

Greening the EPA

Our Environmental Performance Report 2013 – 2014





Greening the EPA

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Environmental Protection Agency

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Foreword



Since the Environmental Protection Agency’s (EPA) establishment in 1992, it has been committed to protecting and improving the environment as a valuable asset for the people of Ireland through environmental regulation, enforcement, monitoring, assessment and reporting. In keeping with our commitment to lead by example, by reducing our own impact on the environment from EPA activities and facilities, we have implemented an Environmental Management System (EMS) which is certified to the international standard ISO14001.

This Environmental Performance Report for the period 2013-2014 covers those environmental aspects arising from our activities with the potential to cause the most impact on the environment.

Significant progress has been made to date within the EPA in relation to our environmental performance. The systematic work of the EPA’s Green Team in measuring and reviewing our environmental impacts has delivered solid progress and noteworthy savings, especially in reductions in energy and water use. I welcome the continuing downward trend, particularly in relation to energy use.

As part of our ongoing process of evaluation and improvement we have identified specific challenges and targets that will be incorporated into our Environmental Management Programme over the next two years.

Streamlining data gathering and IT support processes that record, collate and graphically represent our data is a challenge. It is a target of the EPA that the Environmental Management System will operate in a near live basis and will incorporate climate data so that anomalies and wastage can be identified and rectified at an early stage.

In 2014, as part of the government's public sector reform plan, legislation to merge the EPA and the Radiological Protection Institute of Ireland (RPII) was enacted. This merger increased the staff numbers within the EPA and the number of buildings and activities to be included in the scope of our EMS from 2015. We look forward to meeting this challenge and reporting on it in our next Environmental Performance Report.

Finally, I would like to acknowledge and thank all those who serve on the Green Team across the EPA, whose dedicated and persistent work supports the EPA’s commitment to reducing our environmental impacts.

Laura Burke, Director General EPA



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I. Introduction

On an annual basis, the EPA's Environmental Management System identifies a number of comparatively significant elements of the EPA's operation that impact, or have the potential to impact, on the environment. These are environmental aspects over which the EPA may be expected to have an influence. The relative significance of these aspects are recorded, then objectives are set and controls put in place over these elements or activities to reduce their potential impact on the environment.

This Environmental Performance Report 2013-2014 outlines the performance of the EPA with regard to these significant aspects:

- Waste
- Energy Use
- Water
- Transport
- Carbon Emissions

The data is normalised using metrics such as full time equivalent (FTE) or building area (m²) in order to standardise measurement of resource use and environmental performance. We have concentrated on consistency in measurement of our actual resource use and setting targets to reduce our emissions and environmental impact.

The data used in this report has been subject to independent verification for the Carbon Disclosure Project submission and also by Sustainable Energy Authority of Ireland (SEAI) for the statutory energy efficiency reporting. In addition, our EMS is subject to twice yearly audits by SGS our Certification Body.

Other aspects considered in our Environmental Management System, but not reported on in this report, include the following:

Procurement of goods and services

The EPA emphasises the importance of environmental standards in all the goods and services that we purchase. Green criteria for the procurement of a

range of equipment, goods and services have been included in our Requests for Tender. By providing guidance and policies for contractors, the EPA can mitigate against any potential impacts generated by their activities and reduce the significance of this aspect.

Communication

Communication is vital in maintaining awareness of the EPA's environmental objectives amongst staff. The EPA Green Team communicates to staff directly through the use of an intranet site, emails, articles in our internal newsletter, posters, awareness talks and briefings at management meetings. We use these channels to provide feedback on progress and respond to staff suggestions.

The EPA's resolve in incorporating environmental management in everyday work practices is used as an exemplar of good practice in external communication with stakeholders. This report, *Our Environmental Performance 2013-2014* is disseminated widely and made available to the public on the EPA's website.

Biodiversity

The EPA takes into consideration any potential impact on biodiversity from our own activities, including our fieldwork programmes and the management of our own grounds and facilities. We are committed to undertaking the management and maintenance of EPA grounds in an environmentally friendly manner and continue to seek opportunities to plant native species and wildflower meadows in our landscaping plan.

Community projects

The EPA, through our Green Team, encourages staff to engage in activities that promote habitat enhancement and a healthier environment such as litter picks and river and beach clean-ups. Every year EPA staff engage with national spring clean and clean coasts events.

2. Waste

Waste is generated from all EPA office locations as a consequence of our activities. Waste has an impact on the environment from production to disposal. Preventing waste offers the best potential to limit this impact. Recycling unavoidable waste streams is preferable to disposal to landfill, as recycling can return resources back to the production cycle. A core mission of the EPA Green Team has been to promote waste reduction and recycling, where possible, of the non-hazardous waste streams. The hazardous waste stream generated from our laboratory activities, while closely monitored, is not amenable to reduction without interfering with our remit. This waste stream can vary widely from year to year and is not included in our target for waste reduction.

Total Waste Generated

Examining waste generation in detail from 2013 and 2014 (Figure 1) shows that waste streams can vary from location to location and from year to year. Hazardous waste streams are generated from our laboratories in Castlebar, Cork, Dublin and Monaghan with additional smaller quantities of electrical waste, batteries, toner cartridges, etc, generated at every location. Figure 1 also shows the large percentage of non-hazardous waste which is recycled as shredded paper, cardboard and other recyclables at each location. Given the confidential nature of some documentation, paper waste is shredded on site and then recycled. Quantities of on-site shredding increased in 2013, particularly in Headquarters in Wexford, during a Records Management Project to cull archived files which produced nearly 10 tonnes of shredded paper.

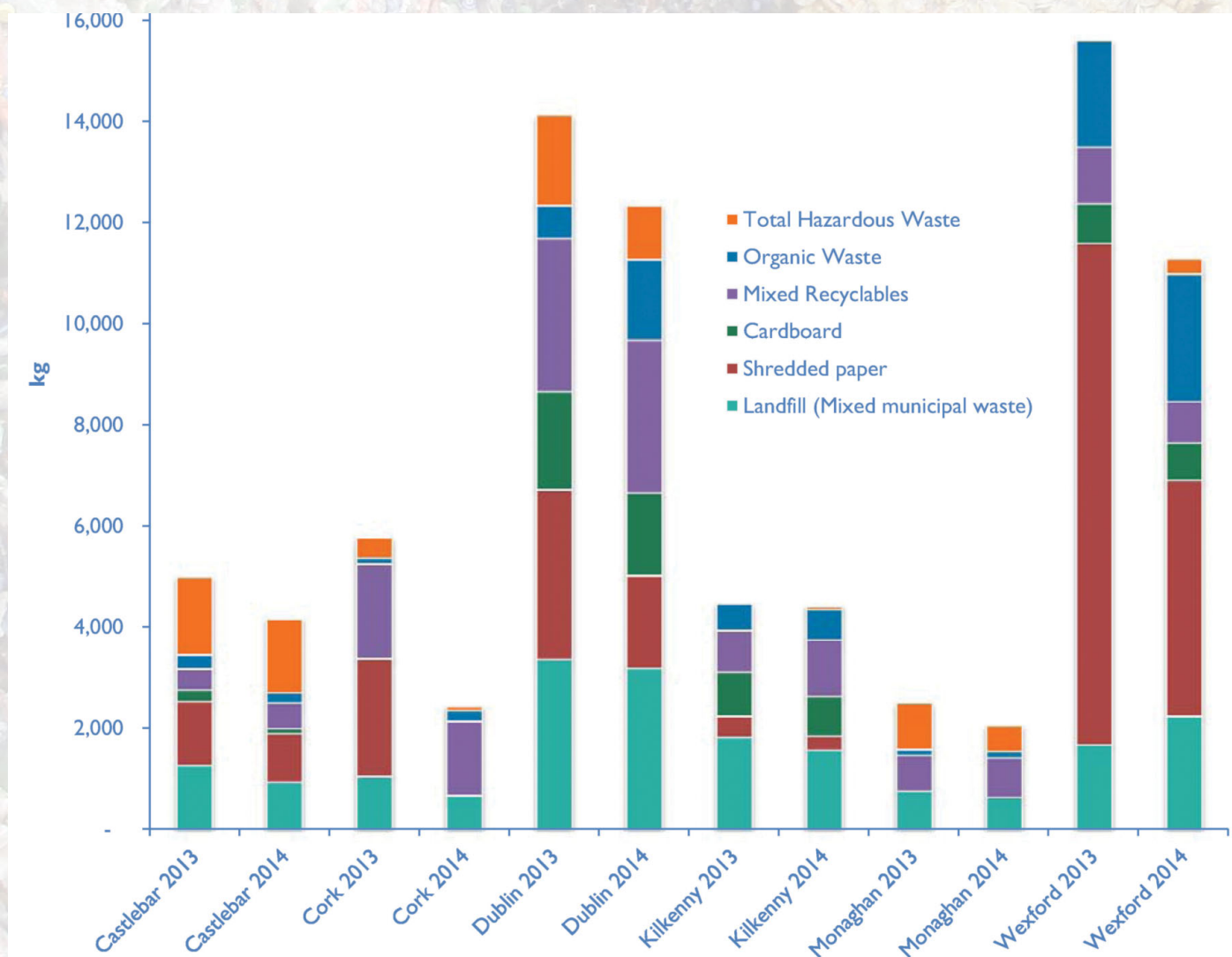


Figure 1: All waste by type and location, 2013 & 2014

Total Non Hazardous Waste Generated

In 2013, nearly 43 tonnes of non-hazardous waste was generated by the EPA with 77% of this waste being recycled. In 2014, we generated just over 33 tonnes of non-hazardous waste and recycled 72% of this waste.

Normalising the data to non-hazardous waste generated per employee per year (kilogrammes per Full Time Equivalent per year – kg/FTE/Yr) as shown in Figure 2, we can see that non-hazardous waste generation peaked in 2012 and 2013 but has now been reduced to 107 kg/FTE/Yr in 2014. This is well below our target of 122/kg/FTE/Yr by 2014 which we set at the end of 2012. The 2014 figures represent the lowest non-hazardous waste generation figure since the introduction of formal waste management procedures. However, we will continue to monitor and report as each waste stream can vary depending on the nature of the activities we undertake within any given year.

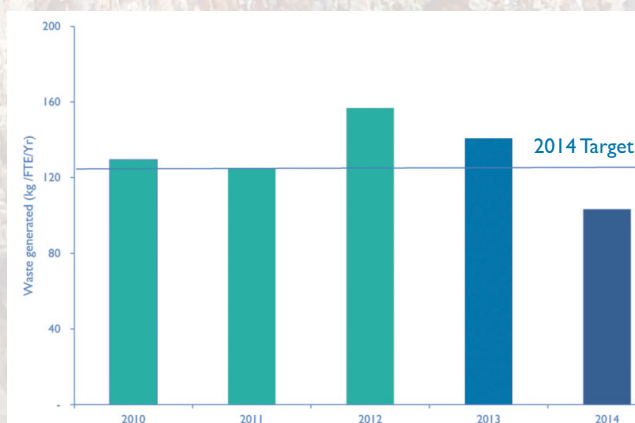


Figure 2: All EPA non-hazardous waste generation

Action on Waste

We have been effective in reducing the amount of waste going to landfill, which has been reduced by over 20 kg per person, per year, between 2010 and 2014 (Figure 3). We have also increased the proportion of waste being recycled. This has been achieved through better segregation of recyclables. The introduction of an electronic Licensing Enforcement Monitoring and Assessment (LEMA) system has resulted in a reduction in paper usage. The quantity of paper generated by the Office of Environmental Enforcement activities alone, has reduced by approximately a quarter of a tonne per year as a consequence of the LEMA system.

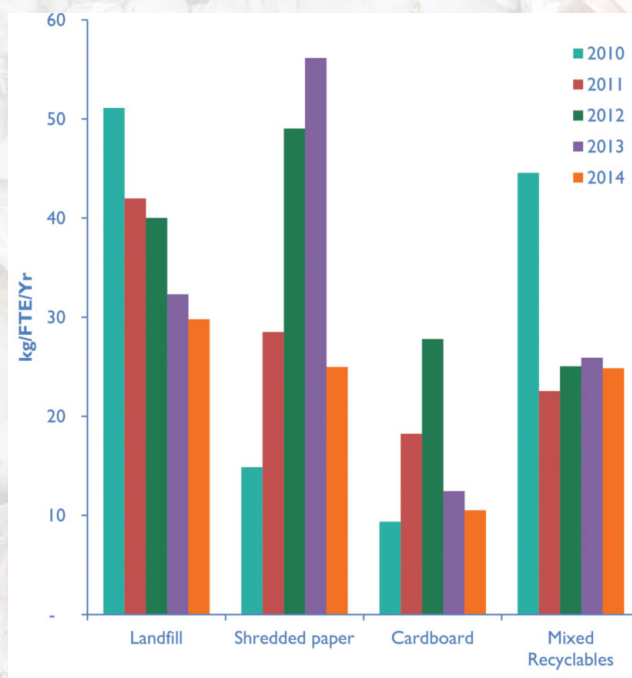


Figure 3: Total Non-hazardous waste by type

Future Waste Plans (2015-2016)

Focus on monitoring paper usage across all sites and investigate potential for reduction, reuse and recycling. Particular attention will be paid to offices with high mixed waste results

Increase audits of bins to evaluate level of appropriate segregation of waste

Maintain, or reduce, overall waste generation to below 122kg/FTE/year by end 2015

3. Energy Use

The EPA uses a range of fuels (kerosene, natural gas, LPG, biomass and solar power) to heat buildings and water. In addition, electricity is used to power and light its buildings. Wherever possible renewable fuels are used for heating and a preference is given to electricity suppliers with cleaner generation.

In 2013, the EPA consumed 2,375,480 kWh of energy, 49% in electricity and 51% in energy used for heating. There was a 7.6% reduction in our total energy demand in 2014, compared to 2013, when we consumed 2,195,485 kWh.

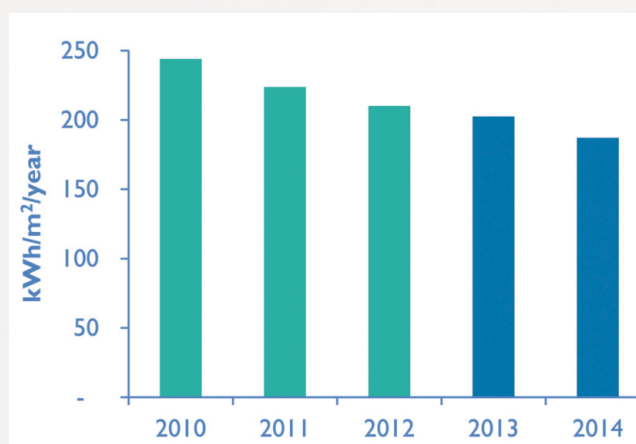


Figure 4: Total energy usage in EPA buildings

Normalising the data to energy consumed per floor area per year (kilowatt hours per metre squared per year – kWh/m²/Yr) as shown in Figure 4 we can see that between 2010 and 2014 total energy consumption has been steadily reduced by 23% from 244 to 187 kWh/m²/year.

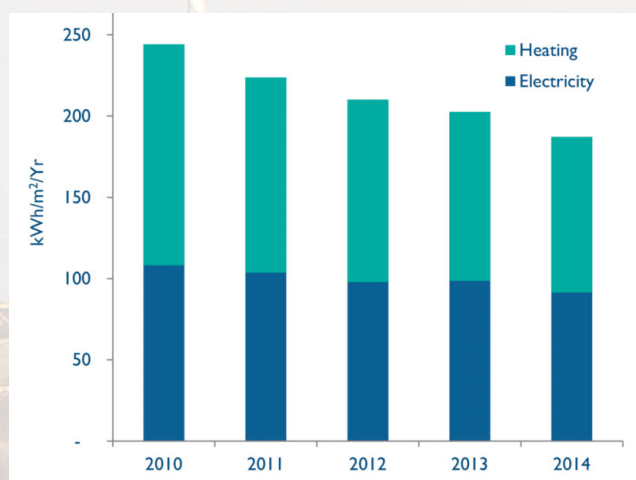


Figure 5: Total energy usage, Heating and Electricity, 2010 - 2014

Figure 5 shows that the largest contributor to this downward trend over the four year period was a 30% reduction in the amount of energy consumed for heating purposes. While 2010 was a particularly cold winter and possibly not the best for comparison purposes, the downward trend is real and visible year on year. Between 2010 and 2014 energy consumption for heating has steadily reduced from 136 to 96 kWh/m²/year. At the same time demand for electricity has been substantially reduced by 15% over the same period from 108 to 91 kWh/m²/year.

Action on Energy Use

A number of initiatives have been implemented in the EPA to reduce energy demand overall and to supplement energy demand, where possible. These have contributed to the downward trend in total energy demand and include: a solar photovoltaic array at EPA headquarters in Wexford; thermal solar collectors that supplement the hot water supply in the Kilkenny office; heat recovery from IT server rooms which is used to preheat water; and incorporation of energy efficient glazing and insulation in new or refurbished buildings, to reduce energy consumption.

In addition to these initiatives, we have endeavoured to increase the proportion of renewable sources of energy. Wood chip and pellet boilers are used in Wexford and Cork to meet heating and hot water needs. The amount of renewable fuels used to heat buildings is seen in Figure 6. In 2013 and 2014, while there was an overall decrease in the amount of fuel used, there was a significant decrease in the quantity of biomass (wood chip and wood pellet) used, due to boiler repair and modifications in both Wexford and Cork. This resulted in a corresponding increase use of Natural Gas and Kerosene at both sites.

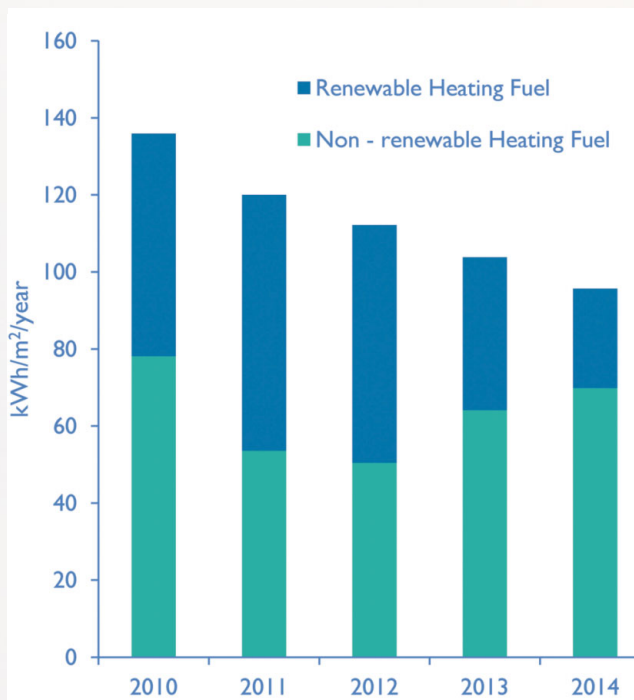


Figure 6: Heating fuel usage in EPA buildings

Energy Efficiency

There is a statutory obligation across the public sector to reach verifiable energy-efficiency savings of 33% by 2020. Within each public sector body there is a requirement, through management commitment at the highest level and the involvement of all employees, to meet this target. We are participating in the Office of Public Works *Optimising Power at Work Programme* which aims to assist public bodies in achieving the national reduction target.

The SEAI manages the public sector programme for energy reduction and supports the public sector in meeting this target. As part of this process, the SEAI had developed an Energy Performance Indicator (EnPI) to guide public sector organisations towards the 2020 targets. An EnPI is a way of measuring an organisation's

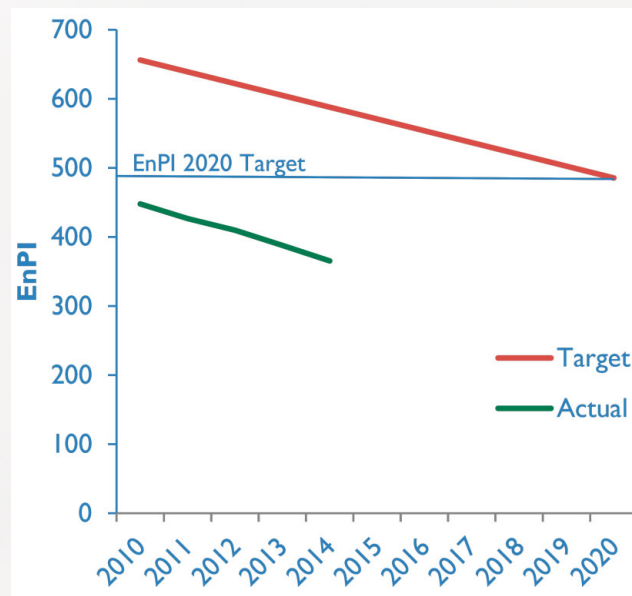


Figure 7: EnPI performance to date

energy performance. It is calculated by dividing the total energy consumption by an activity metric. The EPA EnPI 2020 target (Figure 7) was based on 2006-2008 figures, the average of which forms our baseline. Since this time, significant progress has been made within the EPA to reduce energy consumption. By 2010, the EPA had already reached its 2020 target of 33% reduction in energy.

In 2014, EPA's energy performance figures were:

- 44 % ahead of our EnPI baseline target (average of 2006-2008) for 2014
- 6 % lower than in 2013
- 20% ahead of our 2020 target

The EPA continues to meet its statutory obligations in relation to energy monitoring and reporting and we have demonstrated significant energy efficiency year on year in the context of a national strategy to reach verifiable energy-efficiency savings of 33% by 2020.

Future Energy Use Plans (2015-2016)

Carry out energy audit at Dublin offices/labs

Monitor and report on energy consumption performance across all sites

Continue to contribute to the National Energy Efficiency target of a 33% reduction in public buildings by 2020

4. Water

All EPA sites are connected to public water supplies and release used water to local authority water treatment systems. Reducing mains water use and monitoring for leaks brings environmental and financial benefits. As can be seen from Figure 8 water usage in the EPA since 2010 was on the decline and in the previous Greening the EPA report a 2014 target of 8.35 m³/FTE/Year was set.

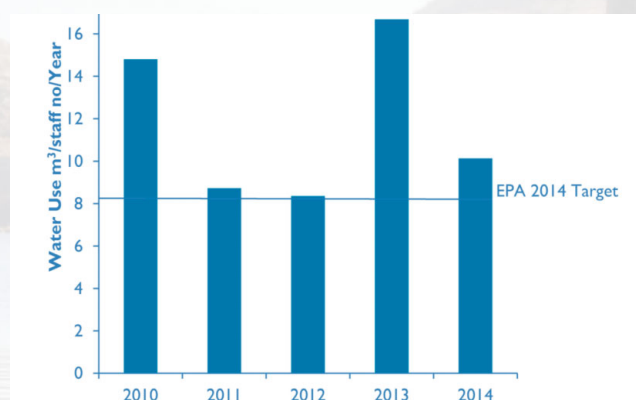


Figure 8: Total mains water consumption m³/FTE/year

However, two substantial leaks occurred in EPA offices during this reporting period. This resulted in the target being missed. Water usage was 16.68 and 10.13 m³/FTE/year in 2013 and in 2014 respectively. Figure 9 displays the water consumption in Cork and Wexford where the leaks occurred.

In Wexford, an entire length of water main to the building had to be replaced due to a series of successive leaks, which proved difficult to trace as the water main crossed neighbouring land for a distance of over one kilometre. The stabilisation of water usage following the repair has reduced usage to

approximately 1.4 m³/day usage for the Wexford office. Towards the end of 2014 a substantial leak also occurred in the Cork office and due to the monitoring systems in place it was rectified quickly. Both of these water leaks impacted negatively on the usage targets. However when the data is adjusted to compensate for these leaks, the overlying trend in water usage is downward and well below our target.

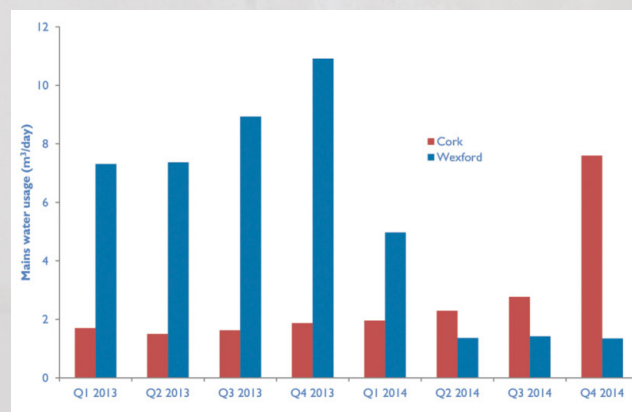


Figure 9: Water usage in Cork and Wexford

Action on Water Use

The use of rainwater harvesting systems and well bore water to supply toilet cisterns and flush on demand devices in the urinals in our Wexford offices have contributed to reducing mains water consumption. Other initiatives employed to reduce mains water usage include the introduction of water restrictors on bathroom taps and reduced capacity toilet cisterns.

Future Water Plans (2015-2016)

- Continue to monitor for early leak detection
- Take steps to actively manage & minimise water usage

5. Transport

EPA staff travel on a regular basis. They commute to and from work and also carry out site visits, inspections, environmental monitoring and attend meetings, at home and abroad. With the exception of the Regional Inspectorate in Dublin, EPA sites are outside main urban areas, with few public transport options. As a result, there is a high dependency on personal vehicular transport use for day to day EPA business.

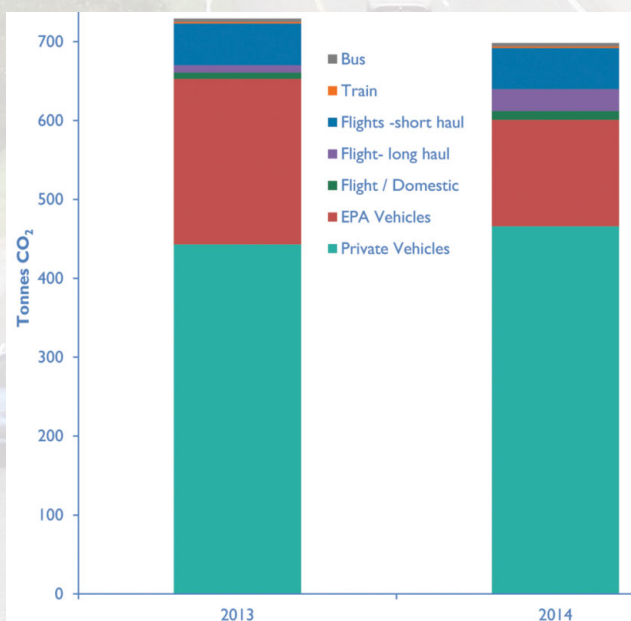


Figure 10: EPA CO₂ emissions from transport

Transport emissions

Transport emissions are calculated on the mileage done in staff cars during official EPA activities, on fuel usage in corporate fleet vehicles and on air travel. Transport emissions for 2013 and 2014 are presented (Figure 10) in tonnes of carbon dioxide per year (tCO₂/year).

As can be seen from Figure 10 the majority of transport CO₂ emissions are as a result staff using

personal vehicles for EPA business. EPA fleet emissions reduced in 2014 with a slight increase in staff car usage, short-haul and long-haul flights. However, a 4% reduction in CO₂ emissions from transport is noted from 2013 to 2014, with emissions reducing from 729 to 698 tonnes of CO₂.

Action on Transport

The introduction of video conferencing in meeting rooms and from desktop machines has resulted in a reduction in the need for many face to face meetings. However, in many cases site visits and meetings are unavoidable. The use of car-pooling is encouraged when staff are attending the same event. Eco Drive training workshops have been given to provide staff with the skills to improve fuel efficiency. These workshops, designed for Irish road conditions, help to reduce driver stress, car wear & tear and fuel consumption by 5-10%.

EPA staff are participating in the Commuter Cycling Incentive Scheme and all EPA locations have bicycle parking and shower facilities to accommodate cyclists.

Commuter Survey

A commuter survey among staff was undertaken in 2014 which showed that 17% of staff have a daily commute of greater than 70km and 21% have a daily commute of greater than 1.5 hours duration. The majority of staff (92%) commute to work by car totalling a distance of 1,728,816 km to work by EPA staff each year. The remaining 8% cycle, walk, carpool, or use public transport. Those who cycled covered a distance of approximately 60,000 km per year.

Future Transport Plans (2015-2016)

Monitor mileage and transport performance and report on a twice yearly basis.

Revise Vehicle Management & Replacement Policy

6. Carbon Footprint

The carbon footprint of an organisation measures the emissions of greenhouse gases from its activities. It is usually expressed in units of carbon dioxide equivalent (CO₂e). Greenhouse gas emissions are calculated using specific national emission factors and guidance from ISO14064 and the Greenhouse Gas Protocol. As previously outlined, the EPA's main sources of greenhouse gas emissions are fuel used to heat and power buildings and fuel used in road and air travel. The total carbon dioxide emissions from these sources in 2013 & 2014 are shown in Figure 11.

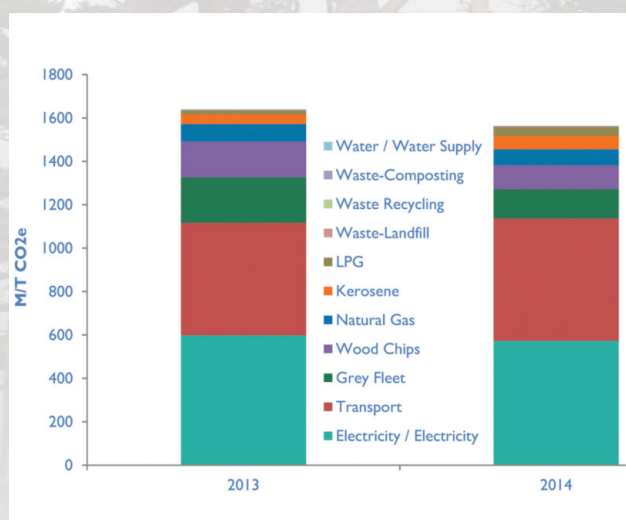


Figure 11: CO₂ emissions based on source

Greenhouse gas emissions are typically allocated into different activities, known as scopes, depending on whether the emissions are direct or indirect. For the purposes of this report the EPA's emissions include the following activities:

Scope 1: includes direct emissions from fuel consumption of oil, gas and biomass for space heating. It also includes emissions from fuels used by fleet vehicles.

Scope 2: includes indirect emissions arising from the generation of electricity used to light and power EPA offices.

Scope 3: includes indirect emissions from business travel by road and air.

Figures 11 and 12 show that the decline seen in the use of energy and the slight reduction in transport emissions across the EPA has resulted in a corresponding reduction in the EPA carbon footprint from 1640 tonnes in 2013 to 1563 tonnes in 2014.

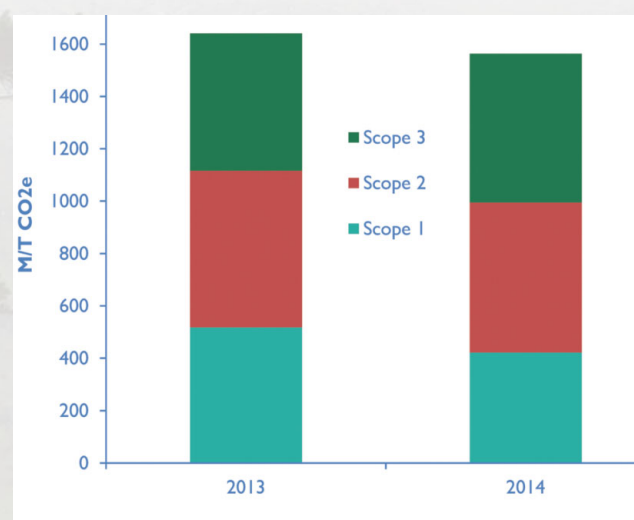


Figure 12: CO₂ emissions based on scope category






Carbon Disclosure Project

The Carbon Disclosure Project (CDP) is an independent not-for-profit organisation, holding the largest database of primary corporate climate change information in the world. The EPA is a co-sponsor of CDP in Ireland and we make a carbon disclosure submission on an annual basis.

Carbon Footprint plans (2015-2016)

Continue monitoring with a view to reducing emissions from transport and energy use

7. Summary of Performance

Aspect	Trend 2010 - 2014	2010	2014	Performance indicator
Waste	 17% reduction	129	108	kg/FTE/Year
Recycling	 14% increase	61	72	%
Water	 32% reduction	15	10	m ³ /FTE/Year
Heating	 30% reduction	136	96	kWh/m ² /Year
Electricity	 15% reduction	108	91	kWh/m ² /Year

8. Conclusion

The overall trend in the most significant environmental aspects: Energy Use, Waste, Water, Transport and Carbon Emissions, is one of a steady decline. The work of the Green Team in measuring, monitoring, setting targets and implementing changes has significantly reduced the environmental impacts of the EPA's activities, while at the same time effecting significant cost savings for the organisation.

The most evident reduction has been noted in our energy use where we have demonstrated savings of 44% compared to our baseline (2006-2008 averaged) data and EPA use is already 20% below our 2020 target.

Monitoring of water usage has resulted in the detection of leaks which would have otherwise gone unnoticed and we will continue the monitoring programme to ensure water wastage does not reoccur. Similarly, monitoring waste streams and increasing recycling rates will continue to have a positive effect on preventing waste generation or recovering resources.

The increasing use of Information Technology, e.g., the use of video conferencing and LEMA will ensure a continued reduction in transport emissions and paper usage, respectively. Streamlining data gathering into a single system will help with monitoring and reporting resource usage.

However, there are challenges ahead, particularly in the area of reducing the impact from transport, whilst delivering our mandate. Extending the scope of our EMS to include the activities of the Office of Radiological Protection is also seen as a significant challenge for 2015/2016.

The process of Greening the EPA is a challenging, but rewarding endeavour. The achievements to date are due to the commitment of management and staff and the highly motivated Green Team, who drive and maintain our Environmental Management System.