public buildings 2023 - 2040
 - EU funded DG REFORM SRSP study estimates B target will cost 8 - 12Bn
- In consideration
 - National Development Plan review
 - Off government balance sheet EPC financing
 - Sectors / public body organisations mobilising
 - Health Services Executive
 - Local Authorities
 - Universities and Colleges

Public Sector Programme

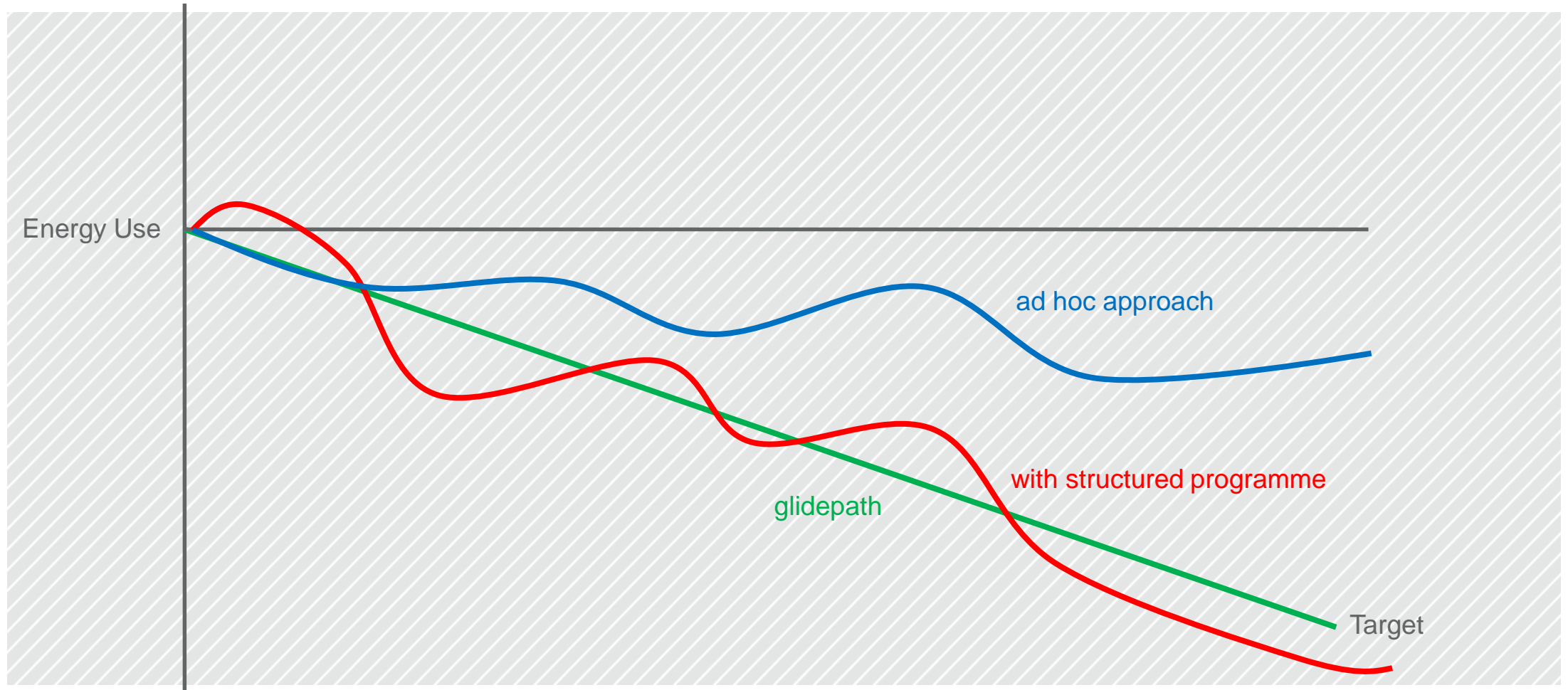
Public Sector Pathfinder Programme



Public Sector Programme - Strategic Objectives

- Embed **Energy Management & Leadership** in all public bodies
- Assist public bodies / sectors establish **project pipelines** to achieve 2020 & 2030 targets
- Continuous **Energy Performance improvement**. Track Performance & define reality

Structured Energy Management



ISO 50001 is critical to achieve 2030 targets for large energy users

38 public bodies are certified



Public Bodies certified to ISO 50001

- An Garda Síochána
- An Post
- Bord na Móna
- Central Bank of Ireland
- Clare County Council
- Cork County Council
- Cork Institute of Technology
- daa
- Defence Forces
- Donegal County Council
- Dublin Bus
- Dublin City Council
- Dublin City University
- Dublin Institute of Technology
- Dublin Port

- Dun Laoghaire-Rathdown County Council
- ESB
- Galway County Council
- Gas Networks Ireland
- Irish Rail
- Kerry County Council
- Limerick City & County Council
- Louth County Council
- National University of Ireland, Galway
- Port of Cork
- SEAI
- Transport Infrastructure Ireland
- University College Cork
- University College Dublin
- Waterford Institute of Technology

Public Bodies actively pursuing ISO 50001 certification through SEAI's Accelerator Programme

- Bus Éireann
- Coillte
- Cork City Council
- Dept. of Agriculture, Food and Marine
- Dept. of Communications, Climate Action and Environment
- Dept. of Employment Affairs and Social Protection
- Fingal County Council
- Irish Water
- Kilkenny County Council
- National Treasury Management Agency
- Office of Public Works



Rialtas na hÉireann
Government of Ireland

ISO 50001 Accelerator Programme



Examples of Supports



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ENGAGING PEOPLE

- Establishing effective behaviour change approaches that maximise savings
- Promoting environmental leadership in the workplace
- Sharing best practice throughout the Public Sector



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LEADERSHIP IN ENERGY MANAGEMENT

Day 1, THURSDAY 8th MARCH 2018
SEAI, WILSON PLACE, DUBLIN 2

[Register Here](#)

Training Overview

Background

The Public Sector is committed to a target of improving its energy efficiency by 33% and to be seen to lead by example - showing all sectors what is possible through strong, committed action.

SEAI is supporting the Public Sector in meeting this target and has developed a number of training programmes in consultation with Public Sector organisations. Energy MAP (Energy Management Action Programme) is one of the most popular and successful programmes available.

Target Audience

This is a structured energy management training programme ideally suited to organisations with an energy spend of over €100,000. It is appropriate to those who are new to energy management and those who are returning to energy management where it has lapsed within your organisation.

Benefits of Involvement

Cost Savings: Past experiences of implementing Energy MAP have resulted in minimum savings of 5% of energy bills, with some organisations achieving up to 10-15% savings.

Exemplar Role: Exemplar energy management is a requirement of S.I.426 of 2014 for all public bodies. Implementing Energy MAP is a clear demonstration of exemplar energy management.

Legal Compliance: Finally it puts in place a system for sustained savings and complying with legal and other requirements. A structured energy management programme will be the engine to drive your organisation to substantially improved energy performance towards its 33% energy efficiency target by 2020.

PUBLIC SECTOR SUPPORT
2018 PROGRAMME



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DATE
Tuesday, 24 November, 2020

TIME
10:00am – 11:30am

LOCATION
Online

AUDIENCE

Facility/energy/fleet managers, anyone involved in operating a significant energy user in an organisation certified to ISO 50001

Optimising ISO 50001 – Operational Control

Operational control is a key aspect of any good energy management system. Without it, incremental improvements will undo themselves over time. If you're operating an ISO 50001 certified EnMS and you'd like to know more, register now for this online event.

To support those organisations already certified to ISO 50001, or actively preparing for ISO 50001 certification, SEAI delivers this ongoing series of events focussed on optimising specific aspects of energy management. The purpose of these events is to provide insights and knowledge to support the optimisation and improvement of your existing energy management system (EnMS).

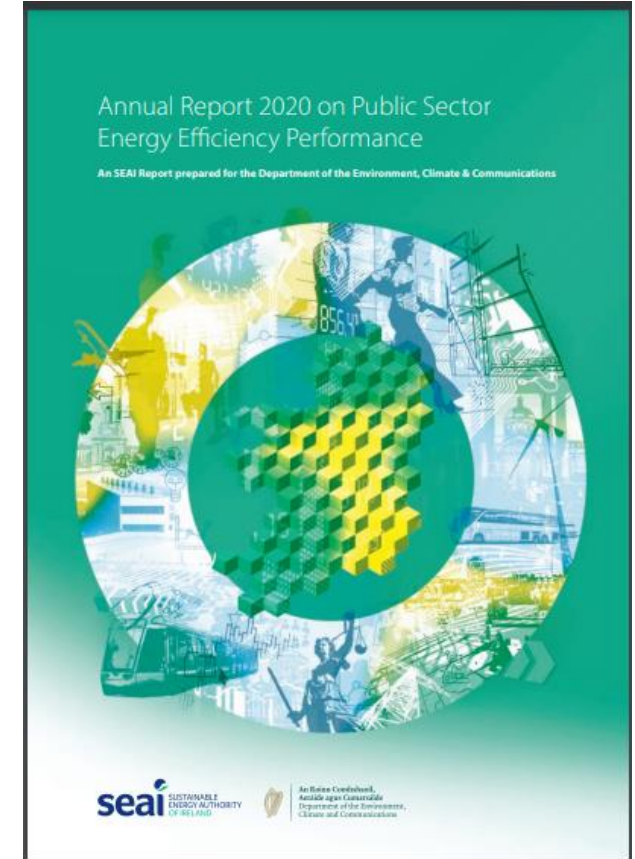
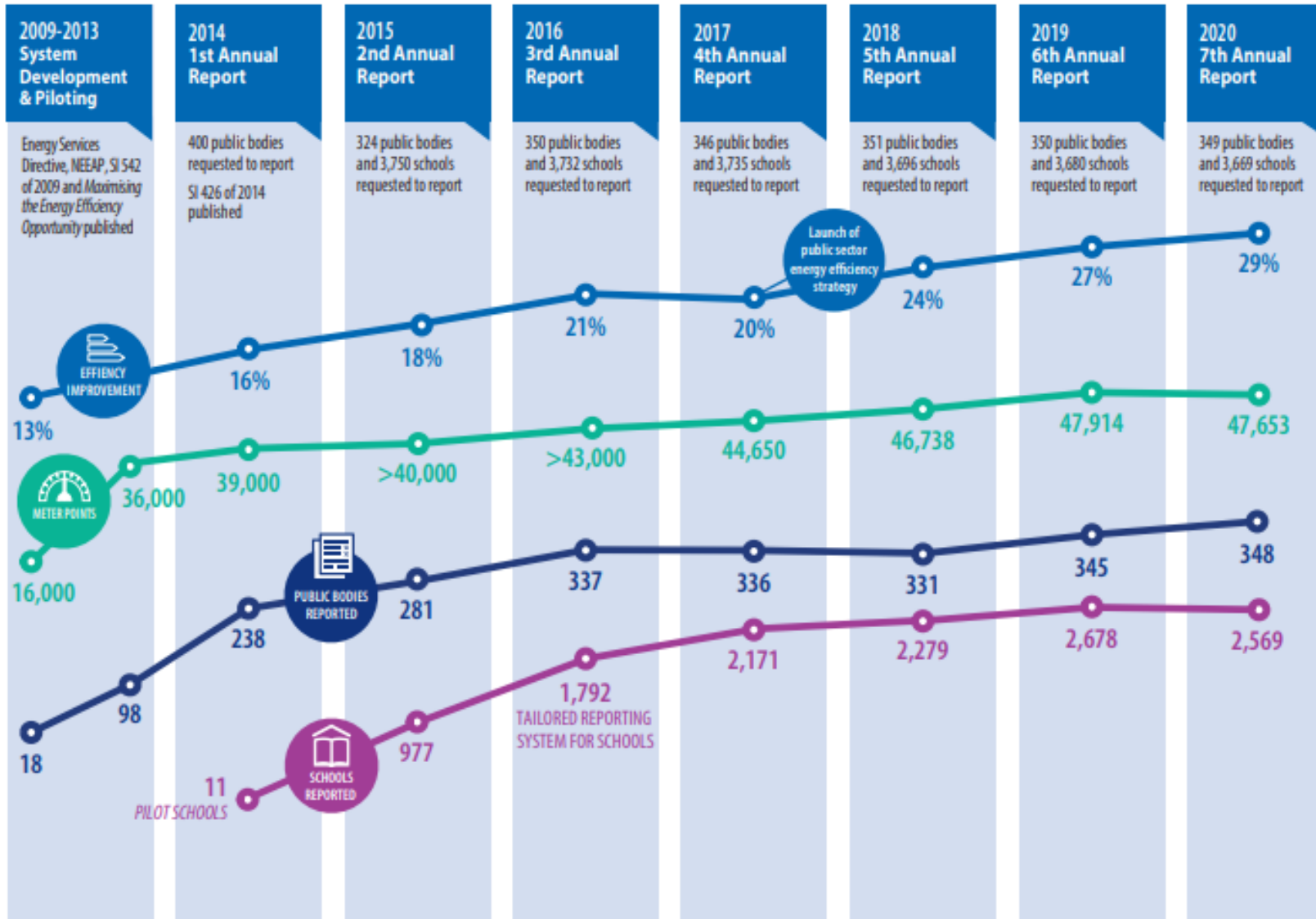
This training will focus on Operational Control

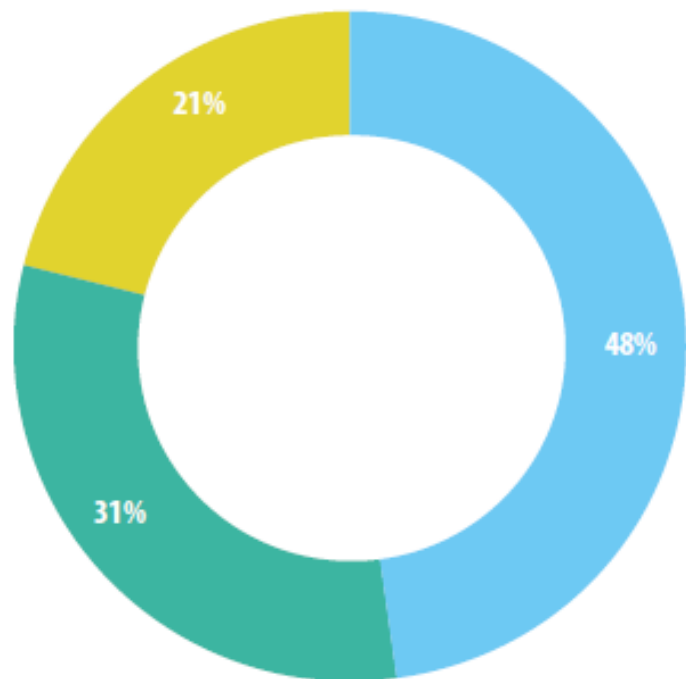
1. An overview will be given into operational control of Significant Energy Users (SEU's) in the context of an ISO50001 certified EnMS
2. A deep dive into operational control of Leisure Centres and Transport will be given by industry experts to provide an understanding of the day to day operational and maintenance tasks to be undertaken in order to maintain existing performance.

FOR FURTHER INFORMATION
email publicsector@seai.ie
or visit www.seai.ie

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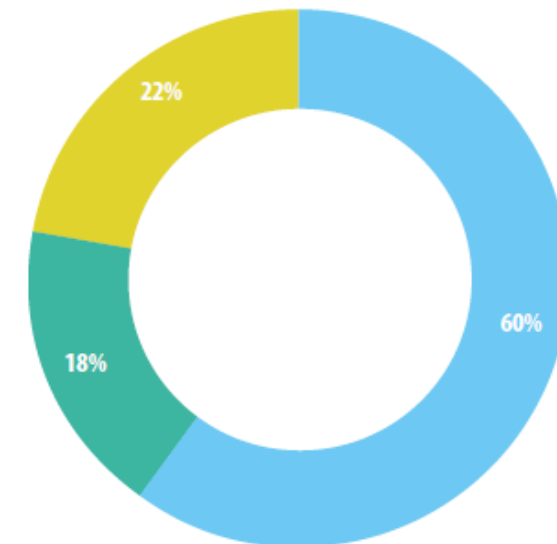
FIG. 1: PROGRESS BY PUBLIC BODIES AND SCHOOLS





Breakdown by Use	2018 Electricity Consumption (Primary) GWh
Office Buildings	609
Education Buildings	775
Healthcare Buildings	773
Other Buildings	454
Water Services	883
Public Lighting	402
Waste & Other Processing	356
Transport	178
Other	147
Unknown	346
Total	4,922

FIG. 6A: THERMAL ENERGY BREAKDOWN

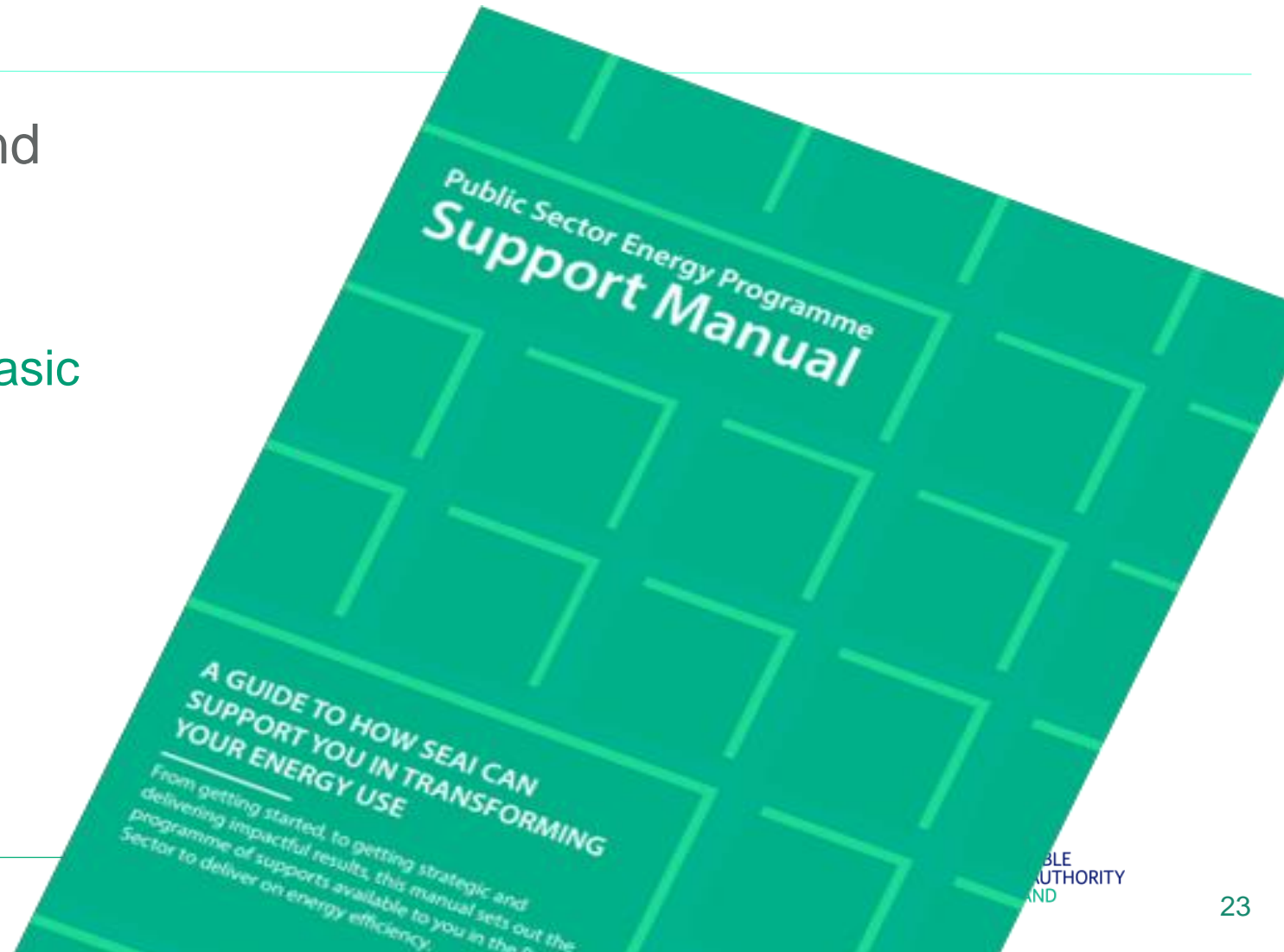


Fuel	2018 Consumption (Primary) GWh
Natural Gas, LPG & Biogas	1,882
Heating Oils	554
Wood Fuels	688
Total	3,124

45% OF CARBON EMISSIONS ARE FROM PUBLIC BUILDINGS

Developing a project pipeline in the public sector

- Individual public body and Sectoral approach
 - Engage leadership
 - Energy Assessments (basic audits)
 - Gap to target analysis
 - Strategic planning
 - Grant opportunities



Public Sector Programme

Public Sector Pathfinder Programme



Pathfinder programme – Strategic Objectives

Mobilise sectors – resources, capacity, delivery models

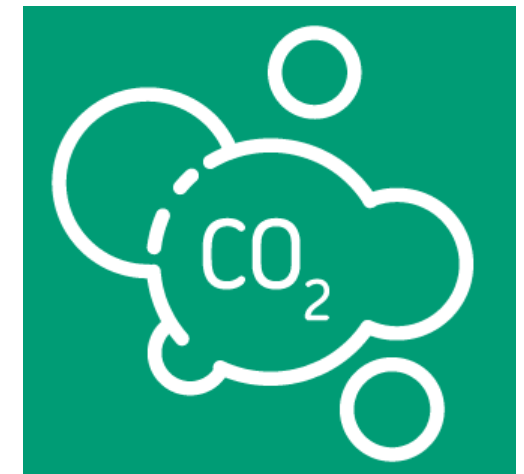
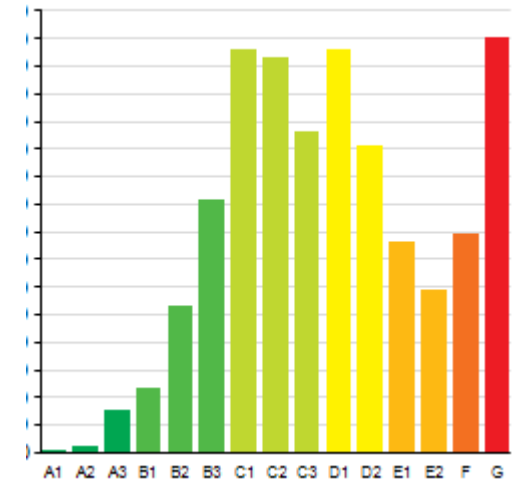
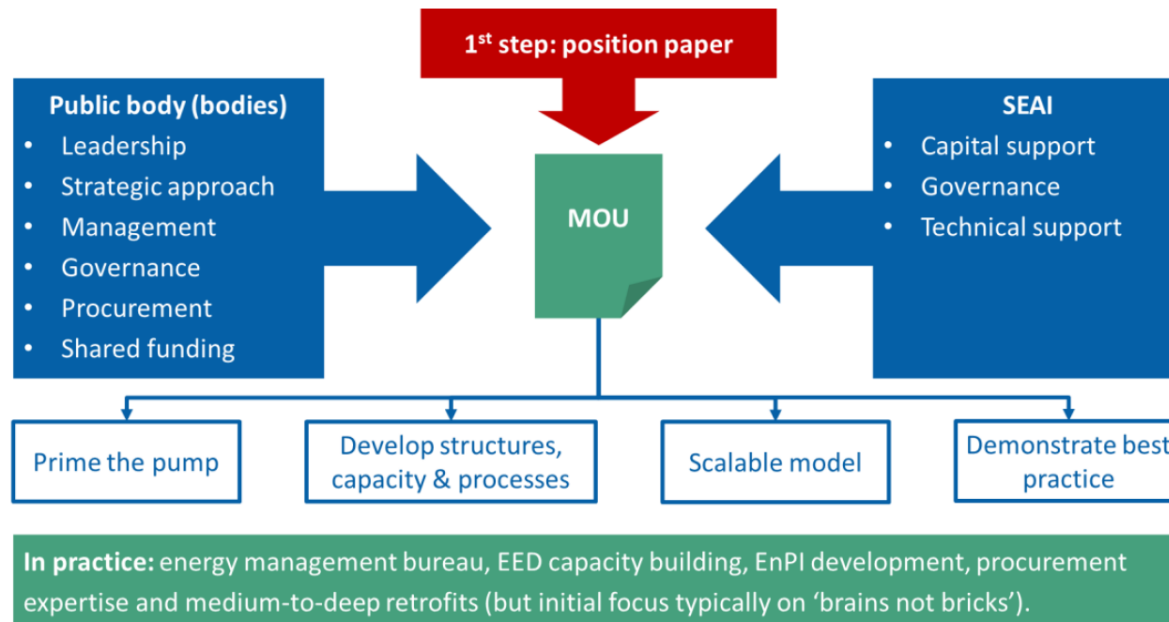
Create the right structures and processes for projects

Create a “scalable model” and demonstrate best practice

Demonstrate Deep Retrofit and Renewable Heating solutions

Pathfinder Programme

- Delivery Model
 - Strategic Plan
 - Annual Memo of Understanding – 3 year investment plan
 - Annual Targets (projects and/or savings)



Status up to 2020

Schools

39 buildings



Health Sector

114 buildings

Energy Bureau



Higher Education

8 buildings



Central Government

120 buildings



Public Sector Programme

Public Sector Pathfinder Programme



Central government – partnership with Office of Public Works OPW owned or leased buildings – occupants pay bills / must meet targets

- Public sector programme
- 44 public bodies (including all government departments)
- Energy management training
- 2030 planning
- OPW OP@W
- OPW run an Energy Awareness programme called Optimising Power at Work
- This programme has saved near 20% since inception – mostly low to no cost
- OPW Pathfinder Support
- 20m since 2017, 121 buildings, mostly light retrofits
- Focus 2021 on deep retrofit examples

2020

13 Buildings

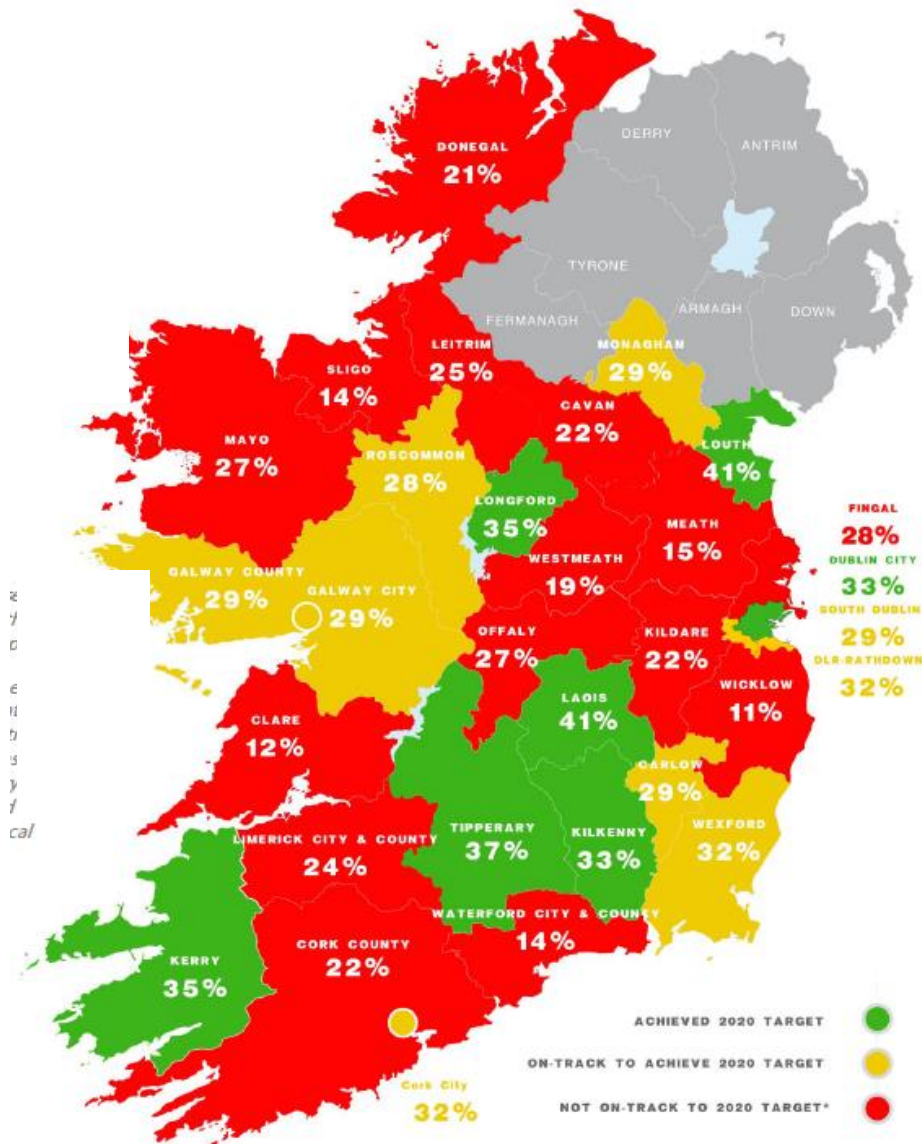
Lighting

PV

3 GWh

€2m

Local Authority sector



Public sector programme

- Lot of individual LA successes – EPC, 50001, public lighting, EV, community engagement, social housing etc
- Annual best practice network programme with Association of Energy Agencies
- Public lighting project support
- Climate action training
- Energy management bureau will commence in 2021 in North West

Pathfinder programme

- 4 regions developing energy bureaux
- Year 1 – mobilising teams, identify buildings, some capital spend
- Following years – regional delivery of building retrofits
- EPC facilitations supports – Codema / Dublin leisure centres

Long term vision

- LA key role in national retrofit and environmental objectives
- Bureau will be expanded to coordinate community and domestic retrofit
- Potential role for Energy Agencies

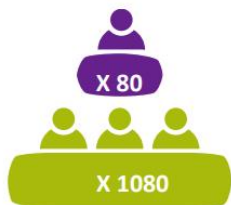
Health sector – hospitals, healthcare, charities

- Public Sector Programme
 - Energy management training
 - Energy awareness (with OPW)
 - Energy efficient design
- 2030 decarbonisation strategy
- Led by national director of estates (Energy Performance Officer)
- Pathfinder Programme
 - 16 energy officers
 - Rolling capital investment
 - 2021-2023 – 20m per annum programme
 - Decarbonised solutions for hospitals, healthcare facilities, healthcare charitable sector
 - Establish an EPC delivery unit

Schools

- EM supports
 - 800 schools trained from approx 3700 Schools
 - From 20 – 1200+ pupils
 - Circa 10% of PS energy use
 - €1m saved
- School retrofit
 - Dept of Education (DES) / SEAI annual programme – approx. 20 schools per annum since 2017
 - Technology and delivery solutions to inform a mass scale up from 2023 onwards
 - DES seeking ELENA support to mobilise a school retrofit unit

Ashbourne Community School, Meath



Key energy saving opportunities

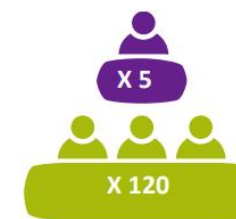
- Take regular electricity and gas meter readings to improved monitor use and target savings.
- Form a student energy committee.
- Run an energy awareness campaign.
- Implement a 'Switch It Off' policy.
- Install more energy efficient lights (Replace T8 with T5 fixtures).
- Better utilisation of natural light.
- Install 7-Day time-clocks on vending machines.
- Reduce boiler operating times appropriately.



This is what the students think...

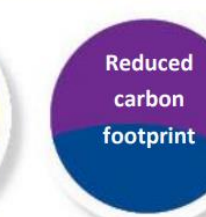
We ran an energy awareness campaign at school called 'Flick that Switch'. It was all about getting people to make small changes to their daily energy habits, like switching off equipment and lights that we are not using. If we can do it, so can you. so come

Moneystown National School, Roundwood, County Wicklow



Key energy saving opportunities

- Isolate the large hot water tank in the school, which serves wash hand basins and the shower, which is not in use to avoid heating too much water.
- Consider having full-fill insulation installed in the wall cavities.
- Upgrade lighting from T8 fluorescent tubes to more efficient T5s.
- Install occupancy detectors to control lighting in circulations spaces / corridors.
- Consider an upgrade of external lighting using LEDs.
- Switch off overhead projectors and smart boards when not in use, especially during holidays. Use Eco-mode at other times.
- Formally publish an Energy Statement, signed by the school principal. Post it up in the lobby and on the school website to make sure everyone knows about it.



For more school case stories and tips on saving energy visit www.energineducation.ie

From
1000+
pupil
schools...

To 20+
pupil
schools...

2020 Pilot Summary

- 8 Schools Selected (7 progressed to works)
 - Criteria:
 - Range of school types (small and large primary, small-large post-primary)
 - Large energy spend targeted
 - Undertook Energy in Education training / M&R compliant
 - Targeted retrofit approach to BER 'B' – mostly from BER of 'E' or 'D'
 - School was willing and able to undertake the works
- Two major approaches to project delivery
 - Traditional design team – BER led, design team to select cost-optimal measures to achieve target BER of B
 - Design and Build – BER led, tender competition for MEAT to achieve target BER, BER is guaranteed with performance related payment

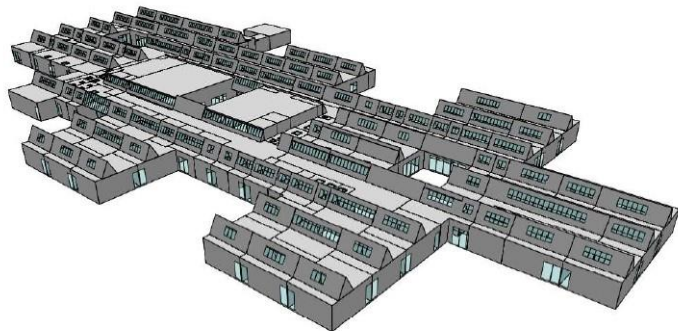


Figure 20. North/West View of the Proposed School



3rd level

- Public sector programme
 - All organisations energy management trained, most universities have ISO50001, some colleges
 - ‘U9’ network
 - Decarbonisation planning
- Pathfinder programme
 - Partnership with Department of Education and Higher Education Authority
 - €5m grant programme in 2020 for ‘decarbonisations solutions’
 - 8 projects funded – mostly heat pump installations with some retrofit
 - Decarbonisation / renewable solutions study, building decarbonisation evaluation tool
 - EPC supports / district heating

Other relevant programmes

- Role of LAs in energy communities
- Role of public sector in general in leading community projects
- Role of LAs in retrofit social housing
 - Social housing retrofit
 - One stop shop for domestic - SEAI

Building register produced for SRSP supported study

Ulta**Technologies**
log out

Home Building Register

Dashboard

Manage Buildings

Manage Buildings

- City of Dublin Education & Training Board
 - Parnell Square Training Centre
 - Adult Guidance Service, Arran Quay
 - Artsquad Finglas
 - Ballsbridge College
 - Ballyfermot CFE - Media Bldg
 - Ballyfermot College of Further Educ
 - Ballyfermot CFE Arts Block
 - Ballyfermot Training Centre
 - Ballyfermot Youthreach
 - Ballymun Comprehensive School
 - Bonnybrook Youth Reach Kilmore R
 - Buildings Maintenance Section, Can
 - Cabra Community College
 - Cabra Creche, Kilkiernan Road
 - Cabra Multiplex
 - CDVEC Sportsground Terenure
 - CDVEC Townhall Ballsbridge
 - CDVEC 1 Parnell Square
 - CDVEC 1 Pembroke Place Ballsbridg
 - CDVEC, No 2 Pembroke Place, Ballst
 - CDYSB Donnybrook
 - Colaiste Dhulaigh CFE Coolock
 - Colaiste Dhulaigh CFE, Greendale Cr
 - Colaiste Dhulaigh Main
 - Colaiste Dhulaigh Post Primary Coo
 - Colaiste Eanna Cabra
 - Colaiste Eoin Finglas

Add New Delete Link to Meter Remove All Meters Download

Info
Save Cancel

Name *

Address Add Address

Type *

Building Type *

Ownership Status *

How is Floor Area Determined? *

Heating Type *

Retrofit Works since 2015 *

Age Category *

Is a DEC applicable? *

Description

Other Building Type

No. of Months till Renewal

Floor Area in m² *

Heritage/Protected Status *

Year Retrofit Done *

BER Rating *

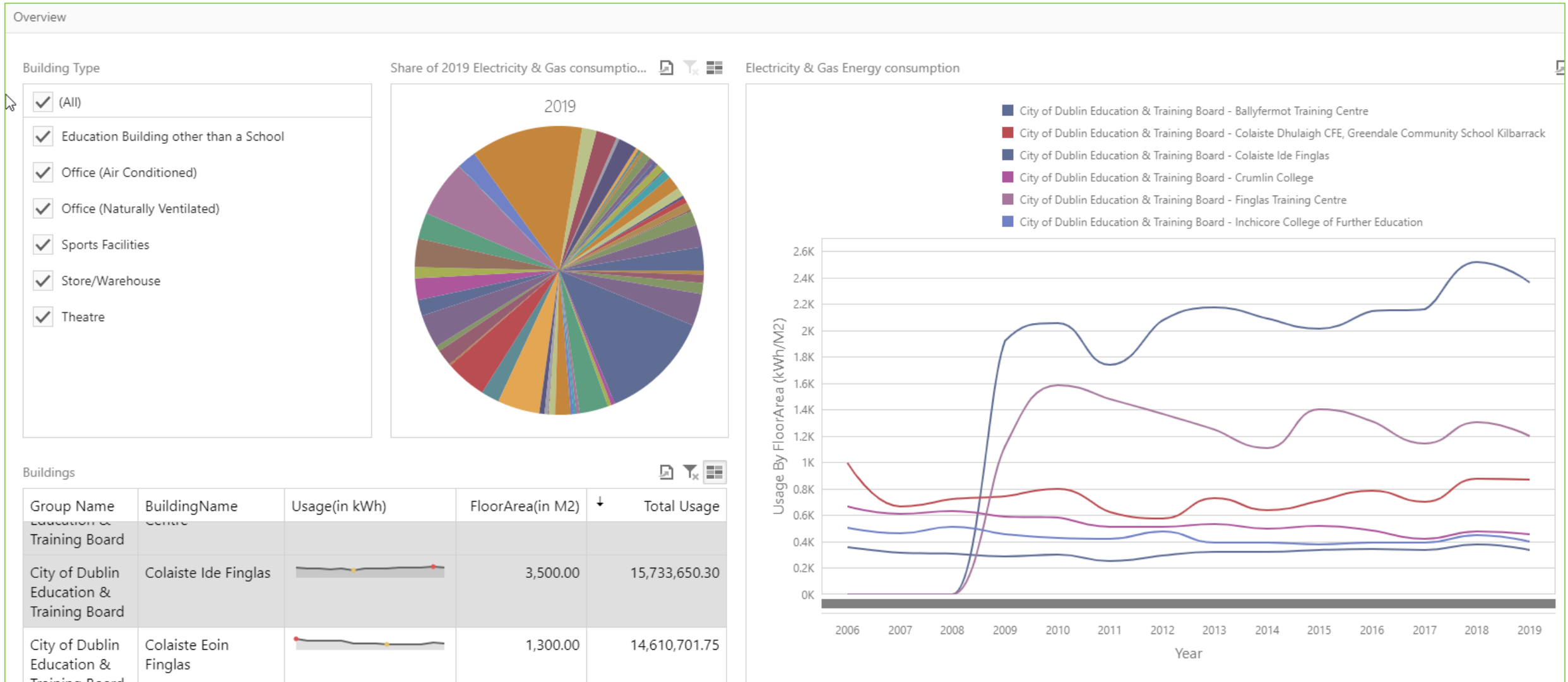
Date DEC Expires

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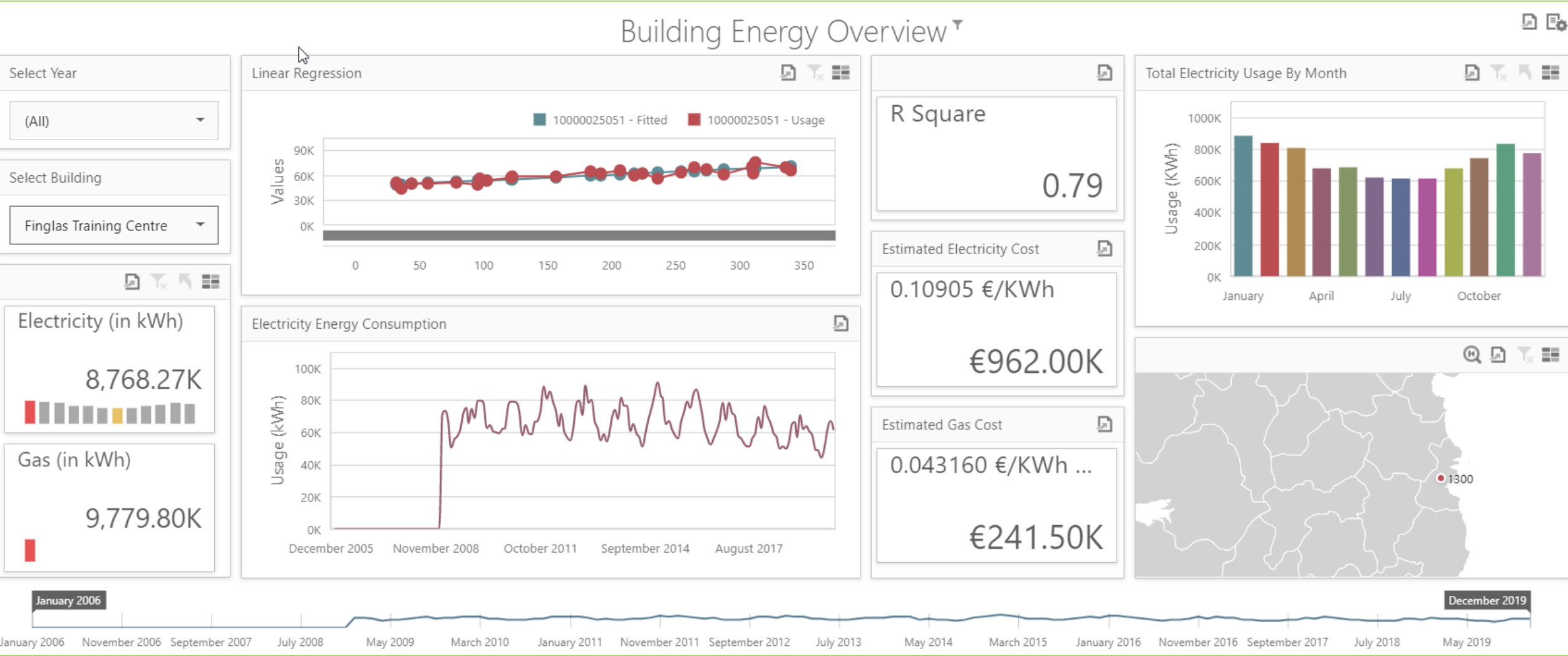
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<input type="checkbox"/> 89308	Ballyfermot Training Centre	Dublin 10	Education Building	<input type="text" value="100"/>	<input type="button" value="⊕"/>

Add Delete selected

2021 – more graphical interfaces for energy management and M&V of pathfinder projects



An adult education training centre



National Home Retrofit Scheme:

(One Stop Shop Development Call)

- Launched in late Sept 2020
- Overall Budget Commitment = €21M (aiming for c. 1500 upgrades)
- 37 Applications currently submitted (incl. LA homes, private and AHBs)
- Approx. budget €2M unallocated.

Support: 35% grant support for Local Authority upgrades on the;

- supply & fit of energy efficiency works and
- project management costs

National Home Retrofit Scheme

- Retrofit delivered by One-Stop-Shop
- BER target to B2
- Grant supported measures on pathway to B2
 1. Attic Insulation
 2. Floor Insulation
 3. Walls Insulation
 4. Windows / Door replacements
 4. Ventilation
 5. Heat pump & Heating Controls
 6. Solar
- Further information:
 - www.seai.ie/grants/national-home-retrofit/
 - Or email housingretrofit@seai.ie



Key Challenges

- New Buildings
 - No fossil fuels, good energy efficient design
- Transition from Shallow to Deep
- Renewable Heat
- Supply Chain
- Level of Funding Required
- Market Readiness
- Traditional Buildings
 - Energy Efficiency in Traditional Buildings



Thank you

Public sector Programme

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Pathfinder programme

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