Rialtas na hÉireann
Government of Ireland

Irish Sovereign Green Bond

Allocation Report 2021

Contents

Wicklow Mountains

Introduction and Summary

This is the fourth annual allocation report issued in accordance with the *Irish Sovereign Green Bonds ("ISGB") Framework*.

ISGBs are designed to provide investors with the financial features of a standard Irish government bond combined with sovereign green bond market practices. ISGB proceeds are paid into the Central Fund in the same manner as standard government bonds. They are allocated against eligible green projects which generate a positive environmental benefit.

In 2021, €1,036.4 million was allocated to eligible green projects from ISGB proceeds. Since the launch of ISGBs in October 2018, a total of €7,343.6 million has been allocated. This represents full allocation of the remaining proceeds from ISGBs on hand at year-end 2021. As a result, the 2021 allocations represent a partial allocation of some 41% against the available eligible green projects, as can be seen in the Allocation Table on page 8.

The National Treasury Management Agency (NTMA) will continue to develop the market for ISGBs in response to continued investor demand. Further ISGB issuance is planned to complement regular benchmark bond issuance and continued allocations to the expanding eligible green projects is planned over the coming years.

In November 2021, the NTMA held its second auction of ISGBs as part of its regular benchmark bond issuance programme. There was €650 million nominal sold in the competitive phase of the auction with bids of €1,129 million received. There was an additional €97.5 million nominal sold in the non-competitive phase of the auction. This increased the amount outstanding to €6.8 billion.

Table : Proceeds raised and allocations timeline

Year	2017/8	2019	2020	2021
Starting balance	Nil	1,034,361,382	1,317,704,382	197,572,652
Proceeds from sales of ISGBs	2,983,410,000	2,252,380,000	1,268,980,270	838,844,500
Allocations to eligible green projects	(1,949,048,618)	(1,969,037,000)	(2,389,112,000)	(1,036,417,152)
End-year balance	1,034,361,382	1,317,704,382	197,572,652	Nil
Nominal ISGBs outstanding at year end*	3,000,000,000	5,000,000,000	6,100,590,000	6,848,090,000

* *excluding repos with primary dealers*

Cover photos:
Connemara National Park, Galway
LUAS, Dublin

Acknowledgements

This Report was produced with the co-operation of Government departments and other State bodies responsible for expenditure and subsidies which are allocated from the proceeds of ISGBs. The ISGB Working Group is grateful to the many colleagues who provided information and assistance.

Those Government departments and State bodies are as follows:

- Department of Finance
- Department of Public Expenditure and Reform
- Department of Housing, Local Government and Heritage
- Department of Transport
- Department of Agriculture, Food and the Marine
- Department of the Environment, Climate and Communications
- Office of Public Works (OPW)
- National Treasury Management Agency

The Working Group would also like to acknowledge the kind assistance of Kildare County Council and Iarnród Éireann/Irish Rail for assistance with the material in the case studies.

Climate-Related Expenditure

Ireland has committed to reducing its greenhouse gas emissions as part of international efforts to combat climate change.

The enactment of the Climate Action and Low Carbon Development (Amendment) Act 2021[1] sets out a legislative requirement to achieve a climate resilient, biodiversity rich and carbon neutral economy in Ireland by no later than the end of 2050. It also provides for the creation of a regime of legally binding carbon budgets. The first two carbon budgets, (2021-2025 and 2026-2030) are required to achieve reductions in greenhouse gas emissions of 51% by 2030.

National Development Plan 2021-2030

Ireland's National Development Plan (NDP) is the country's medium term capital allocation strategy. It details the public capital investments that will be made over the period 2021-2030. It was published on 4 October 2021[2]. The plan aims to promote economic recovery and provide for the infrastructure needs of a growing population. The total public investment outlined in the plan is €165bn. This will bring capital investment in the economy to 5% of GNI, significantly above the EU average of 3%.

The NDP is also intended to move the economy onto a more environmentally sustainable path, a path that is compatible with the Irish Government's domestic climate commitments and the Paris Agreement. In that regard, extensive efforts were made to ensure that the NDP was the greenest ever and supports Ireland's climate ambitions.

For the first time in Ireland, a thorough climate and environmental assessment of every measure considered for inclusion in the plan was undertaken. The plan as a whole was assessed for alignment against the principles of a green recovery plan and specific commitments were made on the hypothecation of carbon tax receipts and further climate and environmental reforms to investment appraisal.

Details of the Climate and Environmental Assessment of NDP Measures

As part of the Climate and Environmental assessment, seven relevant climate and environmental outcomes were selected. Government departments were required to perform a high-level, qualitative self-assessment to determine the potential impact *every* spending proposal they put forward may have on *each* one of these outcomes.

The seven climate and environmental criteria selected were:

1. Climate Mitigation – the likely impact of the measure on greenhouse gas emissions;
2. Climate Adaptation – the contribution the measure will make to Ireland's climate resilience;
3. Water Quality – any difference the measure may make to pollution levels in waterways;
4. Air Quality – any difference the measure may make to air pollution levels;
5. Waste and Circular Economy – the change in waste levels which might be expected of the measure;

1 https://www.irishstatutebook.ie/eli/2021/act/32/enacted/en/print
2 https://assets.gov.ie/200358/a36dd274-736c-4d04-8879-b158e8b95029.pdf

6. Nature and Biodiversity – the impact the measures may have on biological diversity;
7. Just Transition – will the measure contribute to employment that is compatible with Ireland's long term climate and environmental objective.

On the basis of this assessment, Departments assigned every measure a specific ranking against each of the climate and environmental outcomes from +3, where the measure is focused on, or will contribute in a very tangible and specific way, to an improvement in this outcome to -3, where the measure was deemed likely to lead to an increase in activity or encourage behaviours that would be unfavourable to this outcome.

The resulting self-assessment by each Department was then reviewed for consistency by a Steering Group comprised of senior officials from the Department of Public Expenditure and Reform, the Department of Environment, Climate and Communications and the Department of Housing, Local Government and Heritage.

Summary of Results

In total, 128 measures were assessed. 67% of these measures were deemed, on balance, as being likely to have a net favourable impact on climate and environmental outcomes. 17% were deemed likely to have no significant impact on climate and environmental outcomes, while 16% of measures may have a net unfavourable impact on climate and environmental outcomes.

Interpretation of Results

A positive assessment is not an unequivocal endorsement of the proposed measures. In particular, the methodology involves a calculation of the impact of the measure on a net basis. This means that it is possible for a measure to have an unfavourable impact on one or more of the outcomes assessed but still receive a positive ranking overall.

As such, even a positive climate and environmental assessment does not negate the need for Departments to consider ways to address any negative climate and environmental consequences that a net favourable measure may have.

Similarly, a negative assessment does not mean that these measures are incompatible with the achievement of Ireland's climate and environmental objectives. The National Planning Framework, which underpins the capital investment plans laid out in the NDP, notes that Ireland needs to prepare to support an additional 1 million people living in the country by 2040 and with that, there is a need to create 660,000 additional jobs and to construct at least 550,000 more homes. Supporting this growth requires capital investment and, in particular, capital investment in infrastructure. Some of this investment will have unfavourable impacts on climate and environmental outcomes.

Assigning such investments a negative assessment acknowledges the reality of the likely climate and environmental impacts of this expenditure. However, eliminating these investments and hence failing to provide for the infrastructure needs of our current and future populations will not solve the climate and biodiversity emergency. Rather, inadequate infrastructure may hold back the country's ability to finance the very significant climate investments that will be required right across the economy.

An unfavourable assessment demonstrates that there should be an increased focus on ensuring that the climate and environmental impact of this investment is minimised in so far as is possible. Where feasible, Departments should go beyond the minimum requirements imposed by legislation and put in place complimentary measures that can offset or negate any potentially harmful impacts that have been identified. Where this is not possible, it demonstrates the need to have regard to specific additional measures which offset the unfavourable climate and environmental consequences of these expenditures.

The climate and environmental assessment conducted as part of the NDP Review is the first systematic attempt that has been made at undertaking such an assessment. It is by no means definitive, rather it marks the start of a process that will evolve over time, in line with international best practice and Ireland's continued development of green budgeting practices.

The results of the assessment should be seen in this light. It is particularly important to note that every measure in the NDP Review remains subject to the full rigour of investment appraisal via the Public Spending Code. This necessitates a detailed quantitative assessment of the impact of the project on greenhouse gas emissions.

A paper thoroughly detailing the climate and environmental assessment undertaken is available here.

Governance and Project Selection

As set out in the ISGB Framework, the ISGB Working Group oversees the implementation of the ISGB Framework, including reporting on the allocation of proceeds to eligible green projects. It is comprised of representatives from the National Treasury Management Agency, the Department of Public Expenditure and Reform, the Department of the Environment, Climate and Communications and the Department of Finance.

The Working Group consulted with other Government departments and State Agencies in carrying out its remit. This includes the identification of eligible green projects which are evaluated and selected for allocation under the ISGB Framework based on the use of proceeds criteria. These projects are, where relevant, in line with those identified by the Department of Public Expenditure and Reform in the Revised Estimates for Public Expenditure – see this link for more details.

The objective is to finance, or refinance, eligible green projects which:

- promote, in whole or in part and whether directly or indirectly, Ireland's transition to a low carbon, climate-resilient and environmentally sustainable economy;
- are funded, in whole or in part and whether directly or indirectly, through Exchequer funded expenditures, subsidies or tax foregone; and where the relevant Exchequer expenditure has been provided within the 24 month period preceding the issue date of the relevant ISGB to refinance an existing project; and which otherwise qualify under the Framework.

This Report outlines how the allocations were made in 2021 across the six eligible green categories set out in the ISGB Framework:

- Built Environment/Energy Efficiency
- Clean Transportation
- Climate Change Adaptation
- Environmentally Sustainable Management of Living Natural Resources and Land Use
- Renewable Energy
- Sustainable Water and Wastewater Management

Compliance Review by Sustainalytics

Based on the limited assurance procedures conducted, nothing has come to Sustainalytics' attention that causes us to believe that, in all material respects, the projects funded with proceeds from the Government of Ireland's Irish Sovereign Green Bonds are not in conformance with the use of proceeds and reporting criteria outlined in the Irish Sovereign Green Bond Framework. The Government of Ireland has disclosed to Sustainalytics that the proceeds from the Irish Sovereign Green Bonds were fully allocated as of December 2021.

The full compliance review is available at this link.

Allocation Table and Analysis for the year ended 2021

The table of expenditure on eligible green projects of this Allocation Report is assembled as follows:

- **Eligible Green Categories:** Projects/Programmes/Schemes aligned with the six eligible green categories as set out in the ISGB Framework.
- **Notes:** Each Project/Programme/Scheme has an explanatory note.
- **Project/Programme/Scheme:** These have been identified by the ISGB Working Group.
- **2021 Expenditure:** The expenditure numbers for 2021 used in this report are based on a provisional outturn principally provided by the Department of Public Expenditure and Reform in its databank in March 2022 and will be subject to finalization later in 2022 in the 2021 Appropriation Accounts.
- **Allocation from ISGB Proceeds:** The amount allocated to each Project/ Programme/ Scheme is shown and is sub-totalled by eligible green category.

  €1,036.4 million was allocated to eligible green projects. This was the total amount of remaining proceeds at end-2020. Future allocations will be allocated from new sales of ISGBs.

Allocation Table[3]

Eligible Green Categories	Note	Project/Programme/Scheme	Eligible Green Expenditure	ISGB Proceeds Allocation
			€ '000s	€ '000s
Built Environment/Energy Efficiency Total			**57,723.3**	**23,916.6**
Built Environment/Energy Efficiency breakdown of programmes and schemes	1	Sustainable Energy Programmes	18,467.3[4]	7,651.6
	2	Energy Efficiency - Retrofitting	21,741.0[5]	9,008.0
	3	Sustainable Energy Authority of Ireland (SEAI) Admin and General Expenses	16,098.0	6,669.9
	4	Limerick Regeneration Thermal Upgrade Programme	1,417.0	587.1
Clean Transportation Total			**1,540,908.0**	**638,446.5**
Clean Transportation breakdown of programmes and schemes	5	Low Emission Vehicle incentivisation	17,350.0	7,188.6
	6	Active Travel Infrastructure/Greenways/ Public Transport Investment	876,484.0[6]	363,154.8
	7	Public Service Provision Payments	566,962.0	234,910.1
	8	Carbon Reduction	80,112.0	33,192.9
Climate Change Adaptation Total			**55,666.0**	**23,064.2**
Climate Change Adaptation breakdown of programmes and schemes	9	Flood Risk Management (OPW)	55,666.0	23,064.2

3 Figures may not total due to rounding.
4 Excludes carbon taxes of €113m
5 Excludes carbon taxes of €3.543m
6 Excludes carbon taxes of €20m

Allocation Table (continued)

Eligible Green Categories	Note	Project/Programme/Scheme	Eligible Green Expenditure	ISGB Proceeds Allocation
			€ '000s	€ '000s
Environmentally Sustainable Management of Living Natural Resources and Land Use Total			**189,709.8**	**78,602.7**
Environmentally Sustainable Management of Living Natural Resources and Land Use breakdown of programmes and schemes	10	Forestry and Bio-energy	69,568.0	28,824.2
	11	Environmental Protection Agency – Administrative expenses	48,942.9	20,278.6
	12	National Heritage (NPWS)	25,798.0	10,688.9
	13	Waste Management Programmes and Landfill Remediation	21,305.9	8,827.7
	14	International Climate Change Commitments	12,972.4[7]	5,374.9
	15	Peatlands Restoration and Management	5,490.0[8]	2,274.7
	16	Climate Initiatives	5,632.6	2,333.8
Renewable Energy Total			**10,357.9**	**4,291.6**
Renewable Energy breakdown of programmes and schemes	17	Energy Research Programmes	10,357.9	4,291.6
Sustainable Water and Wastewater Management Total			**647,056.0**	**268,095.6**
Sustainable Water and Wastewater Management breakdown of programmes and schemes	18	Capital Expenditure provided to Irish Water for domestic services	599,000.0	248,184.5
	19	Rural Water Programme	48,056.0	19,911.1
Grand total expenditure and allocations			**2,501,421.0**	**1,036,417.2**

7 Excludes carbon taxes of €2m

8 Excludes carbon taxes of €4.385m

Notes to the Allocation Table

1 Sustainable Energy Programmes

Extensive COVID-19 related restrictions on construction activity between January and mid-April and ongoing challenges associated with availability and longer lead time for materials had a significant impact on activity.

€131.4 million was spent in 2021 on energy efficiency measures through grants for over 15,400 upgrades (including over 4,000 Solar PV grants). A separate amount of €160 million, unspent due to restrictions in construction activity, was paid into the Energy Efficiency National Fund to support energy efficiency measures in 2022. This has not been included in the 2021 allocations. Of these, over 4,600 homes were upgraded to a B2 standard, and over 2,000 heat pumps were installed. Over 2,200 households at risk of energy poverty received upgrades as indicated below. Overall, these measures delivered energy savings of 428 GWh, reduced CO_2 emissions by 38.8 kilotonnes and lowered energy bills by approx. €9.5 million.

The Residential and Community Retrofit Programmes include the following:

- **Better Energy Homes Scheme:** provides a financial incentive to private homeowners who wish to improve the energy performance of their home. Fixed grants covering 30% of the works are provided towards the cost of a range of measures including attic insulation, wall insulation, heating systems upgrades, solar thermal panels and accompanying Building Energy Rating (BER). It is the most popular scheme in terms of number of individual properties having undergone some form of state funded refurbishment work. Despite COVID-19 restrictions, the scheme co-financed 18,390 energy efficiency measures in 7,928 homes in 2021.
- **Better Energy Warmer Homes Scheme:** delivers a range of energy efficiency measures free of charge to low-income homeowners vulnerable to energy poverty. To date, over 145,000 homes have received free upgrades under the scheme leaving the occupants better able to afford to heat their homes to an adequate level. Despite COVID-19 restrictions, the scheme provided energy efficiency improvements to 2,126 homes in 2021.
- **Community Energy Grant Scheme:** funds community-based partnerships to improve the energy efficiency of their area. It is applicable to homes, community facilities and businesses. It uses community networks in order to engage more stakeholders to deliver energy upgrades. It seeks to encourage the implementation of more comprehensive, and more technically and economically challenging energy efficiency measures. Partnerships can be between the public and private sectors, domestic and non-domestic sectors, commercial and not-for-profit organisations and energy suppliers. The community and business supports leverage considerable additional private investment. In 2021, 353 homes and 433 buildings were upgraded in 39 projects under the Scheme.
- **Warmth and Wellbeing Pilot Scheme:** aims to objectively measure and validate the health and wellbeing impacts of improving the living conditions of vulnerable people living in energy poverty with chronic respiratory conditions. This is a joint policy initiative between Department of Environment, Climate and Communications and the Department of Health and is delivered by the SEAI and the Health Service Executive (HSE). This pilot scheme provides free energy efficiency upgrades to eligible homes, to make them warmer and more comfortable, especially during colder months. Since 2016, 1,464 homes have benefited from the scheme, of which 146 were completed in 2021.

2 Energy Efficiency – Estate Regeneration – Social Housing Improvement

In 2021 over €21.741 million of exchequer funding support was provided relating to retrofit work carried out on 1,584 dwellings. 692 properties related to those properties that were carried forward under the terms of the 2020 programme with 892 properties completed as part of the deeper retrofit programme of 2021. Full details in relation to expenditure for this programme is available here.

The Midlands Retrofit Pilot as part of the 'Just Transition' programme delivered 146 retrofit homes in 2021 with funding of €3.543 million recouped by local authorities under the terms of this programme last year. Full details in relation drawdown is available here.

The revised programme saw the implementation of a significant upscaling (from a shallow to 'deeper retrofit') on what has been completed by local authorities in previous years. Measures funded under the programme include attic insulation, external wall insulation, windows and door replacements, heat pumps and all necessary associated works, LED lighting and BER certification.

The revised EER Programme was introduced in 2021, allowing for a new holistic approach designed around the Programme for Government commitment that calls for the 'retrofit' of 500,000 homes to a B2/Cost Optimal Equivalent (BER) standard by 2030, of which, approximately 36,500 are expected to be local authority owned homes.

A strong emphasis on fuel poverty and the need to improve thermal performance in the social housing stock remains a priority for Department of Housing, Local Government and Heritage, as is evident in the newly revised and enhanced 10 year Energy Efficiency Programme launched in 2021. The Programme will not only benefit local authorities in assisting them in the upgrade and maintenance of their housing stock, but will more importantly benefit householders in many ways, their homes will be warmer, easier to heat and more comfortable, it will enhance air quality in the home and for those currently using oil or gas they will see a saving on their energy bills.

3 SEAI Admin and General Expenses

This funding is provided to support the operation of the SEAI. It undertakes a wide variety of tasks including administration and operation energy of efficiency grant Schemes, public education programmes on sustainability and climate change and the provision of policy advisory and technical support roles for energy policy development and delivery.

The SEAI is the official source of energy data for Ireland. It develops and maintains comprehensive national and sectoral statistics for energy production, transformation and end-use. These data are a vital input in meeting international reporting obligations, for advising policymakers and informing investment decisions. It also publishes extensive reports on energy production and consumption as well as renewable energy and energy use in the residential sector.

4 Limerick Regeneration Thermal Upgrade Programme

This is a rolling programme of thermal upgrades to some 1,526 existing houses, with the main aim of achieving an improved BER rating. In respect of the thermal upgrade programme, the stated objective when the plan was adopted, was to achieve a C1 rating. Since 2019, this has been revised to target a B2 rating in line with building regulations. Where the cost is prohibitive to upgrade a house to this level, the regulations provide for a cost optimal solution.

At the end of 2021, thermal upgrades have been completed in some 1,163 units.

Limerick City and County Council, as the lead agency in the regeneration programme, has carried out surveys of houses in the programme to determine a scope of works for each particular dwelling and determine the most cost optimal solution to meet the target BER rating.

5 Low Emission Vehicle (LEV) Incentivisation

There are a number of taxation elements that incentivise LEV adoption. As there is considerable detail behind each element, they are summarized below.

- Vehicle Registration Tax Relief – Up to €5,000 for new battery-electric vehicles (BEVs).
- Accelerated Capital Allowance (ACA) – BEV/PHEVs and their associated recharging infrastructure qualify under the ACA scheme. This scheme enables businesses to identify and buy the most energy efficient equipment including electric charging infrastructure and write down the cost of such equipment in the year of purchase rather than over the traditional 8 years.
- 0% Benefit-in-Kind (BIK) – BEVs qualify for a 0% Benefit-in-Kind rate up to €50,000 without mileage conditions. This will be extended out to 2025 with a tapering effect on the vehicle value. This measure will take effect from 2023. For BIK purposes, the original market value of an electric vehicle will be reduced by €35,000 for 2023; €20,000 for 2024; and €10,000 for 2025.
- Low Motor Tax – BEVs qualify for the lowest tax band of motor tax at €120 per annum, while a PHEV is typically taxed at circa €170 per annum.

6 Active Travel Infrastructure/Greenways/Public Transport Investment

This represents the State's investment in public transport initiatives. It also funds cycling and walking initiatives and sustainable urban transport measures in cities.

Investment programme for 2021 Main Programmes/Projects Expenditure/Allocation €m

Description	Project Description	Project spend	Total
Heavy Rail Safety and Development	IMMAC	235,700	430,831
	Heavy Rail Investment	195,131	
Public Transport Infrastructure	Bus Fleet and BusConnects	190,847	285,847
	Light Rail	60,550	
	Ticketing and Technology	26,800	
	Accessibility	7,650	
Smarter Travel and Walking and Cycling Programme. Also includes Green Schools educational awareness programme.	Smarter Travel and Sustainable Urban Transport Measures	40,608	171,769
	Green Schools	1,366	
	Walking and Cycling Programme	129,795	
Greenways	Greenways	8,037	8,037
Total		**896,484**	**896,484**

Infrastructure Manager Multi-Annual Contract and Heavy Rail Investment

A total of €235.7 million of Exchequer capital funding was provided to Irish Rail/Iarnród Éireann in 2021 to fund protection and renewal of the national railway system under the Infrastructure Manager Multi-Annual Contract (IMMAC).

Following Government approval in December 2021, a contract was signed for the largest ever fleet expansion with potential for up to 750 electric/battery electric carriages under the DART+ Programme. The order was for initial purchase of 95 units (65 battery electric and 30 electric units) with the first of the units entering service in 2025.

Bus fleet/Bus Connects

BusConnects Dublin consists of infrastructure and ICT improvements along with network redesign. The final network redesign for Dublin, which relates to the proposed new bus routes centred on 9 new 'spines'. The first of these Spines – the H-Spine – launched in June 2021 and serves the Howth corridor. The second Spine – the C-Spine – launched in November 2021. This serves the Lucan/Leixlip/Celbridge corridor and also introduced a much-improved local area network of services, as well as 24hour services. The Preliminary Business Case for infrastructure investment was approved by Government in Q2 2022, allowing BusConnects to enter the planning system.

Light Rail

LUAS Green Line Capacity Enhancement Project: This project was completed in March 2021 and consists of:

- lengthening of the 26 existing Green Line trams from 43 metres to 55 metres;
- procurement of eight new 55 metre trams in addition to the seven purchased as part of the LUAS Cross City project; and
- extension of the Sandyford Depot to accommodate the maintenance of the longer trams. The project will provide approximately 30% increase in capacity.

LUAS Finglas is the proposed extension of the Luas Green Line from Broombridge to the suburb of Charlestown.

A Preliminary Business Case is being prepared in line with the requirements of the Public Spending Code.

Ticketing and Technology:

The Next Generation Ticketing (NGT) programme is a series of projects to renew the ticketing equipment and introduce new smarter methods of payment for customers, on all forms of transport in Ireland, starting with Bus Connects Dublin city bus services and expanding nationwide from there.

Accessibility Retro-fit Programme:

Accessibility features, such as wheelchair access and audio/ visual aids, are built into all new public transport infrastructure projects and vehicles from the design stage. However, there are legacy issues in relation to older infrastructure and facilities. To address these issues, the Department of Transport funds this programme, managed by the NTA. The programme aims to install accessible bus stops, upgrade older bus and train stations to make them wheelchair accessible, and to provide grant support for the introduction of more wheelchair accessible vehicles into the taxi fleet. Funding for this programme was trebled to almost €28 million for the period 2018 to 2021.

Sustainable Urban Transport (traffic management and related projects) and Cycling/Walking:

These are on-going sustainable transport investment programmes in the greater Dublin area and in regional cities including Cork, Galway, Limerick and Waterford. These involve traffic management, bus priority and other smarter travel projects designed to allow transport infrastructure to function more effectively and help relieve traffic congestion. Projects also provide either direct or indirect improvements for urban cycling and walking.

Greenways

Funding was allocated in Budget 2021 for the construction of the Greenway Bridge in Athlone, work commenced in Q2 2021.

Planning permission was granted for the South Kerry Greenway. The South Kerry Greenway will provide a 32km Greenway off-road route overlooking Dingle Bay and will be one of the most attractive Greenways in Europe when completed in 2024.

Funding of €50m was provided to Greenways in 2021 of which €8.03m was spent. €20m of capital carried over from 2020 was also spent.

Actual expenditure in Greenways almost tripled between 2019 and 2021. Hence the number of Greenways under development has increased from 13 in 2019 to approximately 40 projects. However, there has also been a very significant under-spend in 2021 compared to the funds available. This is due to a number of factors, including COVID-19 construction restrictions, staff shortages and increased requirements for local authorities under the Public Spending Code (PSC). The situation is now improving as the projects are bedded in. Transport Infrastructure Ireland (TII) took over as "Approving Authority" for Greenways on 20th September 2021. TII's expertise with infrastructure delivery should assist in progressing the roll-out of Greenways in the coming years.

Main outcomes in 2021 for Greenways include:

Royal Canal Greenway Opening

The Royal Canal Greenway is 130km of level towpath and was opened in March 2021, This greenway starts at Maynooth, and follows the 200 year old canal through Enfield and Mullingar to Cloondara in Longford, with cafés, picnic spots and attractions along the way and will along with the Old Rail Trail forms part of the Dublin Galway Greenway.

Limerick Greenway Opening

€2.5m was allocated for the refurbishment of the Great Southern Greenway for 2021. This €10m project is a 40km section from Rathkeale to Abbeyfeale, The Limerick Greenway section was opened on 2 July 2021.

Dublin – Galway

The Athlone to Galway section of the Galway to Dublin Greenway including the pedestrian and Cycleway Bridge in Athlone was allocated €8.1m for 2021.

The contract for the construction of the Whitegates to Athlone Marina was awarded in November 2020 and this 1.1 km section of the greenway was opened to the public in May 2021.

Athlone Marina to Athlone Castle (0.6km)

The Section from Athlone Marina to Athlone Castle including the new pedestrian and Cycleway Bridge in Athlone and associated ramps and boardwalks was tendered for construction in April 2021 and a contractor is on site. This project should be completed and opened to the public in early 2023.

Galway (Ballyloughane) to Athlone Castle (140km)

The Galway to Athlone Route Selection phase commenced in early 2021 with Public Consultation No 2 which ran from the 25th January to the 1st March 2021.

Grand Canal Greenway Offaly

Offaly County Council was allocated €3.1m funding to extend the Grand Canal Greenway from Daingean to Edenderry. This section will see the completion of a nearly 60km section in Offaly, from Edenderry to Lough Boora.

The other eight Greenways sections funded for construction under the Strategy for the Future Development of National and Regional Greenways in 2019 progressed in 2021 but this progress was less than planned due to COVID-19.

Work began on developing a National Cycling Network plan in 2021 and will finish in 2022. This will further assist in the delivery of National and Regional Greenways as well as the integration of these into towns and villages.

NTA and Local Authorities

The NTA is responsible for developing urban greenways which have both a recreational and commuter function within urban areas, and liaise closely with TII at tie-in points to the Greenways on the outskirts of Urban areas.

Urban Cycleways and Greenways

In 2021, notable urban greenways that were completed include the Castletroy urban Greenway developed by Limerick City and County Council, this stretches to almost 1.3km and links local schools, playground, shops and homes, and Phase 1 of the Dunkettle to Carrigtwohill Cycleway developed by Cork County Council. This Cycleway will form a significant part of the linkage from Cork City to the Midleton to Youghal Greenway.

Protected Cycle Lanes

General projects in the Active Travel Investment Programme include the reallocation of overall road space which includes segregated cycling lanes and widened footpaths, cyclist parking, raised pedestrian crossings and reducing road width at crossing points as well as other improvements. In recent years the focus has been on constructing protected cycle lanes for new schemes, and since 2019 retrofitting protection to existing cycle lanes where space permits.

Covid Mobility Measures

To mitigate the impact of Covid-19 by relieving constraints on space in densely populated urban areas, the NTA funded changes in many urban areas with typical measures outlined below:

- Widening of footpaths to facilitate queuing outside shops and enable social distancing;
- Pedestrianisation of some streets where necessary and feasible to accommodate social distancing, particularly where this supports business activities;
- One-way systems to create space for footpath widening;
- Altering traffic signal times to reduce pedestrian waiting/crowding plus the automatic activation of some pedestrian phases in order to aid pedestrian movement and to minimise contact with signal push buttons;
- Providing additional temporary facilities for cyclists; and
- Provision of some external space where appropriate to support business activities.

7 Public Service Provision Payments

This funding provides support for the continued operation of public transport services provided by public transport operators for the provision of socially necessary, however financially non-viable, transport services. It includes funding for local link services under the Rural Transport Programme which is managed by the National Transport Authority. This does not include payments to support the Essential Air Services Programme (i.e. the Public Service Obligation for air routes).

PSPP by operator for 2021

Operator	2021 PSPP Expenditure/Allocation (€m)
Dublin Bus	147.0
Bus Éireann	65.6
Iarnród Éireann (Irish Rail)	210.0
Other PSPP Operators	2.7
Luas	32.4
Other PSPP-related costs	26.6
Go Ahead Ireland & other tendered services	29.8
Rural Regular Transport Services	11.1
Rural Transport*	14.2
Commercial Bus Operators Scheme**	27.5
Total* **	**566.9**

* *Accounted for under REV subhead B 7.2, this comprises primarily current funding with a small amount of capital funding. The bulk of this funding is provided to the NTA for services under the Rural Transport Programme (RTP), which the NTA manages on behalf of the Department of Transport. These services, which operate under the Local Link brand, are provided by approx. 400 private sector operators/companies and are contracted directly by the NTA. The current funding also includes administrative costs for both the NTA and the Local Link Offices (Transport Co-Ordination Units) which in turn manage the services on a day-to-day basis for the NTA. There is also some capital funding provided to the NTA under B 7.2 for the RTP (approx. €650,000 per annum) for projects such as the Integrated Ticket Management System.*

** *Temporary emergency PSO funding provided to certain key operators in the commercial market to mitigate the impact of the reduction in passenger numbers as a result of public health restrictions introduced to combat COVID-19.*

*** *May not total due to rounding. Differs from provisional expenditure reported by Depart of Transport due to remittance of €13.117 million by National Transport Authority of unspent funds.*

These temporary supports were aimed at ensuring the continued operation of essential licensed bus services for an initial period of up to six months, but continued throughout 2021 and have been extended to 30 June 2022. The package is restricted to operators where a clear public interest justification supports such intervention and is being targeted at compensating the gap between specified costs and the revenues generated on the services. The NTA, as the public transport licensing agency, is responsible for administering this funding support through contracts established between the NTA and the relevant operators.

8 Carbon Reduction

The Electric Small Public Service Vehicle (eSPSV) Grant Scheme (i.e. taxi/hackney/limousine) provides grants of €7,000 for the purchase of BEVs and up to €3,500 plug in hybrid vehicles (PHEVS), as well as an additional €2,500 for the conversion of an eSPSV into a wheelchair accessible vehicle. In 2021 the Scheme was extended to provide, up to €20,000, for eligible taxi and hackney drivers switching to EVs.

In addition, a new scheme was opened in 2021 to support up to 750 taxi and hackney drivers in scrapping their older vehicles and replacing them with zero-emission capable electric alternatives. The scrappage scheme is open for taxis and hackneys reaching their maximum permissible age limit in 2020/21. Up to €20,000 is available for eligible drivers switching to a new all-electric vehicle and up to €32,500 for those moving to a wheelchair accessible full electric vehicle.

There is also the Low Emission Vehicle Toll Incentive Scheme which offers discounts of up to 50% off toll rates for BEVS and alternatively fuelled heavy-duty vehicles (AFHDVs), such as gas, hydrogen or electric trucks or buses/coaches, as well as a 25% toll discount for PHEVs. Greater off-peak rates also apply to the M50 toll for all eligible vehicles. There is up to a maximum €500 annual threshold for private vehicles and a maximum annual threshold of €1,000 for commercial vehicles.

To promote the decarbonisation of the heavy-duty sector, and to assist road transport companies to transition from fossil fuels, the Department of Transport launched the AFHDV Purchase Grant Scheme in March 2021.

The Scheme supports the purchase of new large vans, trucks, buses and coaches. The Scheme is intended to help bridge the difference in purchase price between conventional heavy-duty vehicles (HDVs) and those powered by alternatively fuelled power-trains that offer environmental benefits over standard diesel vehicle technologies, and that would not otherwise have been bought.

To accord with EU State Aid rules, grant levels under the Scheme are calculated as a percentage of the difference in price between a conventionally-fuelled diesel HDV and its alternatively-fuelled equivalent. Maximum grant levels for eligible vehicles depend on the size of the company or enterprise applying for the grant, and on the fuel-type of the vehicle that the applicant wishes to buy.

In addition, the Carbon Reduction Programme provides funding towards the cost differential for pilots and trials of low emission technology in the Public Service Obligation sector (such as the Low Emission Bus Trial and the purchase of pilot hybrid and hydrogen public buses). It also supports research into additional carbon reduction transport measures. This programme began in 2018.

9 Flood Risk Management (OPW)

This expenditure supports investment in major flood works. These funds will provide for the ongoing development of structural and non- structural measures to mitigate the impact of flooding on society, households and businesses.

The OPW has responsibility for leading and coordinating the whole of Government implementation of the National Flood Policy, which involves the identification of flood risk and the development of a planned programme of feasible flood relief works combined with a greater emphasis on non-structural flood risk management measures.

Capital Projects Overview

- The OPW has completed 51 flood relief schemes since 1995, protecting over 11,900 properties and avoiding damages to businesses and households of €1.9bn, approximately.
- Since 2018, as part of a phased approach to scheme delivery the OPW has trebled to nearly 90 the number of schemes at design and construction at this time.
- Capital investment in flooding projects, associated flood risk management measures and programmes was over €55m in 2021.

2021 Expenditure Summary

- Approximately €20m (36%) of the total expenditure in 2021 was incurred by ten schemes, which were under construction during this period including the Athlone Flood Relief Scheme (€4m), Ennis South Flood Relief Scheme (€3.5m) and the Douglas Flood Relief Scheme (€4m).
- In addition, the other projects currently at various stages of design and planning incurred expenditure of approximately €25.8m (47%).
- The OPW continued to fund Local Authorities under the Minor Flood Mitigation Works and Coastal Protection Scheme, with approximately €2m (4%) expended under the Scheme in 2021. Since 2009, 643 projects have been completed at a cost of approximately €43.4 million to 2021. These projects provide flood protection to over 7,400 properties. Approximately two-thirds of these properties are outside of those areas to be protected by the major flood relief schemes.

10 Forestry and Bio-energy

This programme provides grants and annual premium payments to landowners (for 15 years) in exchange for planting trees. During 2019 a number of new measures were introduced to increase levels of biodiversity and to assist the sustainable management of forests. These measures included support for additional management options such as continuous cover forestry (CCF) which gives forest owners an alternative to the more traditional harvesting systems such as clearfelling on certain areas. In 2020, a new Woodland Creation on Public Lands scheme was introduced to encourage the planting of native tree species on suitable land owned by public bodies. The native woodlands created under this Scheme are non-commercial and for the benefit of the public in general to exist in perpetuity.

The Climate Action Plan 2021 contains annual targets of 8,000ha of afforestation and construction of 125km of Forest Roads. In 2021, 2,016 hectares of new forests were planted in Ireland by private landowners under the afforestation scheme. This compares to 2,434 hectares of new forests planted in 2020. In addition, in 2021, 72 kilometres of forest roads were grant aided through the forest road scheme which will facilitate the mobilisation of biomass for wood products and energy.

Based on the 2021 National Inventory Report to the UNFCCC, forests in Ireland sequestered over 5.1 Mt of CO_2 equivalents in 2019 which includes removals associated with harvested wood products.

During the Forestry Programme 2014-2020, which was extended to end 2022 in late 2020, total afforestation has exceeded 30,000 hectares and over 550 kilometres of forest roads were constructed. Total expenditure along with future commitments amount to over € 423 million for this period.

11 Environmental Protection Agency – Administrative expenses

Funding is provided to support the operation of the Environmental Protection Agency (EPA). The EPA is an independent public body established under the Environmental Protection Agency Act, 1992. It has a wide variety of functions relating to the protection of Ireland's environment, ranging from the enforcement of environmental law, monitoring, analysing and reporting on the environment, waste management and radiological protection. The EPA funds environmental research to identify pressures, inform policy and provide solutions in the areas of climate, water and sustainability; and new research projects into water, climate and air and environmental sustainability.

12 National Heritage (NPWS)

The National Parks and Wildlife Service (NPWS) of the Department of Housing, Local Government and Heritage (DHLGH) is responsible for the conservation of nature and biodiversity in Ireland.

The overarching strategy for nature conservation is Ireland's *3rd National Biodiversity Action Plan 2017-2021* (NBAP), a Government policy that is comprised of a suite of Objectives, Targets and Actions that aims to achieve Ireland's Vision for Biodiversity that "biodiversity and ecosystems in Ireland are conserved and restored, delivering benefits essential for all sectors of society and that Ireland contributes to efforts to halt the loss of biodiversity and the degradation of ecosystems in the EU and globally". The first draft of the Ireland's 4th National Biodiversity Action Plan (NBAP) was developed in 2021 following a comprehensive review of current and emerging national, European and international biodiversity policies and other relevant plans and strategies. The new Plan will build on the successes of the 3rd NBAP 2017-2021 and will meet the implementation challenges it faced.

DHLGH, alongside the Heritage Council, provide funding for the National Biodiversity Data Centre. The National Biodiversity Data Centre is a national centre for the collection, collation, management, analysis and dissemination of data on Ireland's biological diversity. Biodiversity data are a key requirement for understanding our natural surroundings, for tracking change in our environment and for gaining a greater insight on how we benefit from, and impact upon, the ecosystem goods and services provided by biological diversity and in 2021 held 16,911 species and over 4.5 million records.

13 Landfill Remediation

The Landfill Remediation Grant Programme is a grant scheme administered by the Department of the Environment, Climate and Communications (DECC) as the funding body and national policy and legislative authority. The Department governs the allocation of grant funding for the capital costs incurred by local authorities in the monitoring and remediation of certain closed landfill sites. There is a statutory obligation on local authorities to identify and address unregulated waste sites under Section 22 of the Waste Management Act, 1996 (amended) and the funding programme was established to address the financial burden on local authorities. The programme was initiated as part of a suite of actions undertaken by the State in response to findings of the ECJ C494/01 infringement case against Ireland – the case was closed in 2015. In addition to the Waste Management Act, 1996 (amended) the programme is informed by the obligations under the S.I. No. 524/2008 – Waste Management (Certification of Historic Unlicenced Waste Disposal and Recovery Activity) Regulations 2008 which addresses the regularisation of certain local authority operated landfills from 1977 and 1997. The primary objective is to identify, risk assess and monitor these sites, to produce a long-term care plan which may include remediation works as required to mitigate against any potential environmental risk posed, for the protection for human health and the environment.

The National Development Plan 2021-2030 sets out the national commitment to the landfill remediation grant programme to 2030. This commitment acknowledges this legacy issue and the need to continue to address it. The roadmap for delivery of the programme is set out in the regional waste management plans, 2015-2021. These plans are in the process of being replaced by one national waste management plan in 2022 'National Waste Management Plan for a Circular Economy', with the commitment for this set out in the new Waste Action Plan for a Circular Economy, which sets out national waste policy for the next 5 years. The new national waste plan from 2022 will set out a renewed roadmap for delivery of the landfill remediation grant programme. The list of identified landfill sites, known as the Section 22 register' is currently being reviewed as part of this process with a view to it becoming a live resource for tracking programme progress in due course. This is being managed by dedicated resources namely, the landfill remediation programme regional co-ordinators, in the regional waste management planning offices.

The programme is governed by the national steering group, with funding submissions considered for approval at the start of each new financial year. The commitments are reviewed through the work of the steering group throughout the year and emerging policy issues can be identified and addressed. The steering group was established in 2019, chaired by DECC and supported through landfill remediation programme regional co-ordinators.

A total funding of €20 million was provided to local authorities under the Landfill Remediation grant programme to support progress of 70 sites across 21 local authorities broken down by Region as follows:

Region	Local Authorities	No. of sites per Region
Southern Region	7	35
Connacht Ulster Region	6	19
Eastern Midlands Region	8	16
Total	**21**	**70**

Approximately €15m of the expenditure was for the completion of the final stage IV of the largest project of its kind in the State, at the former landfill site at Kerdiffstown, Kildare. This project will see the remediation of the former quarry and landfill site and the creation of a recreational park as an amenity for the local community providing an enhanced long term site management care plan. Further details are set out in the Case Study on page 28.

Diesel and tyre site clean-up

In addition to funding landfill remediation, the grant programme provides funding to local authorities in addressing other sites as needed, namely diesel laundering, tyre sites and farm plastic. In 2021 €0.5m funding was provided to two local authorities, Monaghan and Louth, for clean-up of diesel laundering sites. A further €0.6m supported remediation of 4 tyre sites and 1 farm plastics site located in 5 local authorities, namely Galway, Westmeath, Donegal, Waterford and Clare.

14 International Climate Change Commitments

Under this heading, the Minister for the Environment, Climate and Communications was responsible for the allocation of €15 million in financial support for international climate action, an increase of €10 million on previous years. It is intended that this funding will contribute to achieving Ireland's enhanced climate finance commitments announced at COP26 where Ireland committed to more than double its annual funding for developing countries to tackle climate change to €225 million by 2025.

In line with Ireland's multiannual commitment to GCF-1, Ireland provided an annual contribution of €4 million to the Green Climate Fund in 2021. In 2021 The Department of the Environment, Climate and Communications also provided funding to the Adaptation Fund, the NDC Partnership, the IPCC, CCAC Trust Fund, the Single Donor Trust Fund of the Asian Development Bank and the International Fund for Agriculture Development (IFAD).

The contribution payments to the Single Donor Trust Fund of the ADB and to IFAD were once off voluntary contribution payments to an established funding partner under Irish Aid. The Department of Foreign Affairs disbursed the funds under updated agreements using existing grant management arrangements between itself and the respective partners.

For the first replenishment of the Green Climate Fund, Ireland pledged to double the annual contribution to the Green Climate Fund, from €2 million per annum to a total, over the period 2020 to 2023, of €16 million. The additional funding of €2 million again for 2021 has been made available through increases in the carbon tax under Budget 2021.

15 Peatlands Restoration and Management

The National Peatlands Strategy is the cornerstone of peatlands policy in Ireland. The strategy contains a comprehensive list of actions, necessary to ensure that Ireland's peatlands are preserved, nurtured and become living assets within the communities that live beside them.

The Strategy available at this link covers the period 2015-2025 and is currently undergoing a midterm review.

Functioning peatlands capture (sequester) carbon from the atmosphere and store it in the form of peat and vegetation. Restoring and rehabilitating Ireland's peatlands will ensure that the carbon content of the peat within each bog is stored in perpetuity. Currently it is estimated that peatlands emit ca 5-7 Mt CO_2 per year, which equates to approximately 10% of the national greenhouse gas emissions as reported annually by the EPA. It is essential therefore to keep the carbon stored in the ground and restore and rehabilitate their hydrological balance to return degraded peatlands to sinks or carbon neutral systems.

The National Parks and Wildlife Service (NPWS) of the Department of Housing, Local Government and Heritage are leading on this programme for nature based change by restoring over 22,000 hectares of protected raised bog.

In 2021 restoration measures were undertaken across several protected raised bogs with preparatory measures undertaken on a range of other sites including the installation of hydrological monitoring equipment. Further phases of the restoration programme are underway or planned.

The monitoring of greenhouse gas emissions and hydrological monitoring is continuing across Irelands raised bog network.

The Cessation of Turf Cutting Compensation Scheme (CTCCS) was established in 2011 to provide a long term compensation scheme for domestic turf cutters affected by the cessation of turf cutting on designated raised bog special areas of conservation and was extended in 2014 to include raised bog natural heritage areas.

Much of Ireland's protected peatlands are in private ownership, though considerable areas are in the control or ownership of the state. The CTCCS is part of a suite of measures which facilitates the restoration programme for protected raised bogs, by compensating domestic turf cutters who have ceased to cut turf from these bogs.

This scheme is applicable to turf cutters who fulfil the qualifying criteria of the scheme and who have ceased cutting turf for domestic purposes on the raised bog special areas of conservation and natural heritage areas encompassed by the scheme. It comprises; a payment of €1,500 per annum, index-linked, for 15 years, or relocation, where feasible, to a non-designated bog, together with once off payment of €500 on the signing of a legal agreement with the Minister under the scheme. 2,886 applicants received annual payments in 2021 under the CTCCS. There may be other affected turf cutters, who may qualify under the scheme, who may still apply.

16 Climate Initiatives

The Climate Action Modelling Group (CAMG), formerly the Technical Research and Modelling (TRAM) Group was established in 2015 with the goal of providing the technical capacity required to inform policy development in the context of the national low-carbon transition.

Currently the CAMG comprises of four research partners who provide research and modelling on various aspects of Irelands economy and energy system to assist in policy development.

The current CAMG partners;

- University College Cork, with a focus on energy systems modelling;
- University College Dublin, who examine electrification as a whole at various scales in one (EMPowER) model covering 3 prongs: Technology Adoption, Distribution System and Generation;
- EnvEcon's models examine air quality and the transport system; and
- the Economic and Social Research Institute (ESRI) modeling is primarily focused on examining the links and effects between climate policies and the economy.

In 2021, as well as performing specific research in their own specialist area's all CAMG members contributed greatly to the development of the Climate Action Plan 2021.

The work of each partner is subject to a multiannual contract, or grant agreement in the case of the ESRI. In 2021 a total of €1,597,092 was paid to the CAMG Partners under these contracts. The contracts with each partner are due to expire in Q4 of 2022 and Q1 of 2023. DECC expects to tender for new contracts to continue the work of CAMG for at least the next 5-7 years. The work of the group is essential to guide policy development to enable Ireland to meet its ambitious emissions reduction targets by 2030.

17 Energy Research Programmes

The SEAI National Energy Research Development and Demonstration (RD&D) Funding Programme invests in innovative energy RD&D projects which contribute to Ireland's transition to a clean and secure energy future. The National Energy RD&D Programme is a key enabler of Ireland's medium to long term energy policy targets and Ireland's Climate Action Plan.

The percentage of funding ranges from 25-60% for projects which are classified as 'experimental development'; 50-80% for industrial research; and up to 100% for non-economic public good research performed mostly by non-commercial entities such as 3rd level educational bodies. Further details are available in the SEAI RD&D Budget Policy.

SEAI hosted the annual National Energy Research and Policy Conference online in November 2021, with a thematic focus of Decarbonising Transport. The event brought together leading national and international experts from key energy and transport research, policy and industry organisations.

Samples from 2021 SEAI National Energy RD&D Awards:

Brightwind Ltd	Further developments of a wind and solar resource analysis cloud application and open data platform.
Ocean Wave Venture	BlueBox – Edge computing for ocean data science
Trinity College Dublin	Hygrothermal assessment in cold roof buildings with reduced ventilation.

https://www.seai.ie/grants/research-funding/research-development-and-demonstration-fund/

Offshore

The SEAI Ocean Energy Prototype Development Fund is currently closed to new applications, but a number of existing funded projects are ongoing. Details of all projects funded by the programme are available in SEAI's National Energy Research Database and more information can be obtained by visiting SEAI's website or emailing energyresearch@seai.ie.

18 Capital Expenditure by Irish Water on Domestic Water Services

Irish Water is a fully publicly-owned, regulated, commercial State body with responsibility for the operation and maintenance of Ireland's public water and waste water assets. It was established to provide safe, clean, affordable and environmentally-compliant water and waste water services to households and businesses connected to the public network.

This involves treating 1.7 billion litres of drinking water each day and treating the waste water produced. Irish Water's public water and sewer networks require a multi-billion euro investment programme. The key challenges for Irish Water are to:

- Enhance compliance with regulatory standards (both drinking water and waste water);
- Address the network loss rate and reduce leakage;
- Increase network and treatment capacity to support growth (both social and economic);
- Develop the resilience required to cater for greater frequency of extreme weather events; and
- Maintain the current aging asset base and rectify the legacy issues.

Irish Water's capital expenditure in 2021 was set across the three themes of the Water Services Policy Statement (2018-2025):

1) Quality: bringing and maintaining public water and waste water services to acceptable international benchmarks and ensuring improved compliance with public health and environmental standards;
2) Conservation: prioritising improved resource management, abstraction control, source protection, tackling leakage and encouraging behavioural change; and
3) Future proofing: supporting economic and social progress and improving capacity and resilience.

47% of Irish Water capital expenditure in 2021 was under the "Quality" heading, 36% for "Future Proofing" and the remaining 17% was spent on "Conservation." 2021 investment includes the Ringsend Waste Water Treatment Plant Upgrade; Cork City Lee Road Water Treatment Plant; Arklow Sewerage Scheme; Blanchardstown Regional Drainage Scheme and the Vartry Water Treatment Plan and Stillorgan Reservoir projects.

Due to the ongoing progress Irish Water is making in investing in improving water quality and addressing long-standing issues with Ireland's water supplies, over 790,000 people in 16 water supplies were removed from the EPA's Remedial Action List (RAL) in 2021. The number of customers served by vulnerable water supplies has now reached its lowest ever level. Among these schemes was the removal of seven supplies served by the new Vartry Water Supply Scheme from the RAL. These supplies serve a combined population of 127,000 people in Wicklow and South Dublin who are now benefiting from a safer, more secure water supply following completion in 2021 of an upgrade of the scheme.

The Vartry Water Supply Scheme was developed by Dublin Corporation in the 1860s and provides drinking water for a supply area stretching from north Wicklow to south Dublin. The new Vartry water treatment plant is operational since 1st November 2021. The completion of the plant marked the culmination of a total investment of €150 million in the upgrade of the Vartry Water Supply Scheme, which also includes the Vartry to Callowhill link pipeline commissioned on 2018, and the construction of a new covered storage reservoir at Stillorgan, which became operational in September 2021. Works on site for the de-commissioning of the uncovered reservoirs will continue into late 2022.

Sample of Irish Water Projects

Irish Water Projects	2021 Expenditure €m
Ringsend Waste Water Treatment Works	44.7
Greater Dublin Drainage Project	26.8
Vartry Water Supply Project	21.9
Cork City – Lee Road Water Treatment Plant	20.8
GDRDP: Blanchardstown Sewerage Scheme	20.8
Arklow Sewerage Scheme	20.2

More information about Irish Water projects can be found on the Irish Water website and further details are set out in the *Irish Water Strategic Funding Plan 2019*. Although the majority of Irish Water's capital funding comes from the Exchequer on behalf of the domestic sector, Irish Water's non-domestic sector partially finances Irish Water's investment programme through a combination of customer funded capital expenditure for new connections and the surplus generated from the provision of services to Irish Water's non-domestic customers. The values in respect of individual projects referenced above refer to total expenditure in 2021 on these projects.

19 Rural Water Programme

The Rural Water Programme delivers improvements to private domestic water services in areas where there are no public water services. This is achieved through capital investment and support through measures which are aimed at environmentally sustainable outcomes by:

- funding water conservation and supporting good practices;
- helping group water schemes to achieve wholesome and clean water that is compliant with the Drinking Water Regulations;
- contributing to reduced energy and consumables costs;
- providing for new group water schemes where public water supply schemes or domestic wells are not the most viable option;
- allowing water quality deficient schemes to be taken in charge ensuring a safe and reliable water supply;
- facilitating the expansion of piped water supplies and central wastewater collection systems;
- supporting the repair/replacement of defective domestic wells and septic tanks to achieve wholesome and clean drinking water and minimising risks to the environment;
- funding innovation and research to improve the efficiency of the rural water sector.

Case Studies of Allocations from Irish Sovereign Green Bonds

A. Remediation of Landfill Site at Kerdiffstown, Kildare

Background

The landfill site at Kerdiffstown was originally a quarry dating back to the 1950s and was subsequently used as a landfill for waste disposal. This comprised of a recycling facility, a lined landfill cell (partially filled with waste) and large unlined areas where considerable amounts of waste had been deposited, with smaller stockpiles of waste around the site.

The site was effectively abandoned by the licence holders in 2010, and the Environmental Protection Agency took possession of it.

In 2011, a fire broke out at the site causing hazard to nearby motorways and communities. This required an immediate emergency response by the State, and it took 30 days to bring the subterranean fire under control. This required significant action undertaken by Kildare County Council, fire services and the EPA.

State response

In 2015, by agreement with the Department of the Environment, Climate and Communications, Kildare County Council and the EPA, Kildare County Council took over management of the site.

There was close engagement locally, minimising impact on the local community while presenting a safely managed site. The immediate and on-going site management includes gas and leachate management with measures taken to reduce any potential environmental risk posed and the provision of adequate protections for the groundwater and the adjacent Morell River.

Kerdiffstown Park Landfill Remediation Project

Since 2015 Kildare County Council have secured the waste licence required to commence remediation works, secured Planning Permission to complete said works, completed necessary Compulsory Purchase Orders and implemented an Environmental Impact Assessment Report (EIAR). Kildare County Council is now the owner of the site and is currently in the process of remediation (Phase IV of the over-all project) whereby the site is being fully remediated, and a landfill remediation management infrastructure is being installed. The site management and long-term use has been considered in light of the needs of the local community, and with sensitivity to the local ecology and wildlife and completion of archaeological surveys. Kildare County Council successfully tendered for the final works contract, awarding a tender in 2020 in the amount of €19.6m (ex-VAT). The contract duration is for 3-5 years and substantial progress has been made in recent years towards achieving a safe, environmentally sound site.

Future and long-term end use

The end use for the site is the creation of a recreational park for use by the wider community.

Kerdiffstown Park is designed to be fully accessible and will include sports and recreational facilities including pitches and changing areas, art installations and will be considerate of local ecological protection. Kildare County Council has engaged extensively with the local community to identify and meet local needs in the course of developing long term site management. A dedicated page on the website allows for real time projects updates here

A visualisation of the future park is available here.

Carrying out the remediation works and continued environmental monitoring of the site will ensure long term management of any potential environmental risks and the creation of the park will secure the long-term future of the site. There has been no significant impact on ground water, storm water or air quality in the surrounding area to date. The site is being managed to a very high standard by a full team of experts in Kildare County Council. It was determined that the site remediation was necessary to address, manage and minimise any potential long-term risk of pollution by landfill gas, odour and leachate. Remediation of the site removes risks to public health and safety and reduces environmental risk to a carefully managed and acceptable level. The creation of Kerdiffstown Park at the site delivers a remediation solution which is acceptable to the local community and integrates sustainable design and development in both the remediation works and the operation of a multi-use public park.

Funding is provided for this project under the Landfill Remediation programme, established in 2006, in recognition of the financial burden on Local Authorities in managing legacy landfill sites.

Picture of the site before remediation commenced:

Visualisation of the future Kerdiffstown Park:

B. Iarnród Éireann – Irish Rail, European Train Control System

New fleet of Dart+ units for which ETCS is a requirement and environmental enabler.

Background

The aim of the Drogheda to Greystones (D2G) European Train Control System (ETCS) project is to enable the operation of the new DART+ commuter fleet, to be delivered in 2024. The project is an environmental enabler, permitting the introduction of both battery and electric trains.

Response

The initial order is for 19 (ETCS) trainsets in 5-car formation, totalling 95 vehicles. This order when fulfilled will deliver a €318 million investment in new rolling stock, train simulators, infrastructure modifications and supporting maintenance.

With an anticipated introduction into passenger service date of mid-2025, it was necessary to procure a new Train Protection System for the vehicles. It comprises equipment factory fitted to the new fleet and trackside equipment supporting system integration into the existing Irish railway environment.

This fleet will be the first in Ireland to enter passenger service fitted with ETCS equipment and will operate over the whole of the existing DART electrified area and the expanded DART+ network when complete.

To enable a speedy deployment and environmental benefits early without the need for overhead electrification, the new fleet includes 13 Battery Electric Multiple Units (BEMUs) for use in both electrified and non-electrified areas. The remaining six trains of the initial 19 will be Electric Multiple Units (EMUs), similar to existing DART trains, capable of operating in the electrified overhead line areas only.

Key Project Dates and Value:

June 2023

1st Head of Series Test Train – Diesel Multiple Unit fitted with ETCS L1.

April 2024

Delivery of 1st ETCS Train from the New Commuter Fleet Order.

July 2024

Trackside Complete.

Test & Commissioning using Test Train Complete.

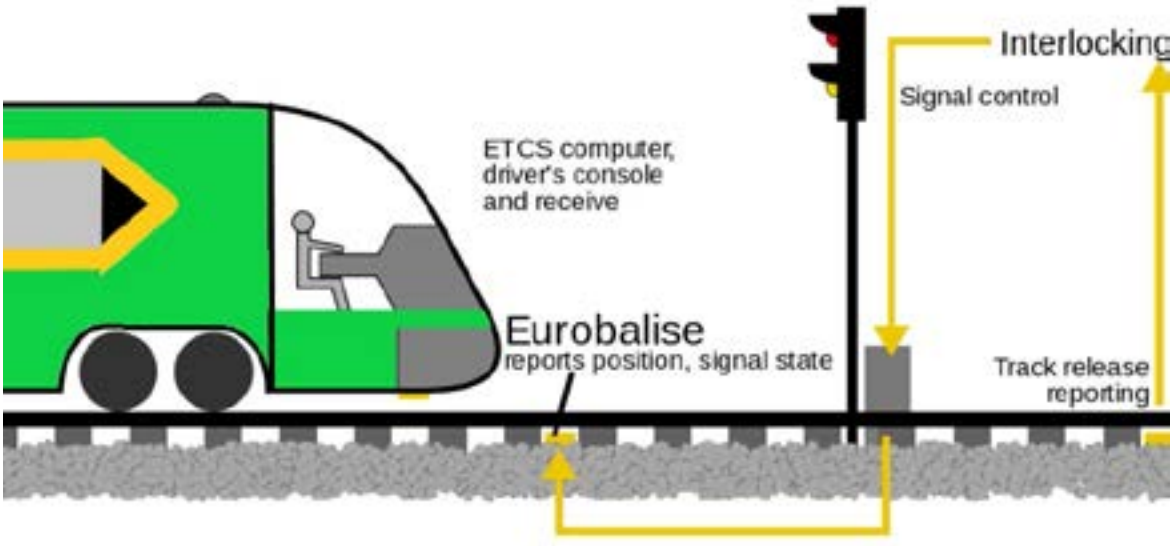
June 2025

Entry into Passenger Service of the New Commuter Fleet Trains.

Map of Drogheda to Greystones Network

Over 454 existing trackside signals are to be protected and some 95km of cable to be installed along with 1170 Eurobalise and 435 Lineside Electronic Units to support ETCS on the route.

ETCS is a cab signalling system that can be superimposed on the existing signalling system, leaving the existing fixed signalling system in place. Onboard Eurobalise radio beacons pick up signal aspects from the trackside signals via signal adapters and telegram coders (Lineside Electronics Units – LEUs) and transmit them to the train as a movement authority together with route data at fixed points. The on-board computer continuously monitors and calculates the maximum speed and the train's braking curve from this data.



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