IE - alternative approach and analysis of findings to date regarding reality of achieving the Art 6 target

Alan Ryan SEAI IE

27th March 2025

Ireland’s public sector

7,168 GWh
final energy consumption 2022

963 ktCO2
fossil CO2 emissions 2022

348 public bodies
excluding schools

3,700 schools

13,000 buildings

35,000 electricity connections

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Ireland’s public sector – definition of ‘public body’

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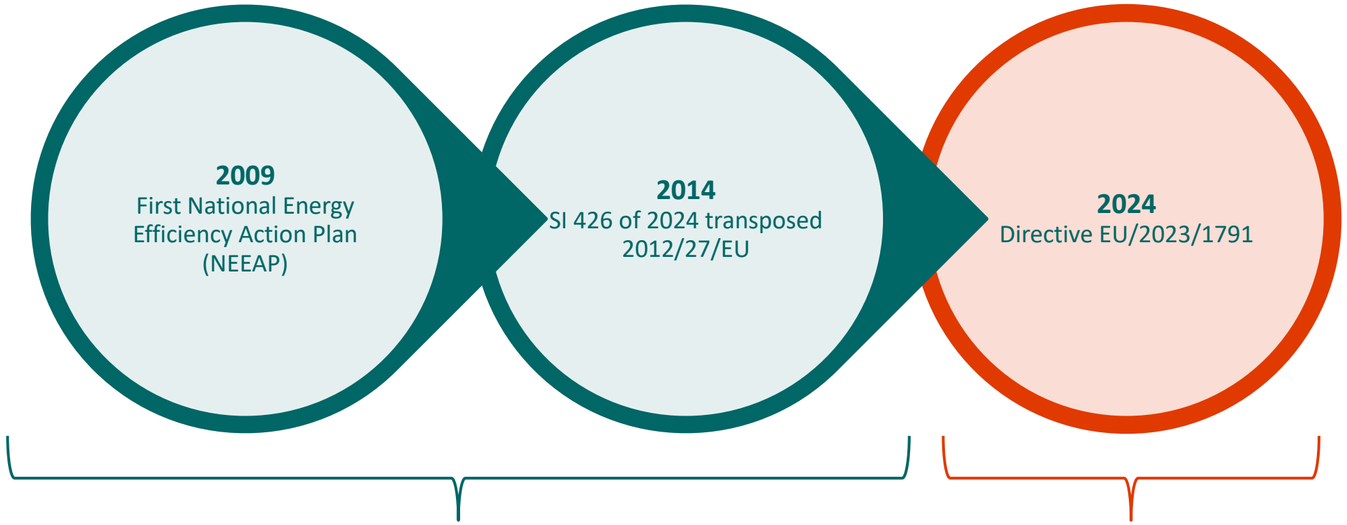

- Broad definition
- Ranges from small schools to 100,000-person health service
- Includes some financed but not administered organisations
- Includes some commercial organisations
- Common understanding

≠

‘National, regional or local authorities and entities directly financed and administered by those authorities but not having an industrial or commercial character’

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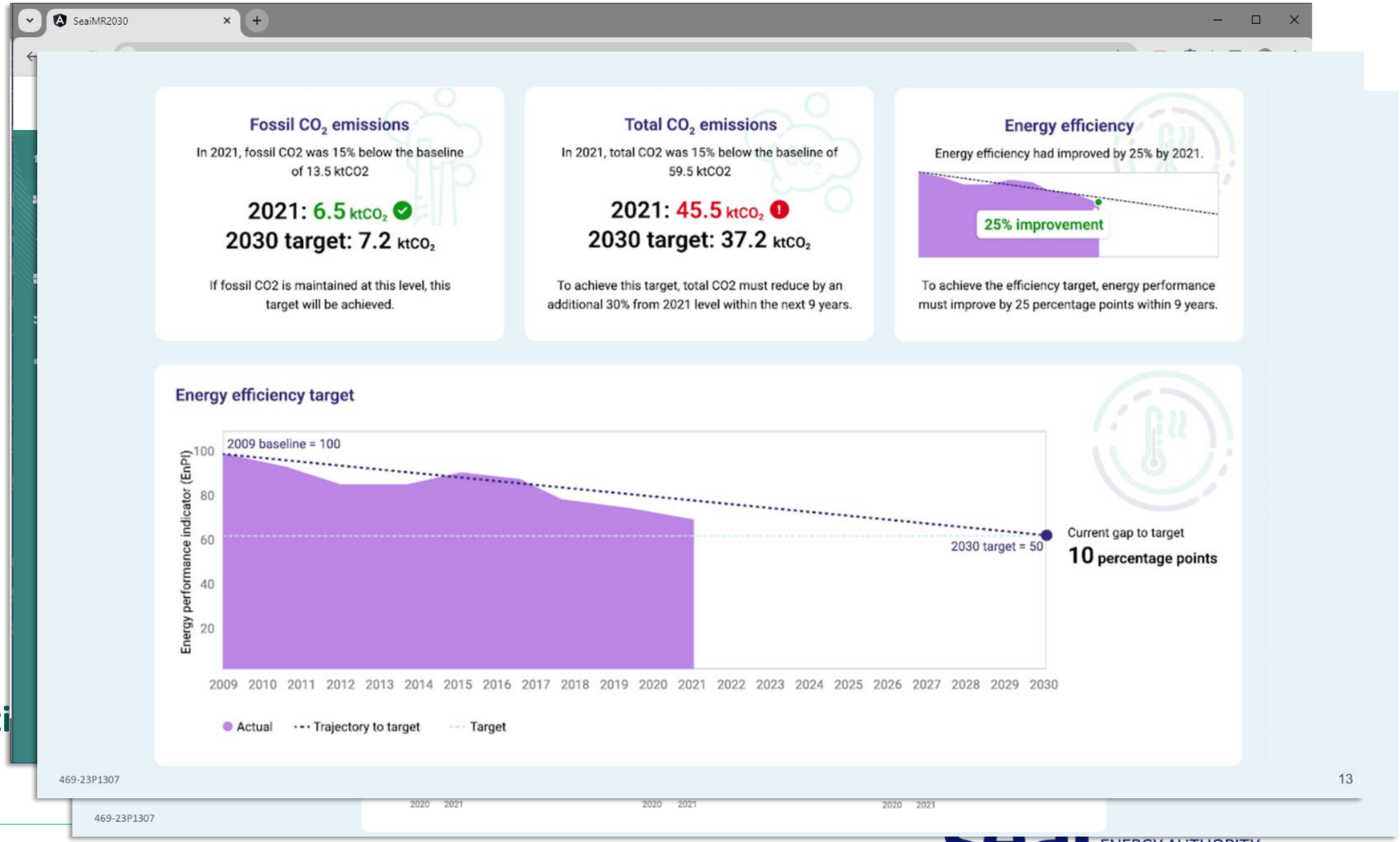

Recast EED ‘Public Body’ means

national, regional or local authorities

entities directly financed

and administered by those authorities

and not having an industrial or commercial character

Working Understanding

‘National Authority’ – assumed to include bodies founded under statute (other than under the Companies Act 2014).

Receives >50% funding from national or local authorities.

National or local authority has majority with regard to choice of management

Applicable to commercial semi states. Use FOI definitions as proxy to identify commercial entities.

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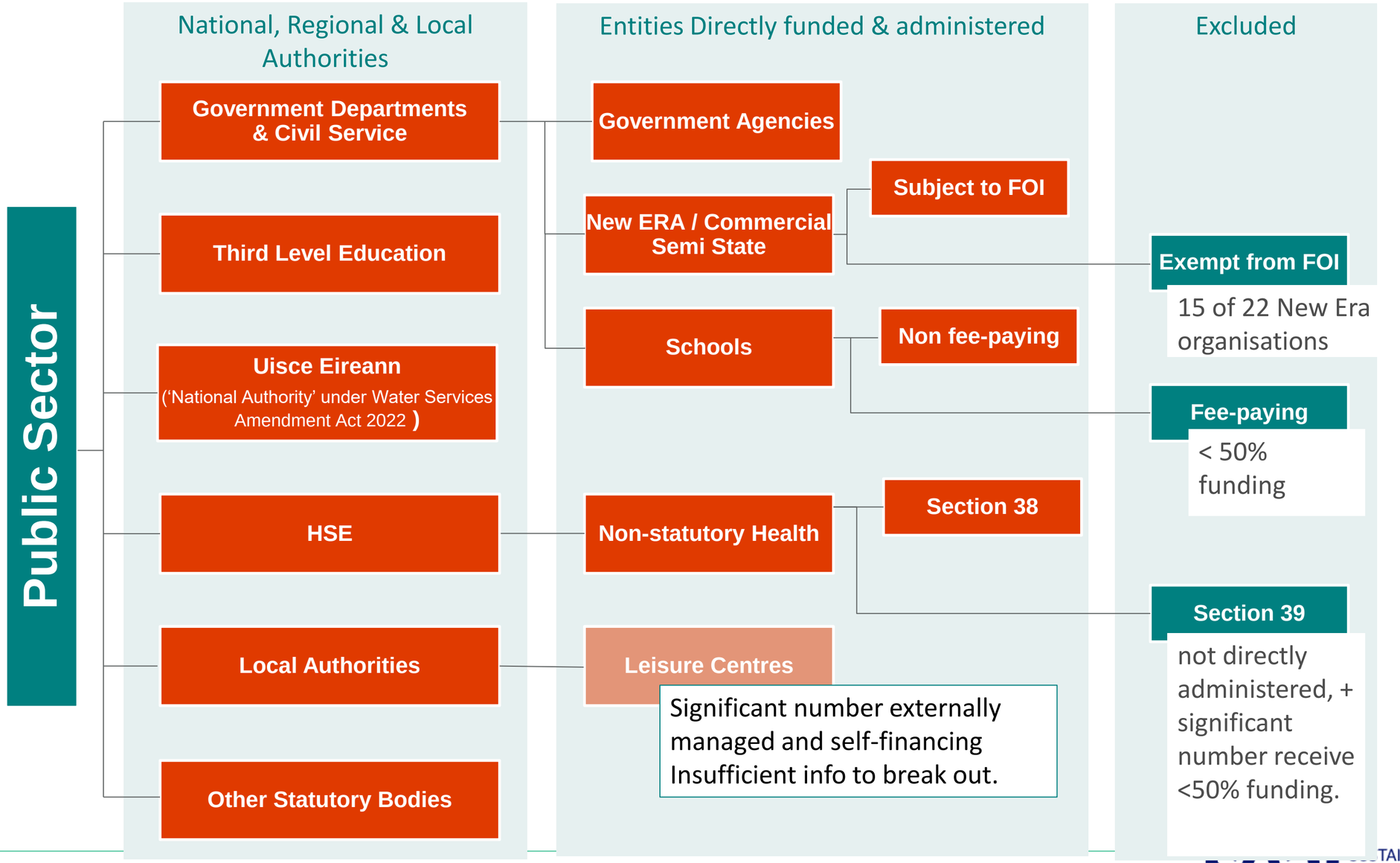
Working understanding – scope for new EED & EPBD Targets



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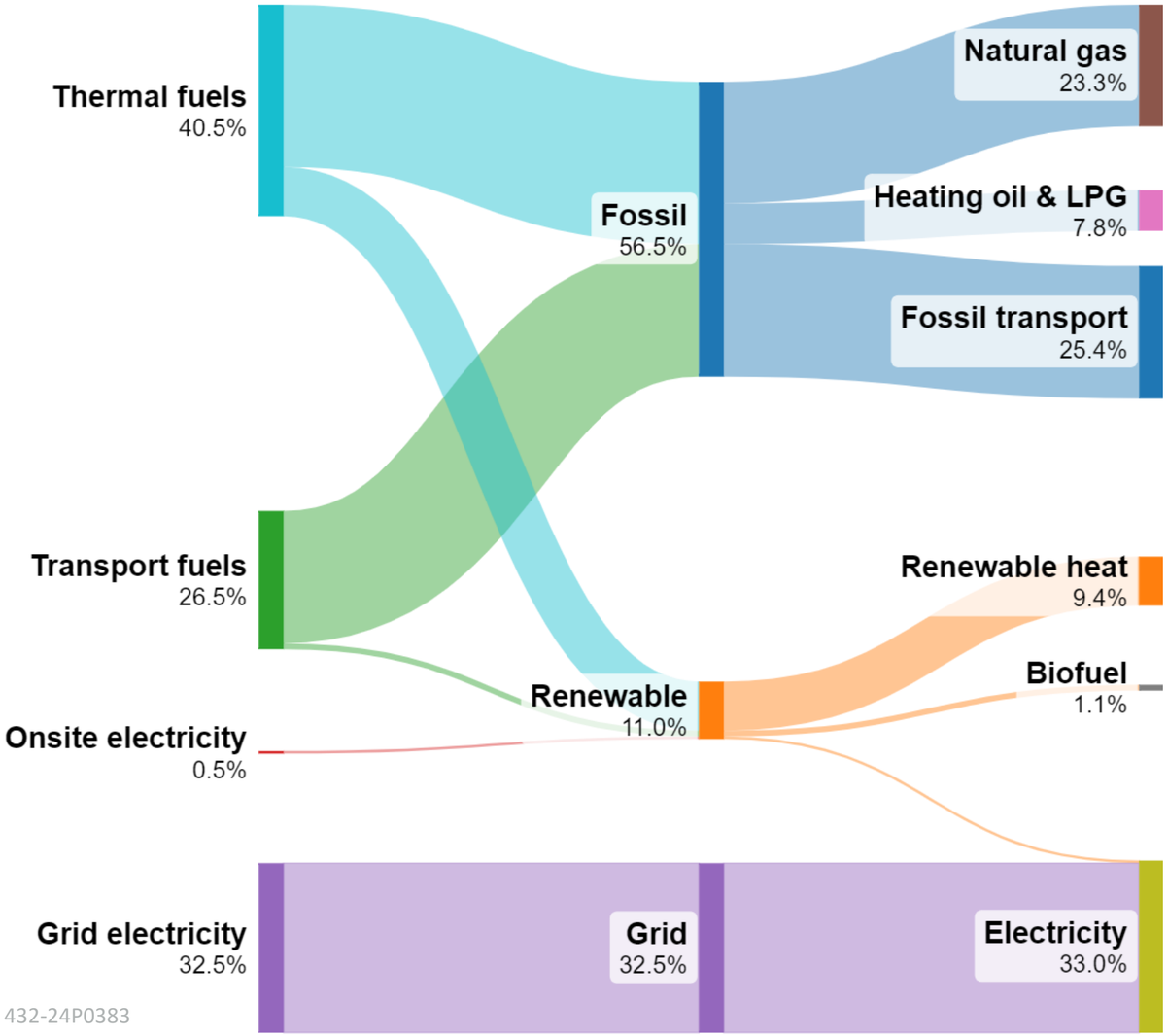
Ireland’s public sector – energy consumption



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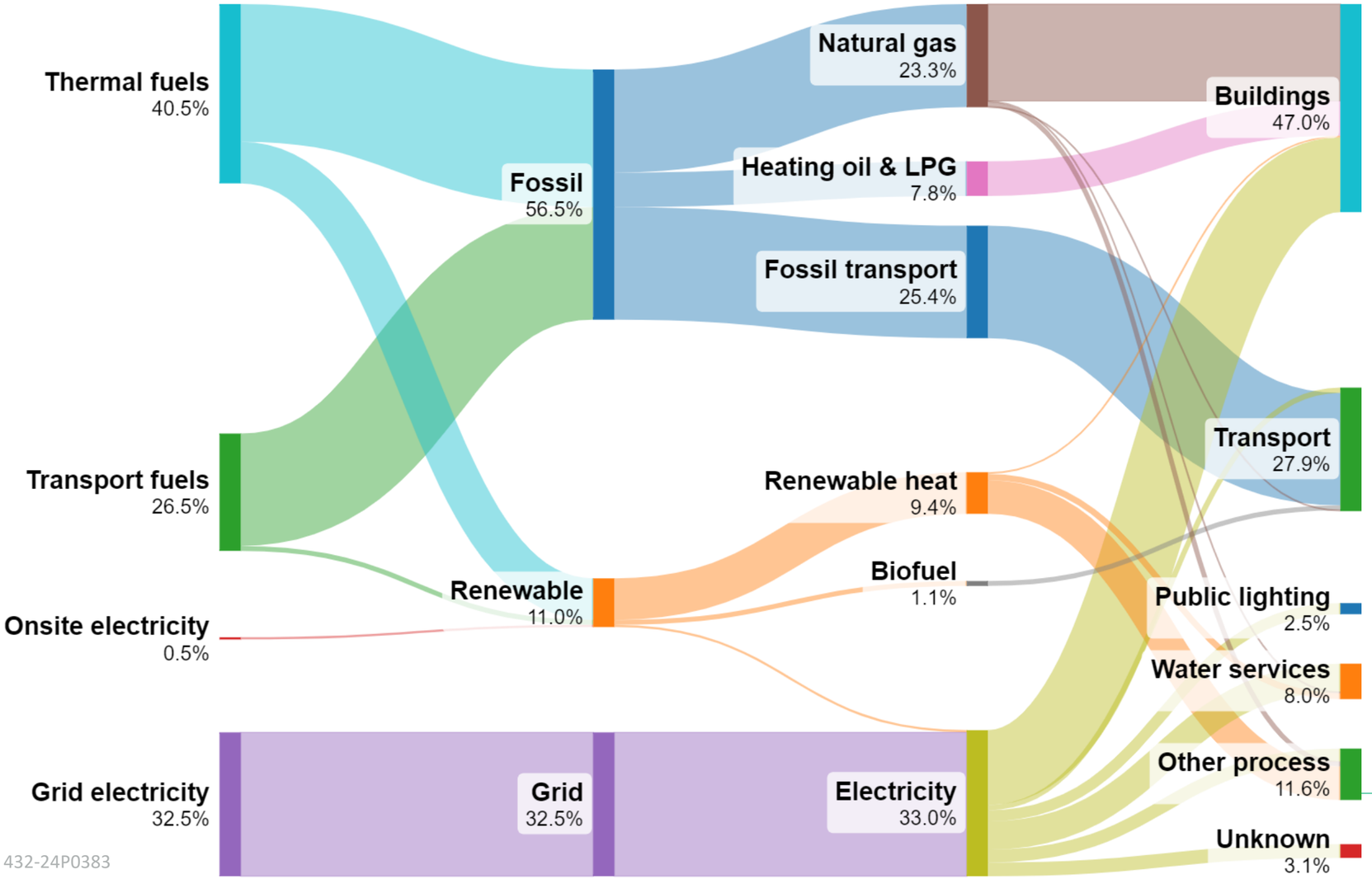
Data source: SEAI M&R 2022RC

Ireland’s public sector – energy consumption



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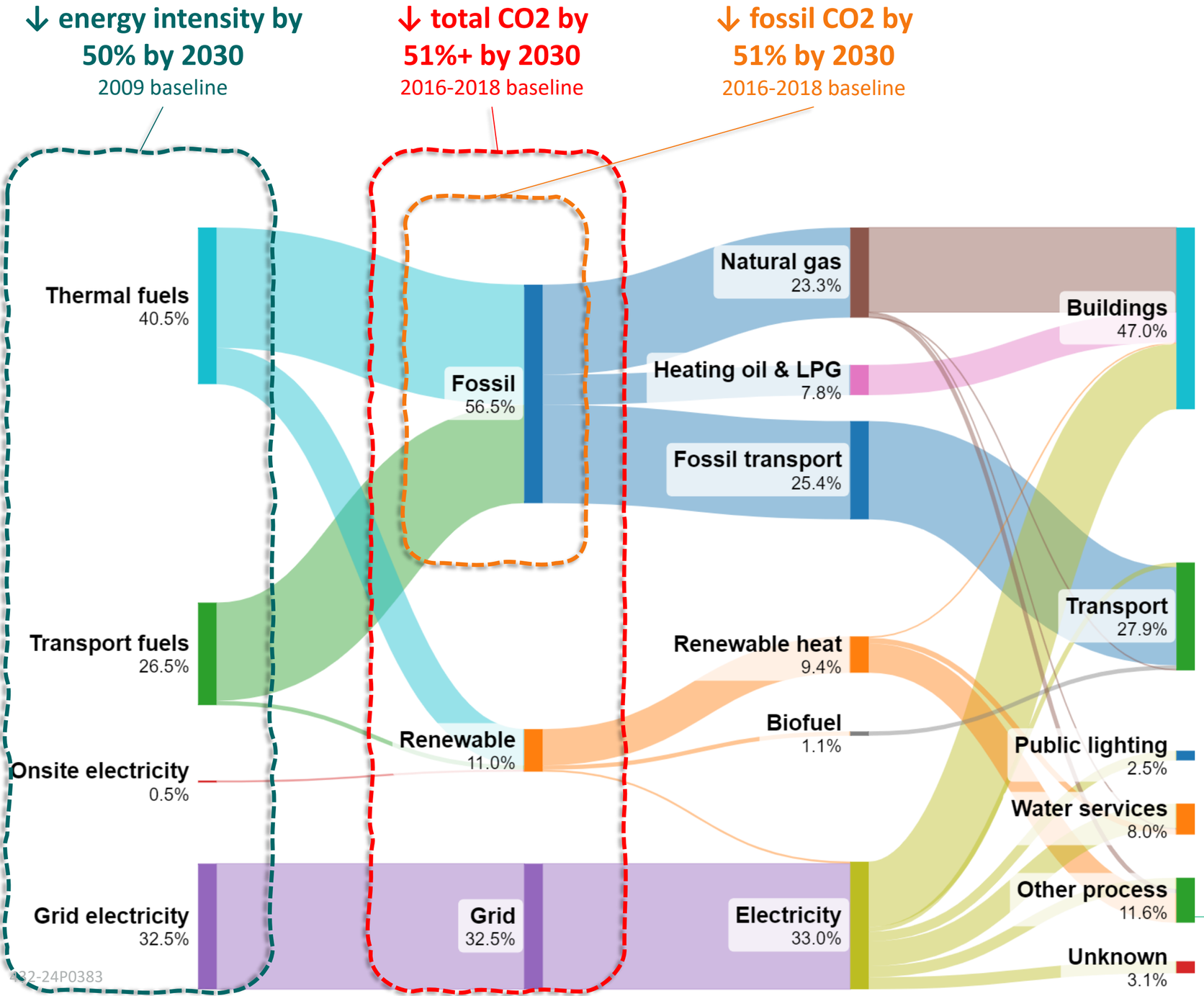
Data source: SEAI M&R 2022RC



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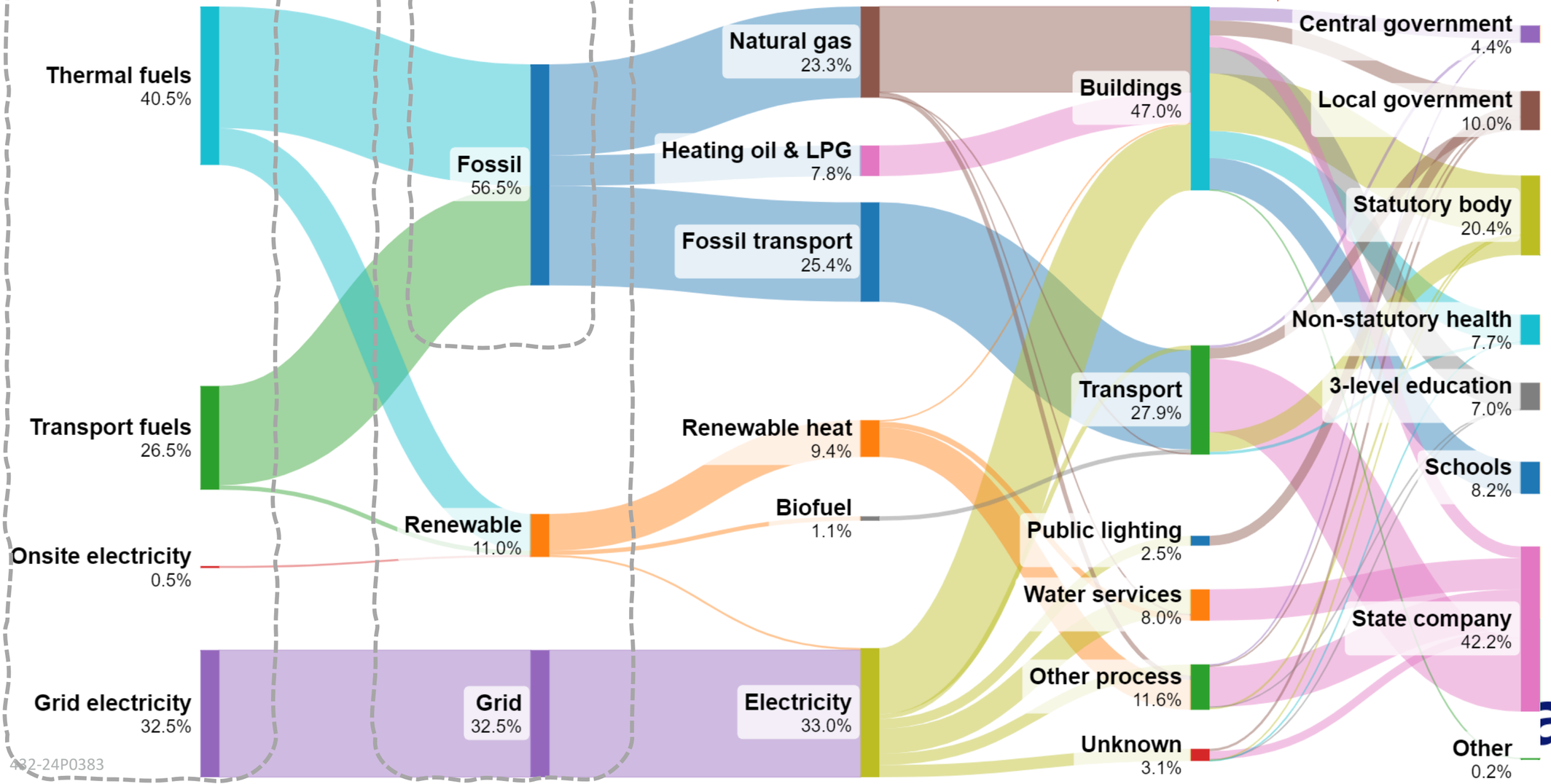
Data source: SEAI M&R 2022RC

↓ energy intensity by 50% by 2030
2009 baseline

↓ total CO2 by 51%+ by 2030
2016-2018 baseline

↓ fossil CO2 by 51% by 2030
2016-2018 baseline

This data is based on preliminary analysis. This work is ongoing. The composition of the segments/nodes will change as the work is finalised.



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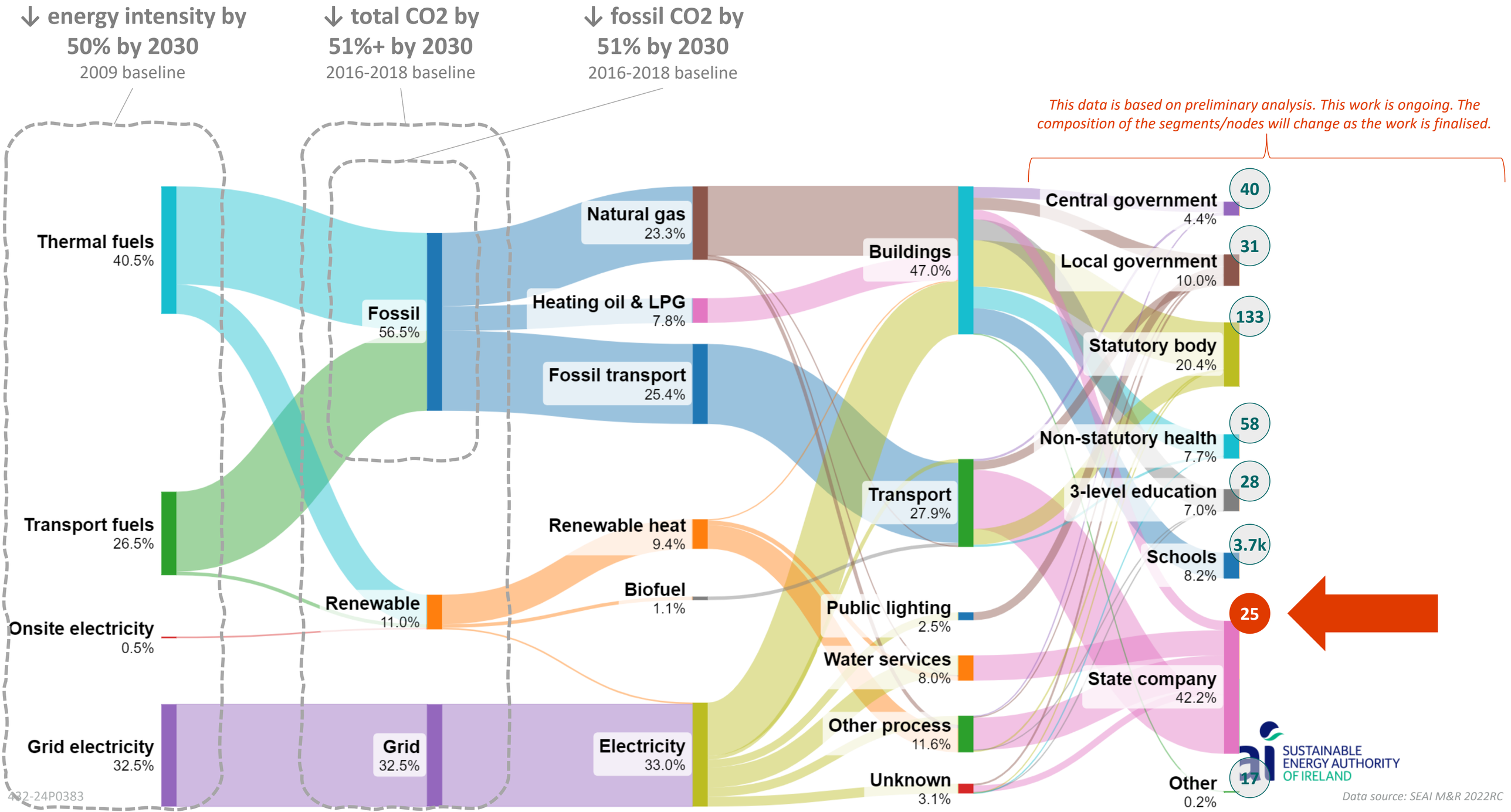
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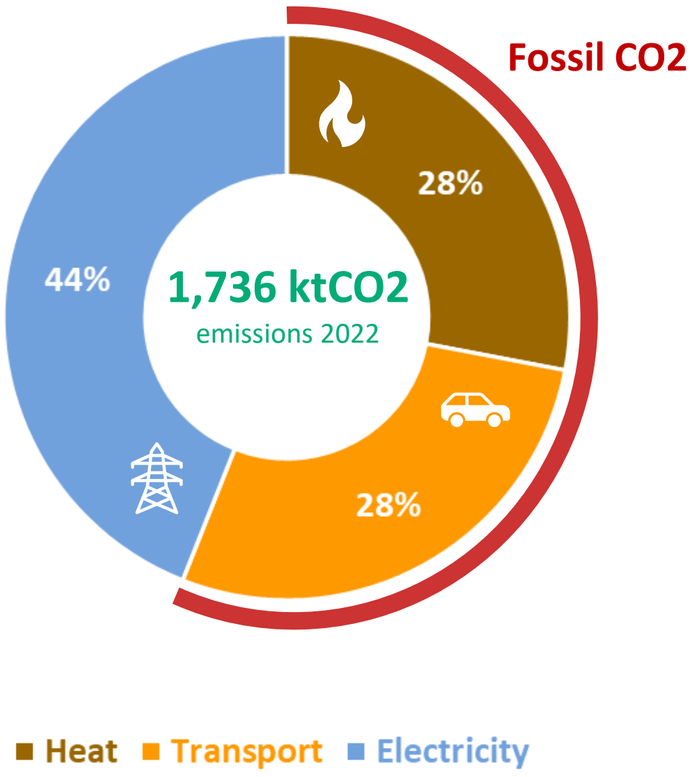
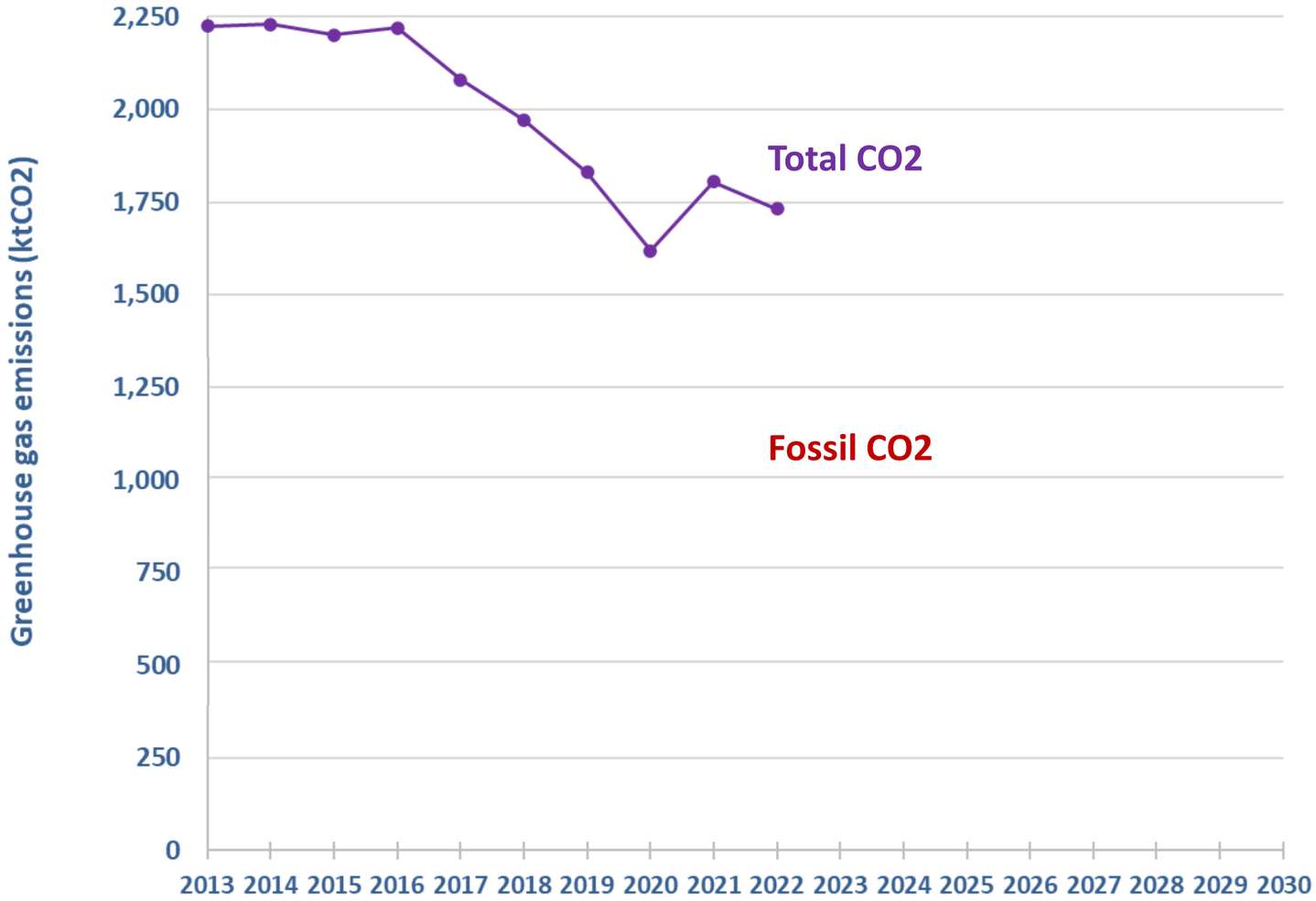
2016-2018 baseline
This data is based on preliminary analysis. This work is ongoing. The composition of the segments/nodes will change as the work is finalised.
Thermal fuels 40.5%
Transport fuels 26.5%
Onsite electricity 0.5%
Grid electricity 32.5%
Fossil 56.5%
Renewable 11.0%
Grid 32.5%
Natural gas 23.3%
Heating oil & LPG 7.8%
Fossil transport 25.4%
Renewable heat 9.4%
Biofuel 1.1%
Electricity 33.0%
Buildings 47.0%
Transport 27.9%
Public lighting 2.5%
Water services 8.0%
Other process 11.6%
Unknown 3.1%
Central government 4.4%
Local government 10.0%
Statutory body 20.4%
Non-statutory health 7.7%
3-level education 7.0%
Schools 8.2%
State company 42.2%
Other 0.2%
40
31
133
58
28
3.7k
25
17
SUSTAINABLE ENERGY AUTHORITY OF IRELAND
Data source: SEAI M&R 2022RC

Public sector CO2





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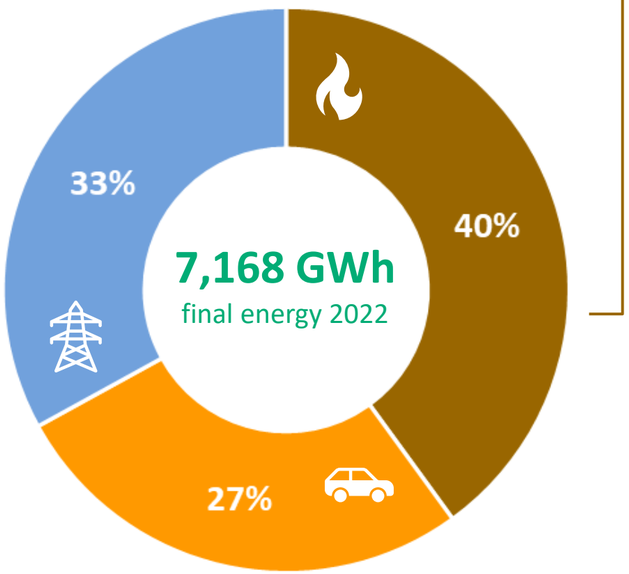
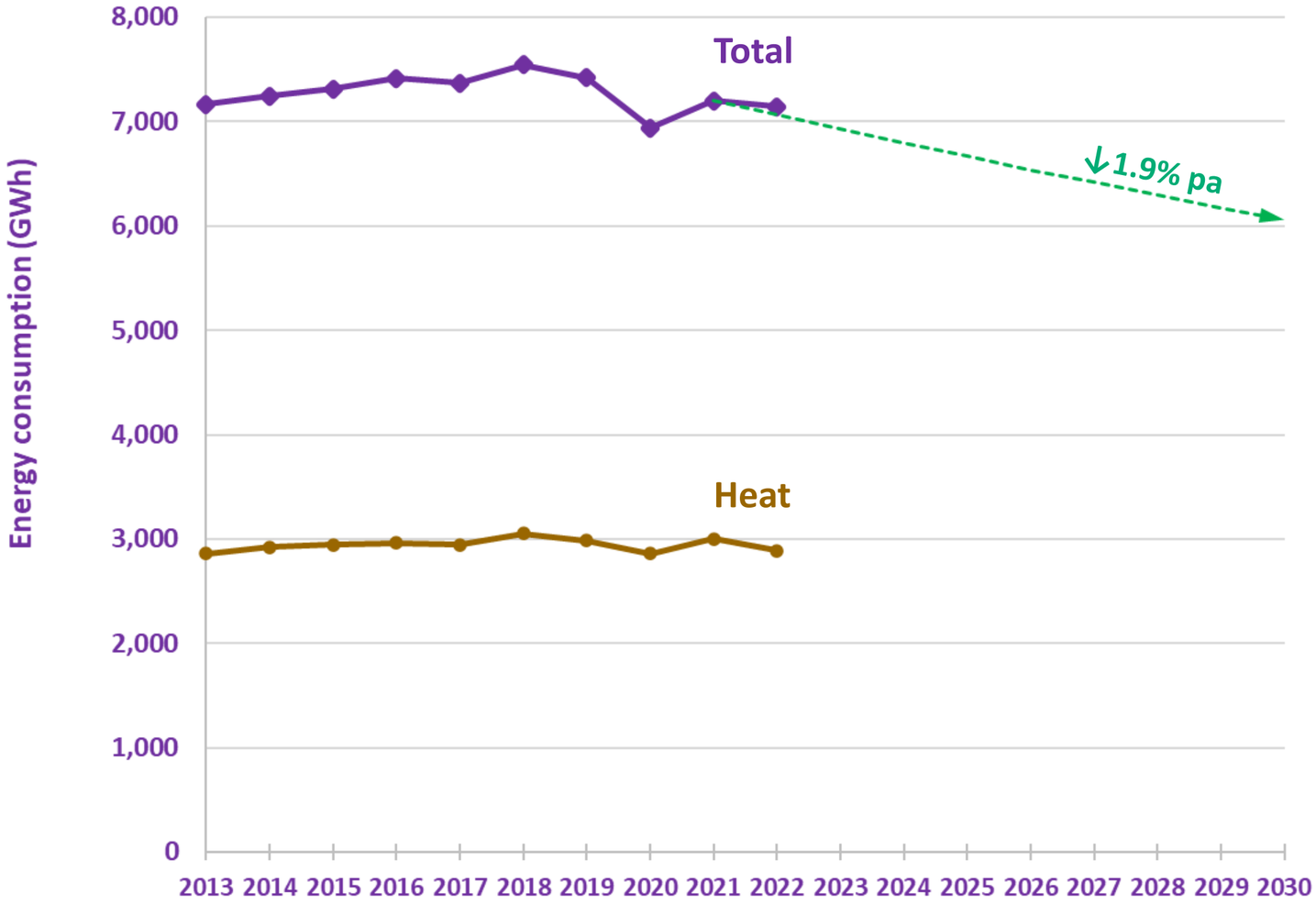
Public sector energy

PS heat = ~2,900 GWh
= 40% PS energy
= 50% PS fossil CO2



■ Heat ■ Transport ■ Electricity



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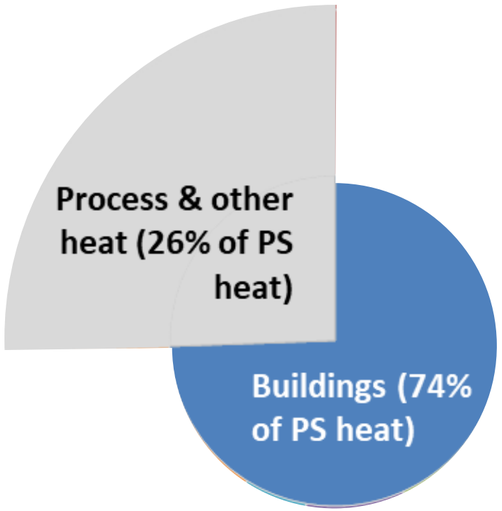
Public sector heat

PS heat = ~2,900 GWh
= 40% PS energy
= 50% PS fossil CO2

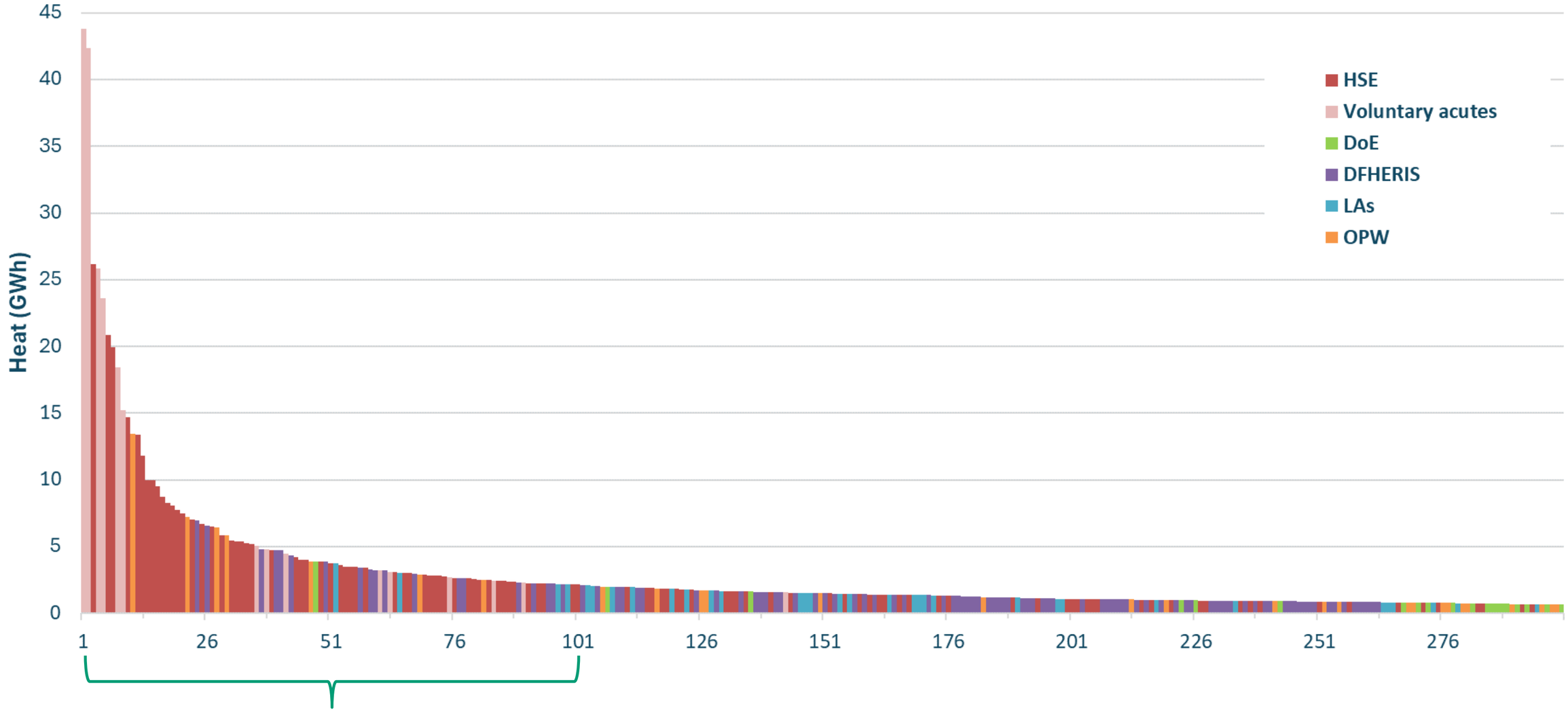
~13,000 PS buildings
= 74% PS heat *or*
30% PS energy

~1,000 PS buildings
= 50% PS building heat
or 38% PS heat

'Top 1,000'



Public sector heat: ‘top 300’ buildings



Top 100 =
60% ‘top 1,000’ heat

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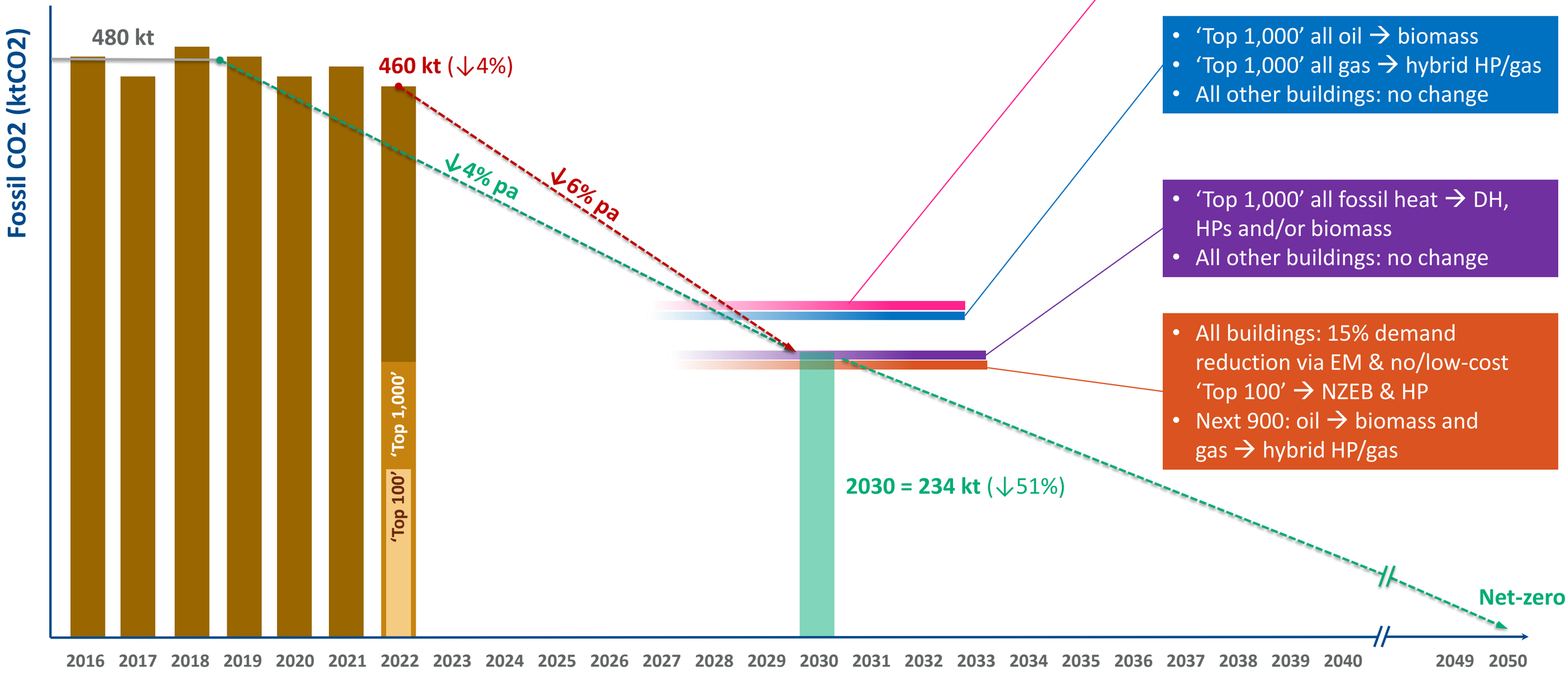
Public sector heat: building CO2



- All buildings: 15% demand reduction via EM & no/low-cost
- 'Top 100' → NZEB & HP
- Next 900: no other measures

- 'Top 1,000' all oil → biomass
- 'Top 1,000' all gas → hybrid HP/gas
- All other buildings: no change

- 'Top 1,000' all fossil heat → DH, HPs and/or biomass
- All other buildings: no change

- All buildings: 15% demand reduction via EM & no/low-cost 'Top 100' → NZEB & HP
- Next 900: oil → biomass and gas → hybrid HP/gas

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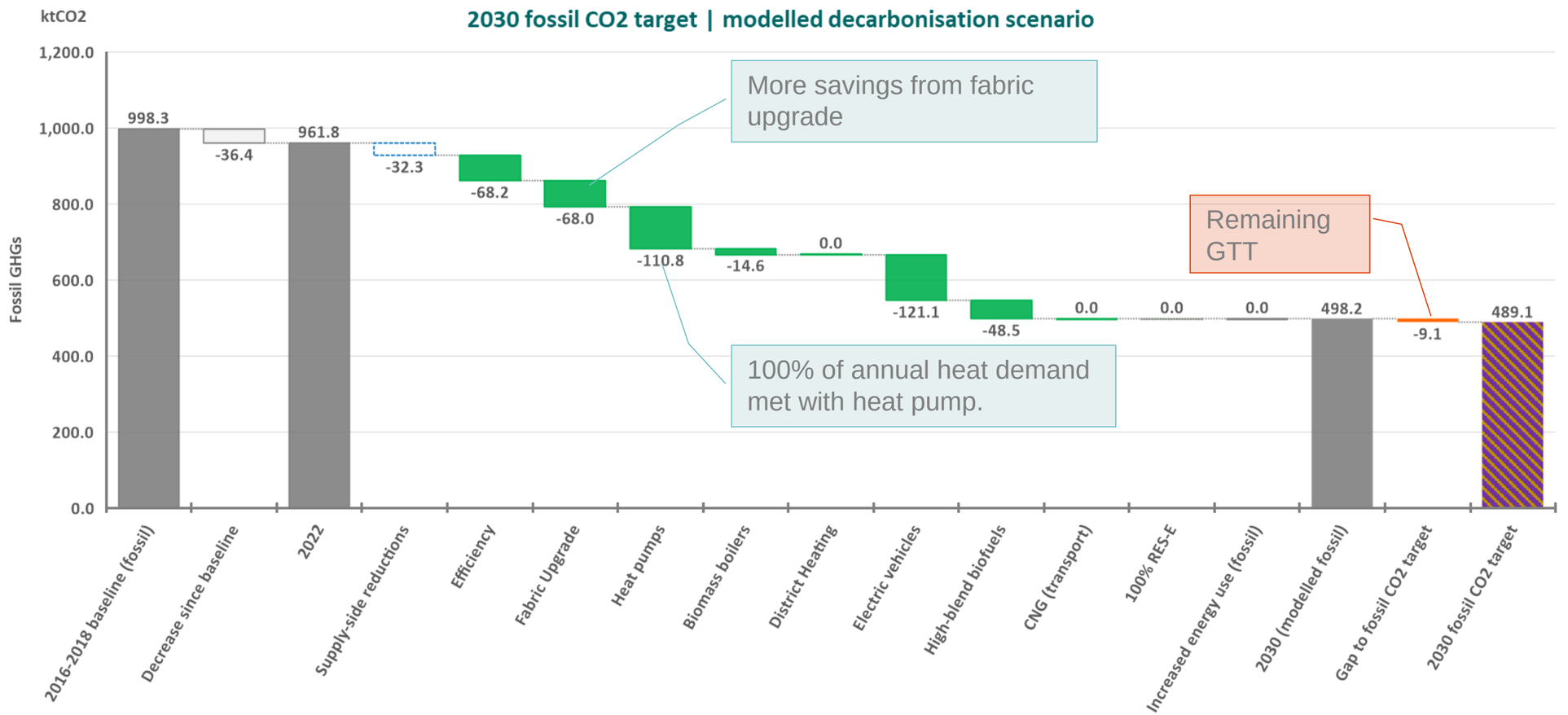
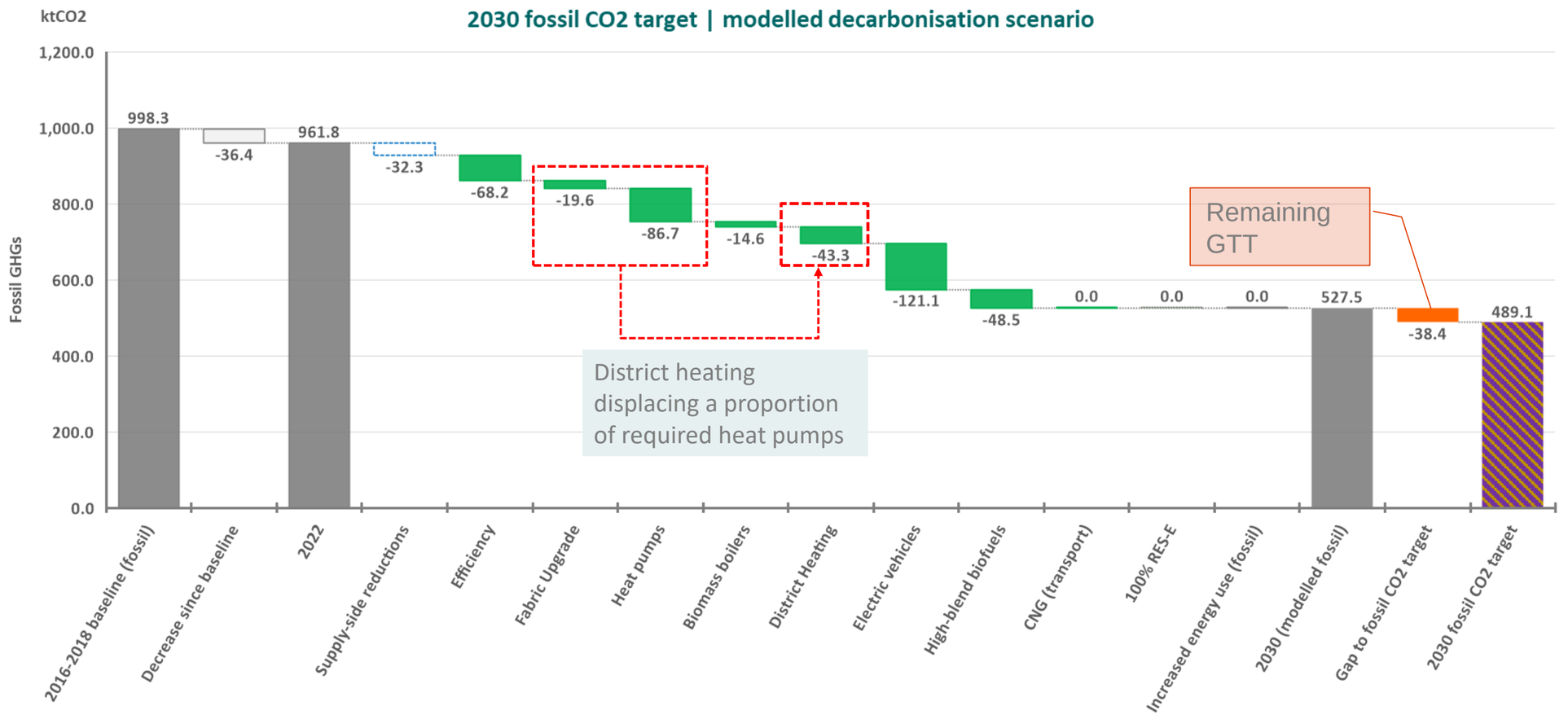
Step 3, Option 1: Deeper level of retrofit



Step 3, Option 2: District Heating



Yet to map Art 6 targets into this pathways analysis

- 1st full year of reporting buildings in SEAI Monitoring and Reporting System

  Mandatory fields - (Type, m2, have a building, age etc)
  Voluntary fields – create and link meter usage to these buildings

- With some work, can create a preliminary baseline and inventory for Art 6, but there are still significant ‘gaps’ in the data, especially for smaller buildings

	EED public body		Total PS	
	No. buildings	Floor area (m2)	No. buildings	Floor area (m2)
PS buildings	10,744	13,706,751	11,693	14,907,912
PS-owned buildings	8,472	12,245,168	9,178	13,300,066
PS-owned buildings >250m2	4,837	11,892,315	5,184	12,932,217

SEAI Public Sector Programmes

Energy Services

- Partnership Programme
- 200+ partnerships
- PSM deliverables
  - Critical Success Factors
  - Gap to Target Analyis
- Public Body outputs
  - Appropriate Energy Management
  - Action plan (based on CSFs / GtT)
- Set annual programme of events / training
- Retro commissioning grant
- Communicate PB successes

National Estates & VLEU

- Sectoral / VLEU partnerships
  - Health Service
  - Central Government (OPW)
  - Local Authorities
  - Higher level education (DFHERIS)
  - Schools (DoS)
  - Bus, rail, water etc companies
- Deliverables
  - CSFs sectoral (resources, capital, frameworks etc)
  - GtT & pathways– 2030, 40&50
  - Annual Investment action plan with focus on pathfinder delivery
- Monitoring &Reporting System
- Communicate sector and wider PS success

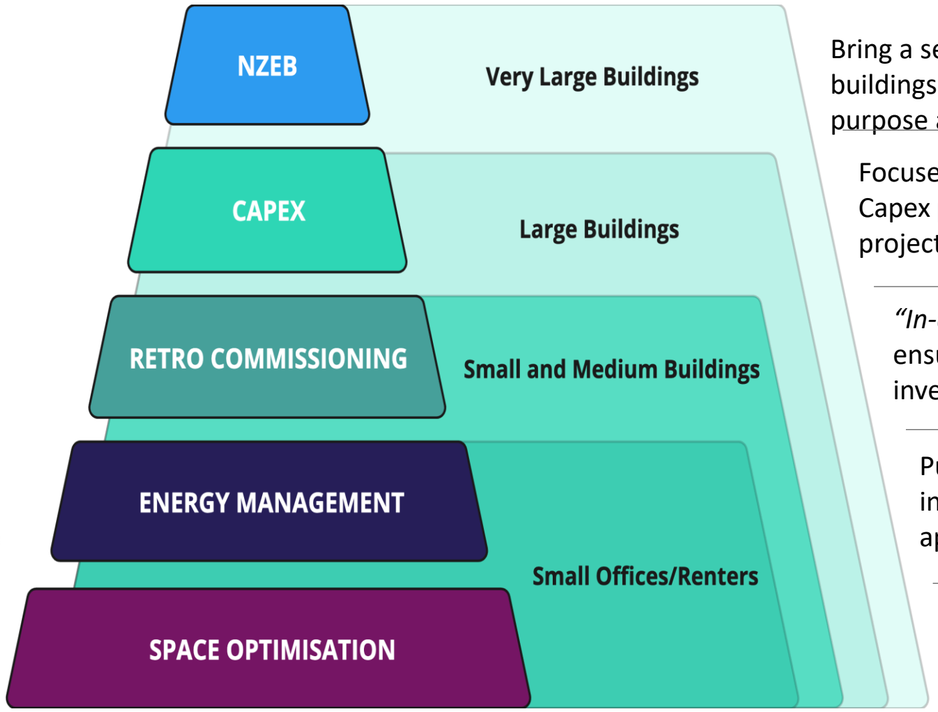
Pathfinder

- Annual investment programme in National Estates Portfolio Leads (5)
- Deliverables
  - Set number of building retrofit projects/annum (65m in 2035 50% funded)
  - Set savings
- Innovate and encourage different technical and delivery approaches to support NEPLs upscale delivery
- Communicate success and learning on what works

Health Service Executive RRF

- EU funding for set HSE projects
- Deliverables
  - 5 deep retrofit projects
  - Set projects
  - Set savings
  - Set capital
- Comply with EU requirements
- Reporting to various S/H
- Promote learning and impacts from annual cycle
- Promote supply chain to deliver pathfinder projects

Building ‘hierarchy of action’ pyramid – national approach to energy saving action for buildings



Action Description

Bring a select number of building to a high energy rating. (A rating in the blue box) Certain buildings justify deeper investment to bring them to NZEB or ZEB. Making buildings fit for purpose and future proofed to 2050.

Focused Capital Expenditure to substantially reduce fossil fuels - Some buildings will need Capex projects which could be a once off Heat Pump installation or a wider suite of projects to include kWh reduction. Such measures also improve the BER of the building.

“In-depth building optimisation” – Brains not bricks… Savings can be made from ensuring building controls are optimised and operating correctly, a little investment with a specialist here can have huge savings.

Public Bodies are required under SI426 to have exemplar Energy Management, this includes technical, behavioural and management aspects. SEAI provide guidance on what is appropriate to your organisation.

As an initial step, all Public Bodies should be reviewing the space they require to carry out their operations, excess space is kWh wasted.

SEAI Programme Responsibility

Pathfinder Programme

Energy Services Programme ***(PB level)***

National Estates Programme ***(Sectoral level)***

Article 6 Implications

3% of the qualifying buildings (EED PB owned, >250m2) = ~360,000 m2. Is equivalent to:

- 5 x Beaumont Hospitals ~70,000 m2.

- Or 3 x Leinster House complex (114,000 m2)

- Or The 33 largest buildings across the entire local authority sector

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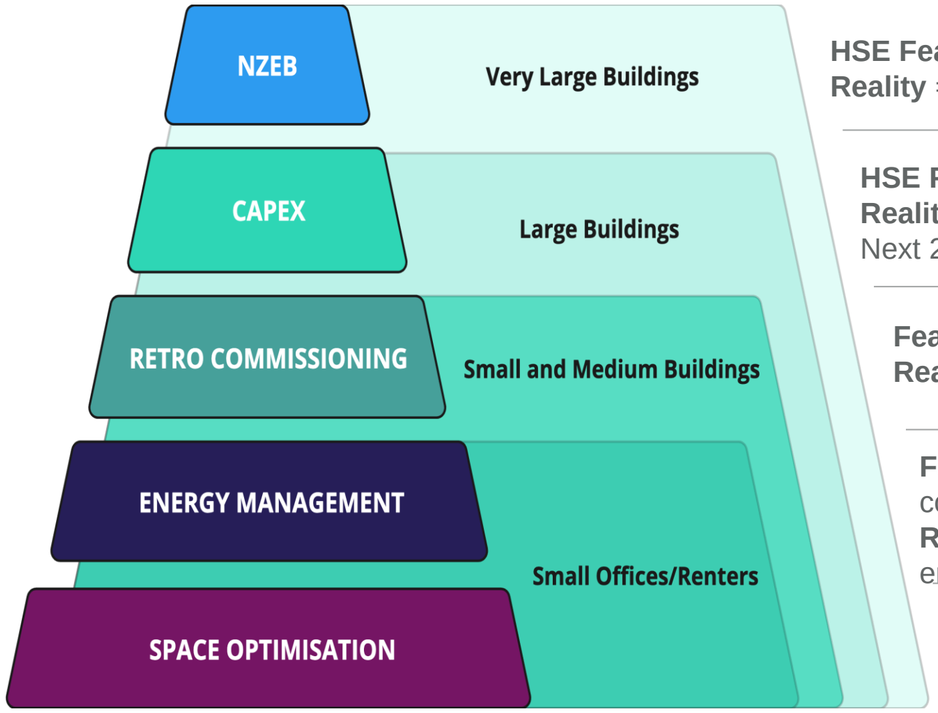
Sectoral Example – Health Services Executive ‘Theoretical feasibility’ V. ‘Reality’



Action Description

HSE Feasibility = **1 or 2 large** buildings/annum for Art 6 target
Reality = **NO** projects in planning to be brought to NZEB (NZEB unclear)

HSE Feasibility - **120** buildings to decarbonise the sector by 51% by 2030
Reality - 10 buildings at design stage – 7 year journey – completed 2029?.
Next 24 to commence stage concept design in 2026, delivered 2032/33

Feasibility – top 300 buildings (TBC)
Reality – To commence planning in 2025 with 3-5 pilot projects

Feasibility – 15-30% saving (or more if combine with retro commissioning)
Reality - ISO50001 addresses most of buildings. Over 120 energy teams set up in top 120

National Infrastructure Plan and Service delivery Strategy to address

Project delivery reality

Actual resources
Required resources

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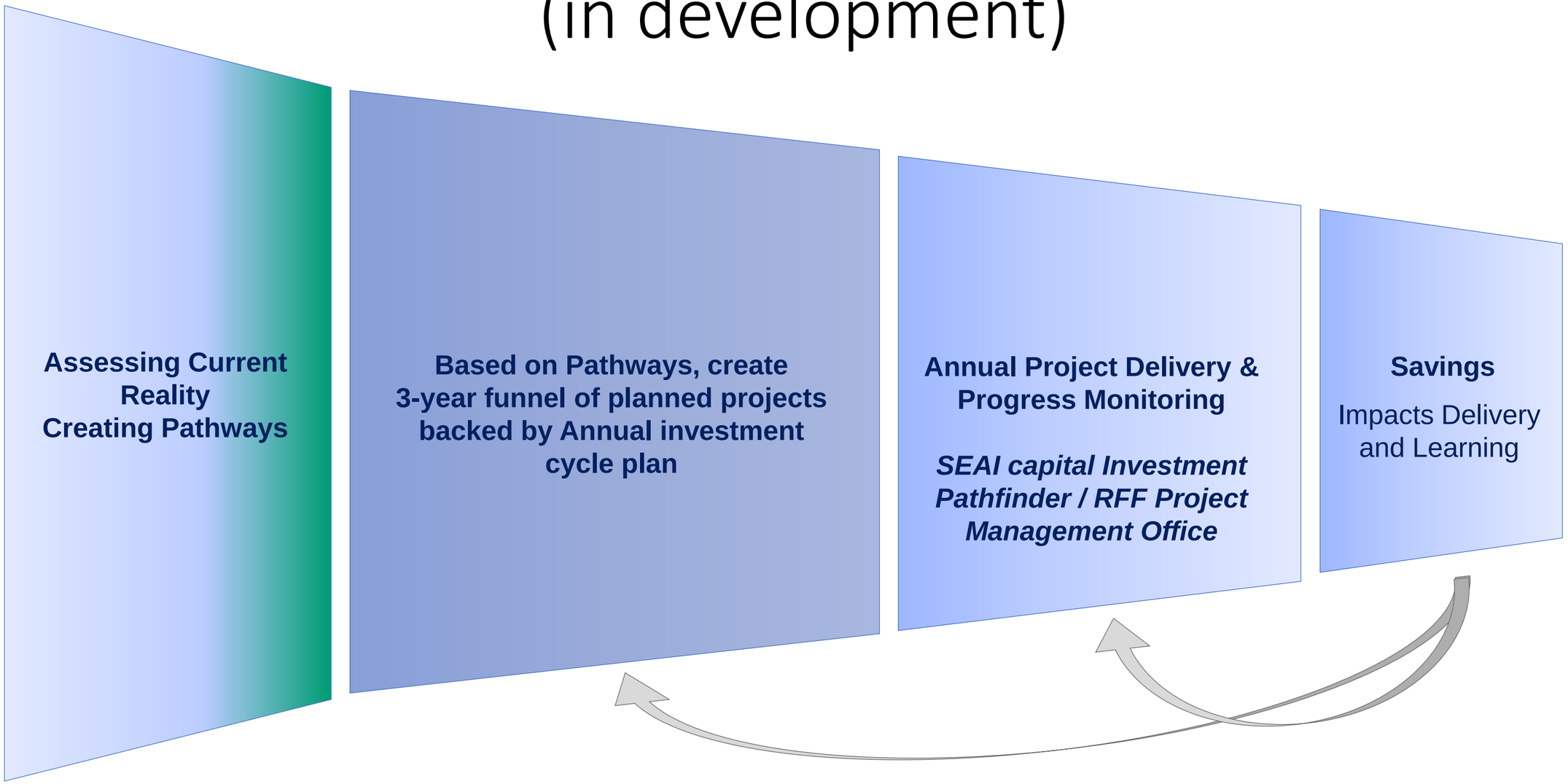
Project Planning and Delivery Framework (in development)



Governance framework – engage leadership on risk management – allocate resources and prioritise action

Assessing Current Reality
Creating Pathways

Pathways

Legally binding targets
+
Governmental Policy and Funding

SEAI modelling of Potential Pathways to close Gap to 2030 and 2050 targets.

High-level Feasibility Projections

Based on Pathways, create 3-year funnel of planned projects backed by investment

3 year rolling plan
What building to what level, when, and how much – the specific projects
SEAI and non SEAI capital

Annual Investment cycle
SEAIs investment in pathfinder investment programme

SEAI Support Inputs

- Energy Services Programme - ***PSM GtT/CSF***
- Pathfinder projects
- RRF projects

Annual Project Delivery & Monitoring (Especially Pathfinder / RRF Investment)

SEAI will work to identify and assess risks to project delivery in real-time, to ensure that KPIs are achieved.

In particular, financial and operational resources - procurement, design teams, critical SEAI requirements (e.g. EED), and costings.

Impacts Delivery and Learning

Proof points for closing the **gap to target.**

Learnings and best practices sharing system adopted to optimise decarbonisation momentum

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