MEATH COUNTY COUNCIL

ENERGY REVIEW SUMMARY 2022

Codema
Dublin's Energy Agency

comhairle chontae na mí
meath county council

Cover photo courtesy of Meath County Council

01. INTRODUCTION

This Energy Review summary aims to highlight the total amount of energy that Meath County Council (MCC) consumed in 2022, along with the total cost and carbon emissions associated with this energy use.

This Energy Review also aims to clearly demonstrate where energy is used in the Council and where the greatest potential is to meet 2030 energy and emission targets.

TARGETS FOR 2030

Through the Climate Action Plan 2023, the Government requires the public sector to achieve various energy and emission targets by 2030. These are:

50%

A **50% IMPROVEMENT IN ENERGY EFFICIENCY** (BASED ON 2009 BASELINE)

51%

A 51% ABSOLUTE REDUCTION IN ENERGY-RELATED GREENHOUSE GAS (GHG) EMISSIONS (BASED ON A 2016-2018 AVERAGE BASELINE)

51%

A **51% REDUCTION IN NON-ELECTRICITY (HEATING AND TRANSPORT) RELATED GREENHOUSE GAS EMISSIONS** (BASED ON A 2016-2018 AVERAGE BASELINE)

Current Status

In 2022, MCC consumed 24.05 gigawatt hours (GWh) of energy (based on Total Final Consumption). This equates to 6,675 tonnes of CO_2, with an estimated energy cost of €3.94 million.

According to the Sustainable Energy Authority of Ireland (SEAI)'s Monitoring and Reporting (M&R) system, the Council has improved its energy efficiency by 29.8%, compared to the baseline year.

The unforeseen impact of Covid-19 restrictions has affected this metric as many facilities were shut to the public or operating at reduced capacity for significant portions of 2020 and 2021. Consequently, a bounce-back effect is observed in 2021 and 2022 as facilities return to normal activity levels.

MCC has achieved a 20.1% reduction in its energy-related greenhouse gas emissions, equivalent to 1,648 tonnes of CO_2.

Looking at the non-electricity emissions, there has been an 8.9% reduction in thermal and transport GHG emissions since the baseline.

This leaves a gap-to-target of 1,165 tonnes of CO_2 equivalent of non-electricity emissions between now and 2030.

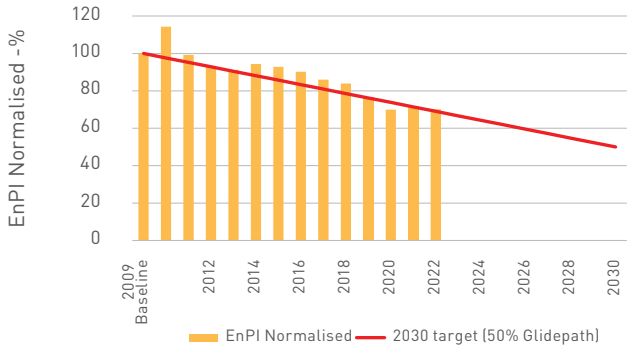

Figure 1. Annual Energy Performance Compared to 50% Glidepath

MCC Energy Overview 2022

CONSUMED 24.05 GWH OF ENERGY

6,675 TONNES OF CO_2 EMITTED

€3.94 MILLION ASSOCIATED ENERGY COST

Public Sector Obligations

50% IMPROVEMENT IN ENERGY EFFICIENCY BY 2030

51% ABSOLUTE REDUCTION IN ENERGY-RELATED GHGS BY 2030

51% REDUCTION IN NON-ELECTRICITY RELATED GHGS BY 2030

MCC Progress

IMPROVED ENERGY EFFICIENCY BY 29.8%

8.9% REDUCTION IN DIRECT GHG EMISSIONS

42.1% REDUCTION IN DIRECT GHG EMISSIONS NEEDED TO REACH 2030 GHG TARGET

01. INTRODUCTION
(CONTINUED)

Gap-to-Target

The graph shown below highlights MCC's gap-to-target analysis for emission reductions towards 2030. The targets shown are based on a 51% reduction in total emissions and non-electricity emissions, in line with anticipated supply-side gains from electricity system decarbonisation by 2030, which is equivalent to a 77.4% reduction in electricity emissions. All reductions are expressed from a 2016-2018 baseline. The modelled forecast takes account of anticipated future projects that will occur between now and 2030.

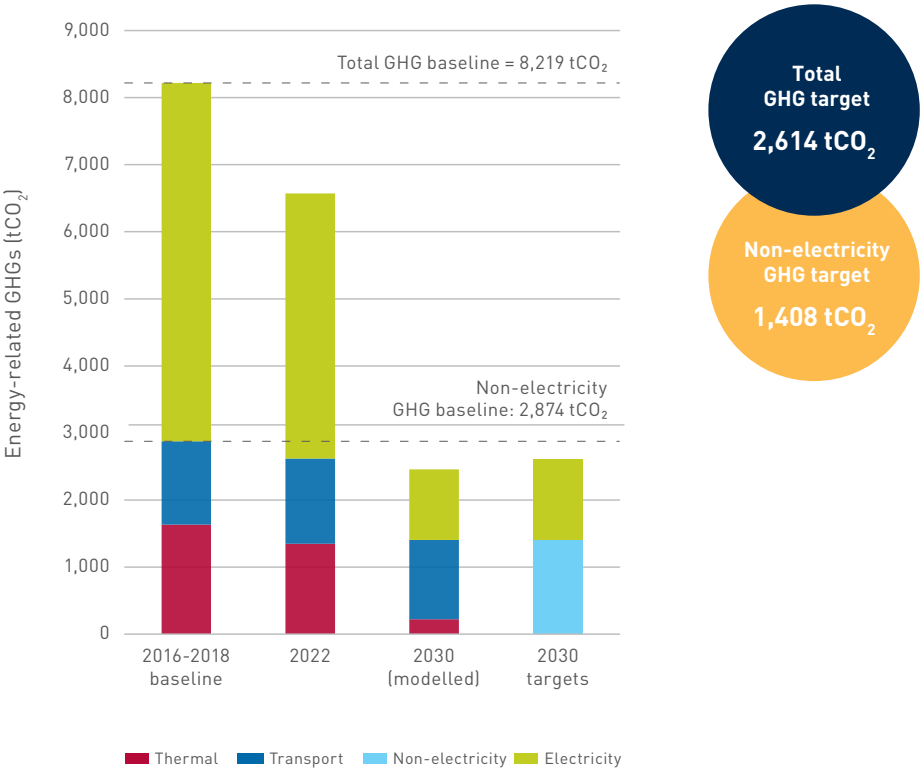

Figure 2. Gap-to-target 2030 Modelled Emissions

02. SIGNIFICANT ENERGY USERS

Codema has identified four Significant Energy Users (SEUs) within Meath County Council. SEUs are the areas that consume significant levels of energy within the Council and/or have the greatest potential for energy and emission savings.

Within MCC, these are:

- Public Lighting
- Fleet
- Leisure Centres
- Buvinda House

In total, these four SEUs accounted for 85% of total energy use in 2022. A percentage breakdown showing how much each SEU contributes to this total is shown in the pie chart below.

The management of energy in these four SEU areas is critical for MCC to achieve its energy and emission reduction targets. Small percentage energy reductions in these areas have a much greater impact than seemingly large reductions in non-SEU areas.

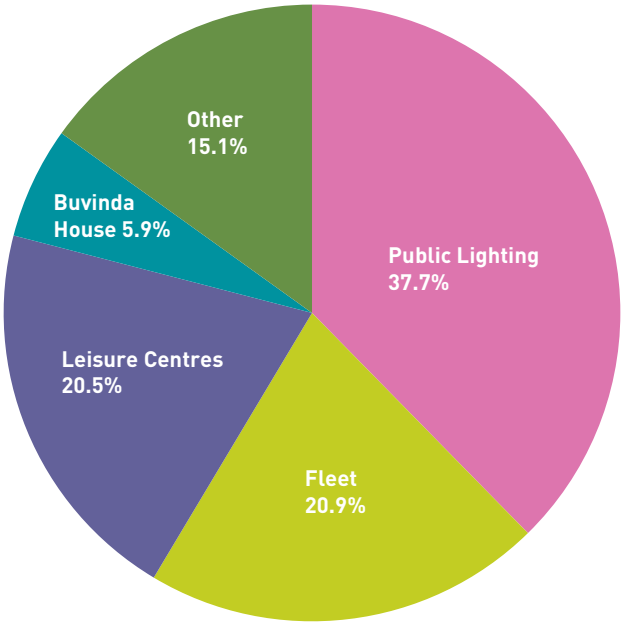

Figure 3. MCC SEU Breakdown

KEY SEUs

PUBLIC LIGHTING

FLEET

LEISURE CENTRES

BUVINDA HOUSE

02. SIGNIFICANT ENERGY USERS
(CONTINUED)

PUBLIC LIGHTING

MCC Public Lighting 2022

CONSUMED 9.05 GWH OF ENERGY

2,966 TONNES OF CO_2 EMITTED

€2.02M ASSOCIATED ENERGY COST

37.7% OF MCC'S TOTAL ENERGY CONSUMPTION

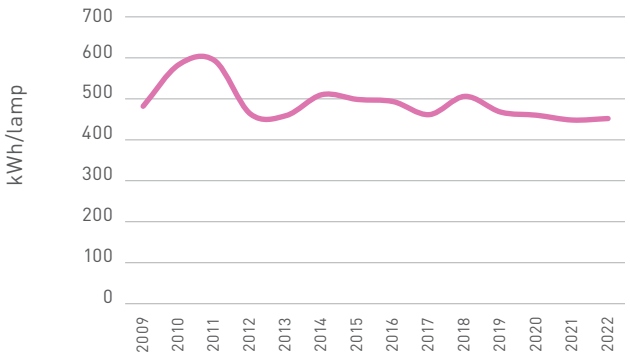

Figure 4. Public Lighting Annual Energy Performance

Current Situation

Public Lighting is the largest SEU within MCC. In 2022, Public Lighting accounted for 37.7% of MCC's Total Final Consumption, which amounted to 9.05 GWh of energy, 2,966 tonnes of CO_2 and an estimated €2.02 million in energy costs. Public Lighting consists of around 19,161 street lamps, of which 7,177 have been upgraded to LEDs.

As can be seen in Figure 4, there has been a steady improvement in energy performance in Public Lighting since 2018, due to the rolling out of an internal LED retrofit programme.

Future Plans

Meath County Council has signed up for the Public Lighting Energy Efficiency Project for the Eastern Region (PLEEP-ER), which will consist of two phases.

Phase One will involve conducting a comprehensive inventory of all lighting fixtures, while Phase Two will focus on replacing older lighting systems. The project design has not yet been finalised, as the first assessment is scheduled to take place in the first quarter of 2024.

As an initial estimate, this retrofit programme could achieve 30% savings of the existing energy consumption of Public Lighting, which is equivalent to a reduction of 2.72 GWh of energy consumption or 266 tonnes of CO_2 emissions.

FLEET

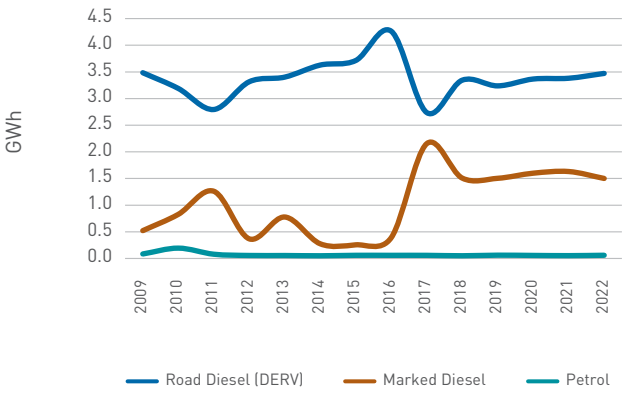

Figure 5. Fleet Annual Energy Consumption

MCC Fleet 2022

CONSUMED 5.03 GWH OF ENERGY

1,327 TONNES OF CO_2 EMITTED

€615,000 ASSOCIATED ENERGY COST

20.9% OF MCC'S TOTAL ENERGY CONSUMPTION

Current Situation

Fleet is the second largest SEU within MCC and accounted for almost 21% of MCC's energy use in 2022. This amounted to 5.03 GWh of energy, 1,327 tonnes of CO_2, or approximately €615,000 in energy costs. Fleet consists of 174 vehicles; within this, one of these is an electric vehicle and 47 commercial vehicles are on short-term hire. Road diesel (DERV) and marked diesel account for 69% and 30% of the fuel used within Fleet, respectively, as petrol is only used to fuel small equipment.

Road diesel has maintained a consistent upward trend, marked by a significant peak in 2016 and a subsequent decline in 2017, returning to consumption levels observed in 2009. Marked diesel experienced a notable surge in consumption in 2017 and has since stabilised, with an annual consumption hovering around 1.5 GWh.

In contrast, petrol displayed no significant variations, maintaining an average annual energy consumption of 60 MWh.

Future Plans

Fleet currently lacks a concrete plan to meet the direct emissions target by 2030. As such, a comprehensive Fleet Replacement Programme should be implemented, assessing the needs of each vehicle and continually monitoring suitable alternatives available in the market for replacements.

However, the Fleet department initiated a Hydrotreated Vegetable Oil (HVO) trial on 10 vehicles as an alternative to road diesel (DERV), anticipating a consumption of 7,500 litres of this biofuel, making a significant contribution to the reduction of CO_2 emissions.

To meet the direct emissions target, the fleet upgrades figure has been calculated to match the remaining gap after the buildings and Public Lighting upgrades are accounted for, and it represents around 9% of the current fleet energy consumption. This is equivalent to a reduction of 0.18 GWh and 42 tonnes of CO_2 per year.

02. SIGNIFICANT ENERGY USERS
(CONTINUED)

LEISURE CENTRES

MCC Leisure Centres 2022

CONSUMED 4.92 GWH OF ENERGY

1,116 TONNES OF CO_2 EMITTED

€546,000 ASSOCIATED ENERGY COST

20.5% OF MCC'S TOTAL ENERGY CONSUMPTION

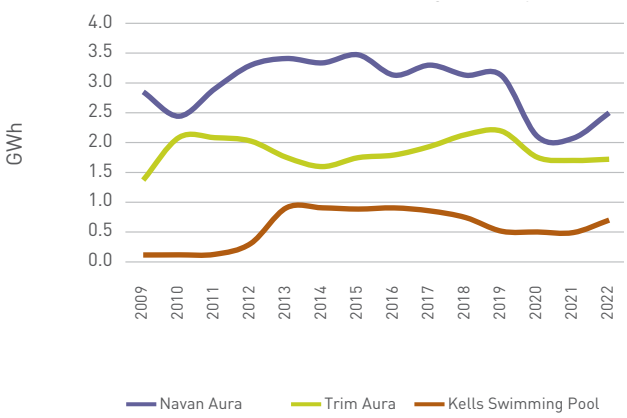

Figure 6: Leisure Centres' Annual Energy Consumption

Current Situation

Leisure Centres are the third largest energy consumer within the Council. This SEU comprises the Navan and Trim Aura Leisure Centres, and Kells Swimming Pool, accounting for 51%, 35% and 14%, respectively, from the total energy consumption of the SEU. In 2022, these facilities contributed to 20.5% of MCC's energy use, amounting to a consumption of 4.92 GWh of energy, 1,116 tonnes of CO_2 and an estimated €546,000 in energy spend.

Since 2009, Navan Aura Leisure Centre has seen a notable increase in energy consumption, while Trim Aura Leisure Centre saw an increase in 2010 (followed by a small decline) but has maintained a consistent upward trend since 2015.

Kells Swimming Pool experienced a significant surge in consumption in 2013, almost reaching 1 GWh of annual energy consumption; this remained stable until 2019, when an extension of the facility took place, closing during the first half of the year.

In 2022, Leisure Centres achieved a 15.5% reduction in energy consumption compared to 2019, equivalent to 905 MWh and 150 tonnes of CO_2. These reductions are attributed to Navan and Trim Aura Leisure Centres due to intermittent operations of the Combined Heat and Power (CHP) on the sites.

Future Plans

Codema has identified Navan and Trim Aura Leisure Centres and Kells Swimming Pool as being suitable for a range of energy efficiency and renewable measures, as part of an initial project pipeline created in partnership with MCC. These upgrades will vary depending on the needs of the individual buildings.

The focus of these upgrades will be on decarbonisation and may potentially include lighting upgrades, the installation of heat pumps, solar PV, air handling unit (AHU) upgrades, along with some building fabric renovations, where feasible. These projects aim to achieve significant savings of 2.67 GWh of energy, corresponding to 626 tonnes of CO_2 per annum

BUVINDA HOUSE

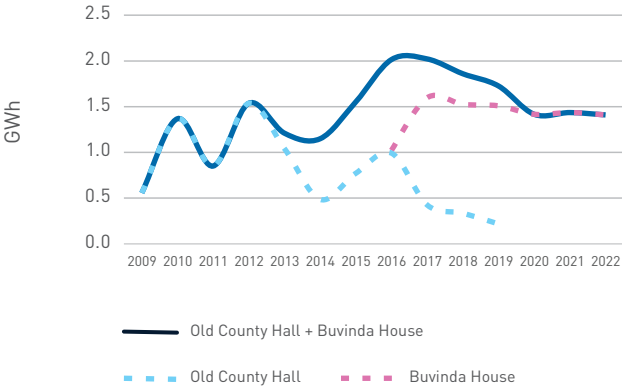

Figure 7. Buvinda House Annual Energy Consumption

Buvinda House 2022

CONSUMED 1.41 GWH OF ENERGY

354 TONNES OF CO_2 EMITTED

€199,000 ASSOCIATED ENERGY COST

5.9% OF MCC'S TOTAL ENERGY CONSUMPTION

Current Situation

Buvinda House is MCC's headquarters in Navan and is the fourth largest energy consumer within the Council. This office building accounted for 5.9% of the Council's energy consumption in 2022. This amounts to a total of 1.41 GWh of energy, 354 tonnes of CO_2 and approximately €199,000 in energy spend.

The Council's headquarters has undergone a location change in recent years. Initially, the old County Hall building served as its headquarters until 2017 when it was fully vacated. However, from 2015, staff gradually moved to Buvinda House, with the full relocation completed by the end of 2017. Between 2009 to 2022, this end-user's consumption has nearly tripled. Buvinda House reached its peak in 2017 at 1.5 GWh and has steadily been decreasing since then. In August 2023, a 140 kW PV solar array was installed in this facility, and it is expected to generate up to 135 MWh of energy per year.

Future Plans

Codema has identified Buvinda House as suitable for a range of energy efficiency and renewable measures, as part of an initial project pipeline created by Codema, in partnership with MCC.

These proposed measures aim to achieve significant savings of 0.63 GWh of energy, corresponding to 138 tonnes of CO_2 per annum. The focus of these upgrades will be on decarbonisation and may potentially include lighting upgrades, the installation of heat pumps, AHU replacement, along with some building fabric renovations, where feasible.

03. CONCLUSION

According to the SEAI M&R System, MCC has improved its energy efficiency by 29.8% between the baseline year (2009) and 2022, falling short by 1.1% from the projected glidepath to 2030. It is vital that high standards of energy management practices are maintained across the organisation to ensure the overall energy efficiency target is met.

The Council must also achieve a 51% reduction in energy-related and non-electricity GHG emissions by 2030. Currently, there has been a 20.1% reduction in total emissions, along with an 8.9% decrease in thermal and transport emissions since the baseline. This means that a further 1,165 tonnes of non-electricity CO_2 emissions must be saved in order to reach this target.

The projects listed in this Energy Review will make a significant contribution to MCC's energy efficiency and emission targets for 2030 and together will achieve energy savings of 6.67 GWh or 1,265 tonnes of CO_2.

Significant resources will be required to progress these projects. Codema is working with MCC to facilitate the progress of selected initiatives. Codema is also working with the Mid-East Energy Unit to explore opportunities under SEAI's Pathfinder funding programme, which could provide significant financial assistance towards the development of these projects. Negotiations with SEAI are currently underway to finalise the terms of this arrangement.

0.4 ESTIMATED SAVINGS BY SEU

SEU AREA	ACTION	ESTIMATED ENERGY SAVINGS	ESTIMATED CARBON SAVINGS $t/CO_2/yr$
PUBLIC LIGHTING 	LED UPGRADE PROGRAMME	2.72 GWh	266
FLEET 	REPLACEMENT OF FLEET WITH ELECTRIC VEHICLES	0.18 GWh	42
LEISURE CENTRES 	DECARBONISATION RETROFITS TO NAVAN AND TRIM AURA LEISURE CENTRES & KELLS SWIMMING POOL	2.67 GWh	626
BUVINDA HOUSE 	DECARBONISATION RETROFITS TO BUVINDA HOUSE	0.63 GWh	138
OTHER BUILDINGS 	DECARBONISATION RETROFITS TO SMALLER BUILDINGS	1.16 GWh	263
	NEW BUILDS/EXPANSION OF CURRENT BUILDINGS	-0.69 GWh	-70
	TOTAL	6.67 GWh	1,265

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