Irish building databases relevant to Art 5 of the EED

23rd March 2022

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Agenda

- Targets and drivers
- Current databases
- Monitoring and Reporting system for public bodies (M&R)
- Building Register plans

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Targets

EU and public sector targets –2020/2050

2020	2030	2050
- 20% GHG Emissions +20% renewable energy +20% energy efficiency	- 55% GHG Emissions +32% renewable energy +32.5% energy efficiency *Recast EED* *Recast EPBD* *Recast RED*	Climate neutral

2020	2030	2050
+ 33 % energy efficiency performance improvement	+ 50% energy efficiency - 51% GHG Emissions (absolute) +50% space heating to be renewable 'B' Rating	Net zero emissions

Existing building databases

- SEAI
  - Building Energy Rating (BER) = EPC
  - Display Energy Certificate (DEC) – annual & actual consumption – *buildings frequently visited by the public*
  - Monitoring and Reporting System – public bodies annual reporting
- Universities
  - Inventory for planning – some energy attributes
- Schools
  - Elena support – energy inventory of 500 schools
- Public bodies own databases

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Monitoring & Reporting system to 2020

ENERGY EFFICIENCY IMPROVEMENT

34.1%
2020

33%
2020 NEEAP TARGET

PUBLIC BODY REPORTING RATE

98.6%
REPORTED IN 2020
(excluding schools)

349
TOTAL

SCHOOL REPORTING RATE

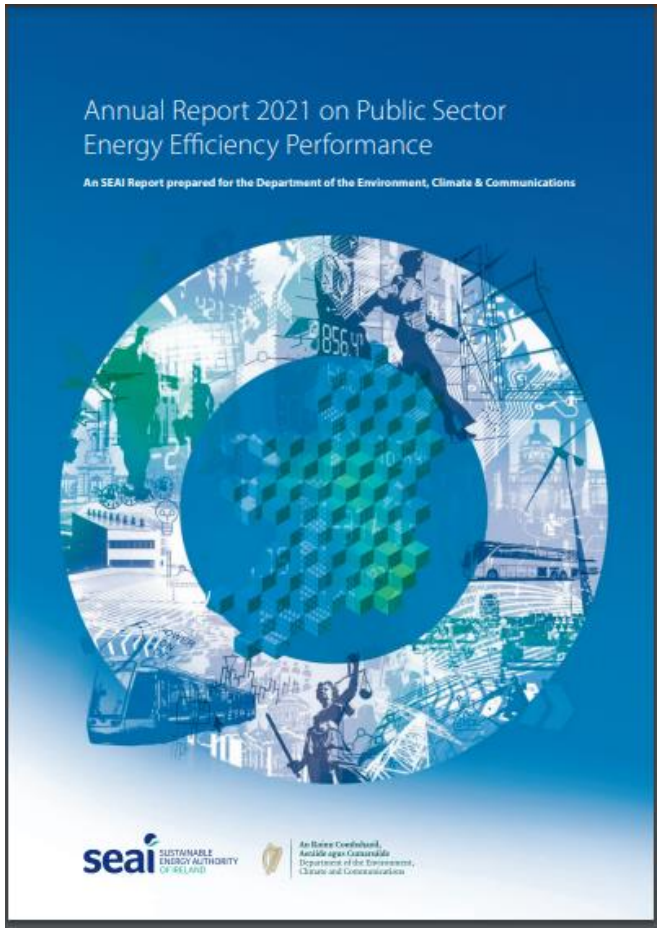
76%
REPORTED IN 2020

3,670
TOTAL

TOTAL ENERGY CONSUMED

99%

OF TOTAL ENERGY CONSUMPTION FOR THE SECTOR WAS ACCOUNTED FOR BY THE 344 PUBLIC BODIES AND 2,807 SCHOOLS THAT REPORTED



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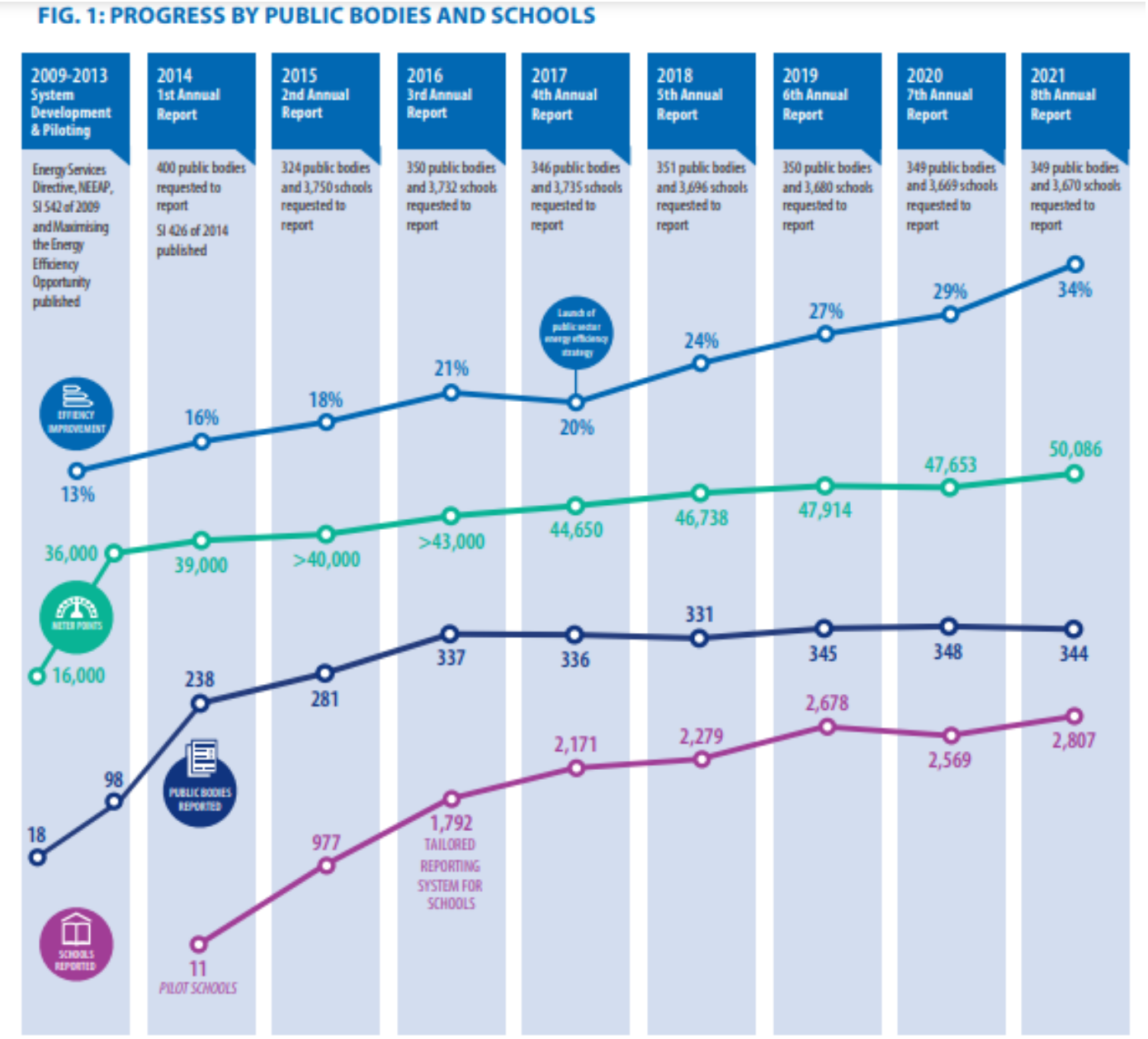

- Organisation level
  - 350 organisations
  - 3800 schools
- 50,086 meters on the system
- SEAI source usage data from the meter operators for electricity and gas
- Not currently linked to a particular building / usage area

* https://www.seai.ie/business-and-public-sector/public-sector/monitoring-and-reporting/

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Largest energy user

		Final energy [GWh]	Energy-related CO2 [ktCO2]
Public sector total		6,834	1,633
Public sector buildings (estimate)		3,438	889
Public sector buildings as % of PS total		50%	54%

Building Registry Plan

- 2022 Pilot Building Register System
- 2023 Building Register mandatory
- 2023 -2025 Building Register Enhancements

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2030 Enhancements
Develop a Building Register

- Report on Policy / legal requirements
- SEAI
  - Inform Pathfinder programme (€34m+ per year for next 3 years)
  - Demonstrate deep retrofit and decarbonised solutions
- Public bodies
  - Enable energy management and decarbonisation planning
    - Help PBs identify biggest potential buildings for decarbonisation
    - * Help plan and track decarbonisation measures
    - * Track building performance

* Longer term plans

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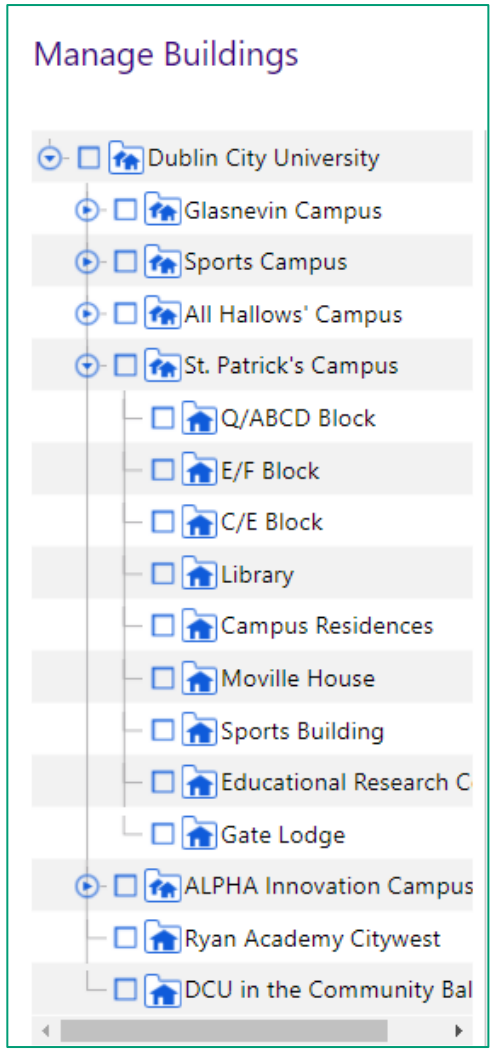
Building Hierarchy



- Create a hierarchy
- Link meters
- Individual buildings / groups
- Not just buildings

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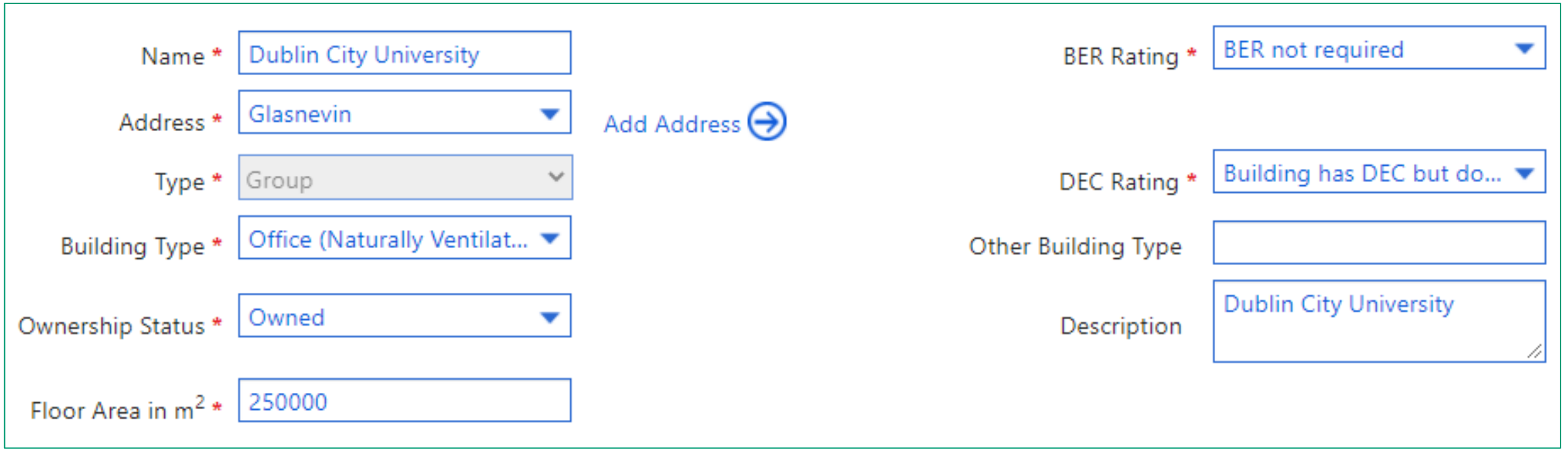
Data to enter – Mandatory



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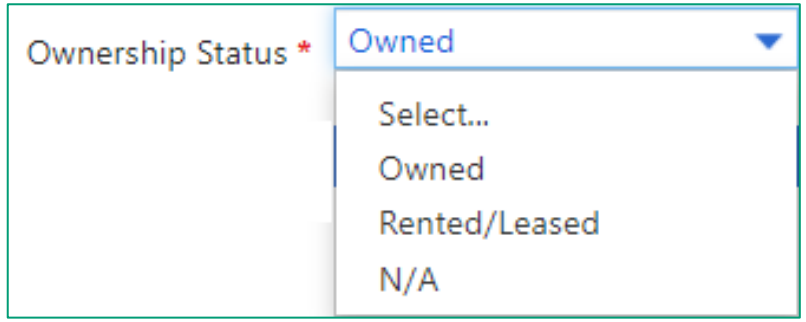
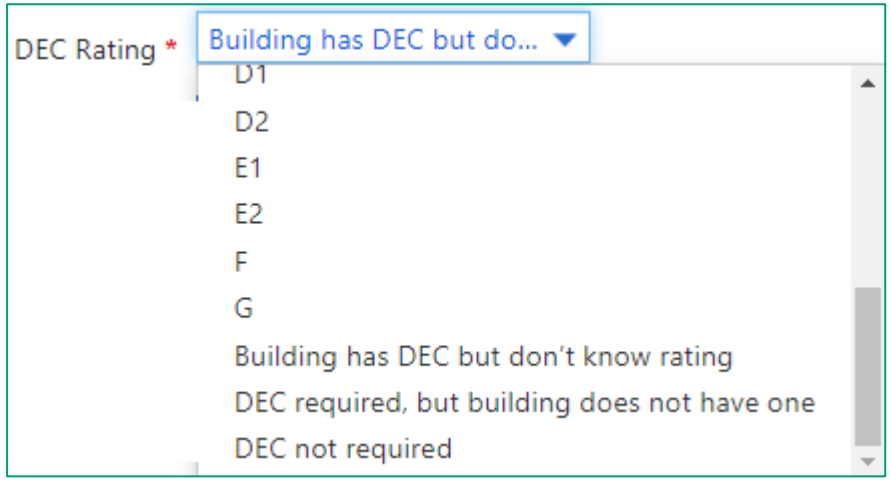
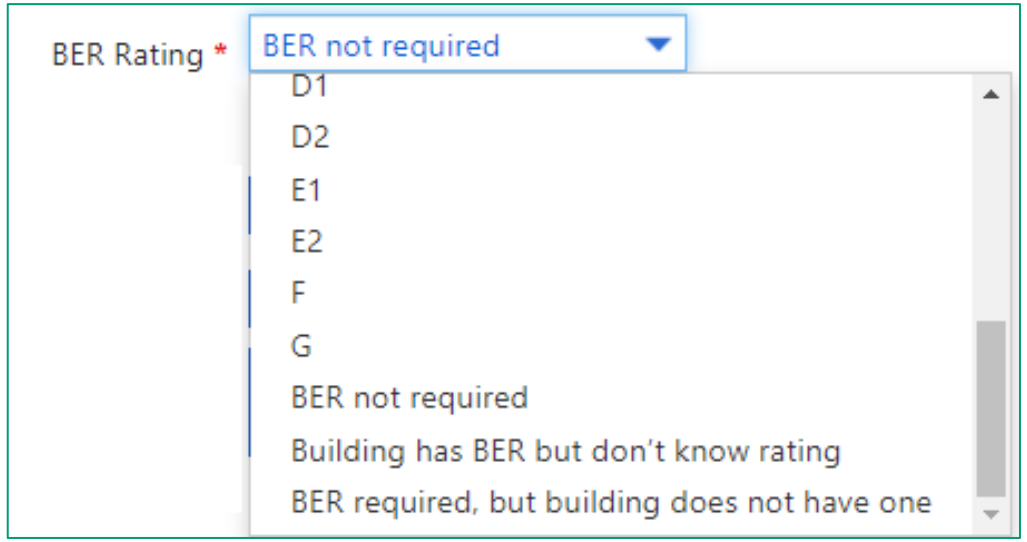
Some field choices – see documentation

Office (naturally ventilated)
Office (air conditioned)
Barracks
Data centre
Education building other than school
Garda station
Hospital
Healthcare building other than hospital
Industrial unit
Laboratory
Museum
Prison
Residential unit
School
Store/warehouse
Theatre
Sports facilities
Other…(please specify)
N/a







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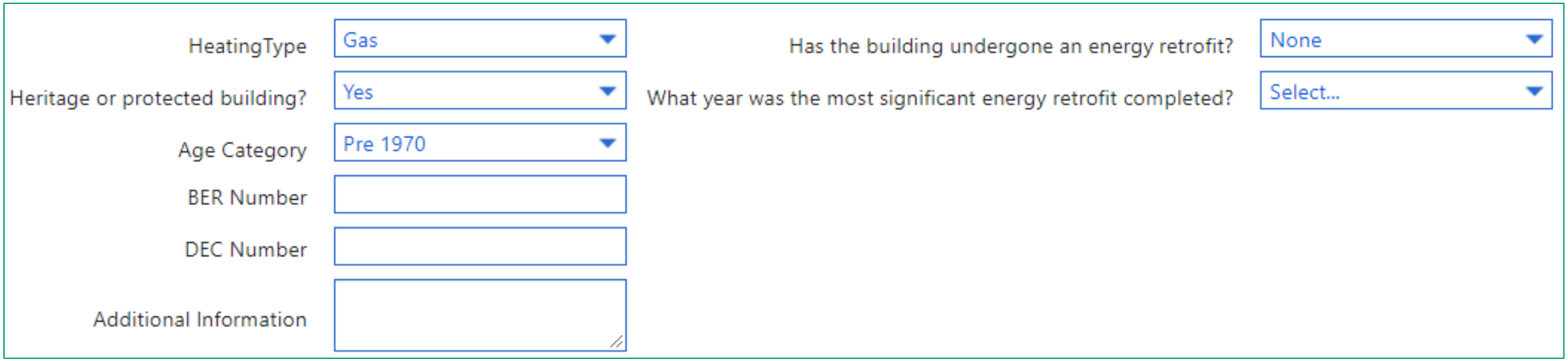
Data to enter – non Mandatory

- Will help SEAI and public body in Pathfinder Planning
- Will be added to over time



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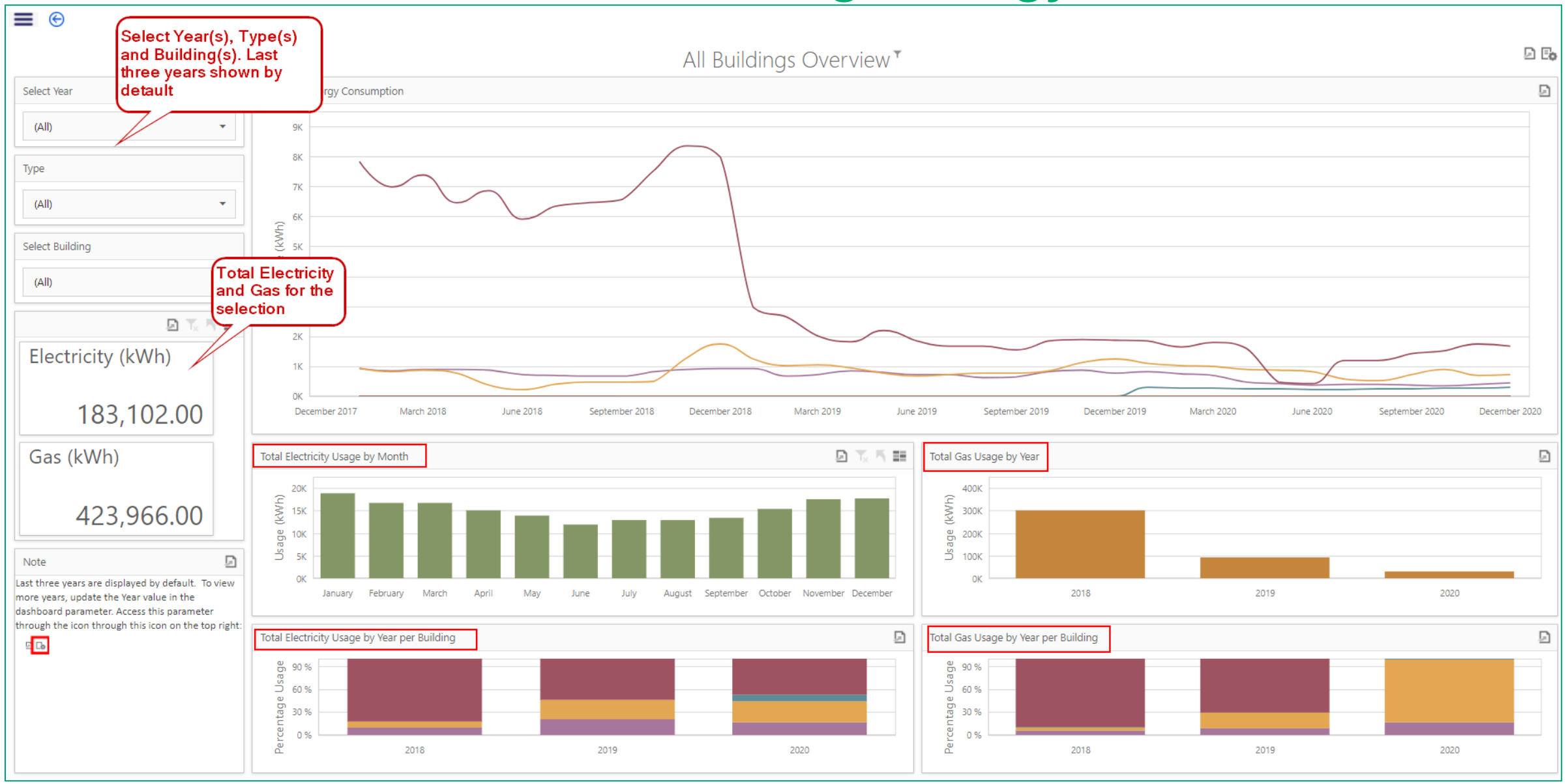
Dashboard 1 – Building Energy Overview



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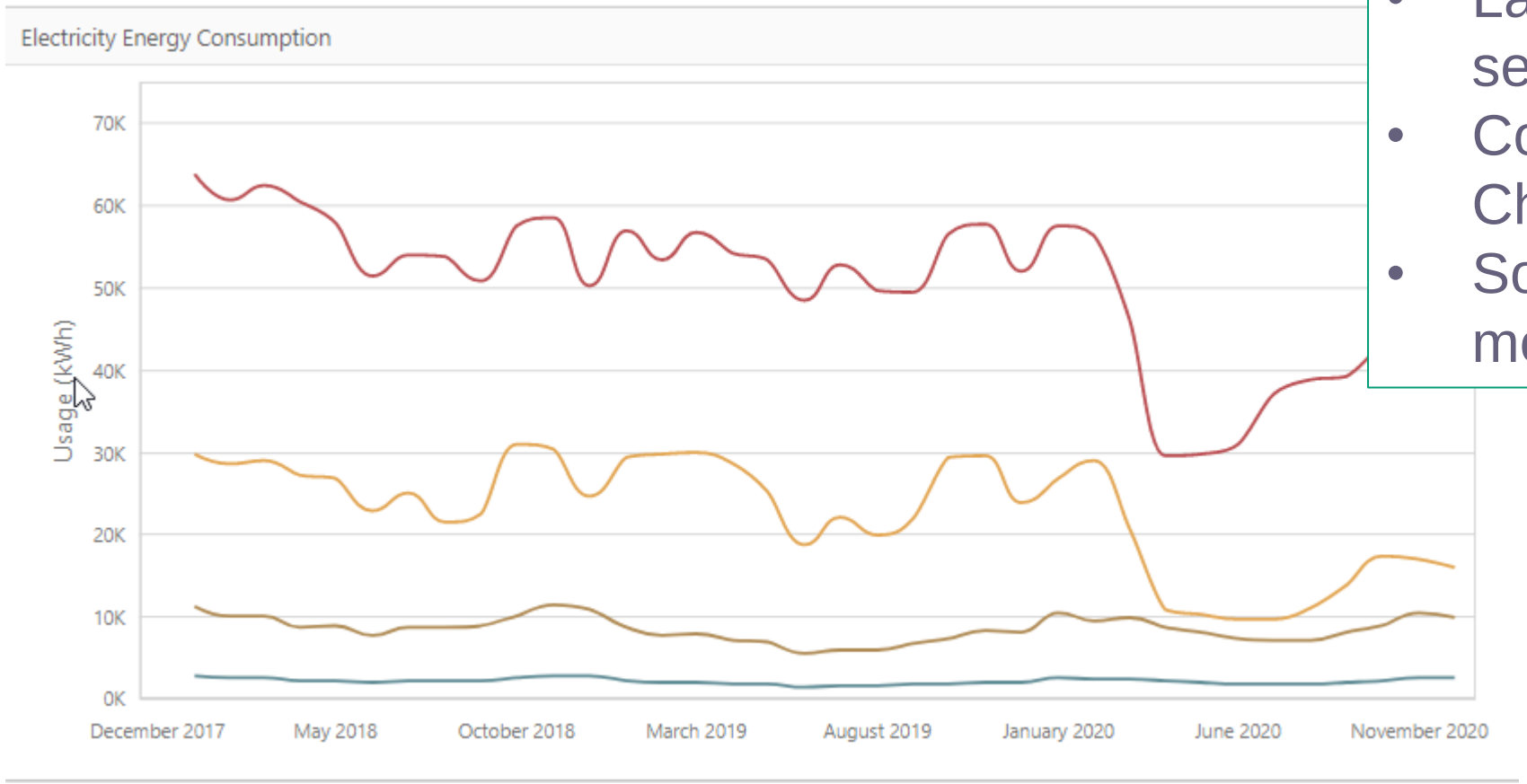

- Large Drop in 2020 for several buildings
- Covid? Energy Project? Change in Usage?
- Some buildings changed more than others – why?

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Dashboard 2 – Energy Usage by Floor Area

Buildings Energy Usage by Floor Area :

Select Year

(All)

Type

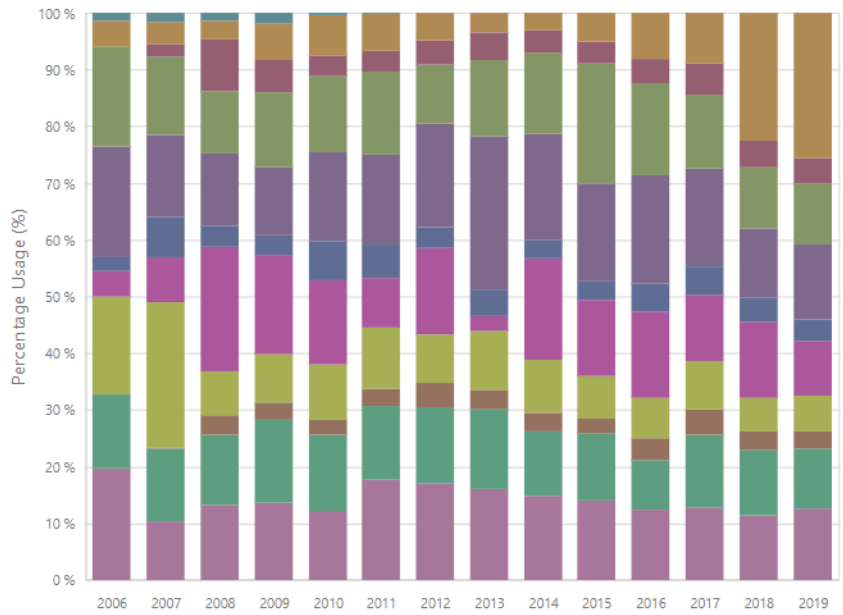
(All)

Select Building

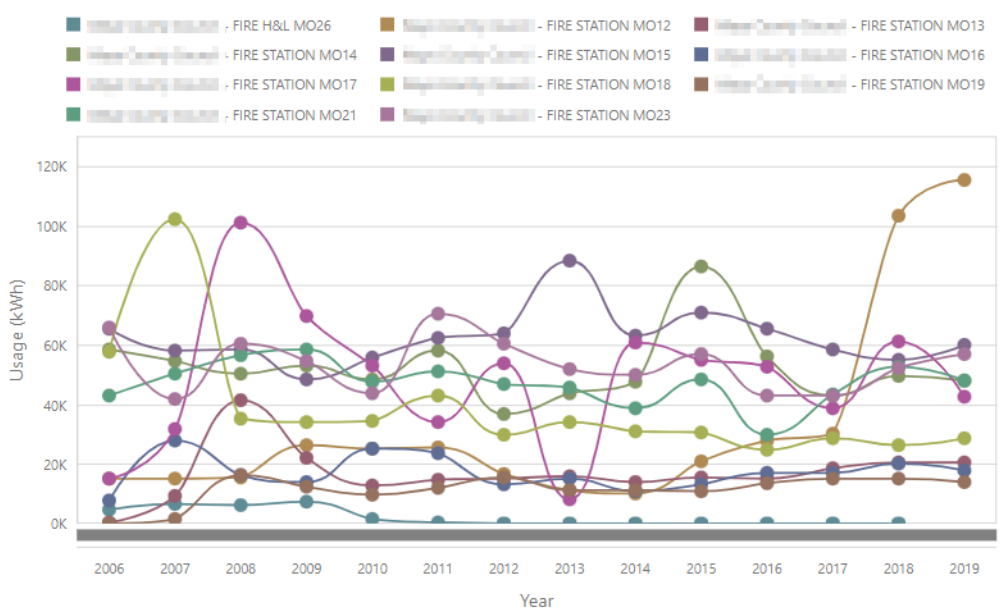
FIRE H&L MO26; FIRE STATION MO12; FI...

Note

Total Electricity and Gas Usage by Year per Building



Electricity & Gas Energy Usage per m²



Buildings

Group Name	Building Name	Product Type	Floor Area (m²)	Usage (kWh)	Usage per m² (kWh)	Approx CO_2 (Tonne)	Total Usage (kWh)
[redacted]	FIRE H&L MO26	Electricity	1.00	27,723.00	27,723.00	9.38	27,723.00
[redacted]	FIRE STATION MO12	Electricity	1.00	361,209.10	361,209.10	122.17	361,209.10
[redacted]	FIRE STATION MO12	Gas	1.00	97,274.00	97,274.00	19.92	97,274.00
[redacted]	FIRE STATION MO13	Electricity	1.00	235,561.01	235,561.01	79.67	235,561.01
[redacted]	FIRE STATION MO14	Electricity	1.00	734,660.04	734,660.04	248.48	734,660.04
[redacted]	FIRE STATION MO15	Electricity	1.00	873,595.68	873,595.68	295.47	873,595.68

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Dashboard 2 – Energy Usage by Floor Area

1. Two Dominant buildings in 2015
2. A couple of buildings have increased a lot in 2020.
   - Covid impacting usage in other buildings?
   - Project in other buildings?
   - Different activity type in buildings?

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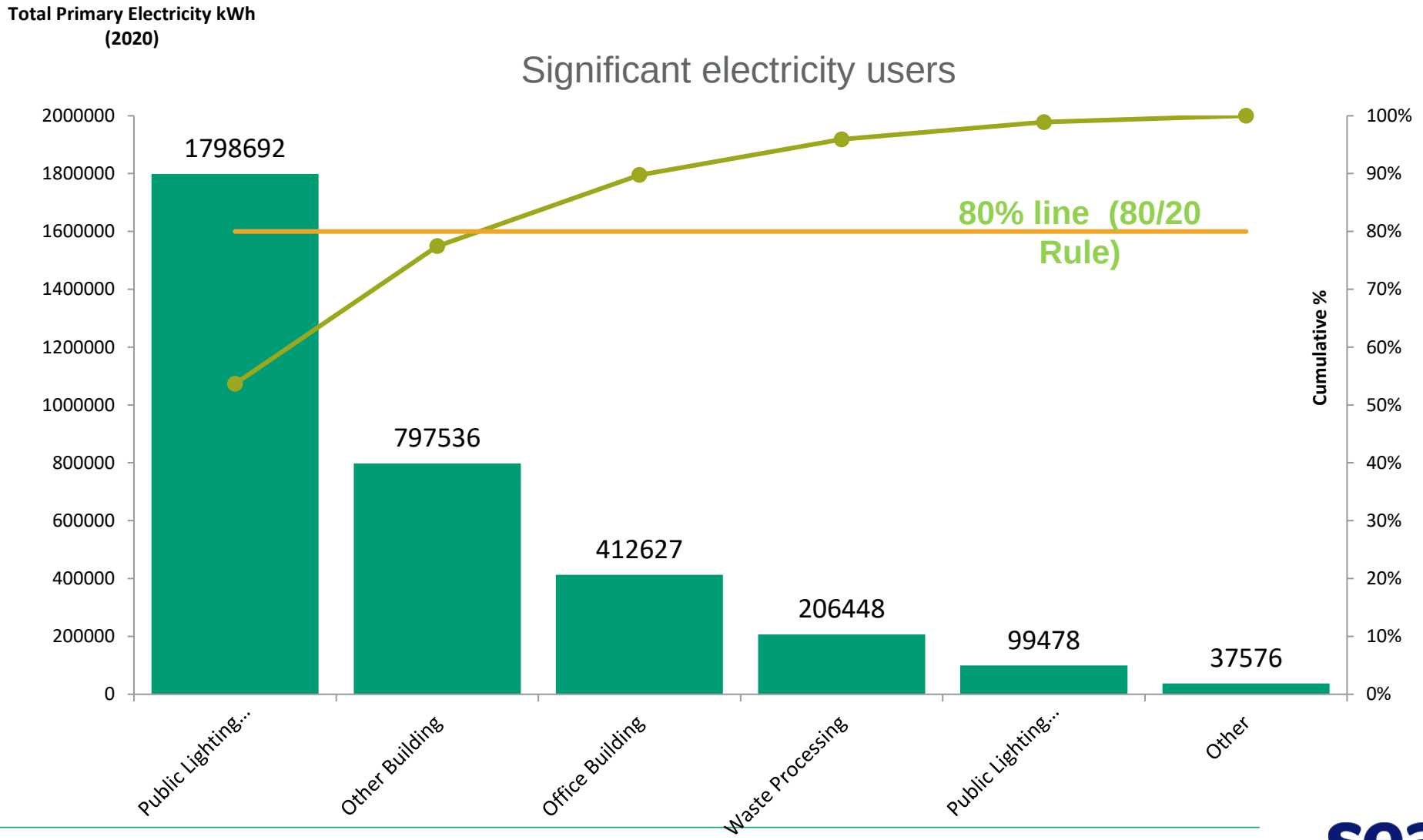
Local Authority Example



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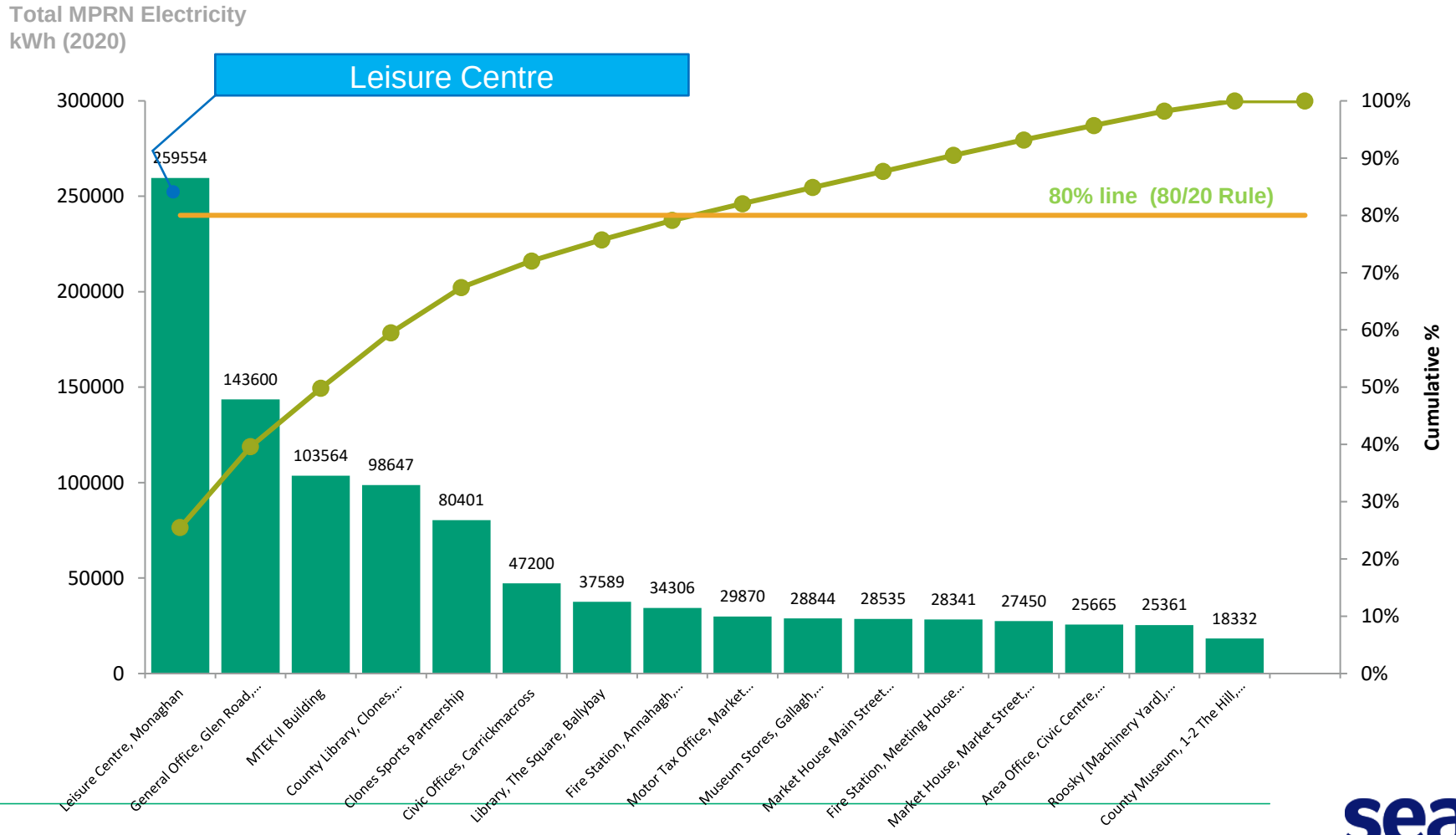
Main Buildings Only Electricity Use Profile 2020



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M&R-2030

Software development plan

Potential future enhancements (after initial development)

- **Meter data**
  - Granular consumption data
  - Smart meters
  - Data from PB's own meters
  - Non-energy meters (e.g. H2O)
- **Assets**
- **GHGs**
- **Energy projects**
- **Vehicle register**
- **Advanced analysis**
- **Advanced reports**
- **Other**

Potential future enhancements (after initial development)

- **Meter data**
  - Granular consumption data
  - Smart meters
  - Data from PB's own meters
  - Non-energy meters (e.g. H2O)
- **Assets**
  - Compare asset EnPI with peers
  - Compare asset EnPI with benchmarks
  - DEC-lite
  - DEC
- **GHGs**
  - Wider Carbon footprint (optional reporting)
  - Further alignment with international protocols
  - Carbon budgets
- **Energy projects**
  - M&V
  - Link projects to assets
  - Link projects to other SEAI databases
- **Vehicle register**
  - Additional vehicle data (e.g. km pa)
  - Link to other PS vehicle registers
- **Advanced analysis**
  - What-if analysis for changes to historical data
  - Model future years
  - Regression analysis (energy - activities)
  - Analysis to support energy procurement
  - 3rd party access to data
- **Advanced reports**
  - Flexible data visualisation tools (meters)
  - Flexible data visualisation tools (assets)
  - Flexible data visualisation tools (organisation)
  - New reports to meet user needs
- **Other**
  - Evolving EE & GHG target landscape
  - Green public procurement
  - REAP
  - SEAI admin
  - Extend to private sector

Thank you

alan.ryan@seai.ie

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