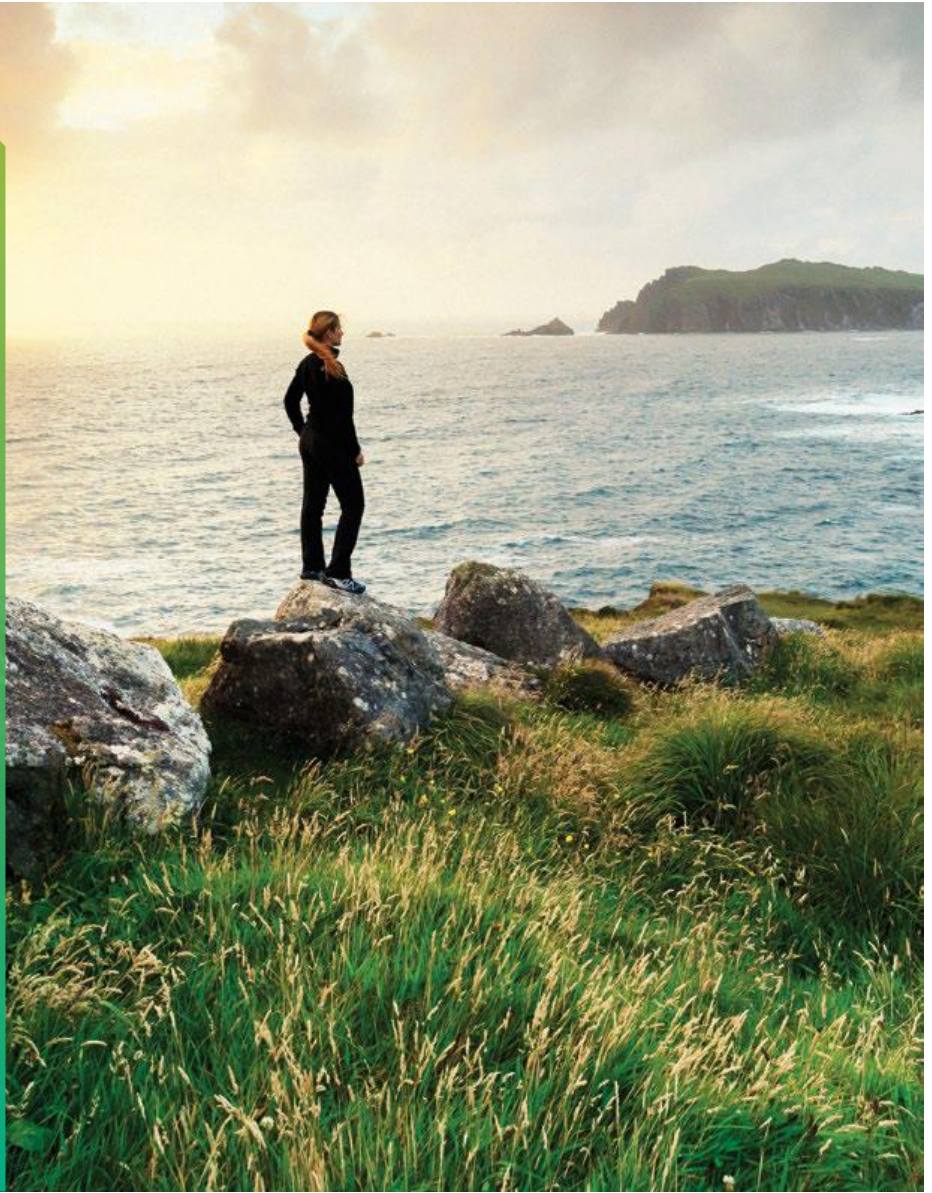


Irish Sovereign Green Bonds

NTMA Investor Relations Team

October 2018



Gníomhaireacht Bainistíochta an Chisteáin Náisiúnta
National Treasury Management Agency

*Photo from National Development
Plan 2018-2027*

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Government commitment

“Climate action is a top priority of this government. Future generations depend on the actions we take today. Project Ireland 2040 sets out our ambitions in regard to building a sustainable, low-carbon society, ambitions that can only be realised by working together with communities, businesses and individuals.”

Taoiseach Leo Varadkar

“This Government fully recognises the challenge we face in relation to Climate Action and has set out a clear strategy to address this challenge through the National Mitigation Plan and National Adaptation Framework. Our ambition to fund these strategies through the National Development Plan is clearly outlined and this includes a commitment to invest in achieving a transition to a low carbon and climate resilient economy.”

Minister for Finance Paschal Donohoe

[On The National Development Plan] “For Ireland, this represents a huge leap forward in our approach to addressing climate action, both in the scale of our ambition and the funding that we’re making available, as a government to meet the challenges.”

Minister for Communications, Climate Action and Environment Denis Naughten



An aerial night view of a city, likely Dublin, Ireland, featuring a river, a bridge, and illuminated buildings. The background is a dark blue sky with city lights. A large green rectangular overlay is positioned in the center of the image, containing text and a logo.

Ireland's Sovereign Green Bond

Ireland's Framework is fully aligned to the
2018 Green Bond Principles



Gníomhaireacht Bainistíochta an Chisteáin Náisiúnta
National Treasury Management Agency

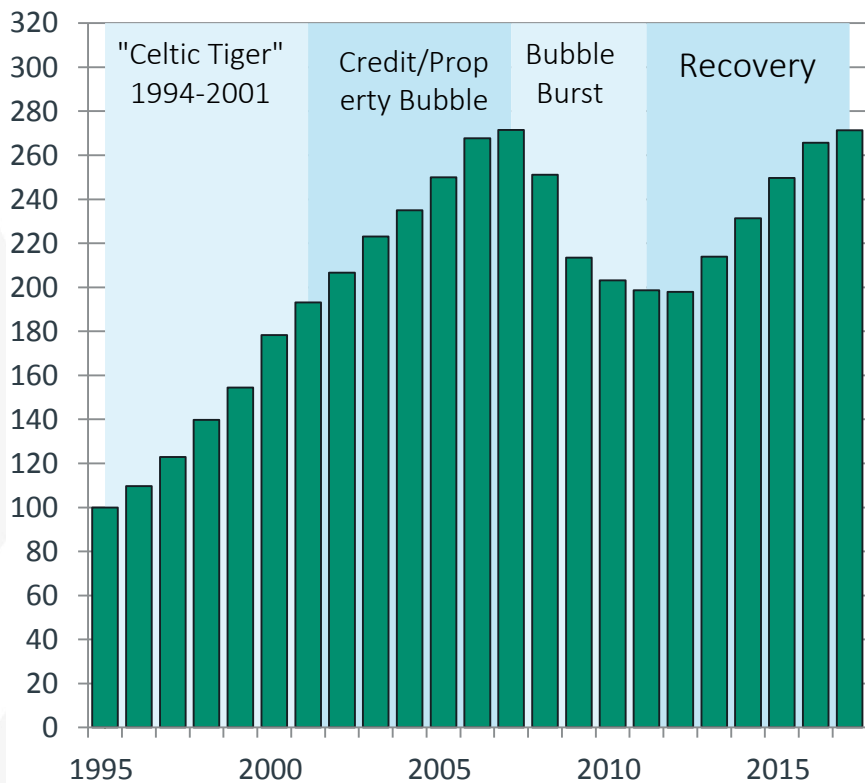
Overview

- Ireland is committed to the transition to a low carbon, climate resilient and environmentally sustainable economy by 2050.
- Ireland has a strong statutory, policy and investment framework in place in order to achieve this transition.
- Ireland’s Government plans to issue a green bond, which will be underpinned by the Irish Sovereign Green Bond Framework (“Framework”) and aligned with the Green Bond Principles (2018).
- Eligible green project categories for the proceeds of the green bond issue include: Sustainable water and waste management, clean transportation, environmentally sustainable management of living natural resources and land use, renewable energy, energy efficiency and climate change adaptation projects.
- Sustainalytics has provided a Second Party Opinion on the Framework.

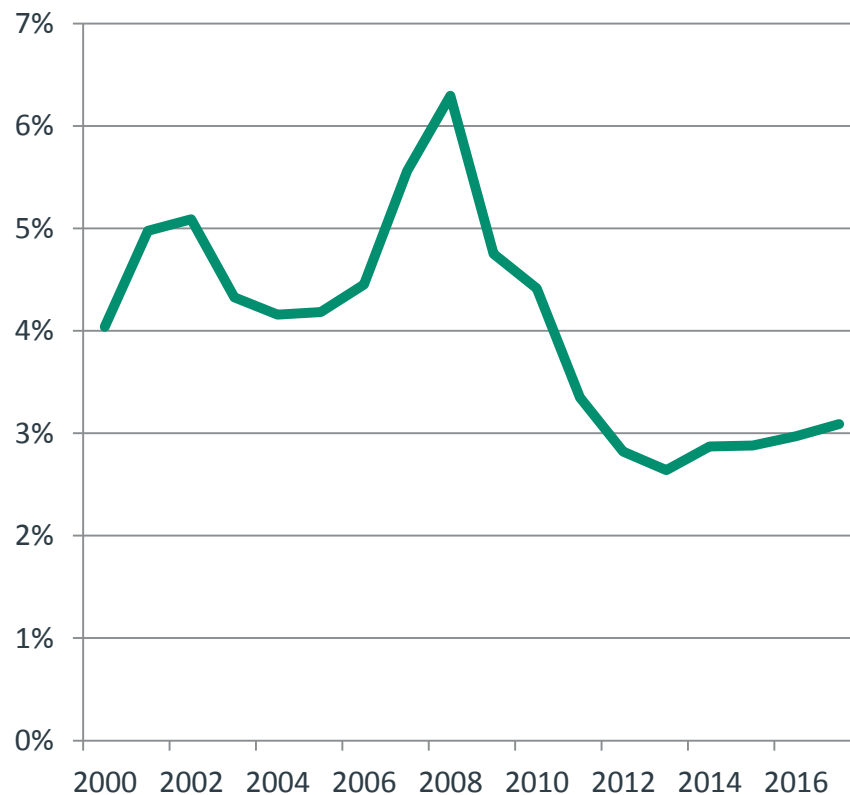


Ireland did not have the funds for green spending until now – because of the severe crisis of 2008-2012

Gross National Income* at current prices (1995=100)



Government capex (% of GNI*) at historic low, only recovering from 2018



Rationale for and features of Ireland's green bonds

- Ireland believes green finance, including Irish Sovereign Green Bonds (“ISGBs”) will play a key role in financing transition to a low carbon, climate resilient and environmentally sustainable economy.
- Ireland plans to diversify its funding base by adding to this substantially growing market segment and match the preference of investors.
- ISGBs will fund eligible green projects that generate a positive environmental benefit.
- ISGBs will rank pari-passu with each other and with Irish Government bonds.
- Investors will not bear any risk in respect of Eligible Green Projects.
- Ireland's Green Bond Framework is attached to the bonds.
- An equivalent amount to proceeds will be spent on eligible green projects.



Irish Sovereign Green Bond Framework

Aligned with the ICMA Green Bond Principles, 2018

Use of Proceeds

Sustainable Water, Clean Transportation, Energy Efficiency, Climate Change Adaptation & others

Project Evaluation and Selection Process

Working Group established by Government:
NTMA, DPER, DCCAE & DFIN

Management of Proceeds

Pending its allocation to Eligible Green Projects, Ireland will temporarily hold proceeds in its Central Fund.

Reporting

Annual Allocation Report &
Biennial Eligible Green Project Impact Report

External Verification



Irish Sovereign Green Bond Framework

External review by Sustainalytics

Second Party Opinion



Second-Party Opinion Irish Sovereign Green Bond



Evaluation date	31 August 2018
Issuer Location	Dublin, Ireland

Evaluation Summary

Sustainalytics is of the opinion that the Irish Sovereign Green Bond Framework is credible and impactful, and aligns with the four core components of the Green Bond Principles 2018. This assessment is based on the following:



USE OF PROCEEDS The eligible categories for the use of proceeds are aligned with those recognized by the Green Bond Principles. Sustainalytics considers that the use of proceeds for (i) Sustainable Water and Wastewater Management, (ii) Clean Transportation, (iii) Environmentally Sustainable Management of Living Natural Resources and Land Use, (iv) Renewable Energy, (v) Energy Efficiency and (vi) Climate Change Adaptation will lead to positive environmental impacts and advance the UN Sustainable Development Goals.



PROJECT EVALUATION / SELECTION Ireland's internal process in evaluating and selecting projects is aligned with market standards, including a dedicated green bond working group with representatives of the National Treasury Management Agency and the Departments of Public Expenditure and Reform, Communications, Climate Action and Environment, and Finance.



MANAGEMENT OF PROCEEDS Ireland's processes for management of proceeds is aligned with market practice. These include a system to track the allocation of an amount equal to the net proceeds of any green bond. Unallocated proceeds are managed according to the liquidity policies of the National Treasury Management Agency of Ireland as part of the Central Fund. Sufficient balances will be maintained to cover any proceeds of a Green Bond Issue that have not yet been allocated to green projects/programmes.



REPORTING Ireland intends to report allocation proceeds in an Annual Allocation Report, including allocation per project/programme and category and amount of unallocated proceeds. In addition, Ireland is committed to publish an Eligible Green Project Impact Report on a biennial basis. Impact indicators reported include, but are not limited to, water discharges with no treatment or preliminary treatment only, number of electric vehicle grants, greenhouse gas and ammonia emissions reductions (tonnes), hectares of forest planted, and number of flood defenses built. In Sustainalytics' view reporting on these metrics is in line with market practice.

Policy background

Ireland's National Development Plan
2018 – 2027 sets out €23 billion
of spending on green projects




Gníomhaireacht Bainistíochta an Chisteáin Náisiúnta
National Treasury Management Agency

Ireland's timeline of sustainability initiatives

Cut CO₂ emissions from electricity, buildings & transport by at least 80% by 2050

April 2014



Ireland's National Policy Position on Climate Action and Low Carbon Development

December 2017




Roinn Cumarsáide, eGníomhaíocht ar son na hAeráide & Comhshaoil
Department of Communications, Climate Action & Environment

Annual Transition Statement 2017




January 2018



Roinn Cumarsáide, eGníomhaíocht ar son na hAeráide & Comhshaoil
Department of Communications, Climate Action & Environment

National Adaptation Framework
Planning for a Climate Resilient Ireland



July 2018

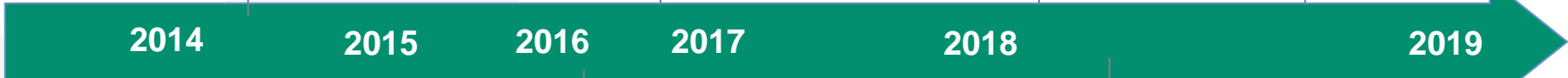


Gníomhaireacht Bainistíochta an Chisteáin Náisiúnta
National Treasury Management Agency


Ireland

Irish Sovereign Green Bond Framework

Green Bond Framework approved by the Government of Ireland




December 2015




Climate Action and Low Carbon Development Act, 2015

July 2017



Roinn Cumarsáide, eGníomhaíocht ar son na hAeráide & Comhshaoil
Department of Communications, Climate Action & Environment

National Mitigation Plan
JULY 2017



February 2018




Státhas na Míreann
Government of Ireland

Project Ireland 2040
National Development Plan
2018–2027




April 2018



Státhas na Míreann
Government of Ireland

The Sustainable Development Goals National Implementation Plan
2018–2020



Prepared by Department of Communications, Climate Action & Environment
www.dcae.gov.ie/SustainableDevelopmentGoals

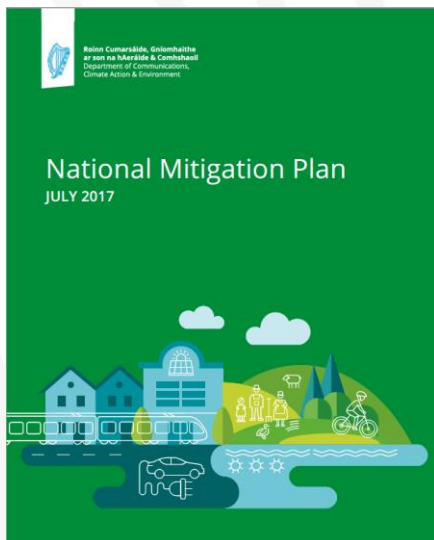
SUSTAINABLE DEVELOPMENT GOALS



Gníomhaireacht Bainistíochta an Chisteáin Náisiúnta
National Treasury Management Agency

National Mitigation Plan

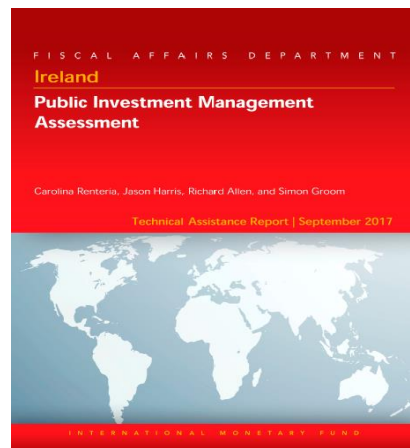
A pathway to achieve targeted level of decarbonisation



- 106 supporting actions / projects.
- Addresses emissions across the economy: Built Environment, Electricity, Transport, and Agriculture, Forestry & Land-Use.
- A 'living document' updated annually through Annual Transition Statement
- Cabinet Committee and National Parliament Oversight.
- Formal update at least every five years.

Supported by National Dialogue on Climate Action

- Provides an opportunity to create awareness, engagement and motivation to act (locally, regionally and nationally) in relation to the challenges presented by climate change.



National Policy Position objective for 2050:

- Reduction in carbon emissions of at least 80% (compared to 1990) by 2050 across electricity generation, built environment and transport sectors.
- An approach to carbon neutrality in the agriculture and land use sector, including forestry, which does not compromise capacity for sustainable food production.

To ensure that progress in implementing the NMP is robust, a progress report will be published each year under the 2015 Act, to be included in the Annual Transition Statement.

NMP recognised by IMF PIMA Report (2017) as good practice example of investment-relevant information.



An aerial night view of a city, likely Dublin, Ireland, featuring a river, a bridge, and modern buildings. The scene is illuminated by city lights and streetlights, creating a vibrant urban atmosphere.

Eligible Green Projects



Gníomhaireacht Bainistíochta an Chisteáin Náisiúnta
National Treasury Management Agency

Irish Sovereign Green Bond Framework

Examples of eligible green expenditures

	Eligible Green Categories	Examples of Eligible Green Projects	Estimated Annual Amounts 2018 € Million	Estimated Percentage 2018
1	Sustainable Water and Wastewater Management	<ul style="list-style-type: none"> Clean water and wastewater treatment projects Rural Water Programme 	540	31%
2	Clean Transportation	<ul style="list-style-type: none"> Public and sustainable transport Investment Programme Low emission vehicles incentives & infrastructure, and alternative fuels Public programmes incentivising modal shift away from private car use Public Service Provision Payments 	710	40%
3	Environmentally Sustainable Management of Living Natural Resources and Land Use	<ul style="list-style-type: none"> Afforestation programme Grants, subsidies, and support schemes designed to reduce agricultural environmental impacts Operation of the Environmental Protection Agency (EPA) 	270	15%
4	Renewable Energy	<ul style="list-style-type: none"> Support scheme for renewable heat Research and development for the commercialization of renewable energy technologies 	10	1%
5	Built Environment / Energy Efficiency	<ul style="list-style-type: none"> Energy efficiency programmes (including heating, retrofit, insulation) 	160	9%
6	Climate Change Adaptation	<ul style="list-style-type: none"> Flood relief and other risk mitigation programmes 	70	4%
	TOTAL		€ 1,760	

National Development Plan (NDP) 2018 – 2027

Projected Exchequer spending on green projects

1 in 5 euros in the NDP to be spent on green projects

Sustainable
Mobility
€8.6 billion

Sustainable
Management
of Water and
Environmental
Resources
€6.8 billion

Transition to a
Low carbon
and Climate
Resilient
Society
€7.6 billion

Total: €23
billion
(13% of
GNI*)



Clean Transportation

Sustainable Mobility €8.6 billion Investment

METROLINK

An **electric** light railway transportation system via Dublin Airport to Dublin's south city centre (operating in tunnel under the city centre) and onwards to Sandyford using the existing LUAS (on-street tram system) line to ensure that growth along this corridor can be accommodated.

Estimated cost 2018-2027: € 3 billion

DART

DART (Dublin Area Rapid Transit) **electric** train expansion programme is a series of rail projects that will create a full metropolitan area DART network for Dublin with all of the lines linked and connected.

This includes buying additional fleet for the DART network and measures such as re-signalling, junction and station changes to provide expanded services.

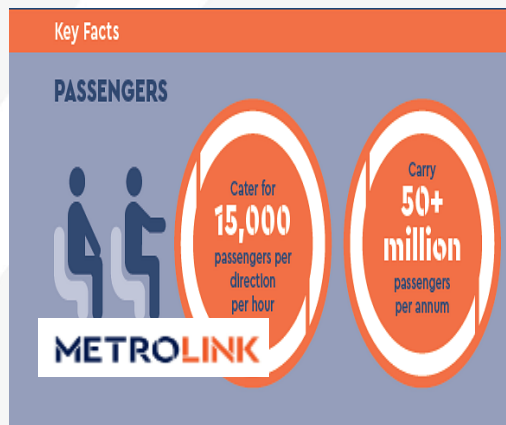
Estimated cost 2018-2027: € 2 billion

LUAS

LUAS Capacity enhancement project: LUAS is a tram/light **electric** rail system in Dublin Line and the project expansion includes:

- lengthening of the 26 existing Green line trams from 43m to 55m,
- procurement of eight new 55m-long trams to cater for the forecast increased passenger demand to 2027,
- extension of the Sandyford depot to accommodate the maintenance of the longer trams.

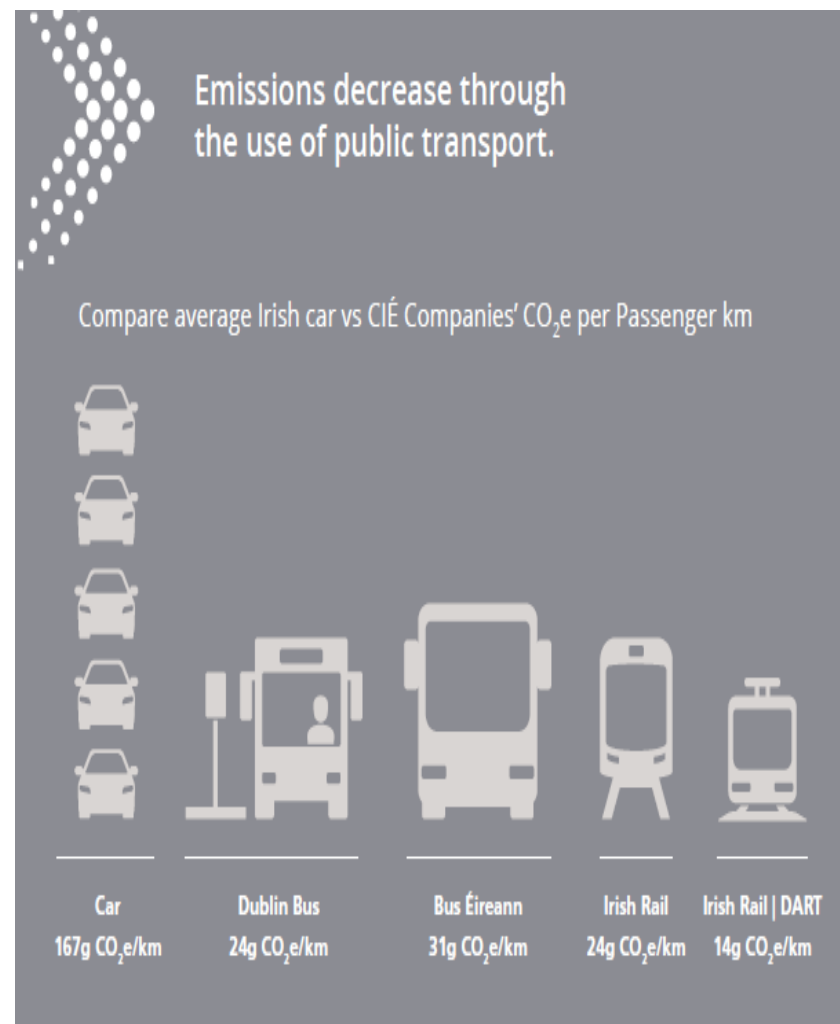
Estimated cost 2018-2022: € 90 million



Clean Transportation

Estimated Expenditure 2018 € 710 Million

Programme/Scheme	Estimated Expenditure 2018 € Million
Sustainable Urban Transport/Smarter Travel	26
Heavy Rail Renewal, Development & Maintenance	200
Public Transport Investment - LUAS and Metro	82
Public Transport Investment - Bus Connects	84
Others: Cycling and Walking; Green Schools; Accessibility Retrofit; Greenways; Carbon Reduction	18
Public Service Provision Payments	300
Total	€ 710 Million



Sustainable water and wastewater management

€6.8 billion Investment

Water Services Policy Statement 2018 – 2025:

“Access to safe, reliable and high quality drinking water is perhaps often taken for granted but it is essential to our daily lives, is one of the foundation stones on which our society and our economy is built.”

3 Themes:

- **Quality**

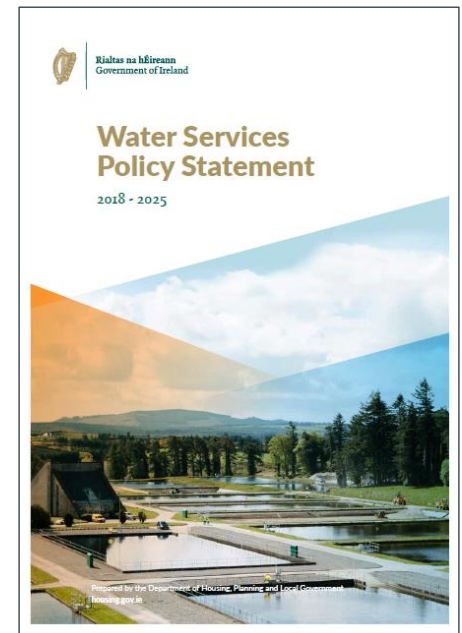
630,000 customers on EPA Remedial Action List.
28% group water schemes on Remedial Action List.
148 urban areas require improvements in wastewater treatment.

- **Conservation**

Network loss rate of 45%.
Many treatment plants operating at maximum capacity.

- **Future Proofing**

Population estimated to grow by an additional 1 million by 2040.
Climate change - greater frequency of extreme weather events.
Improve resilience of rural and private water supplies.



Sustainable water and wastewater management

Leakage Reduction Programme

Leakage Reduction Programme

- Estimated Cost: € 500m over 4 years.
- Reducing leaks by fixing or replacing old & damaged pipes and removing lead pipes on the network.
- Target to save 166 million litres of water per day.

Benefits from the programme:



- **Reliable water supply**



- **Improved water quality**
Reduces the risk of contamination and health risks.



- **Reduced leaks**
Reducing disruptions and cost of running the network.



- **Improved supply connections**
Assists with pressure testing and emergencies.



Public Water Services 2017

608 million m³

Estimated total water demand (Distribution Input)

205 million m³

Domestic demand

124 million m³

Non-domestic demand

273 million m³

Network losses (real and apparent) per year

6 million m³

Operational demand
(mains flushing and networks maintenance)



Sustainable water and wastewater management

Water Projects

Project Cost 2018-2022	Brief Description	Proposed Completion Date
Vartry Water Supply Scheme €151m	To ensure a safe and sustainable water supply for north Wicklow and south Dublin. Upgrade the existing treatment plant.	2021
Eastern and Midlands Water Supply Project €233m to 2022 Estimated Total Cost to 2027: €1.2 to €1.3 billion	To ensure long-term (2050+) water supply needs of Greater Dublin Region are met in a sustainable manner. Involves a water treatment plant, 170 km pipeline, pumping stations and terminal point reservoir.	TBC
Ringsend Wastewater Treatment Plant €249m	Built to treat the wastewater for 1.6 million people; currently services 1.9 million people. Major capacity upgrade project commenced in 2018.	2025



National spread of Irish Water projects to improve water and wastewater services across the country

Source:
<https://www.water.ie/projects-plans/our-projects/>



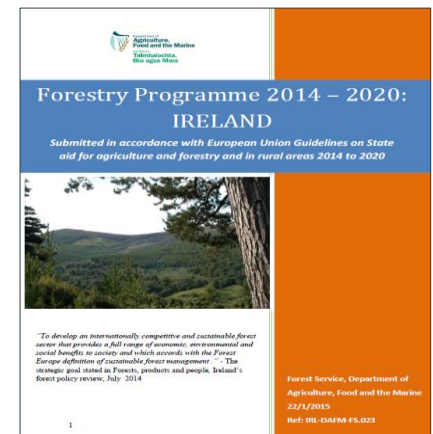
Ringsend Wastewater Treatment Plant



Environmentally Sustainable Management of Living Natural Resources and Land Use

Forestry Programme

- Strategic goal of forest policy: to develop an internationally competitive and sustainable forest sector.
- Only 11% forest cover currently, well below EU average
 - Aiming for 18% by 2046 (1985: 5.9%)
- Forestry Programme 2014-2020
 - Afforestation grant and premium scheme to increase forest cover.
 - Grant: €3,800 - €6,200/ha; Annual Premiums €520 - €680/ha.
 - Current Afforestation Rate: approx. 6,000 hectares per annum.
 - Aims for annual planting of 30% Broadleaves.
 - Typical plantation of Sitka spruce will remove 10 tonnes of CO₂e per annum per hectare over a full rotation.
 - To contribute up to 22m tonnes to 2030 emissions reduction target.
- Some State revenue from auctioning ETS allowances allocated to Forestry Programme.



Built environment/ energy efficiency

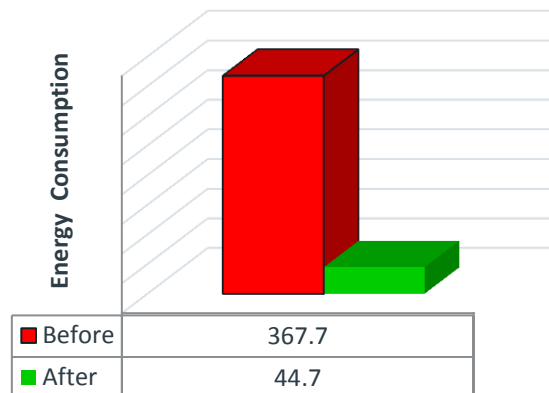
€4.5 billion Investment

- €4.5 billion in the NDP to be spent on energy efficiency : energy efficiency housing retrofit €3,000 million, energy efficiency in public buildings €800 million, boiler replacement €700 million.
- Investments in energy efficiency of existing commercial and public building stock with a target of all public buildings and at least one-third of total commercial premises upgraded to Building Energy Rating 'B' by 2030.
- Investment in energy efficiency, with upgrades to homes increasing from 30,000 to 45,000 >2% of the housing stock per annum from 2021 to achieve a minimum Building Energy Rating of 'B'.
- **Example:** Deep Retrofit Pilot Programme - 3 year pilot : how to scale up commitment of €3bn in housing energy efficiency retrofit focusing on maximising energy efficiency and meeting energy demand with renewable energy solutions.

Before



kWh/m²/yr



After



Built environment/ energy efficiency

Overview of costs and emissions reductions potential

Scheme	Objective of Measure	Projected Exchequer Expenditure 2017-2020 (€m)	Cumulative GHG emissions reduction 2017-2020 (ktCO ₂ e)	Progress to end August 2018
Better Energy Homes	Scheme aimed at making homes warmer and more energy efficient through a wide range of grants.	79	149	215,000 homes upgraded
Better Energy Warmer Homes	Nationwide scheme that delivers free energy efficiency improvements to the homes of those in energy poverty.	86	47	137,000 homes upgraded
Better Energy Communities	A community based scheme that improves the energy efficiency of clusters of buildings through capital funding, partnerships and technical support.	85	184	SEAI has supported over 300 community energy projects covering over 15,000 homes and hundreds of community, private and public buildings
Deep Retrofit Pilot	Significant energy efficiency renovation of homes to an A rating.	21	14	60 buildings upgraded to A rating (typically from an F or G)
Warmth and Wellbeing Pilot Scheme	A three-year pilot providing energy efficiency improvements to the homes of older people and children suffering from chronic respiratory conditions relating to the thermal efficiency of their homes.	32	18	750 homes



Climate change adaptation

€1.0 billion Investment

Flood relief and other risk mitigation programmes

Estimated cost 2018-2027: €1 billion

- Investment programme to protect 11,200 properties (over 0.5% of Ireland's housing stock). This includes eight major flood relief schemes under construction and 26 schemes at design/ planning stage.
- Major projects include: Lower Lee (Cork City) Skibbereen; Enniscorthy; Bandon ; Clonakilty; Claregalway; and Athlone.
- In addition, the programme supports the delivery of 660 minor works schemes.

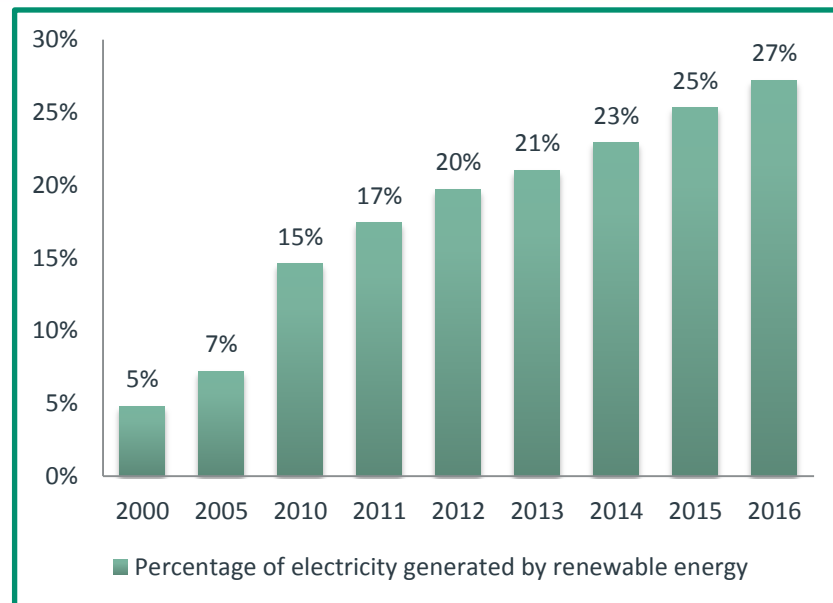


Figure: Waterford Quays Flood Relief Scheme



Non Exchequer climate initiatives

- **Renewable Electricity** - In 2005 7% of Irish electricity came from renewable sources. Today it is approximately 30%.
- Ireland is the EU member state with the **highest level** of installed wind capacity relative to power consumption and 2017 was a record year for new capacity (426 MW).
- In 2019, Ireland will move to a new **Renewable Electricity Support Scheme (RESS)** which will offer technology neutral capacity auctions. This will allow the State to increase renewable electricity deployment while minimising the cost to the consumer and broadening the technologies supported. Up to 4,500MW additional capacity planned for 2030.
- **Carbon Tax** - €20 a tonne applying to all greenhouse gas emissions outside the EU Emissions Trading Scheme.



Top 5 Countries of wind power installations relative to their power consumption

RANKING	COUNTRY	RATIO
1	Ireland	14%
2	Germany	12%
3	UK	12%
4	Finland	6%
5	Belgium	5%



Green finance

Further actions to promote the green finance agenda

IFS 2020 Strategy:
Green and Sustainable
Finance

Climate Action Fund

- ISIF Founding Signatory
to UN Principles of
Responsible Investment

Fossil Fuel Divestment
Bill

OECD Paris
Collaborative on Green
Budgeting

Public Spending Code

Climate KIC Climate
Innovation Summit
Nov 2018

- UN Financial
Centres for
Sustainability (FC4S)

“Sustainalytics recognizes Ireland’s contribution to the European Union’s efforts to advance green finance by issuing Irish Sovereign Green Bonds.”



Appendix



Gníomhaireacht Bainistíochta an Chisteáin Náisiúnta
National Treasury Management Agency

The primary role of the National Treasury Management Agency (NTMA) is to manage Ireland's Government debt

- The Government of Ireland delegates a number of financial functions to the NTMA – a public sector body outside the civil service
 - ❑ Responsible for borrowing on behalf of the Government and managing the National Debt. The NTMA's goal is to ensure that the State is liquid and interest cost is minimised.
 - ❑ Acting as the State Claims Agency, the NTMA manages personal injury, property damage and clinical negligence claims brought against certain State authorities.
 - ❑ NewERA (New Economy and Recovery Authority) provides centralised corporate financial advice and services to Ministers of the Government and commercial semi-State entities.
 - ❑ NTMA also runs the Ireland Strategic Investment Fund – a sovereign development fund with a mandate to invest commercially in a manner designed to support economic activity and employment in Ireland.
 - ❑ Acting as the National Development Finance Agency (NDFA), the NTMA is the statutory financial advisor to State authorities in respect of all public investment projects with a capital value over €20m.
- The mission of the NTMA is to “manage public assets and liabilities commercially and prudently”.



National Development Plan 2018 – 2027

Investment priorities



- The National Development Plan sets out the investment priorities that will underpin the successful implementation of the new National Planning Framework (NPF).
- This will guide national, regional and local planning and investment decisions in Ireland over the next two decades, to cater for an expected population increase of over 1 million people.



National Development Plan 2018 – 2027

Projected €23 billion Exchequer spending on green projects

Sustainable Mobility - €8.6 billion
Eligible Green Category (EGC):
Clean Transportation

- DART (Dublin Area Rapid Transit) Expansion €2 bn
- Metro Link €3 bn
- BusConnects €2.4 bn
- Other Projects/Programmes €1.2 bn



Sustainable Management of Water
and Environmental Resources –
€6.8 billion
EGC: Sustainable Water and
Wastewater Management

- Waste water quality and capacity,
- Improve drinking water quality and capacity
Infrastructure projects: €6.6 bn
- Rural Water Programme €0.2 bn



Transition to a Low carbon and
Climate Resilient Society - €7.6
billion

EGC: Built Environment / Energy
Efficiency, Renewable Energy,
Climate Change Adaptation

- Energy Efficiency Housing Retrofit €3 bn
- Energy Efficiency in Public Buildings €0.8 bn
- Boiler Replacement €0.7 bn
- Flood Defences €1 bn
- Other Projects/Programmes €2.1 bn



National Policy Position on Climate Action and Low Carbon Development

Ireland's National Policy Position on Climate Action and Low Carbon Development, 2014

Provides a high-level policy direction for the adoption and implementation by Government of plans to enable the State to move to a low carbon economy by 2050.

The National Policy Position objective for 2050:

- An aggregate reduction in carbon emissions of at least 80% (compared to 1990 levels) by 2050 across the electricity generation, built environment and transport sectors .
- In parallel, an approach to carbon neutrality in the agriculture and land use sector, including forestry, which does not compromise capacity for sustainable food production.

Climate Action and Low Carbon Development Act, 2015

Provides the statutory basis for the national transition objective laid out in the national policy position.

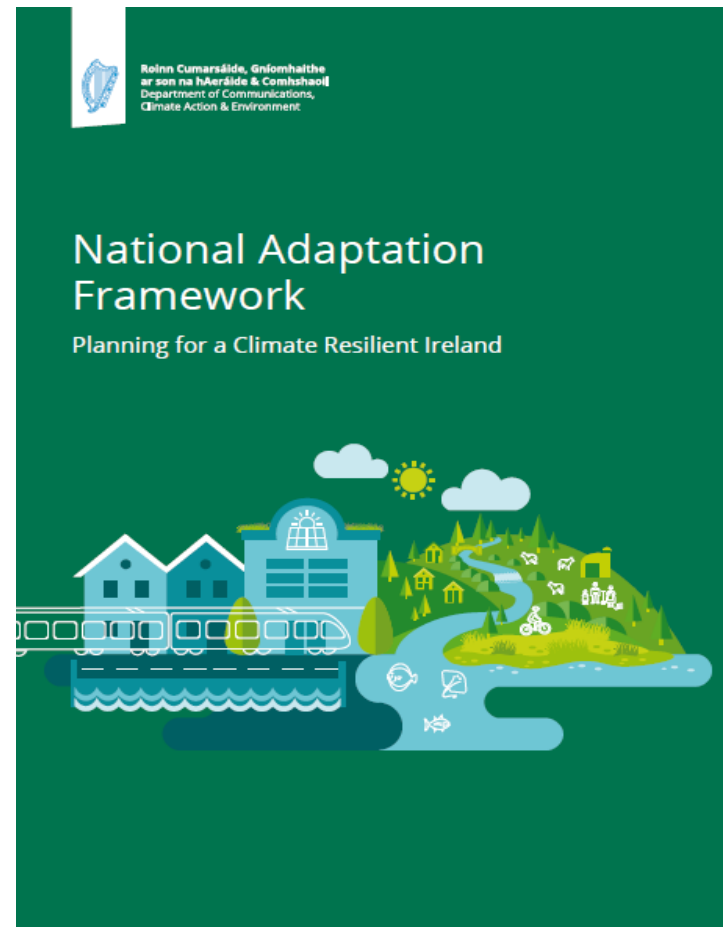
As provided for in the 2015 Act, in order to pursue and achieve the national transition objective, the Minister for Communications, Climate Action and Environment must make and submit to Government a series of successive National Mitigation Plans (NMPs) and National Adaptation Frameworks (NAFs).



National Adaptation Framework

Planning for a climate resilient Ireland

- Approved by Government in December 2017 and published in January 2018
- Under the NAF, seven Government Departments (or Agencies, where appropriate) with responsibility for twelve priority sectors are required to prepare Sectoral Adaptation Plans
- Sectoral plans to be submitted to Government for approval by 30 September 2019
- Local Authorities to prepare Local Adaptation Strategies by same date
- Climate Action Regional Offices being established to support local and regional climate action



The Sustainable Development Goals National Implementation Plan

Ireland's plan to implement the 17 UN Sustainable Development Goals (SDGs)



The Sustainable Development Goals National Implementation Plan 2018 - 2020 is in direct response to the 2030 Agenda for Sustainable Development and provides a whole-of-government approach to implement the 17 Sustainable Development Goals (SDGs).

The Plan identifies **four strategic priorities to guide implementation:**

- **Awareness:** raise public awareness of the SDGs;
- **Participation:** provide stakeholders opportunities to engage and contribute to follow-up and review processes, and further develop national implementation of the Goals;
- **Support:** encourage and support efforts of communities and organisations to contribute towards meeting the SDGs, and foster public participation; and
- **Policy alignment:** develop alignment of national policy with the SDGs and identify opportunities for policy coherence.

Ireland's SDG Reporting Schedule 2018-2030

Year	National Report	VNR at HLPF
2018	1st National SDG Report	1st Voluntary National Review delivered to the UN
2020	2nd National SDG Report	n/a
2022	3rd National SDG Report	2nd Voluntary National Review delivered to the UN
2024	4th National SDG Report	n/a
2026	5th National SDG Report	3rd Voluntary National Review delivered to the UN
2028	6th National SDG Report	n/a
2030	7th National SDG Report	4th Voluntary National Review delivered to the UN*

* Depending on the modalities of the HLPF in 2030, the presentation of Ireland's 4th VNR may be switched to 2029.



Ireland's strong fundamentals highlighted by performance on United Nations sustainability index














Selected Countries	Global Rank	Index Score (0-100)
Sweden	1	85.6
Denmark	2	84.2
Finland	3	84.0
Norway	4	83.9
Czech Republic	5	81.9
Germany	6	81.7
France	10	80.3
Belgium	12	80.0
United Kingdom	16	78.3
<u>Ireland</u>	<u>19</u>	<u>77.9</u>
Spain	25	76.8
Portugal	28	75.6
Italy	30	75.5
Luxembourg	33	75.0
Greece	38	72.9
United States	42	72.4

Ireland	Global rank	Vs. Regional Average
Subjective Wellbeing (2016)	13/133	↑
Environmental Performance Index (2016)	19/155	↑
Human Development Index (2016)	8/157	↑
Global Competitiveness Index (2016/17)	21/134	↑
Global Peace Index (2016)	12/149	↑



Irish Sovereign Green Bond Framework

Use of proceeds and alignment with UN Sustainable Development Goals

	Eligible Green Categories ¹	Examples of Eligible Green Projects	Environmental Objectives	Alignment with the NDC	Alignment with SDGs
1	Sustainable Water and Wastewater Management	<ul style="list-style-type: none"> Clean water and wastewater treatment projects 	<ul style="list-style-type: none"> Natural resource conservation 	<ul style="list-style-type: none"> Waste 	 
2	Clean Transportation	<ul style="list-style-type: none"> Public transportation initiatives, low emission vehicles incentives and infrastructure, and alternative fuels Public programmes incentivizing modal shift away from private car use 	<ul style="list-style-type: none"> Climate change mitigation; Pollution prevention and control 	<ul style="list-style-type: none"> Energy 	  
3	Environmentally Sustainable Management of Living Natural Resources and Land Use	<ul style="list-style-type: none"> Grants, subsidies, and support schemes designed to reduce agricultural environmental impacts Afforestation, restoration and conservation programmes 	<ul style="list-style-type: none"> Biodiversity conservation; Climate change mitigation; natural resource conservation 	<ul style="list-style-type: none"> Land Use, Land-Use Change and Forestry 	 
4	Renewable Energy	<ul style="list-style-type: none"> Support scheme for renewable heat Research and development for the commercialization of renewable energy technologies 	<ul style="list-style-type: none"> Climate change mitigation; Pollution prevention and control 	<ul style="list-style-type: none"> Energy 	 
5	Built Environment / Energy Efficiency	<ul style="list-style-type: none"> Support schemes for residential energy efficiency programmes (including heating, retrofit, insulation) 	<ul style="list-style-type: none"> Climate change mitigation 	<ul style="list-style-type: none"> Energy 	  
6	Climate Change Adaptation	<ul style="list-style-type: none"> Flood relief and other risk mitigation programmes 	<ul style="list-style-type: none"> Climate change adaptation 	<ul style="list-style-type: none"> n/a 	



Ireland's Voluntary National Review 2018

SDG	Trend
	<ul style="list-style-type: none"> People at risk of poverty or social exclusion in Ireland was above the EU average in 2015 at 26%
	<ul style="list-style-type: none"> Highest level of Government support to agricultural research and development per capita within the EU in 2016
	<ul style="list-style-type: none"> EU indicators for this Goal suggest that Ireland is making good progress under SDG 3
	<ul style="list-style-type: none"> Based on EU indicators, Ireland performs strongly in relation to education and skills under this Goal
	<ul style="list-style-type: none"> Percentage of Irish women [aged 15-74] who have experienced physical/sexual violence was in line with the EU average at 8%
	<ul style="list-style-type: none"> At 65%, Ireland was in 2014 in the bottom half of EU countries in terms of percentage of the population connected to at least secondary wastewater treatment
	<ul style="list-style-type: none"> Ireland's performance under these indicators is mixed relative to other EU countries
	<ul style="list-style-type: none"> Employment rate above the EU average and the number of Irish young people neither in employment nor in any education/training in line with the EU average in 2017

SDG	Trend
	<ul style="list-style-type: none"> As a percentage of GDP. Ireland's gross domestic expenditure on R&D is below the EU average for 2017
	<ul style="list-style-type: none"> Ireland's results relative to the rest of the EU are mixed with 2016 purchasing power adjusted GDP per capita in Ireland significantly above the EU
	<ul style="list-style-type: none"> 2015 data suggests Ireland has the 4th lowest rates of people living in overcrowded conditions among EU Member States
	<ul style="list-style-type: none"> Ireland's resource productivity, increased between 2001 and 2016, during which period it exceeded the EU average
	<ul style="list-style-type: none"> CO₂ equivalent emissions in tonnes per capita reduced to 13.3 in 2015 versus 18.6 in 2001
	<ul style="list-style-type: none"> Compared to other EU States with fishing fleets, Ireland's catches from major fishing areas decreased in 2016 versus 2001
	<ul style="list-style-type: none"> EU and OECD indicators provide a mixed picture of Ireland's performance under Goal 15
	<ul style="list-style-type: none"> Ireland is, by global and EU standards a highly peaceful and safe country
	<ul style="list-style-type: none"> Working in partnership with others is central to Ireland's approach to international cooperation







 SDGs aligned with the Irish Sovereign Green Bond Framework



Irish Sovereign Green Bond Framework

Use of Proceeds Exclusions

Projects that support or promote the following activities will not be eligible under this Framework as Eligible Green Projects:

-  Burning of fossil fuel for power generation and transportation (apart from mass-transit and compressed natural gas / hybrid vehicles),
-  Rail infrastructure dedicated for transportation of fossil fuels
-  Nuclear power generation
-  Large scale hydro projects – including technology and equipment (i.e. projects that generate greater than 20 MW of electricity)
-  Transmission infrastructure and systems where 25% or more of electricity transmitted to the grid is fossil-fuel-generated
-  Alcohol, weapons, tobacco, gaming, or palm oil industries



Impact indicators examples

Eligible Green Categories	Examples of Potential Key Environmental Impact Indicators
Sustainable Water and Wastewater Management	Water network leakage % Number of discharges with no treatment or preliminary treatment only
Clean Transportation	Number of public transport passenger journeys Number of electric vehicle purchase grants Number of electric vehicle charger grants
Environmentally Sustainable Management of Living Natural Resources and Land Use	Carbon dioxide and ammonia emissions reductions (tonnes) Number of hectares of forest planted
Renewable Energy	Percentage of renewable heat
Energy Efficiency	Carbon dioxide reductions (tonnes)
Climate Change Adaptation	Flood defences

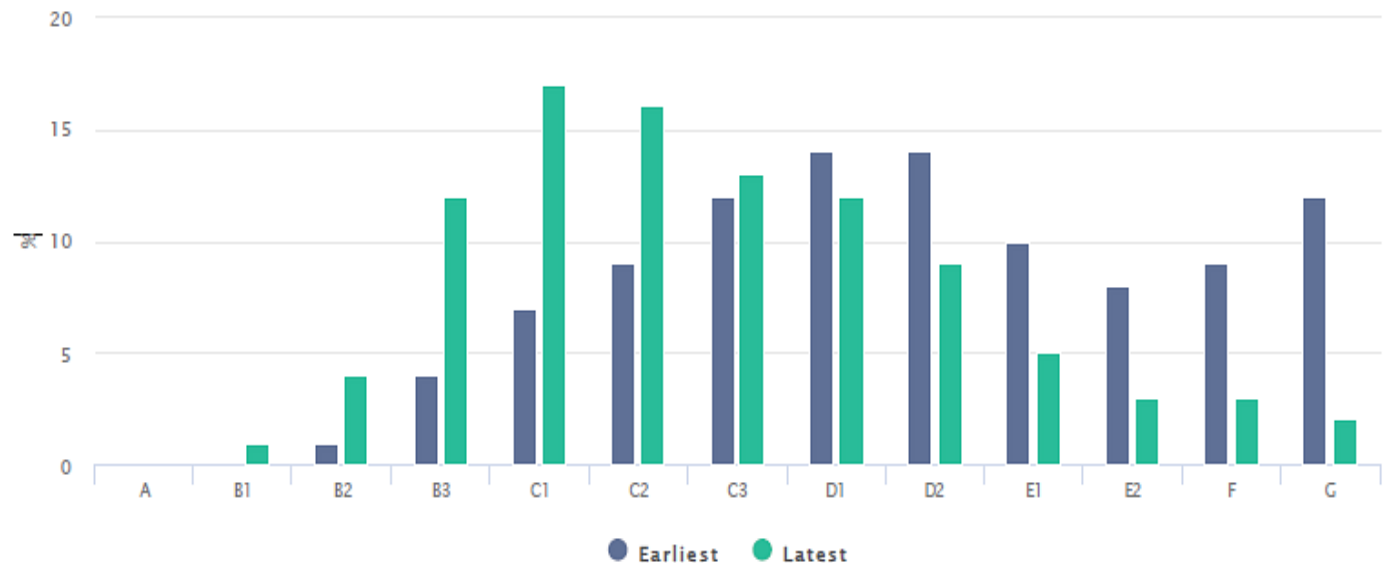


Energy Efficiency - Building Energy Rating BER

Category	kWh/m ² /year
A1	≤ 25
A2	> 25
A3	> 50
B1	> 75
B2	> 100
B3	> 125
C1	> 150
C2	> 175
C3	> 200
D1	> 225
D2	> 260
E1	> 300
E2	> 340
F	> 380
G	> 450

The **BER rating scale** is divided into categories from G (largest primary energy usage) to an A1 rating (lowest primary energy usage). The kilowatt hour is the unit of energy used in Dwelling Energy Assessment Procedure (DEAP). The BER is measured in kWh per square meter of floor area of the dwelling per year (kWh/m²/year).

Domestic Sector: Earliest compared with most recent BER (2009-2018)



Source: CSO Ireland



Sources and Useful Links

Document	Source
Irish Sovereign Green Bond Framework	http://www.ntma.ie/business-areas/funding-and-debt-management/irish-sovereign-green-bond-documents/
Sustainalytics Second Party Opinion on Framework	http://www.ntma.ie/wp-content/uploads/2018/09/Ireland-Green-Bond-SPO.pdf
National Policy Position	https://www.dccae.gov.ie/en-ie/climate-action/publications/Pages/National-Policy-Position.aspx
Climate Action and Low Carbon Development Act	http://www.irishstatutebook.ie/eli/2015/act/46/enacted/en/html
National Development Plan	https://www.per.gov.ie/en/national-development-plan-2018-2027/
National Mitigation Plan	https://static.rasset.ie/documents/news/national-mitigation-plan-2017.pdf
National Adaptation Framework	https://www.dccae.gov.ie/documents/National%20Adaptation%20Framework.pdf
The Sustainable Development Goals National Implementation Plan	https://www.dccae.gov.ie/en-ie/news-and-media/publications/pages/sdgs-national-implementation-plan.aspx
UN Sustainable Development Goals	https://www.un.org/sustainabledevelopment/sustainable-development-goals/
Ireland: Voluntary National Review 2018	https://www.dccae.gov.ie/documents/Ireland%20Voluntary%20National%20Review%202018.pdf
Nationally Determined Contribution	http://www4.unfccc.int/ndcregistry/pages/Party.aspx?party=IRL



Sources and Useful Links

Document	Source
Green Bond Principles 2018	https://www.icmagroup.org/green-social-and-sustainability-bonds/green-bond-principles-gbp/
Irish Water National Projects	https://www.water.ie/projects-plans/national-projects/
Investment Projects and Programmes Tracker – Project Ireland 2040 Capital Tracker	https://www.per.gov.ie/en/investment-projects-and-programmes-tracker/
Water Services Policy Statement	https://www.water.ie/projects-plans/national-projects/leakage-reduction-programme/
Strategy for the Future Development of National and Regional Greenways	http://www.dttas.ie/sites/default/files/publications/tourism/english/strategy-future-development-national-and-regional-greenways/greenways-strategy.pdf
The Office of Public Works	https://www.opw.ie/en/floodriskmanagement/floodriskmanagementoperations/majorflooddefenceschemes/
Córas Iompair Éireann (CIÉ) Annual Report 2017	https://www.cie.ie/AR/CIE/2017AR-CIE-English.pdf
Department of Agriculture, Food and the Marine	https://www.agriculture.gov.ie/forests-service/
Forestry Programme 2014 – 2020	https://www.agriculture.gov.ie/media/migration/forestry/forestryprogramme2014-2020/IRELANDForestryProgramme20142020230215.pdf
Sustainable Energy Authority Ireland	https://www.seai.ie/about/
Central Statistic Office – Domestic Building energy Rating	https://www.cso.ie/en/releasesandpublications/er/dber/domesticbuildingenergyratingsquarter22018/
WindEurope.org -Wind in Power 2017	https://windeurope.org/wp-content/uploads/files/about-wind/statistics/WindEurope-Annual-Statistics-2017.pdf



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