Iascach Intíre Éireann
Inland Fisheries Ireland

Climate Action Roadmap

2023

SUSTAINABLE ENERGY AUTHORITY OF IRELAND

Environmental Protection Agency
An Ghníomhaireacht um Chaomhnú Comhshaoil

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This document comprises	TOC	Text	List of tables	Table of Figures	No. Appendices
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Version Control Table

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V. 01	FINAL	Brian Beckett	P. Doherty	P. Doherty	30.03.2023
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Contents

1. Introduction and Progress to date

State of Play

- The world's climate is changing rapidly with temperatures increasing faster in the last 50 years, than in any other 50-year period in the last 2,000 years.
- Human influence has warmed the atmosphere, ocean, and land, leading to widespread and rapid change, including changes to our weather system (Climate Action Plan 2023)
- Rapid and far-reaching transitions across all sectors and systems are necessary to achieve deep and sustained emissions reductions and secure a liveable and sustainable future for all (AR6 Synthesis report; IPCC, 2023)
- Ireland has experienced first-hand the consequences of climate change as set out in the Climate Status Report for Ireland 2020.
- Continued emissions of GHGs will cause further warming and further changes to our climate and will lead to increased risks to people and to nature.
- The public sector will play a leadership role in driving far-reaching climate action across its buildings, transport, waste, and energy usage, as well as wider society.

Current and Future Action

- It is essential that the international community steps up its efforts towards meeting the 2015 Paris Agreement and the UN's Sustainable Development Goals.
- The European Green Deal commits to delivering net-zero GHG emissions at EU level by 2050.
- Ireland is committed to achieving a 51% reduction in GHG emissions from 2021 to 2030, and to achieving net-zero emissions no later than 2050; with legally binding requirements to achieve these objectives set out in legislation.
- Showing leadership and ambition, the public sector will drive fundamental climate action through:
    - Implementing the Public Sector Climate Action Mandate.
    - Strengthening climate governance frameworks in public sector bodies.
    - Increasing climate literacy in the public sector.
    - Implementing policies to decarbonise the public sector vehicle fleet.
    - Procuring only Zero Emission Vehicles from the end of 2022 onwards where available and practicable.
    - Retrofitting public sector buildings.
    - Fully implementing green public procurement in the public sector.

Expected Outcomes

Following on from Climate Action Plans 2019 and 2021, Climate Action Plan 2023 sets out the roadmap to deliver on Ireland's climate ambition. It aligns with the legally binding economy-wide carbon budgets and sectoral ceilings that were agreed by Government in July 2022. The public sector will follow the plan to:

- Reduce greenhouse gas emissions from the public sector by 51% by 2030.
- Increase the improvement in energy efficiency in the public sector from the 33% target in 2020 to 50% by 2030.
- Achieve the buildings and retrofitting targets laid out in the Public Sector Climate Action Mandate and in CAP Chapter 14: Built Environment by 2025.
- Implement and review the Public Sector Climate Action Mandate annually.

Inland Fisheries Ireland - Leadership and Ambition

The Public Sector Climate Action Mandate requires public sector bodies to show leadership in climate action by taking, and reporting on, the actions of the Mandate. The adoption of the Mandate is intended to support public sector bodies leading by example in demonstrating the necessary climate action to reduce Ireland's GHG emissions by 51% by 2030. As one of Ireland's core environmental agencies, IFI is committed to leading by example in Climate Action and Sustainability. IFI has the necessary ambition and capacity to deliver and excel on our national obligations in respect of climate action in the ongoing process to implement the Government's Climate Action Plan and building on a previous IFI Climate Action Framework (April 2019) moved to delivering a 'Climate Action Mandate' approach as required by Government in 2022. IFI is continuing to consolidate its Environmental Management Systems (EMS) to help minimise the impact on the environment resulting from IFI activities and facilities. IFI maintains good momentum in its 'decarbonisation strategy' but has significant work to do to meet our legally binding obligations. There is a particular onus on IFI to take a strong and ambitious leadership role in this area given the inextricable relationship between climate breakdown and the biodiversity crisis.

PROGRESS – Energy savings to date

The SEAI reported a 39.3% improvement in IFI energy efficiency by Dec 31st, 2021. This was a remarkable achievement and a testament to the collective efforts of all IFI staff. IFI remains focused on a path to achieving net-zero emissions at latest by 2050. 2022 data will be confirmed by the SEAI by May 2023.

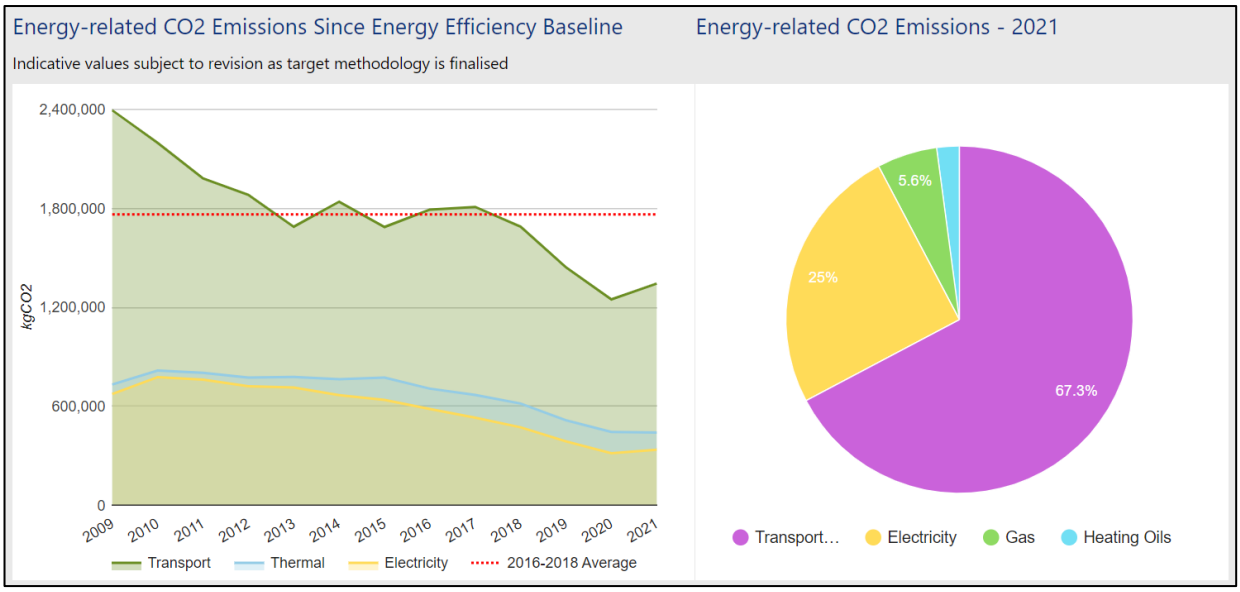


Figure 1. IFI's Energy related CO2 emissions since baseline (L) and for 2021 (R).

PROGRESS - Innovation, partnerships, and collaboration

We provide a public service that seeks to deliver our statutory remit at all times, in the most sustainable ways possible. Many of our sustainability challenges are systemic in nature; the whole is often far greater than the sum of its parts. That is why we work together and collaborate positively with all our stakeholders in partnerships aimed at enhancing our capacity and results to address some of our greatest sustainability challenges.

CASE STUDY – INNOVATION The skills and knowledge we share among groups of like-minded people often deliver unseen possibilities for positive change. IFI entered the 2022 Public Service Innovation Fund for consideration with a project entitled 'Development of a 7% Green House Gas Reduction Tracker' which sought to develop software and install monitors in IFI buildings to allow adaptive management in support of annual 7% energy reductions in real time. IFI was awarded €30,000 from the Public Service Innovation Fund (2022) to roll out the project. IFI collaborated with Louth County Council (and other public partners) in developing the concept and subsequently partnered with Energy Elephant to implement an intelligent energy management system. This platform allows IFI to clearly identify energy blackspots (sites with old boilers, single-glazed windows, and poor insulation, for example) in near real time. These data have supported several energy upgrade projects and have already contributed to IFI's 2022 savings.

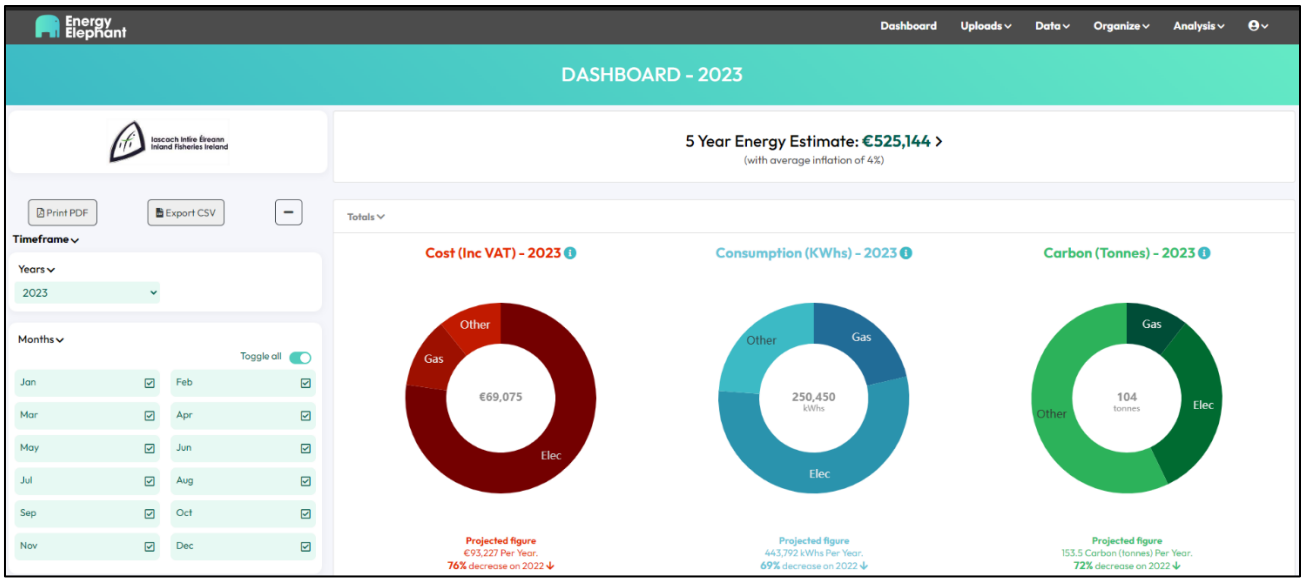


Figure 2. Energy Elephant Management Dashboard

PROGRESS - Decarbonisation of Fleet

The majority of IFI staff comprise a "mobile workforce" travelling daily to carry out their statutory functions. Many sites are outside urban areas where alternative transport options are limited. Approximately 70% of Inland Fisheries Ireland's total energy demand has traditionally come from our fleet. IFI is taking a series of focused actions (under IFI's 'Energy Action Plan') to ensure better energy management for all fleet vehicles including:

- Transport specific energy audits as part of our wider energy management planning process.
- Vehicle life span cost analysis as part of our requirements to produce an annual Energy Management Plan (appropriate vehicles are matched to each task).
- Data backed and fully informed procurement of new vehicles.
- Telematics systems covering all vehicles to help optimise journey routes and eliminate unnecessary transport activity.
- "Eco-driving" training and driver management processes in place.
- Seeking to influence better energy usage by developing Workplace Travel Plans (WTPs) with support from staff.
- IFI's EV fleet component is growing and forms a critical component in achieving critical energy reductions. Although the initial cost of EVs is high, the savings on future running costs are substantial. We now have 45 EVs and 20 e-bikes with plans to significantly expand our electric fleet in the coming year.
- IFI has recognised the importance of a strategically distributed EV charging network in the successful deployment of an electronic fleet. To help accelerate the decarbonisation of our fleet, we have embarked on a charging network programme where EV chargers are being installed at strategic locations to support our EV rollout

nationally. To date, we have installed EV chargers at 34 locations across Ireland.

- IFI purchased 32 Electric vehicles in 2022. This consisted of 20 Kia E-Niro's and 12 Peugeot E-Expert's. Latest data show cumulative saving of 36,860 litres of fuel in 2022. This saving equates to a 10% reduction in fossil fuel use below 2021 levels and approximately 20% reduction from IFI's 2016/18 baseline. Electric Vehicle mileage increased 284% in 2022.
- IFI EV STRATEGY document has been finalised and can be accessed HERE.

In 2022, cumulative saving of 36,860 litres of fuel were achieved. This saving equates to a 10% reduction in fossil fuel use in 2022 below 2021 levels. Importantly, fuel consumption dropped below 2021 levels from March onwards in 2022 – resulting from our 'Ecodriving' initiatives and the positive impact of additional EVs in IFI's fleet. Our EV fleet travelled a total of 336,872km in 2022. For more IFI fleet data click HERE

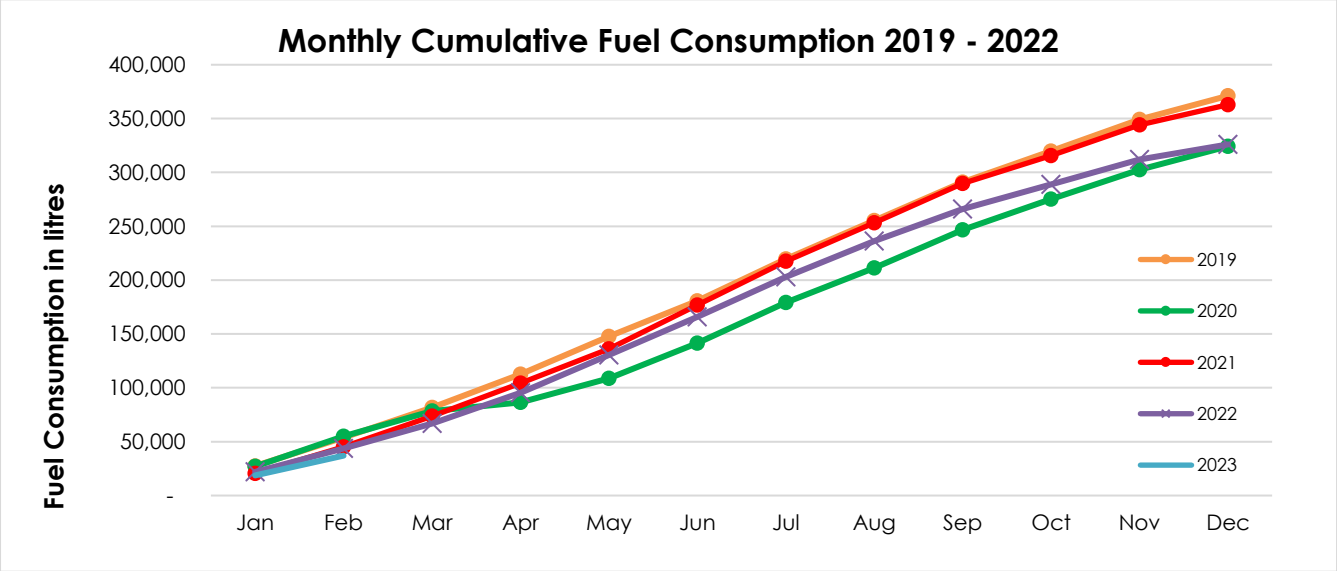


Figure 3. IFI monthly cumulative fuel consumption data 2019, 2020, 2021 and 2022.

Photograph 1. IFI's EV fleet now comprises 4 different EV models and a growing fleet of electric bicycles.

PROGRESS - Decarbonisation of Property

Primary energy sources throughout IFI are electricity and natural gas. Electricity is used for lighting, power, and air conditioning. Natural gas, LPG, and kerosene are used primarily for space heating. Monitoring and reporting of energy consumption takes place across IFI sites. 9 Energy Focused building projects were completed in 2022. 7 of these projects were PV system installs the remaining 2 projects were building improvements. Significant improvements in energy efficiency are expected in the 2022 data as a result. To see more data on IFI property decarbonisation click HERE. The SEAI reported a 6.3% improvement in IFI electric energy performance indicator (ENPI) by Dec 31st, 2021 when compared with data for 2020. IFI's Energy Policy, Action Plan and associated energy auditing programme underpin all energy improvement projects in IFI.

Table 1. Example of IFI Energy Action Plan / Register of Opportunities

Energy Action Plan 2021 — Year: 2021 — Updated: 1-Oct-21

Goal	Objective	Description of Action	Responsible: Manager	Responsible: Implem-entation	Start Date	Status	Compl-etion Date	Annual Savings [kWh]	Annual Savings [€]	Annual Savings [tCO2]	Budget: Capital [€]	Budget: Other (if any) [€]	Simple Payback	Additional Information / Comments
Improve energy performance of IFI Fleet (Decarbonisation Project)	Achieve 7% improvement in fleet energy efficiency within 12 months	Multiannual replacement of 20 high mileage vehicles with appropriate Evs and associate charging infrastructure	EPO	F. Doyle (Logistics) / T. McGrory / B. Beckett	1-Jan-21	Ongoing	31-Dec-21	252,000	€50,400		€800,000		15.9	
Improve energy performance of IFI Estate (Property)	Achieve 70% Improvement in building energy efficiency within 6 months	Installation of building fabric upgrades, shutter door upgrade and high efficiency electric rediators.	EPO	T. McGrory	1-Aug-21	Complete	30-Sep-21	12,000	€2,400		€13,900		5.8	
Energy Monitoring System and BMS Development		Formal monitoring & targeting system	EPO	F. Doyle (Logistics) / T. McGrory	1-Jan-21	Ongoing	31-Dec-21	32,000	€6,400		€12,000		1.9	
Fleet Telematics		Formal monitoring & targeting system	EPO	F. Doyle (Logistics)	1-Jan-21	Ongoing	31-Dec-21	50,000	€10,000		€3,000		0.3	
Lighting upgrades	Achieve 5% Improvement in building energy efficiency within 6 months	Lighting & lighting controls (indoors)	EPO	F. Doyle (Logistics)	1-Jan-21	Ongoing	31-Dec-21	46,000	€9,200		€26,000		2.8	
HVAC Fabric				F. Doyle										

Intro | Energy Action Plan | Example | Version

Figure 4. IFI Register of Opportunities

Green Teams and Staff Engagement

Reporting to senior management and acting as integrated drivers of sustainability, Inland Fisheries Ireland's Green Team Network is a critical element in the journey towards a more sustainable organisation. The IFI Green Team network operates on a local and national level. A local Green Team operates in each of our River Basin Districts. Additionally, a National Green Team represents local contributions and meets each quarter. A total of 45 members sit on Green Teams both locally and nationally. Our Green Teams are key to IFI making the necessary collective positive changes to reach our sustainability and carbon footprint reduction goals. For more information on IFI Green Teams click HERE

Green and Sustainable Public Procurement

IFI is committed to sustainable public procurement. Being committed ensures that our goals are consistent with our climate ambition. IFI are already on the pathway of Procuring only zero-emission vehicles up to the end of 2023. We currently have 45 Electric vehicles on our fleet and relevant plans are in place to procure at least a further 10 EV's in 2023. We are committed to ensuring IFI's procurement contracts for delivery and haulage should specify zero emissions vehicles where possible. IFI aims to lead by example and adopt a Circular Economy approach and green procurement where possible.

IFI's Procurement Policy document sets out the policy for the procurement of goods (supplies), services and works by Inland Fisheries Ireland (IFI) and to ensure that procurement throughout IFI is undertaken in accordance with National and European Union Public Procurement Regulations & Directives, Legislation, Policy, and Guidelines. The document will be subject to amendment and review periodically and the most up-to-date version will be available to all staff.

IFI's Procurement Policy document can be viewed in full HERE.

2. Leadership and Governance for Climate Action

2.1 Governance structure for climate and sustainability chart and responsibilities.

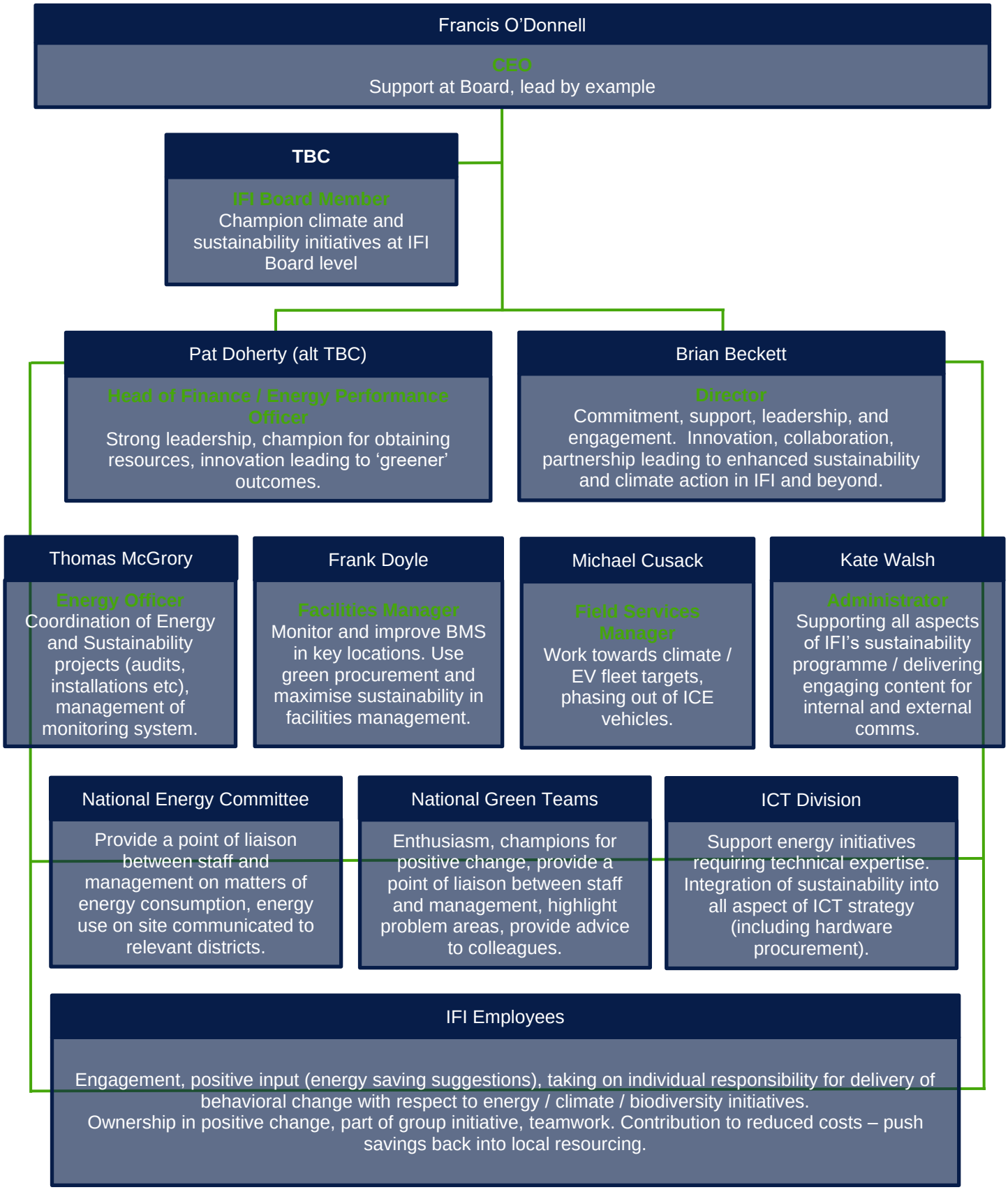


Figure 5. IFI Governance structure for climate and sustainability

2.2 IFI Climate and Sustainability Champion

Our dedicated Climate and Sustainability Champions are TBC as member at IFI Board level, TBC as the member of Senior Management, TBC Energy Performance Officer, and Brian Beckett as RBD Director and driver of Sustainability / Climate Action initiatives.

2.3 IFI Energy Performance Officer (EPO)

Inland Fisheries Ireland has an appointed energy performance officer with decision making powers about facilities management, corporate budgets, and procurement, along with responsibility for corporate and financial reporting, so that the appointee can:

- Lead the further development of our Energy Management Plan as an integral part of our Business Planning and Performance Management processes.
- Drive the implementation of the actions and projects agreed under our Energy Management Plan.
- Assign clear responsibility for implementation of our Energy Management Plan and ensure staff have the necessary training and support to carry out these tasks.
- Ensure the setting of our annual energy saving targets.
- Ensure the timeliness and quality of our annual data reports to the SEAI Public Sector Energy Performance Monitoring & Reporting System.
- Ensure timely provision of our report for the Annual Memorandum to Government on the implementation of this Strategy.
- Include these tasks as part of annual goal setting under PDR.

IFI's Energy Performance Officer, Pat Doherty, drives the implementation of the actions and projects agreed under our Energy Management Plan, assigns clear responsibility for implementation of our Energy Management Plan and ensures staff have the necessary training and support to carry out these tasks.

2.4 IFI Green Teams

Inland Fisheries Ireland's Green Team Network is a critical element in our journey towards a more sustainable future. The network was formed in 2019 to collectively and collaboratively develop ideas and initiatives aimed at addressing the climate and biodiversity emergency and at enhancing sustainability across our organisation through local actions.

Seven regional Green Teams contribute and operate locally, each providing one member to a National Green Team that deals with larger scale initiatives. Normally, four meetings are held each year. Group members share information and resources via our Climate Action SharePoint portal.

Green Team members are advocates for good environmental practices: they are passionate, interested, and keen to learn about environmental issues facing us as an organisation and are

always keen to share this knowledge with co-workers.

These members encourage and advise colleagues on specific measures to save energy, assist with raising awareness of wider issues such as waste minimisation, water conservation, sustainable travel, biodiversity at our properties and act as the local key contact for sustainability-related issues within a particular building, office, or field base. Members also positively promote the Green Team role and are available as a first point of contact for staff on all sustainability issues.

Table 2. National Green Team membership

Local Green Teams 2023							
NWRBD	**WRBD (Ballina)**	**WRBD (Galway)**	**ShRBD**	**SWRBD**	**SERBD**	**ERBD**	**CITYWEST**
Michael Kelly	Aisling Donegan	James Quinn	Jane Gilleran	Karen Griffin	Cormac Goulding	Brian Beckett	Thomas McGrory
Milton Matthews	Declan Cooke	Lonan O'Farrell	Ken O'Neill	John Twomey	Lynda Conor	Kate Walsh	Tara Gallagher
	Brian Flannery	Peter McCann	Catherine Kerins	Sean Long	Susan Sayers	Ronan O'Brien	Sadhbh O'Neill
	Mary Walsh	Director TBC	Alan Murray	Tracey O'Leary	James Robinson	Jarlaith Gallagher	Frank Doyle
			Tom Hilgers	Tim Moore	John Cullen	Roisin O'Callaghan	Pat Doherty
			John O'Connor	Mike Hennessy	Catherine Dwane	Joe Delany	Rossa O'Briain
			David McInerney	Dermot Long		Rory Keatinge	William Corcoran
						Alan Carter	Kevin O'Keefe
						Yvonne Quirke	

2.5 IFI National Energy Committee

Chaired by IFI's Energy Performance Officer, IFI's expanded National Energy Committee meets every 6 months. The purpose of IFI's National Energy Committee is to support IFI in achieving and exceeding our 'headline' public sector energy policy objectives (2022-2030) and to:

- Support innovation, collaboration, and partnerships, and maximise the impact of IFI's Decarbonisation Strategy.
- Collectively develop ideas and initiatives aimed at addressing energy use in IFI and thereby enhance the sustainability of IFI through local actions.

The national energy committee will support senior management leadership and commitment with respect to continual improvement of its energy performance and the effectiveness of IFI's Energy Management System (EMS) and Energy Action Plan (EAP) by:

a) ensuring that the Energy Management System (EMS) scope and boundaries are established.
b) ensuring that relevant energy policy, objectives and energy targets are established and are compatible with the strategic direction of the organization.
c) ensuring the integration of the EMS requirements into the organization's business processes.
d) ensuring that action plans are approved and implemented.
e) ensuring that the resources needed for the EMS are available.
f) communicating the importance of effective energy management and of conforming to the EMS requirements.
g) ensuring that the EMS achieves its intended outcome(s);
h) promoting continual improvement of energy performance and the EMS.
j) directing and supporting persons to contribute to the effectiveness of the EMS and to energy performance improvement.
k) supporting other relevant management roles to demonstrate their leadership as it applies to their areas of responsibility.
l) ensuring that chosen indicators (EnPIs) appropriately represent energy performance.
m) ensuring that processes are established and implemented to identify and address changes affecting the EMS and energy performance within the scope and boundary of the EMS.

IFI National Energy Committee Members (meetings held every 6 months):

Brian Beckett (Director – Dublin), Pat Doherty (Head of Finance, EPO), Thomas McGrory (Energy Officer), Kate Walsh (Administrator), Milton Matthews (Director – Ballyshannon), IFI Board Member (TBC), Michael Cusack (Field Services Manager), Frank Doyle (Facilities Manager), Tara Gallagher, (Research Officer), Roisin Bradley (Head of Human Resources), Jane Gilleran (Fisheries Environmental Officer), Fiona Kelly (Senior Research Officer).

IFI Energy Management Core Team members (meetings held every 2 weeks):

Brian Beckett (Director – Dublin), Pat Doherty (Head of Finance, EPO), Thomas McGrory (Energy Officer), Kate Walsh (Administrator), Michael Cusack (Field Services Manager), Frank Doyle (Facilities Manager). Meetings address issues of the day and keep key interdivisional communications lines open and dynamic.

3. Engaging Our People

IFI comprises 312 permanent staff and the seasonal cohort of approximately 40 staff. IFI's 'Engaging Our People' campaign applies to all these staff plus any contractor that may have an impact on IFI's energy usage or sustainability targets.

Facilities - IFI staff are based in 78 properties spread around the country from regional headquarters to working field bases. Facility types include the following:

- Warehouses
- Laboratories
- Field Bases
- Offices
- Canteen facilities

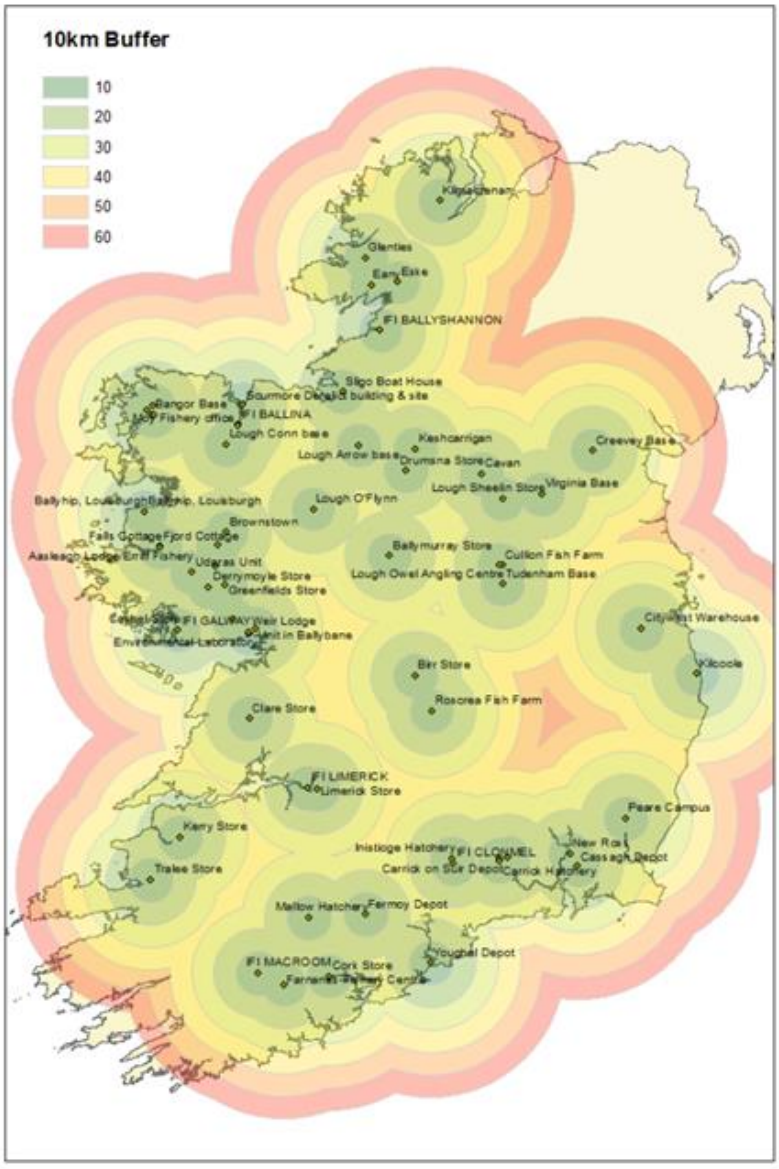


Figure 6. IFI Properties – National Distribution

IFI's 'Engaging Our People' workplace plan (Appendix) focuses on:

- Facilities Energy - Improved energy efficiency awareness / building auditing and subsequent action.
- Vehicle / fleet (boats etc.) energy efficiency.
- Water use reduction.
- Wastewater – reduced generation and improved management of wastes, emissions, effluents.
- Circular economy initiatives – recycling / upcycling / food waste reduction
- Climate / Biodiversity - environmental & climate action initiatives that are aligned with the legislative remit and strategic aims of IFI.
- Enhanced Green Procurement.
- Training / Education and outreach.
- Maintain IFI Green Teams Network momentum and resourcing.

3.1 IFI Engaging Our People – Plan 2023

- Continuation of quarterly Green Team meetings – newsletters / spotlight documents.
- Dedicated all staff energy related emissions workshop (Green Teams Q4 2023).
- Additional EV / Fleet webinars (delivered by Fleet Services through the year).
- All staff Learning and Development Analysis and Planning (HR, Directors, HOFs):
- Budget provision for specific training.
    - Climate Action Team - Engaging People accelerator training.
    - Development of 'onboarding' module.
    - PDR analysis (HR) and associated programme.
    - All staff 'ECO Driving' refresher training
    - SEAI academy training - Engaging People / Carbon Basics (all staff Q4?)
    - Targeted training in climate action leadership for SMT as per CAP '23 (CAROs).
- St. Patricks Day 2023 flyer / Updated Eco Driving poster / long weekend and holiday campaigns / environmental calendar key dates/ IFI reduce your use campaign.
- SDG material – content (short video) to be produced focusing on how IFI delivers on aspects of the SDGs
- Migration of sustainability staff resources from Climate Action Portal on SharePoint to MS Teams.
- Development of monthly and ad-hoc content for 'Yammer' internal social media platform

4. Achieving Our Carbon Target

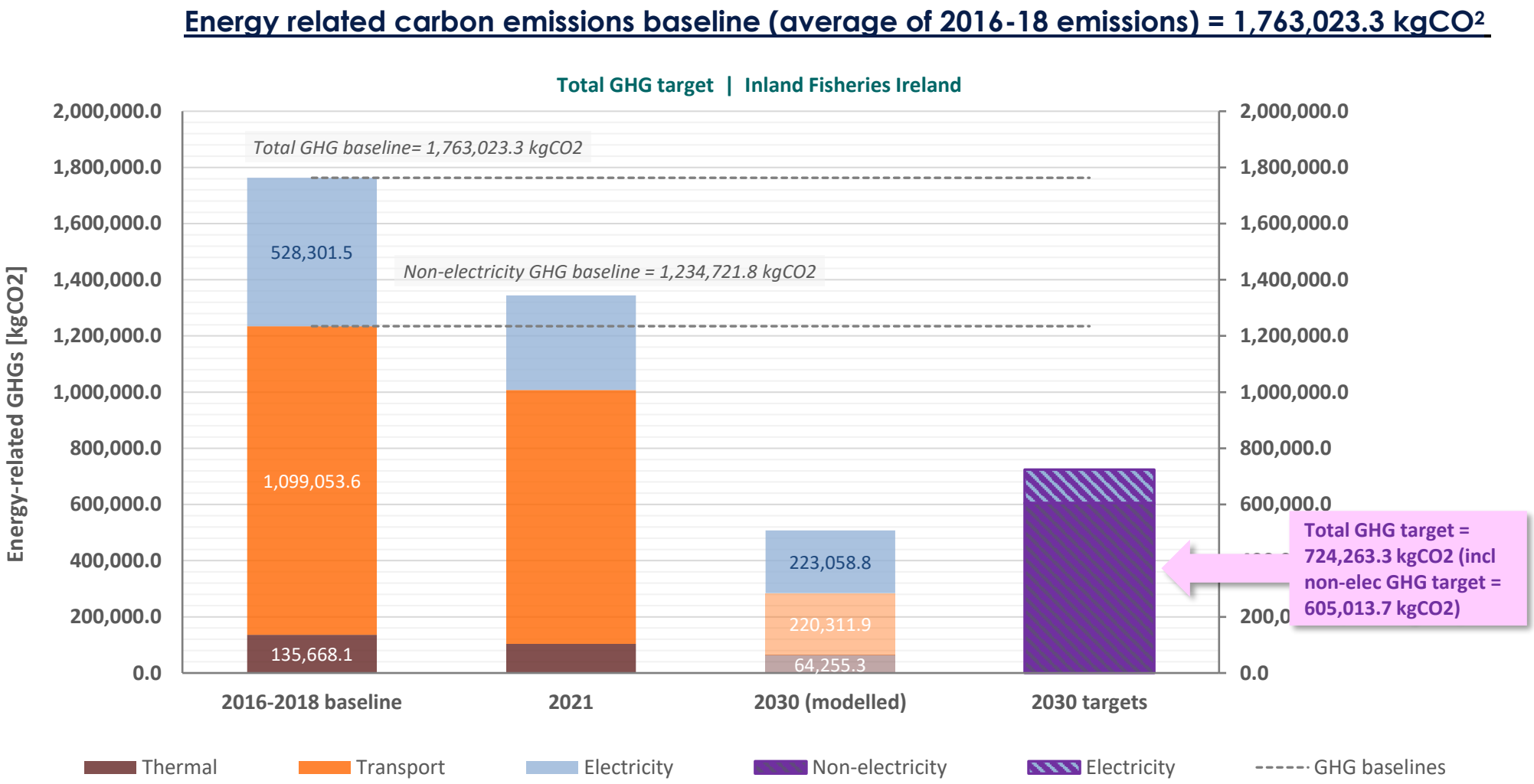


Figure 7. Energy related carbon emissions baseline IFI

Total emissions and thermal (heating and transport) emissions if no new projects implemented = 1,050,093.6 kgCO²

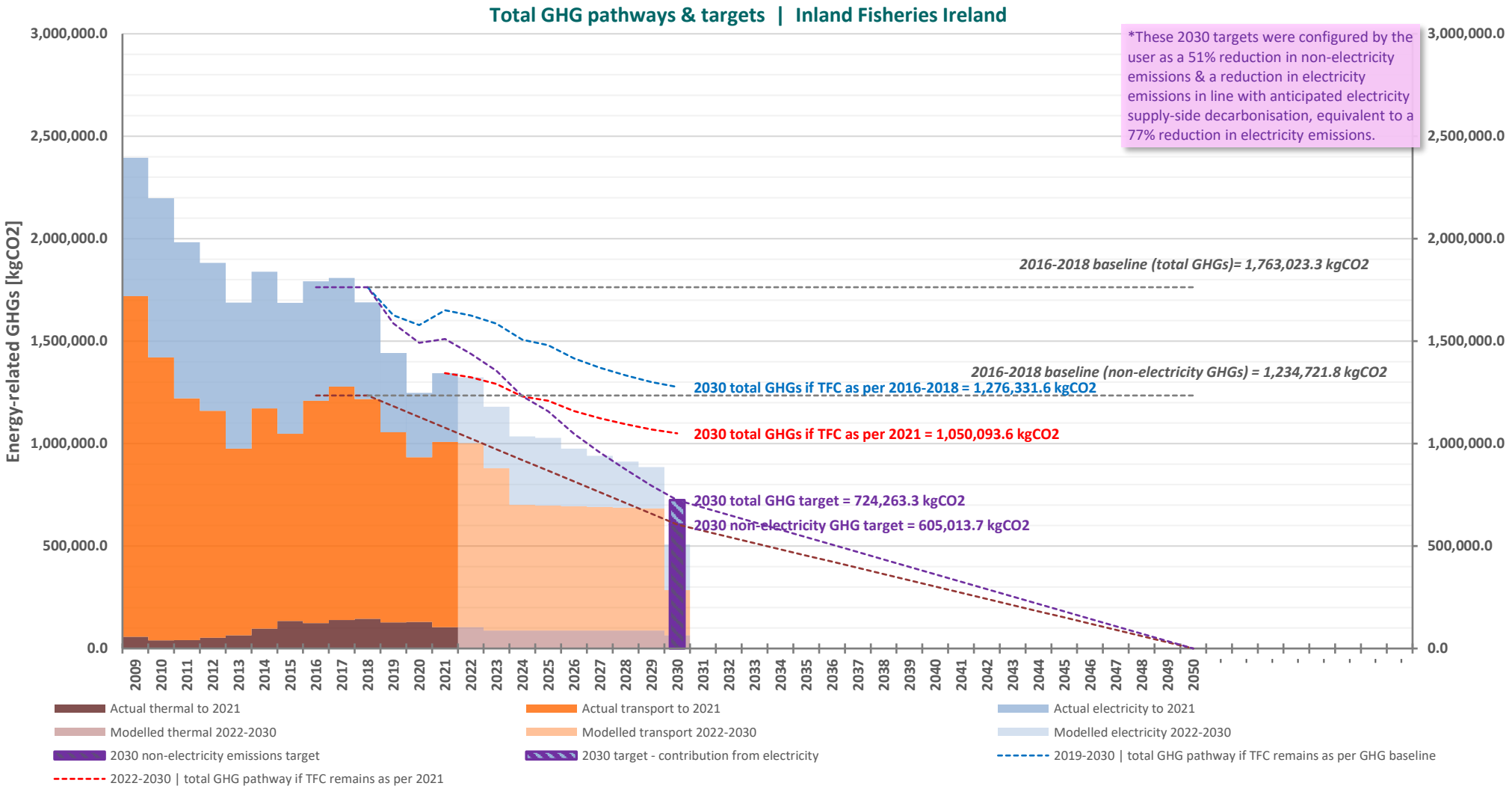


Figure 8. Total emissions and thermal (heating and transport) emissions if no new projects implemented (2023)

(ACHIEVING OUR CARBON TARGET contd.)

Any growth in emissions between the baseline and target years based on planned increase/growth in services (if applicable):

- IFI does not foresee any significant growth in emissions between baseline and target years based on planned services at this time.

4.1 IFI 2023/2024 Carbon Target Projects Pipeline

Any planned energy related carbon reduction activities:

- IFI will continue to address all activities where carbon reduction is possible on a prioritised basis. As fleet is the most significant source of emissions in IFI, the strategy remains to decarbonise fleet as quickly as possible. IFI plans to purchase a tranche of task-specific EVs in 2023 to replace a number of ICE vehicles currently on fleet. Property decarbonisation will also remain a key strategic focus. A number of properties are scheduled for sale in 2023, deep retrofits are planned at other properties. The following outlines the 2023 plan / pipeline:

Project Pipeline 2023 / 2024

1	Summer Campaign Switch Off heating	2023
2	Engaging People Campaign	2023
3	City West Heating Off Monday to Friday, Expand to all RBD's	2023/2024
4	Controlled Heating Main Office & Warehouse	2023
5	Lighting replacement in City West	2023/2024
6	Insulating attic space in City West	2023/2024
7	Sensor lighting in Macroom & Farnanes	2023
8	Energy Audits, Macroom, Farnanes, Tralee base	2023
9	Replacing Heating system's Weir Lodge Galway	2023
10	Additional EV Charging Points - Tralee, Aasleagh Lodge & Roscrea Fish Farm	2023
11	Galway PV Project	2023
12	Youghal Base works completed	2023
13	Additional PV at Cong Fish Farm	2023
14	Additional EVs on fleet	

IFI will lead by example and continue its pathway to achieve an overall organisational greenhouse gas emissions reduction of (average) 7% per annum for the period 2023 to 2030. This 51% reduction over the decade will be achieved through various measures including:

- Ongoing energy (carbon) monitoring (at all levels)
- Adaptive management (prioritisation of activities)
- Staff Engagement
- Fostering organisational Innovation, Collaboration and Partnerships (supporting cross-cutting decarbonisation)
- Communications Campaigns (internal and external) (IFI's Communications Office)
- Green Team Networks (meetings, workshops, publications)
- Sustainability Training – part of onboarding and CPD, PDR
- Director level meetings / engagement.
- Continued ECO-Driving training.
- SEAI training – Engaging people / Carbon Basics etc.
- Buildings / EV charging
- All Staff Workshops
- Additional Electric Vehicles (2023 EV Strategy)
- Expanding the Solar PV Network
- Continuous development of a Register Of Opportunities (ROO)

Identify any 'Gap to Target' that needs to be addressed:

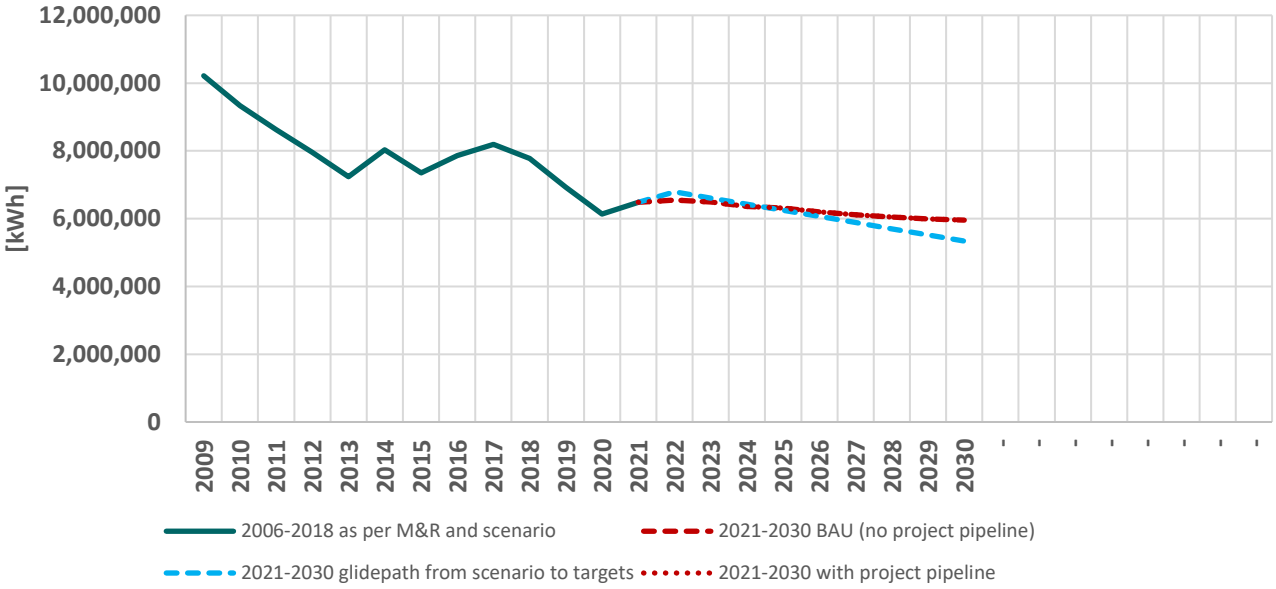
There is no gap to target to be addressed at this time.

Analysis of significant carbon emitters:

Results of carbon user analysis are available in the IFI National Energy Masterfile (LINK) and in IFI's Fuel Analysis File (LINK)

5. Achieving Our Energy Efficiency (EE) Target

Scenario-based provisional 2021 data based on SEAI M&R – EE Baseline = 10,215,035 (kWh)



2030 target = 5,339,019.9 kWh

2030 (BAU) = 5,956,520.8 kWh

Gap to 2030 target with project pipeline = 617,500.9 kWh

Figure 9. Scenario-based provisional 2021 data based on SEAI M&R – EE Baseline (2023)

Any growth in energy use or change in the activity metric between the baseline and target years based on planned increase/growth in services (if applicable):

- IFI does not foresee any significant growth in emissions between baseline and target years based on planned services at this time.

5.1 IFI 2023/2024 Energy Efficiency (EE) Target Projects Pipeline

Any planned energy efficiency activities:

- 2023/2024 Projects Pipeline: IFI will continue to address all activities where improvements in EE are possible on a prioritised basis. Property decarbonisation remains a key strategic focus. A number of properties are scheduled for sale in 2023, deep retrofits are planned at other properties. The following outlines the 2023 plan / pipeline:
-

Project Pipeline 2023 / 2024		
1	Summer Campaign Switch Off heating	2023
2	Engaging People Campaign	2023
3	City West Heating Off Monday to Friday, Expand to all RBD's	2023/2024
4	Controlled Heating Main Office & Warehouse	2023
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10	Additional EV Charging Points - Tralee, Aasleagh Lodge & Roscrea Fish Farm	2023
11	Galway PV Project	2023
12	Youghal Base works completed	2023
13	Additional PV at Cong Fish Farm	2023
14	Additional EVs on fleet	2023

Identify any 'Gap to Target' that needs to be addressed:

A gap to 2030 target of 617,500.9 kWh has been calculated in the SEAI's GTT model based on EE data to the end of 2021. Integration of completed and planned projects (2022 and 2023) will be available in Q2 2023. IFI will then be in a position to assess the need for further specific plan to address any remaining gap to target. The project pipeline outlined above addressed this matter.

Any growth in energy use or change in the activity metric between the baseline and target years based on planned increase/growth in services (if applicable):

- IFI does not foresee any significant growth in emissions between baseline and target years based on planned services at this time.

Any planned energy efficiency activities:

IFI will lead by example and continue its pathway to achieve the 2030 energy efficiency target (a collective target to improve EE by 50%) through:

- Ongoing energy (carbon) monitoring (at all levels)
- Adaptive management (prioritisation of activities)
- Staff Engagement
- Fostering organisational Innovation, Collaboration and Partnerships (supporting cross-cutting decarbonisation)

- Communications Campaigns (internal and external) (IFI's Communications Office)
- Green Team Networks (meetings, workshops, publications)
- Sustainability Training – part of onboarding and CPD, PDR
- Director level meetings / engagement.
- Continued ECO-Driving training.
- SEAI training – Engaging people / Carbon Basics etc.
- Buildings / EV charging
- All Staff Workshops
- Additional Electric Vehicles (2023 EV Strategy)
- Expanding the Solar PV Network
- Continuous development of a Register of Opportunities (ROO)

Analysis of significant energy users:

Results of energy user analysis are available in the IFI National Energy Masterfile (LINK)

6. Energy and Environmental Management Systems (EMS)

IFI intends to address the environmental impact of our activities through ongoing implementation and refinement of the current EMS to deliver:

- Improved energy efficiency through energy auditing and subsequent action.
- Reduced generation and improved management of wastes, emissions, effluents.
- Conservation of natural resources where possible.
- Efficient operation with associated cost savings.
- Environmental / climate action initiatives that are aligned with the strategic aims of IFI.

IFI's Energy Management Systems (EMS) Core Team will implement the requirements of the EMS through this roadmap and an Energy Management Plan (EMP) and will annually identify aspects of IFI's operations that impact, or have the potential to impact, the environment. The relative significance of these aspects will be recorded, and objectives will be set and mitigations will be put in place to reduce their potential impact on the environment. The significant aspects for reporting and action here will include:

2.2.2 Energy

A structured approach to energy management makes environmental and financial sense for IFI. The importance of mapping and understanding IFI energy use to make sure that the energy efficiency projects undertaken are based on sound data and tailored to our needs cannot be overstated. Energy will be used more efficiently if the conditions to enable that more efficient use are first created. If a facility or process is designed to function in an energy efficient way, or the most energy efficient equipment is acquired, then the gains in terms of energy savings and CO_2 emission reduction at the end use point will be maximised. Based on best practice and practical experience from many programmes such as the International Standards Organisation (ISO) 50001 energy management standard, the Irish Standard IS 399 (Energy Efficient Design Management), the Sustainable Authority of Ireland (SEAI) Energy MAP training programme and the SEAI Sustainable Energy Communities Scheme, IFI will, as a minimum, practice these 5 basic, structured energy management steps:

1. **Commit**: IFI signed up to a partnership agreement with SEAI in 2017. IFI have appointed a senior manager in IFI to provide leadership and accountability; Empower IFI staff to act: choose an appropriate path to energy management or certification.
2. **Identify**: work to identify actions and projects based on IFI energy performance data – SEAI and OPW can assist.

3. **Plan**: avail of strategic planning assistance through IFI's partnership agreement with SEAI; build energy management capacity; integrate facilities management, finance and human resource functions in IFI's energy management planning; set annual energy saving targets.
4. **Take Action**: avail of project design, development and supervision support; commit to projects.
5. **Review**: measure results through in-house systems and SEAI's energy portal monthly and continually improve energy performance.

Energy Performance Officer (EPO)

Making energy efficiency the norm is ultimately dependent on changing mind-sets and behaviours. IFI management aim to optimise the conditions for efficient use of energy by their teams. This will build evidence for IFI team members that their actions make a difference, and that energy efficiency makes good business sense. IFI exceeded its 2020 energy efficiency target with significant support from SEAI and other agencies and now an accelerated programme of measures is planned to manage reduced energy use with the goal of not only meeting but exceeding 2030 targets as follows:

Figure 10. Public Sector Energy supports and relationships

ENERGY (Properties)

Design: when new facilities and processes are being planned and designed and when existing facilities and processes are being re-designed

Acquisition: when vehicles, equipment and facilities are being bought, upgraded or leased

Use: when IFI staff use energy in the course of their work

Building and Process Design: The greatest opportunity to reduce lifecycle energy and carbon for IFI is at the early design stages of new investments. SEAI advise that up to 95% of the lifespan cost is already committed at the end of the design process and that case studies have demonstrated that savings available can range up to 50% improvement from a baseline design. The SEAI's Annual Report 2016 on Public Sector Efficiency Performance found that electrical accounted for 51% and heating (thermal) accounted for 25% of primary energy consumption in the public sector.

In practical terms, the approach should be to exploit the short pay back works first (e.g. behaviour change, optimising existing controls, and mechanical and electrical upgrades). The next step is to consider those projects with longer payback and identify synergies between these work packages.

Renewables and energy sustainability: IFI adopts renewable energy solutions in tandem with energy efficiency action where appropriate. Use of renewable energy is rewarded in the methodology used to track public bodies energy performance (SEAI's Monitoring and Reporting system). Onsite renewable energy generation that offsets imported grid electricity continues to improve IFI's energy performance. A holistic approach to energy saving projects and improved energy performance is planned. The strategy to improving energy sustainability is as follows:

1. Energy management: understand your existing energy use, and adopt ongoing controls
2. Energy efficiency: through onsite surveys identify energy efficiency improvements to facilities, vehicles, and equipment to reduce that usage
3. Renewable technologies: examine renewable options when considering how to meet this reduced energy use

Energy (Transport)

It makes sound energy management, and financial, sense for public bodies with large transport fleets (either operational vehicles or public transport) to make energy efficiency central to their fleet management. Efficient driving behaviour has been shown to improve transport fuel efficiency by between 5% and 10%. IFI provides 'Eco-driving' training for employees and have driver management processes in place. IFI is seeking to influence energy usage through developing Workplace Travel Plans (WTPs) with support, as required, from the other agencies. A WTP is a package of measures aimed at supporting sustainable travel for work-related journeys. It comprises actions to promote walking, cycling, public transport, car-sharing, modal shift, the use of technology instead of travel, and flexible working practices. The emphasis in WTP's on physical exercise is a good example of how energy efficiency could link with Government objectives to improve public health and wellbeing such as the Healthy Ireland Initiative.

6.1 IFI Energy Action Plan Programme 2023

- Continue the EMAP / opportunities assessment process at all sites in IFI.
- Roll out (refresher) EMAP training to relevant staff including energy core team
- Constant Review – measure / monitor / audit
- Fleet is a key strategic target
- Telematics – energy analysis, journey planning
- EV Charging Station Network continue development
- EV Rollout – acceleration phase
- Electricity generation – renewables / complementarity between solar PV and EV chargers
- Workplace Travel Planning – build back better
- IFI Property - Building Fabric Upgrades, HQ Building HVAC Upgrade, Lighting Upgrades, Heating Upgrades, Building use (Hibernation)

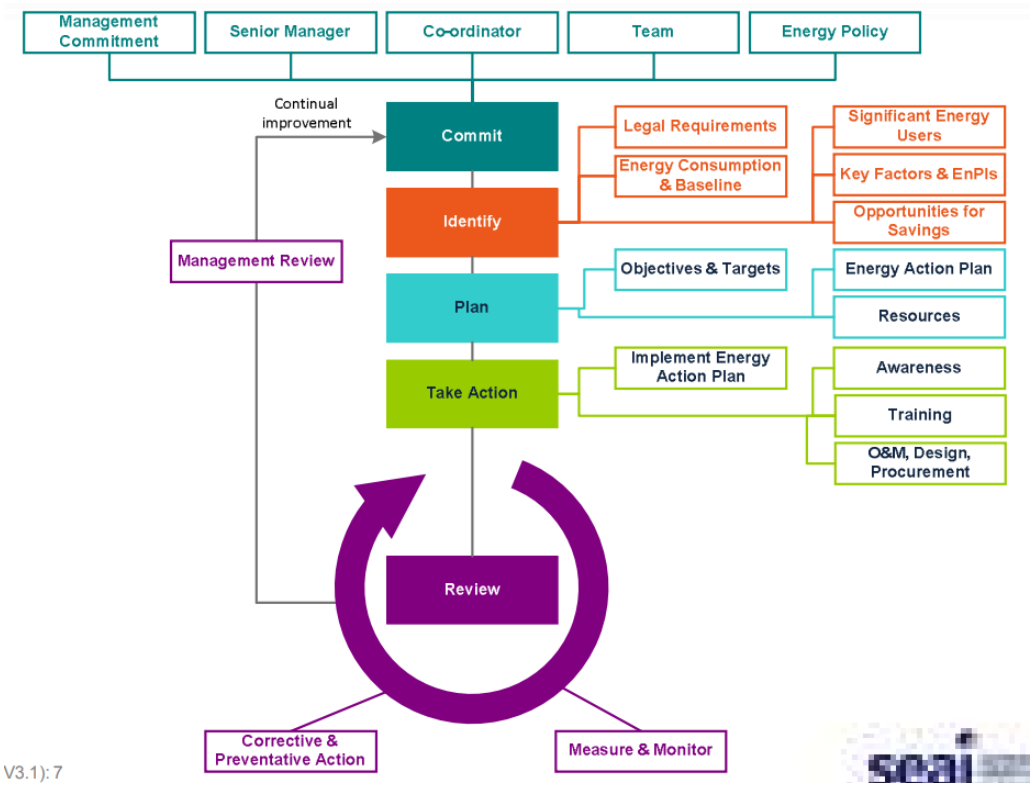


Figure 11. 20 steps of energy management (EMAP Training)

7. Greening Our Procurement

Annual public sector purchasing accounts for up to 12% of Ireland's GDP, forming a large part of its overall economic activity and demand. This provides our public sector with significant influence to stimulate the provision of more resource-efficient, less polluting goods, services and works within the marketplace – in line with Ireland's Climate Action Plan 2021. IFI is committed to ensuring that its procurement processes comply with all government circulars and will actively encourage and promote the use of green procurement. IFI is committed to the compliant procurement of goods, services and works, in line with best public procurement practices, to achieve value for money outcomes which are strategically aligned to the business needs of IFI. IFI are proven leaders in adopting electric vehicles (EVs) into the mainstream fleet, but we have an ambition to achieve much more through our broader procurement strategy. Driven and supported by a dedicated and specialist procurement officer, incorporating green criteria into public purchasing provides an opportunity to convert environmental policy objectives on carbon reduction, air and water quality, and waste reduction into delivered actions.

IFI's Procurement Policy document sets out the policy for the procurement of goods (supplies), services and works by Inland Fisheries Ireland (IFI) and to ensure that procurement throughout

IFI is undertaken in accordance with National and European Union Public Procurement Regulations & Directives, Legislation, Policy, and Guidelines. The document will be subject to amendment and review periodically and the most up-to-date version will be available to all staff. IFI's Procurement Policy document can be viewed HERE.

7.1 IFI Green Public Procurement Programme 2023

The following steps are being, or will be taken, by Inland Fisheries Ireland to accelerate our green procurement practice:

- Targeting priority products and services with associated "green criteria".
- Working with OGP to deliver green frameworks as they arise for renewal (IFI has already collaborated with the OGP on sourcing sustainable keep cups and water bottles).
- Engaging with suppliers, especially SMEs regarding GPP opportunities.
- Collaborating with the OGP and other agencies to support an "All of Government" approach to the successful incorporation of green criteria and other social considerations into public procurement policy and practice.
- Developing clusters and networks for GPP.
- Building monitoring and reporting into the public sector corporate governance model.
- Supporting staff through green procurement training.

Also included in IFI's Procurement Policy Document is information and a link to the OGP online search tool. This is a very useful tool, enabling Contracting Authorities to identify relevant GPP criteria. The online search tool allows users to rapidly find, select and download Green Public Procurement (GPP) criteria relevant to a specific procurement project. It makes it easy to find standard green criteria and then add them into a procurement specification along with objective ways of verifying those criteria.

The Cement Task Force shall prepare and submit to Government a public procurement policy by no later than Q2 2023 to facilitate public bodies to incorporate the principle of low carbon construction methods and materials and whole life-cycle analysis approaches in all publicly procured or supported projects. Public bodies' consistency with the policy will be examined under the SEAI reporting framework. IFI will specify low carbon construction methods and low carbon cement material as far as practicable for directly procured or supported construction projects from 2023.

8. Baselining and Reducing Resource Use

The conservation of valuable water resources is a core component of IFI's legislative remit. Digitalisation forms a key cornerstone of IFI's ICT strategy. IFI ICT are progressively removing the need on-premises file server infrastructure with an ongoing and accelerating programme of migration to the cloud. IFI moved to a 'paperless approach' at all office locations in 2014 however, paper remains a component of business communications systems and thus it has been impossible to remove it entirely from local processes. IFI remain absolutely committed to the minimisation of paper use wherever possible and are continually engaged in process review with a view to removing paper where possible. IFI have developed a number of geospatial field applications (Apps) in 2022 and 2023 which specifically remove the use of paper in the field.

9. Improving Our Buildings and vehicles

IFI Buildings

The Energy Efficiency Directive SI 599 of 2019 outlines that organizations with 250 or more employees, a useful floor area of more than 500m2 and energy spend greater than € 35,000 annually. IFI must complete an energy audit and do further audits every 4 years. The Government has established the Energy Auditing Compliance Scheme, this is operated by SEAI to ensure compliance in the Republic of Ireland. IFI are in the process of carrying out building audits, 8 audits have been completed to date, a further 2 will be completed in Q1 of 2023. IFI have achieved a 'B' rating or higher at 4 properties (Ardnaree House (A3), Ashbourne Business Park (B1), Clonmel (B3) and Ballyshannon (B2). IFI continues to have all DEC (Display Energy Certificates) updated and displayed annually.

Future upgrades and property purchases will be required to meet the NZEB (Nearly Zero Energy Building) standard. Further audits in 2023 will identify which buildings are suitable for retrofit to this standard. The climate action plan advises that public sector bodies with a large estate should commence a deep retrofit of at least one building in 2023 in pursuit of the 2030 51% target and deliver a building stock plan to undertake data gathering and to consider long term (to 2050) retrofit key performance indicators to upgrade all there building stock to NZEB (Nearly Zero Energy Building). IFI will not install heating systems that use fossil fuels after 2023, unless at least one of the listed exceptions (CAP 2023) applies.

Inland Fisheries Ireland have developed a national building energy management system in 2022 which identifies trends in energy usage and provides management with real time data supporting informed decision making in respect of energy management in IFI properties.

IFI Vehicles

The SEAI's Annual Report 2021 on Public Sector Efficiency Performance found that transport accounted for 21% of primary energy consumption in the public sector in 2020. Although IFI energy savings of 43.6% have been made since baselines were created, approximately 70% of IFI's total energy demand comes from fleet. The majority of IFI staff comprise IFI's 'mobile workforce' travelling daily to deliver IFI's statutory functions. Given the overwhelming influence of fleet on IFI's energy profile, ambitious and meaningful action in this area has the potential to deliver statutory reductions in organizational greenhouse gas emissions and improvements in energy efficiency.

Under IFI's Climate action mandate only zero-emission vehicles where available and operationally feasible will be purchased from the end of 2022, enabling IFI to go beyond the

requirements of the Clean Vehicle Directive and act as an international leader in this area.

In the context of carbon emission & fleet management Inland Fisheries Ireland's vision is to replace our fleet of internal combustion engines (ICE) with renewable energy powered vehicles and to eliminate carbon emissions by 2050. This is in keeping with our wider organisational vision to position Ireland's inland fisheries and sea angling resources as sustainably as possible for the benefit of future generations.

9.1 IFI Fleet Strategy / Plan 2023 – 2030

- Leading by example with ambition as required in the Climate Action Plan.
- Annual capital expenditure commitment of €550,000 to secure over 80% of fleet operating electrically by 2030.
- Introduction of advanced eco driving training for staff.
- Rationalisation of the fleet, reduce single occupancy journeys.
- Workplace travel planning and behavioural change, utilising the office hybrid working model.
- Empowerment of IFI staff and enabling responsive management through real-time data including live dashboards, telematics, and monthly summary reporting.
- Continual review of EV charging points and technologies ensuring optimal facilities for IFI staff vehicles.
- Collaborate to explore opportunities to share facilities with other state bodies, supporting cross-cutting decarbonisation.
- Promote the use of bicycles (including push bikes, electric bikes, and cargo bikes), bicycle parking and shared mobility options as an alternative to car use among employees and visitors.
- Phase out the use of parking in buildings that have access to a range of public transport services and active/shared mobility options for the majority of staff/visitors while providing that sufficient accessible parking is maintained for those with physical mobility issues.
- Strategy to be reviewed and updated annually to achieve 2050 targets to reflect up to date policy and technical progress.
- Continued alignment with the SEAI and the OPW campaign, Reduce Your Use. This campaign is focussing on driving behavioural change and implementing a range of measures to lower energy consumption and costs in the public sector.
- Complete the EV Charging Strategy for IFI staff.
- Reducing single passenger/low number journeys

10. Our Wider Climate Action Plans

The conservation of valuable water resources and protection / enhancement of biological diversity are core components of IFI's legislative remit. It is significant that a provision has been made in the programme for government (2020) aligned specifically with IFI high level goals and objectives as follows: 'Promote planting of 'protection forests' along rivers and lakes to protect water quality and assist in managing flood risks.'

Management and Green Team initiatives remain focused on improvements in waste handling (e.g., discarded nets recycling initiative, workwear circular economy initiative) and on the reduction in waste volume generated are gaining momentum throughout IFI. Targeted actions in respect of water conservation, biodiversity enhancement and waste reduction are being developed throughout the country at IFI properties via IFI's Green Team network. The impact of many of IFI's Climate Action initiatives is directly measurable in terms of energy reduction 'hard data' and is reflected in the SEAI's Monitoring and Reporting System. How best to reflect the impact of some of the less 'measurable' initiatives undertaken under IFI's Climate Action Mandate Programme is still being considered by IFI's Green Team network and a suite of suggestions are being developed for consideration by the SMT and Board of IFI in 2023.

10.1 IFI (Wider) Climate Action Plan 2023

- Decide how to measure 'green' impact in SLA metrics.
- IFI lands available for tree planting currently under consideration by RBD team.
- IFI National 'Green Day' event being planned for 2023.
- Pilot project on rainwater harvesting developed and 'how to' guidance complete.
- Pilot project on IFI beehive completed and report produced (available).
- 'Smart' working to minimize carbon impact – Workplace Travel Plans (WTPs) input.
- Costings for proposed local actions on a prioritised basis.
- Nomination of local climate / biodiversity champions
- Water conservation / waste management measures at each IFI site to include:
    - Green bins paper recycling system for all IFI offices.
    - Rainwater harvesting for all IFI sites.
    - Greywater re-use systems roll-out.
    - Wastewater systems upgrades / maintenance contracts review and renewal.
    - Removal of single use plastics.
    - Information campaigns and collaboration with OPW 'Optimising Power at Work'.

10.2 IFI Climate Action and Water - Research

IFI Climate Change Mitigation Research Programme | CCMRP

IFI established the Climate Change Mitigation Research Programme (CCMRP) in 2019 to build an evidence-based research programme to assess the impact of climate change on Ireland's fish species and their habitats, with the aim to inform policy and build capacity for fisheries conservation and protection measures. In 2020, the Office of Public Works and Inland Fisheries Ireland increased the scope of this project through a collaborative research project (Climate Change Resilience Research in OPW Drained channels (OPWCRP)) examining the impact of climate change on Irish fish in modified and drained catchments.

The main objective of the research programme is to establish and manage a long-term environmental, fish and habitat monitoring programme and use the most advanced mapping tools and modelling available to analyse the data. We will then be able to identify waterbodies most at risk from climate change throughout Ireland and find ways of reducing its impact. By examining climate change effects and its impact on Irish fisheries and their habitats, we can make predictions for the future and develop methods to "mitigate" or reduce its potential impact.

Climate change and freshwater fish species

The effects of climate change will have a significant effect on the natural water cycle of our rivers, leading to flooding events, drought and habitat loss and this will impact fish and other aquatic biodiversity. The main impacts of climate change on fish species are predicted to be on their distribution, abundance and phenology (timing), species composition and community structure and population dynamics. For example, fish have a variable body temperature that is normally like their environment and therefore their biological functions are dependent on the temperature of the water they live in. Fish have different thermal tolerances and when water temperatures rise, this can affect behaviour, growth, survival and their ability to resist different types of diseases. This can mean fish becoming stressed and even dying. On the other extreme, flooding can wash silt and debris downstream and it can be hard for young fish to tolerate or survive these conditions.

The effects of existing man-made pressures (e.g., nutrient enrichment and hydro-morphological changes) on freshwater environments and their fish species are also likely to interact with climate change associated pressures (e.g., rising temperatures and droughts) and seriously affect freshwater fish species and other aquatic life. This will result in changes to both the behaviour and geographic distribution of important cold water fish species, such as

the Arctic char, Atlantic salmon and Brown trout. There will also be an increasing risk of new invasive species establishing and spreading waterborne diseases.

IFI's national index catchment monitoring network

IFI initiated a national long-term index catchment monitoring network in 2019 in rivers, lakes and estuaries (see Fig. 1 below). The purpose of the national network is to document changes in lake, river and estuarine ecosystems that occur in response to different land use and climate pressures. One of the key tools is an array of approximately 400 data loggers positioned in these catchments. This is a significant monitoring network as it is providing data over a large geographical area and recording information on several factors including water temperature, dissolved oxygen, water levels, river flows and fish abundance. The data collected will inform risk assessments, mitigation measures and future policy.

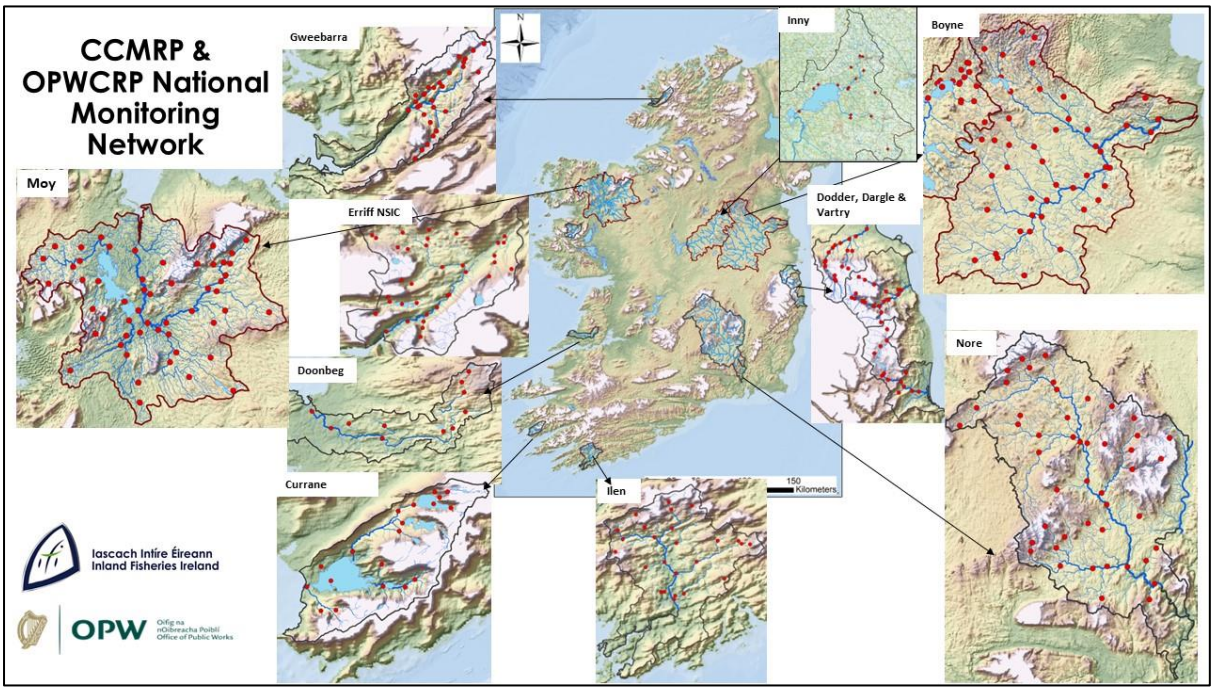


Figure 12. IFI's National Index catchment Monitoring Network (climate change research) – locations of 328 water temperature dataloggers.

Water temperature monitoring - rivers

A key element of the research programme is to use water temperature monitoring data to identify streams and rivers that remain relatively cool during warm periods (climate refugia) and those that reach excessively warm temperatures. This could aid with site-specific conservation planning allow targeting of climate mitigation measures for aquatic biota (including fish species) and for prioritising protection of certain waterbodies. Since 2019 a total of **328** water temperature data loggers have been deployed in river sites in **12** index catchments (nine near natural and three drained) (See Fig 1 and Fig. 2)). To avoid detecting

heating by direct solar radiation, each data logger is fixed inside white PCV pipes to act as solar shields (Figure 2). Data loggers are secured using rebar or heavy mooring chain (See Fig. 2). Each datalogger has been programmed to record water temperature continuously every 30 minutes and each one is downloaded every 6-12 months and replaced by a calibrated unit.

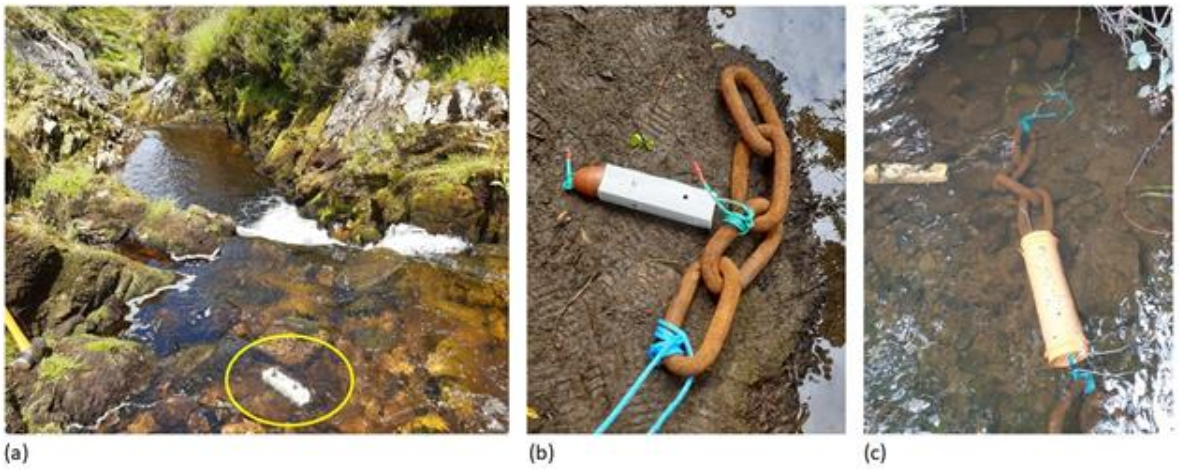


Figure 13. Examples of IFI datalogger deployment (a) PVC housing with temperature logger inside secured to rebar, (b)temperature logger and housing were secured to a heavy anchor chain and tethered to the bank for retrieval; (c) sensitive dissolved oxygen loggers are housed inside large diameter pipe with caps on each end. Sufficient ventilation holes were drilled and the housing tightly secured to the riverbed.

Example of results to date

High resolution modelling data from many near natural catchments (e.g. Boyne, Gweebarra and Erriff NSIC) are generally indicating that river sites in the lower sections of each catchment, in addition to river stretches below lakes or reservoirs have highest water temperatures (Tw). Results from the stream network model developed for the Erriff catchment (see Fig. 3 below) revealed that during a seven-day period in 2019, highest Tw were reached throughout the lower catchment (including the main channel) and river sections immediately downstream of each lake. In contrast, high elevation headwater streams typically remained cooler than 19.5 °C and may provide important thermal refuges for salmonids in the system during warm weather.

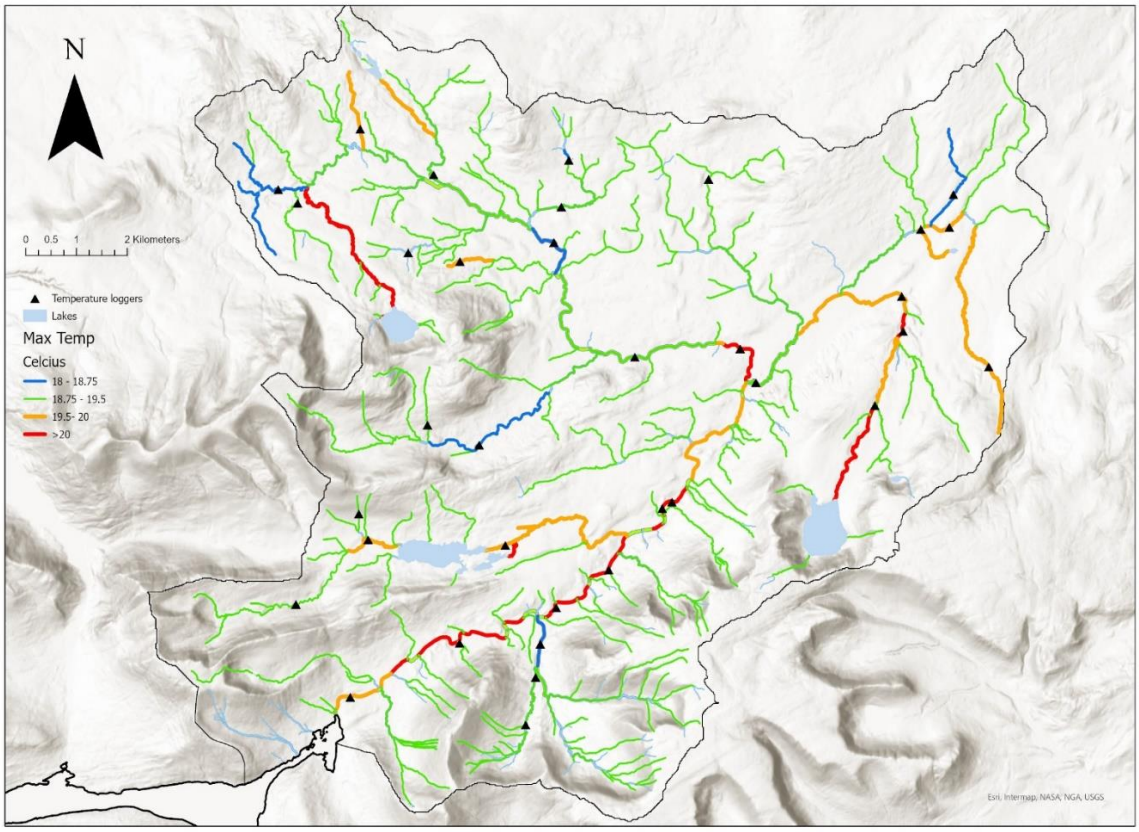


Figure 14. Stream network model of maximum seven-day rolling mean daily water temperature recorded in the Erriff catchment, July 2019.

In total there were 234 days at 31 sites throughout the nine near natural catchments where the mean daily Tw exceeded 20°C during 2020/2021 (a critical temperature for optimal growth of brown trout). These events were not evenly spread across the catchments; southwestern, western and northwestern catchments were generally warmer than the east and southeastern catchments.

Impact of an extreme heatwave on salmonid thermal habitat in the Boyne catchment

A heatwave (the most intense on record in the Boyne in over half a century (1961-2021) occurred in Ireland in July 2021. An advanced stream network modelling approach was used to analyze Tw data collected from the 46 *in situ* data loggers deployed in the Boyne catchment. The high-resolution map (see Fig. 4 below) allows us to clearly distinguish between cool stream refugia (that remained below 14 °C) and river hotspots (with water temperatures exceeding 20 °C) during the heatwave on the Boyne. Statistical models implied that wide channels with low tree cover (often associated with arterial drainage schemes) and rivers draining from lakes are most prone to reaching excessively hot water temperatures during heatwaves. These rivers may represent important targets for rehabilitation work and climate mitigation strategies. In contrast, shaded headwater streams remained cool and may provide crucial refugia for cold-water fish in a rapidly warming climate. Such streams should be

protected from additional environmental stressors such as water quality decline and removal of riparian tree cover.

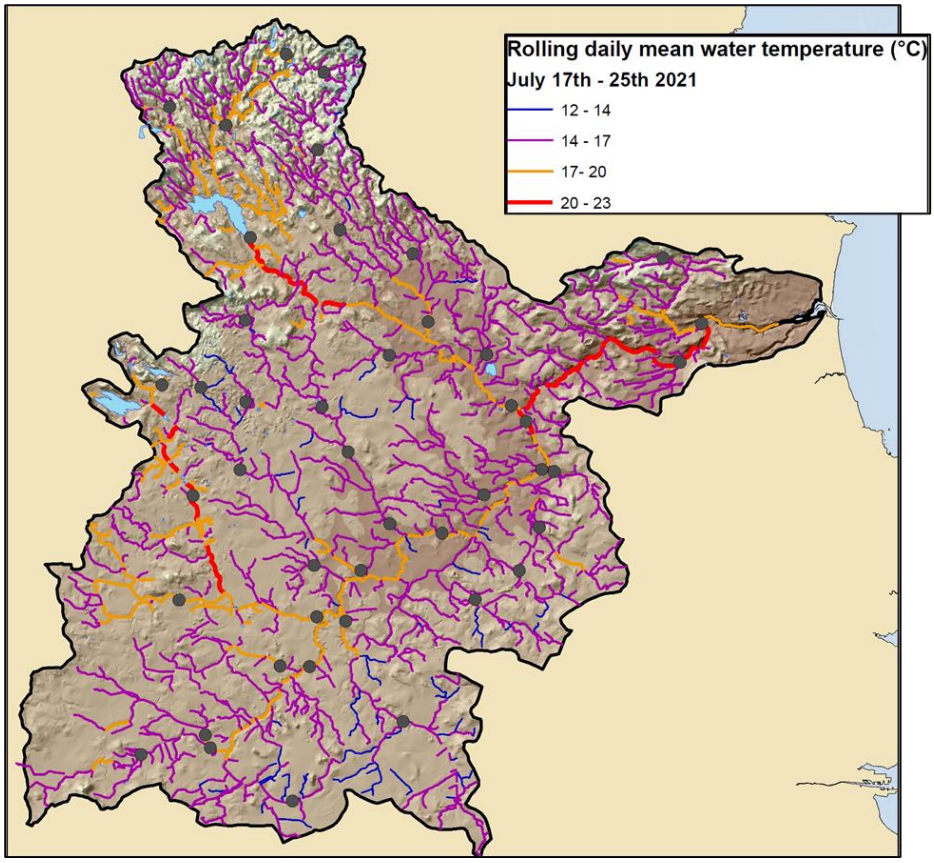


Figure 15. Spatial stream network model predictions for the River Boyne catchment, Ireland, during the July 2021 heatwave event. Water temperature observation sites are shown by dark grey points. Mean average water temperatures during the 7-day heatwave event were predicted to be up to 10°C warmer in wide, unshaded channels compared to comparatively narrower, shaded reaches.

Lake monitoring network – real time high frequency (Data buoys) and offline monitoring

Globally lakes are warming and losing dissolved oxygen faster than other habitat types. As sensitive indicators of catchment modifications and changing climatic conditions IFI have included high frequency monitoring throughout the water column in four lakes. Offline thermistor chains have been deployed in two lakes (Lough Barra - Gweebarra catchment (northwest) and Tawnyard Lough - Erriff National salmonid index catchment) (west). In 2021 and 2022 real time data buoys were installed in two (Lough Sheelin-Inny catchment (north midlands) and Lough Currane (Southwest) respectively). The data buoys represent a new generation of environmental monitoring for IFI and will allow IFI scientists to safely examine how the lakes respond during climatic events such as heatwaves, droughts, storms and floods and the effects on the thermal habitat. In total there are **39** water temperature, **10** dissolved oxygen data loggers deployed on the four lakes and one multiparameter water quality meter. Additional weather stations (**3**) and anemometers (**2**) have also been deployed in selected locations close to index lakes.

Figure 15. Lough Sheelin high frequency data buoy (monitoring water temperature (°C) throughout the water column (seven thermistors from surface) and water quality at the surface using a multiparameter water quality meter (e.g. dissolved oxygen, (% saturation and mg/l), conductivity (µS/cm) and chlorophyll a.

Example of results

The heatwave event that occurred between the 15th and 25th July 2021 led to anomalously warm conditions throughout Ireland. Significant thermal stress occurs in salmonids at water temperatures at and above ~20 °C, with temperatures beyond 24.7 °C potentially lethal for brown trout. During the heatwave the upper 4-5 metres of the water column on Lough Sheelin generally experienced temperatures more than 20°C and the surface water temperatures occasionally exceeded 25°C. This implies that usable lake habitat during such warm events could compress suitable thermal habitat for fish significantly. Using the bathymetry of Lough Sheelin the volume of water with temperatures consistently below 20°C during the July heatwave event was only approximately 11.5 % of the total available lake volume (see Barry *et al.*, 2022 and Kelly *et al.*, 2022 and for more details).

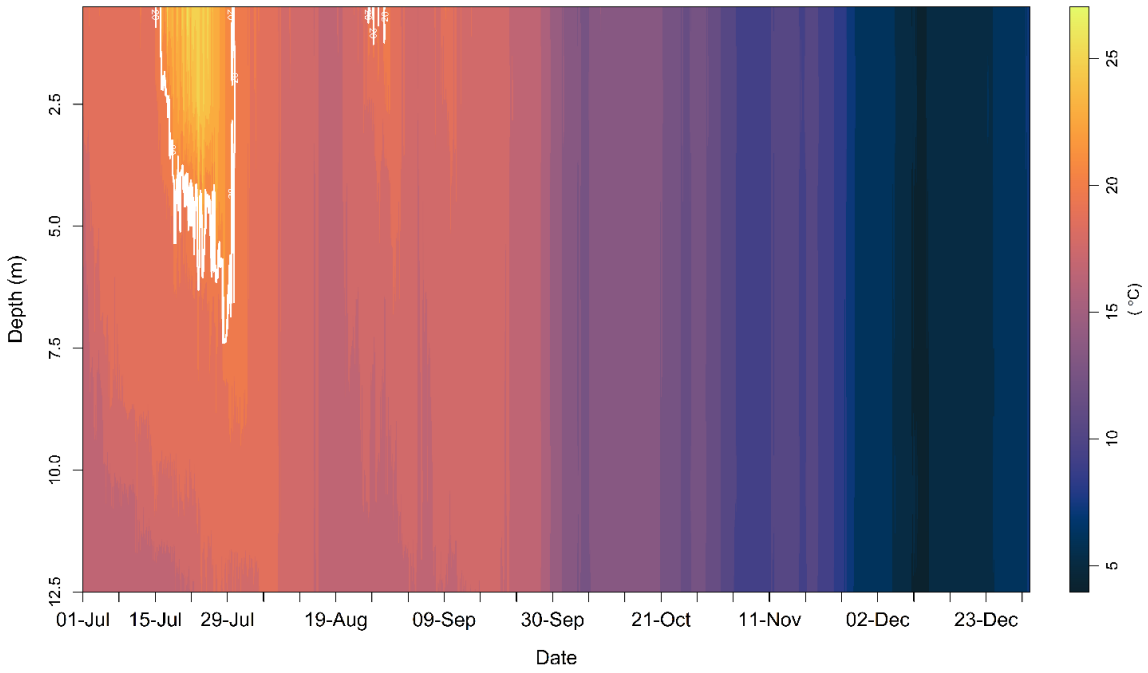


Figure 17. Contour lines of water temperature (°C) on Lough Sheelin derived from measurements taken at different depths in the water column from July 01 to December 31, 2021. The white line denotes the 20°C isotherm which was prevalent during the July 2021 heatwave.

IFI's sentinel catchment – Lough Sheelin (Inny catchment)

Lough Sheelin and its catchment has been chosen by IFI as a sentinel site for more detailed research studies to understand the interactions between climate and environmental stressors on Ireland's inland fish species and freshwater ecosystems. The lake has a legacy of scientific appraisals, has an important recreational fishery and is sensitive to environmental issues. Water temperature and dissolved oxygen are being monitored in inflowing streams to Lough Sheelin. Other environmental variables are also being collected (e.g. canopy cover, flow velocity, underwater light). A water quality meter (measuring water temperature (°C), dissolved oxygen, (% saturation and mg/l), conductivity (µS/cm) and chlorophyll a at the surface) has been installed on the data buoy on Lough Sheelin and data is available to IFI staff in real time via an Internet of Things (IoT) portal.

An acoustic telemetry study was initiated on Lough Sheelin in April 2023 to investigate the response of fish to environmental and climate related changes. Seventeen acoustic receivers (listening stations) have been deployed across the lake and fish are being tagged during May 2023. High frequency movement (including depth) data will be collected during the rest of 2023. The study will continue in 2024 and 2025.

Data loggers (water temperature and dissolved oxygen (D.O.)) installed along the Mount Nugent and Upper Inny rivers, two major Lough Sheelin tributaries, during and after the July heatwave event highlighted the relative importance of flow and local riverscape features on water temperature and dissolved oxygen. Periods of low flow and warm sunny weather stimulate daytime primary productivity by aquatic organisms. This increases oxygen concentrations during the day and at night causes an oxygen sag, and in eutrophic streams this can lead to hypoxia for stream fish at nighttime. During the July heatwave on the Mountnugent river (tributary of Lough Sheelin) D.O. dropped below 40% with nighttime water temperatures exceeding 20°C. Daytime temperatures on this stream reached 23.82°C close to the lethal temperature (24.7°C) for trout during the period. In contrast to this river site, the Upper Inny river site (<5km from Mountnugent) experienced less dramatic declines in D.O. during nighttime and maximum temperatures remained approximately 5°C cooler during the heatwave (See Kelly and Kelly (2023) for more details).

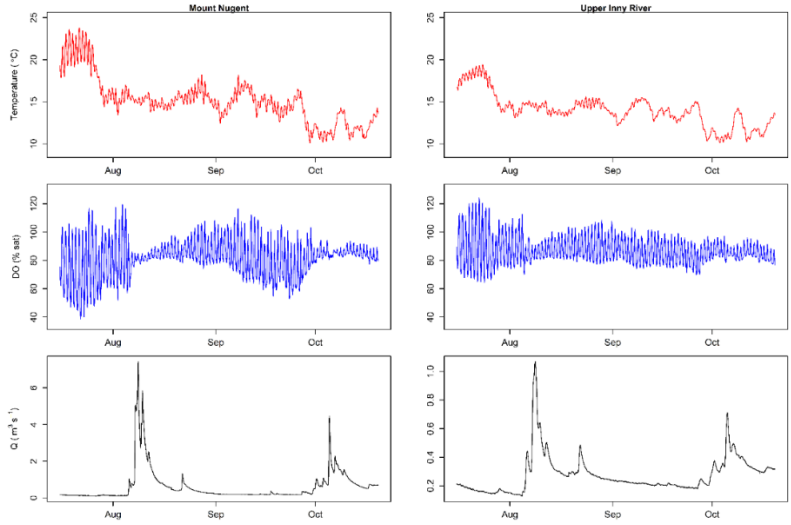


Figure 18. Timeseries of (a) water temperature (°C), (b) Dissolved oxygen saturation (%) and (c) stream flow (Q m^3 s^{-1}) at 10-minute intervals between July 16th to October 19th, 2021, for the Mount Nugent River (left panels) and the Upper Inny River (right panels). (Note that the y-axis scales are equivalent except for streamflow).

Vulnerability of Irish fish species to climate change

A climate change species vulnerability assessment was undertaken via an expert-based questionnaire and a trait-based assessment to assign specific fish species to climate change vulnerability categories. The expert-based questionnaire assigned one species (3%), namely Arctic char the rank of high vulnerability, thirteen species (40.5%) were assigned moderate to high vulnerability, fourteen species (44%) were assigned moderate vulnerability, and four species (12.5%) were allocated low to moderate vulnerability, while no species were classified as having a low vulnerability to climate change based on the expert panel. The results provide a vulnerability ranking for Ireland's freshwater fish and offer insight into the factors that increase susceptibility to climate-induced changes (see Barry *et al.*, 2022 for further

information). This information is significant to inform policy, decision-makers and other stakeholders engaged in managing freshwater fish resources.

Innovation - 2023

New state of the art innovative water quality data loggers, measuring water temperature, conductivity, pH, dissolved oxygen and turbidity, are also being installed in two river sites in the Lough Sheelin catchment in May 2023. This will allow IFI for the first time to view data from rivers as it is gathered. These instruments could act as an early warning system during a heatwave event, for example, when fish are put under significant thermal stress and alert local staff to any environmental problems in the area.

CCMRP/OPWCRP Outputs - Project reports

Barry, J., Coyne, J., Connor, L., Purves, K, and Kelly, F.L. (2021) Climate Change Mitigation Research Programme, Annual Report 2020. National Research Survey Programme, Inland Fisheries Ireland, 3044 Lake Drive, Citywest Business Campus, Dublin 24.

Barry, J., Coyne, J., Connor, L., and Kelly, F.L. (2022) Climate Change Mitigation Research Programme, Annual Report 2020. National Research Survey Programme, Inland Fisheries Ireland, 3044 Lake Drive, Citywest Business Campus, Dublin 24.

Kelly, S., McGreer, A., Barry, J., Coyne, J. and Kelly, F.L. (2022) Office of Public Works Climate Resilience Research Project, Annual Report 2021. Inland Fisheries Ireland, 3044 Lake Drive, Citywest Business Campus, Dublin 24.

CCMRP/OPWCRP Outputs - Peer reviewed publications to date

Kelly, S., Barry, J. and Kelly, F.L. (2021) Implications of climate change for freshwater fisheries. In: *Reference Module in Earth Systems and Environmental Sciences*. Elsevier.

Barry, J., Radinger.J., Coyne, J., Connor, L., Kelly, S., and Kelly, F.L. (2022) The vulnerability of Irelands Freshwater Fish to Climate Change. Fisheries Management and Ecology,

Kelly, S. and Kelly, F.L. (submitted for publication) Aquifer-fed, shaded streams provide naturally resilient fish habitat refugia during heatwaves.

APPENDIX A

- Inland Fisheries Ireland – Electric Vehicle Fleet Integration Strategy
- Inland Fisheries Ireland | Energy - Fleet
- Inland Fisheries Ireland | Energy - Properties
- Inland Fisheries Ireland – Green Teams
- Staff Engagement - St. Patricks Day 2023 Flyer
- Staff Engagement – Eco Driving Poster
- Staff Engagement – Switch Off
- Inland Fisheries Ireland – PV Network Map
- Inland Fisheries Ireland – EV Network Map
- Staff Engagement – Spotlight Document

Electric Vehicle Fleet Integration Strategy

Iascach Intíre Éireann
Inland Fisheries Ireland

Electric Vehicle Fleet Integration Strategy

August 2022

Contents

1. Introduction and IFI's Vision and Values

Introduction

The SEAI's Annual Report 2021 on Public Sector Efficiency Performance found that transport accounted for 21% of primary energy consumption in the public sector in 2020. Although IFI energy savings of 43.6% have been made since baselines were created, approximately 70% of IFI's total energy demand comes from fleet. The majority of IFI staff comprise IFI's 'mobile workforce' travelling daily to deliver IFI's statutory functions. Given the overwhelming influence of fleet on IFI's energy profile, ambitious and meaningful action in this area has the potential to deliver statutory reductions in organizational greenhouse gas emissions and improvements in energy efficiency. The Climate Action Plan 2021sets a national target of one million electric vehicles by 2030 and the phasing out of fossil fuel vehicles in public fleets. The action plan further states that all public sector fossil fuel vehicles will be replaced with electric vehicles by 2035.

Under IFI's Climate action mandate only zero-emission vehicles where available and operationally feasible will be purchased from end of 2022, enabling Ireland to go beyond the requirements of the Clean Vehicle Directive and act as an international leader in this area.

Vision Statement

In the context of carbon emission & fleet management Inland Fisheries Ireland's vision is to replace our fleet of internal combustion engines (ICE) with renewable energy powered vehicles and to eliminate carbon emissions by 2050. This is in keeping with our wider organisational vision to position Ireland's inland fisheries and sea angling resources as sustainably as possible for the benefit of future generations.

Mission Statement.

To protect, manage and conserve Ireland's inland and sea fisheries resources, maximising their sustainability and natural biodiversity.

Core Values

- We work collaboratively with professionalism.
- We are open, transparent, and accountable.
- We act with respect and integrity.
- We stay committed to stewardship and sustainability.

2. SWOT Analysis

Strengths	Weaknesses
Significant contribution to reduced carbon targets (legally binding) Cheaper to maintain Less time off road for servicing Reduced full life costs - lower costs of ownership PR - we-care for the environment - positive public image Reduced BIK Lower Motor Tax Lower VRT rates Energy savings from regenerative braking Government grant (excl commercial) Rising fossil fuel costs Increasing carbon tax Zero emissions - no air or noise pollution Policy on purchase of EV's from Jan 2023 Less moving parts than ICE (reduced part replacement costs & no requirement for lubricating synthetic oils or fluids) Typical 8 year battery warranty Technology is quicky extending driving range and vehicle viability DC charge point availability is relatively fast and becoming more widespread. Government Strategy introduced Smarter Travel Mark	Long charging times at AC public charging points and at home. DC infrastructure development limited by work site power supply and costs. Charging Infrastructure – plans in place but not currently developed E vehicles not developed for off road or towing yet High initial costs Battery change is expensive Ranges for some vans - restrictive Uncertainty around future BIK liabilities (may impact buy-in by employees) Limited offering on OGP
Opportunities	**Threats**
Staff utilise time at public chargers for paperwork and planning Align to PV installations- additional savings Targeted distribution based on telematics to maximise carbon and monetary savings Electricity grid moving to 70% renewables by 2030 - less carbon Reinforces IFI environmental culture Synergies with other agencies - sharing chargers More efficient use of transport being based at home Evolving battery technology - improved ranges and reduced cost of replacement Strategic location of EV charging points may influence property strategy More models coming to the market Training for EV driving (IFI Webinars – significant positive feedback to date) Planned improved fast charging network Branding – improving IFI image and promotion of Green philosophy. Reduced KMs travelled	Range Anxiety Change in driving for staff - automatic and charging while driving Mismatch between charging capacities of cars and chargers installed - AC v DC charging Baking in inefficiencies Staff not wanting to have home charger installed at their homes Lead times and availability Raw material constraints including ESG concerns Emissions from original production Ranges may diminish in wintertime Early adopter – wrong technology Stranded assets (obsolescence) Economic uncertainty supply chain issues Impacts on car manufacturing due to materials and supply chain disruptions Government policy and associated uncertainty

3. Long Term Goals: IFI's 2030 & 2050 Target

IFI's Climate Action Mandate indicators include the collective target to reduce CO_2eq. (Carbon Dioxide equivalent) by 51% and improve organizational energy efficiency by 50% by 2030 (with a view to achieving carbon neutrality by 2050).
IFI fuel transport baseline figure is 1,099,053.6kgCO_2.
To achieve the 2030 target, it must be reduced to 538,536.3 kgCO_2.
Achieving these targets will also lessen IFI's overall environmental impact in keeping with the IFI Environmental Policy & Charter.

Yearly Objectives, Actions Completed & Planned

2019

- Feasibility assessment completed into the viability of EV procurement and development of an internal charging infrastructure at IFI bases and at employee homes.
- Purchase of first six electric vehicles (cars) completed.
- Six domestic electric charge points installed.
- Seven commercial dual charging electric charge points installed.

2020

- Purchase of first five electric vans completed.

2021

- Order placed for twenty electric SUV vehicles & twelve electric commercial vans.
- One dual charger and one single charger installed.

2022

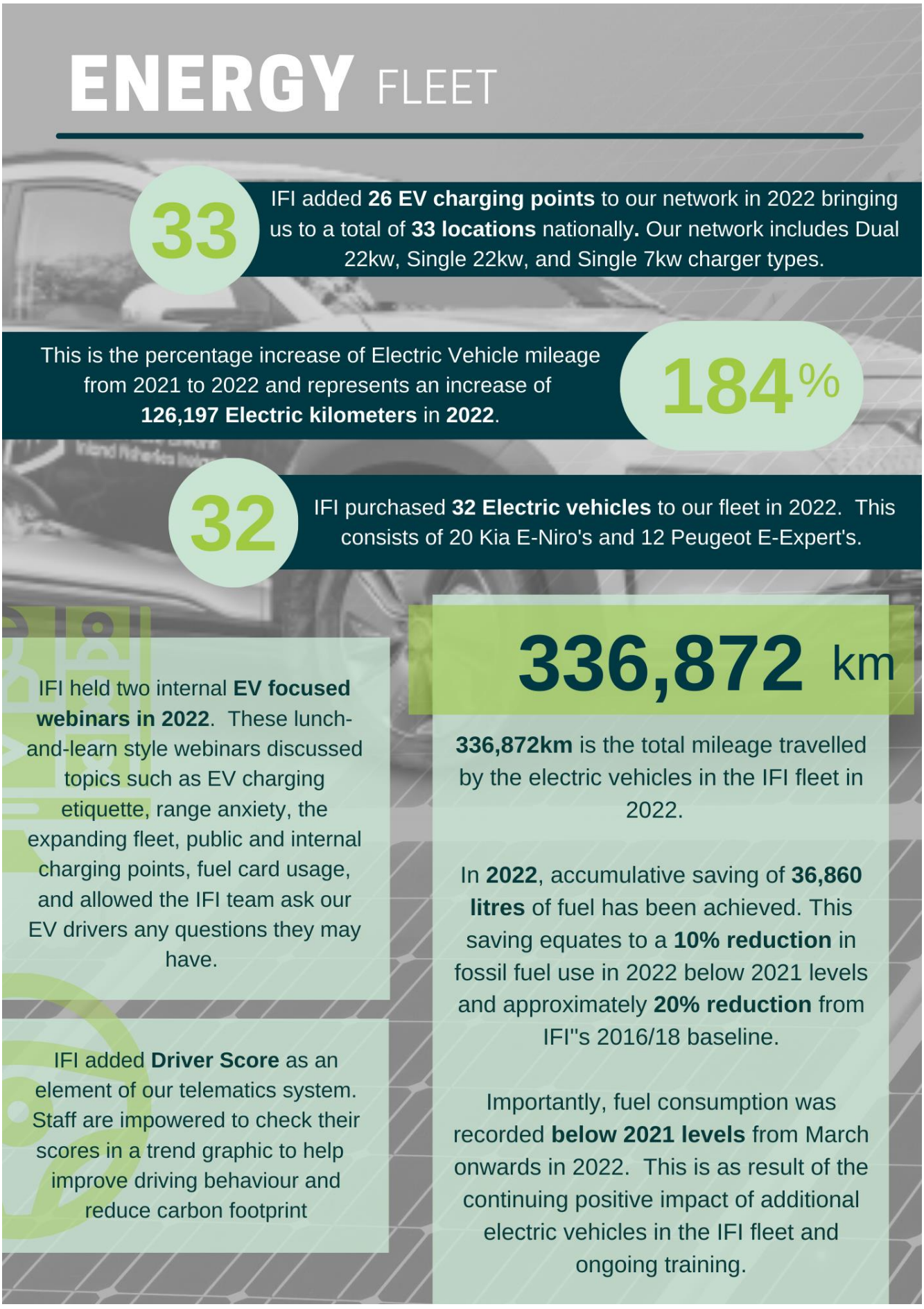
- IFI added 26 EV charging points to our network in 2022 bringing us to a total of 33 locations nationally. Our network includes Dual 22kw, Single 22kw, and Single 7kw charger types.
- 184% is the percentage increase of Electric Vehicle mileage from 2021 to 2022 and represents an increase of 232,632 Electric kilometres in 2022.
- Forty electric vehicles integrated into fleet representing 22% of total working fleet by year end.
- 13 locations with PV integration for car charging points.
- Driver feedback element to telematics systems introduced. Allowing individual drivers to review their driving style and change behaviour to become a greener driver.
- 2 staff webinars completed promoting EV driving and addressing concerns. Existing EV drivers shared their experiences good and bad with all staff, an engaging Q&A session followed.
- In 2022, accumulative saving of 36,860 litres of fuel has been achieved. This saving equates to a 10% reduction in fossil fuel use in 2022 below 2021 levels and approximately 20% reduction from IFI's 2016/18 baseline.

- IFI reviewed alternative vehicles than on offer on the OGP

2023 – 2030

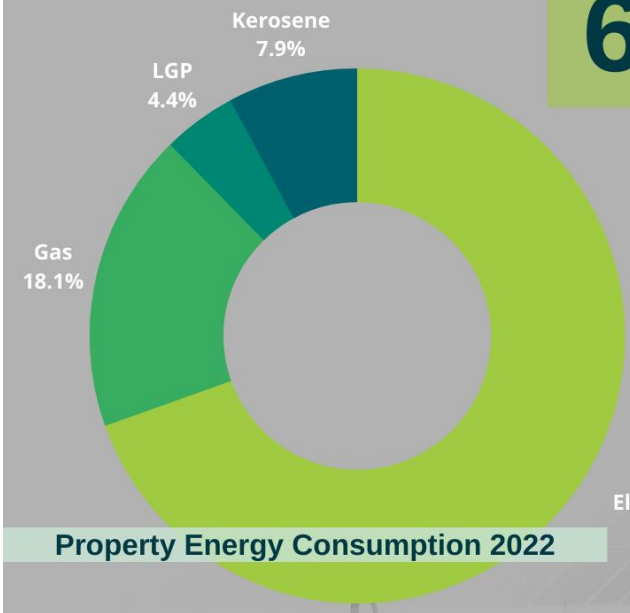
- Leading by example with ambition as required in the Climate Action Plan.
- Annual capital expenditure commitment of €550,000 to secure over 80% of fleet operating electrically by 2030.
- Introduction of advanced eco driving training for staff.
- Rationalisation of the fleet, reduce single occupancy journeys.
- Workplace travel planning and behavioural change, utilising the office hybrid working model.
- Empowerment of IFI staff and enabling responsive management through real-time data including live dashboards, telematics, and monthly summary reporting.
- Continual review of EV charging points and technologies ensuring optimal facilities for IFI staff vehicles.
- Collaborate to explore opportunities to share facilities with other state bodies, supporting cross-cutting decarbonisation.
- Promote the use of bicycles (including push bikes, electric bikes, and cargo bikes) and shared mobility options as an alternative to car use among employees and visitors.
- Phase out the use of parking in buildings that have access to a range of public transport services and active/shared mobility options for the majority of staff/visitors while providing that sufficient accessible parking is maintained for those with physical mobility issues.
- Strategy to be reviewed and updated annually to achieve 2050 targets to reflect up to date policy and technical progress.
- Continued alignment with the SEAI and the OPW campaign, Reduce Your Use. This campaign is focussing on driving behavioural change and implementing a range of measures to lower energy consumption and costs in the public sector.
- Complete the EV Charging Strategy for IFI staff.
- Reducing single passenger/low number journeys

IFI ENERGY - Fleet



IFI ENERGY - Properties

ENERGY PROPERTIES



Property Energy Consumption 2022

66,746 $kgCO_2$

IFI made a total savings of **66,746kgCO_2 in 2022.** This equates to a saving of **€11,731**.

The introduction of EV chargers at IFI bases accounted for **28,568kWh** of IFI's electricity usage in 2022. IFI experienced a **59% increase** in the **cost of electricity** in **2022**, the 2021 increase was 1% on 2020.

IFI completed **9 Energy Focused projects** in **2022. 7** of these projects were **PV system installs** the remaining **2** projects were **building improvements.** We are also upgrading our BMS in Citywest and Castle House.

9

IFI partnered with **Energy Elephant** to onboard an intelligent energy management system. This platform allowed us to clearly see where the energy blackspots were, sites with old boilers, single-glazed windows and poor insulation, for example. These data have supported several energy upgrade projects contributed to our 2022 savings.

We are constantly reviewing our buildings energy consumption. An example of our agile approach was during Christmas 2022 when we focused on a hibernation of the Citywest office.

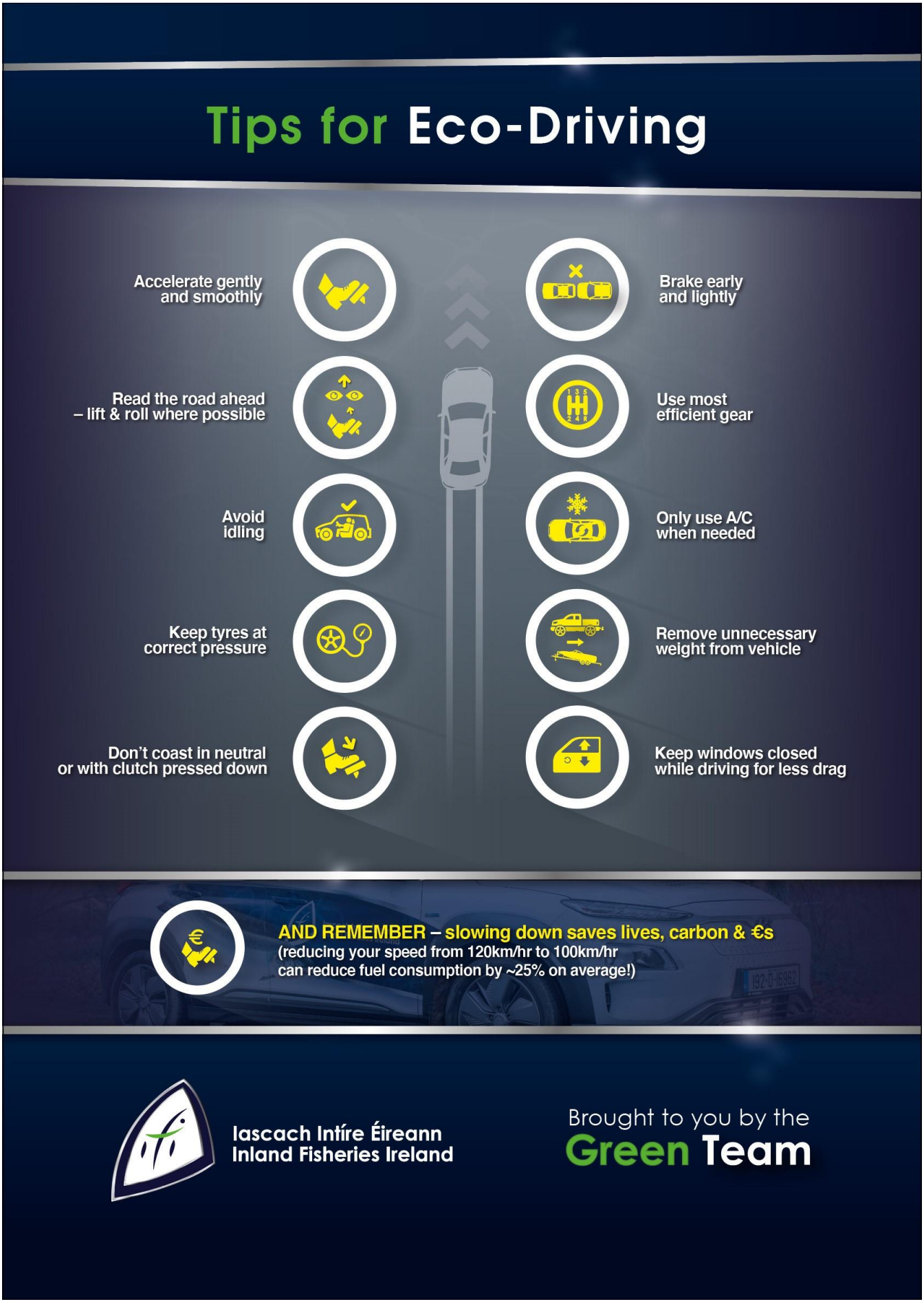
Display Energy Certificate
All properties to be **B3** or higher by **2030**

IFI Citywest	**D1**
Clonmel Base	**B3**
Limerick Base	**B1**
Macroom Base	**C2**
Galway Base	**C2**
Ballina Base	**A3**
Ballyshannon Base	**B2**

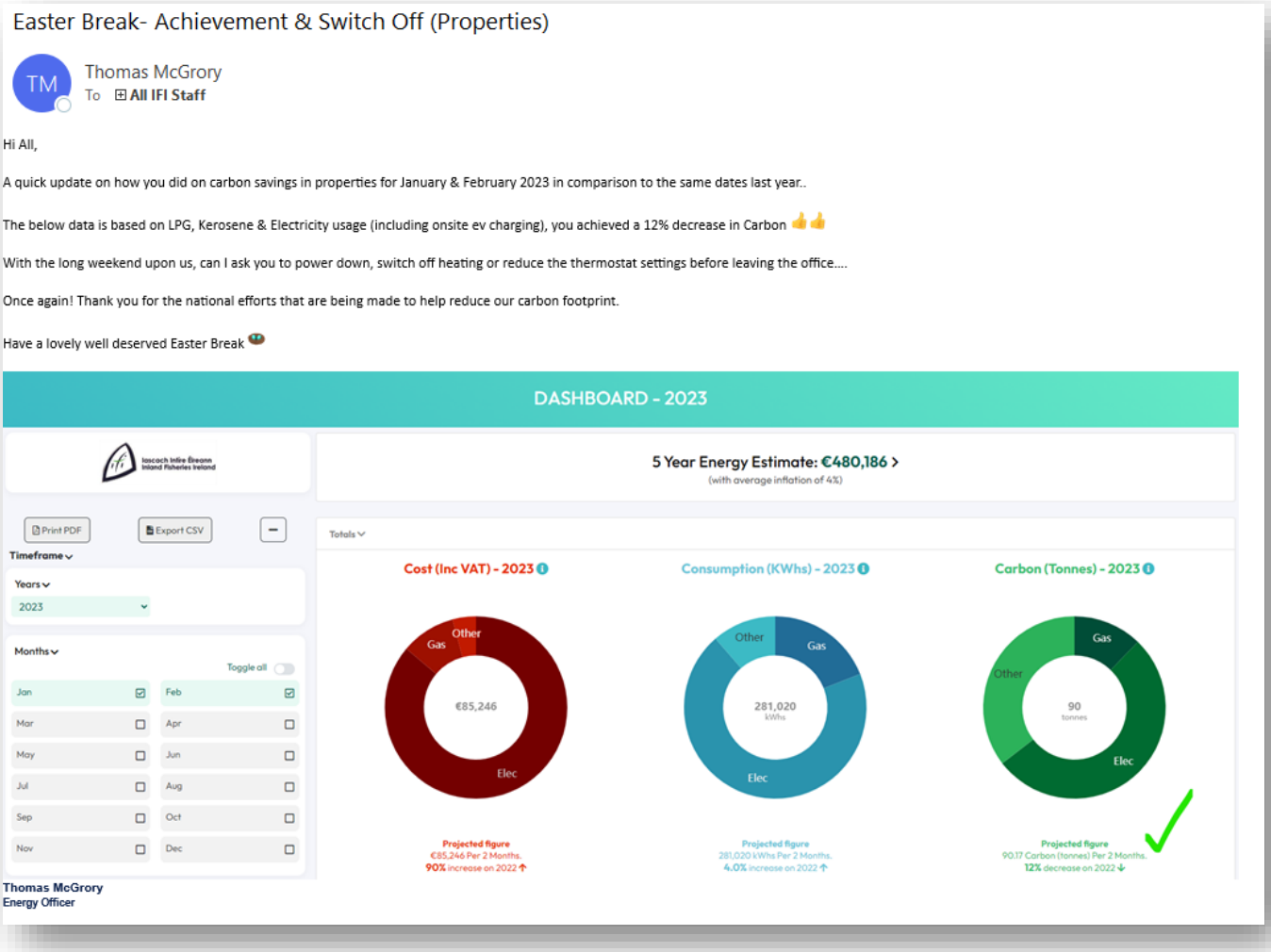
IFI – GREEN TEAMS

St. Patricks Day 2023 Flyer

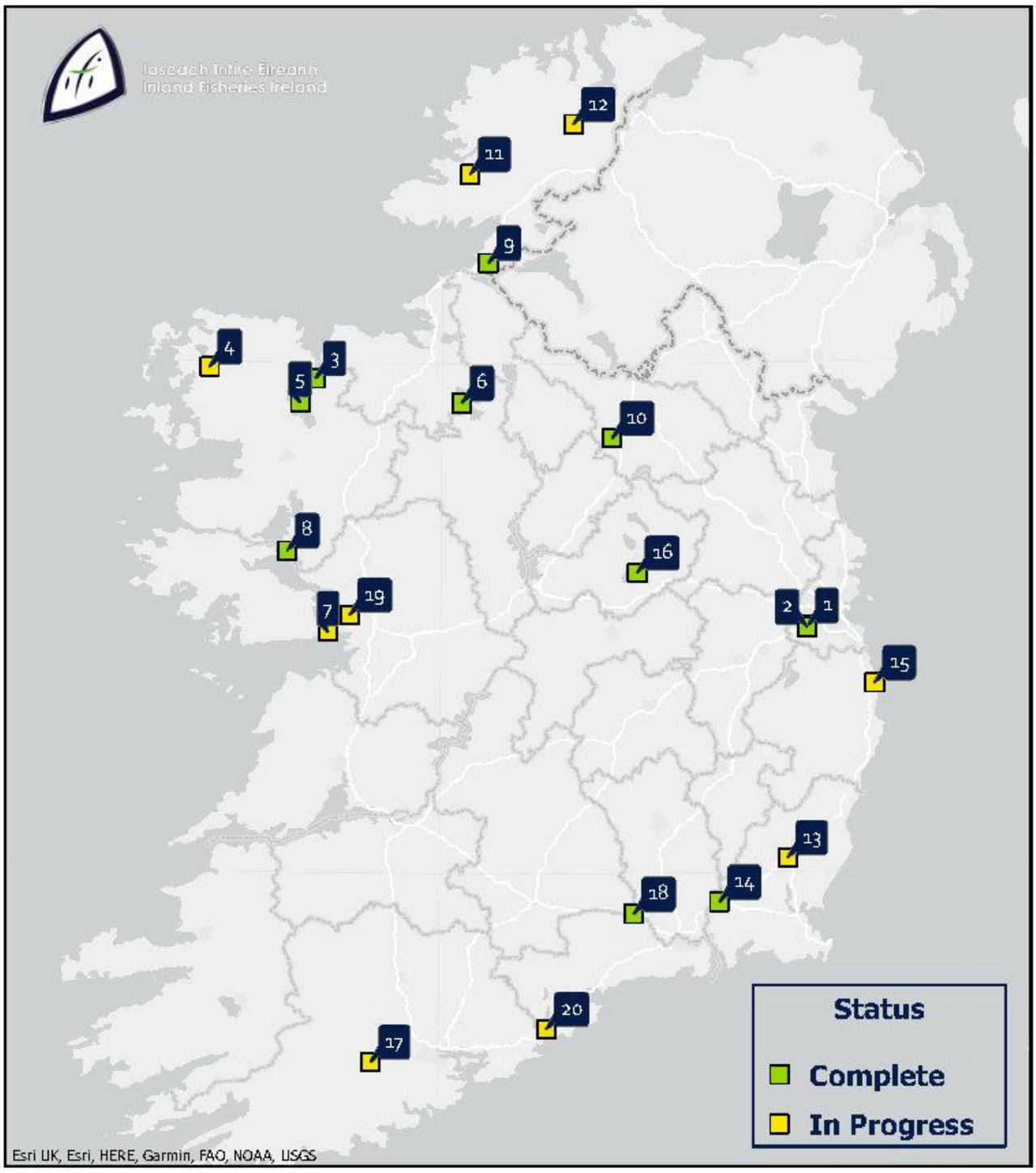
Updated Eco Driving Poster



Long weekend and holiday reminder to switch off.



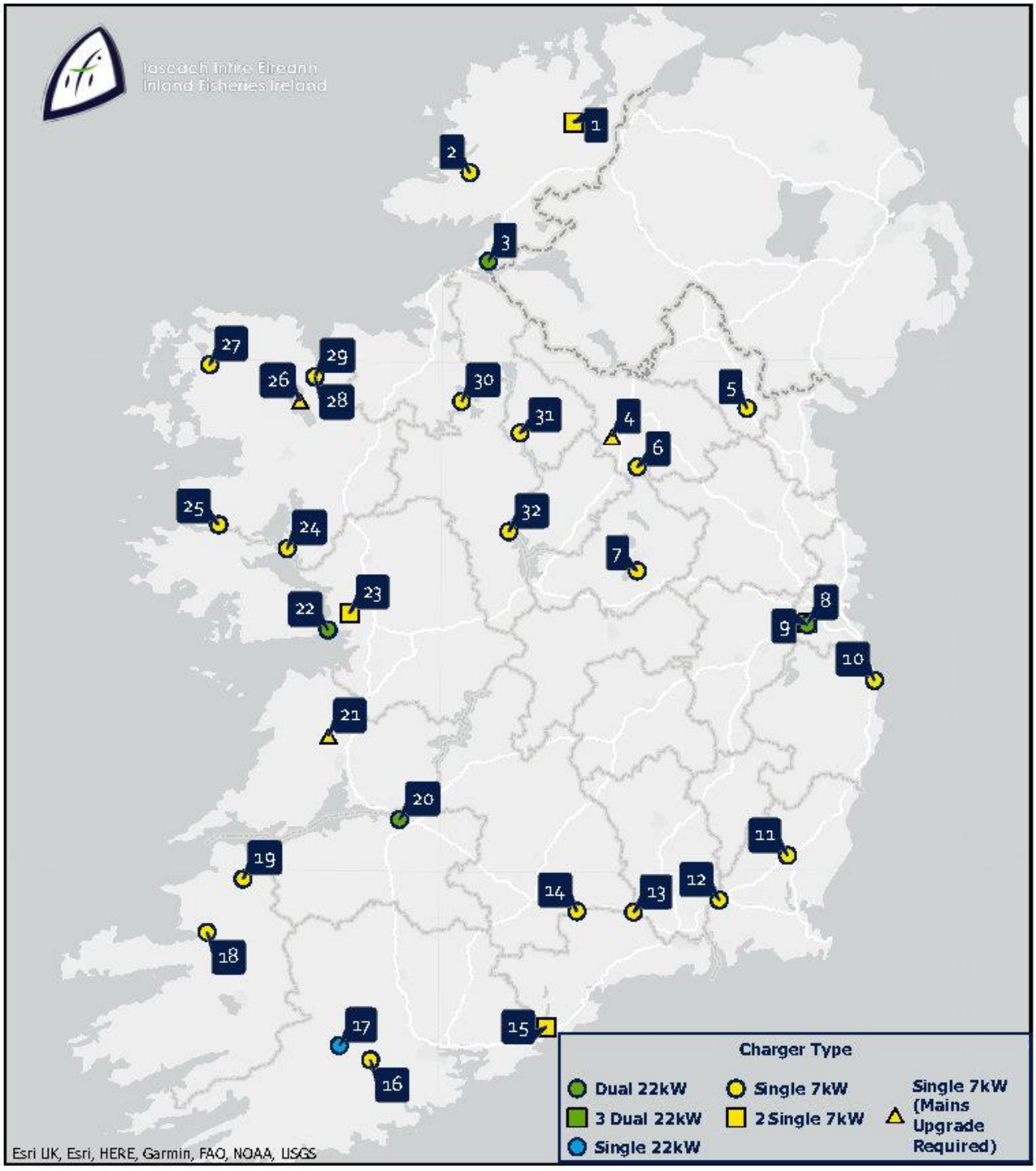
IFI Solar PV Network



IFI PV Installs

- 1 | HQ CITYWEST
- 2 | National Logistics & Research Centre
- 3 | IFI BALLINA
- 4 | Bangor Base
- 5 | Lough Conn Base
- 6 | Lough Arrow Base
- 7 | IFI GALWAY
- 8 | Cong Salmon Hatchery
- 9 | IFI BALLYSHANNON
- 10 | Cavan
- 11 | Glenties
- 12 | Letterkenny
- 13 | Enniscorthy
- 14 | New Ross
- 15 | Kilcoole
- 16 | Tudenham Base
- 17 | Farnanes Fishery Centre
- 18 | Carrick On Suir
- 19 | Claregalway Base
- 20 | Millennium Park

IFI EV Charging Network



IFI EV Charge Points

1 | Letterkenny
2 | Glenties
3 | IFI BALLYSHANNON
4 | Cavan
5 | Creevy Base
6 | Lough Sheelin Store
7 | Tudenham Base
8 | HQ CITYWEST
9 | National Logistics & Research Centre
10 | Kilcoole
11 | Enniscorthy
12 | New Ross
13 | Carrick On Suir
14 | IFI CLONMEL
15 | Millennium Park
16 | Farnanes Fishery Centre
17 | IFI MACROOM
18 | Thalee Store
19 | Listowel Store
20 | IFI LIMERICK
21 | Clare Store
22 | IFI GALWAY
23 | Claregalway Base
24 | Cong Salmon Hatchery
25 | Aasleagh Lodge
26 | Lough Conn Base
27 | Bangor Base
28 | Moy Fishery Office
29 | IFI BALLINA
30 | Lough Arrow Base
31 | Drumsna Store
32 | Ballymurray Store

Inland Fisheries Ireland's NET ZERO ROADMAP

Baseline data and the journey to 2030 and 2050

Problem solving starts with problem identification. In 2009, IFI emitted 2.4 million kg of greenhouse gas (CO_2eq). Evidence-based monitoring and reporting is in place through SEAI's M&R system for each year since then.

'Business as usual' is not an option as we face the climate and biodiversity emergency.

IFI has developed a suite of measures and data collection and analysis systems with a primary focus on the sustainable delivery of our legislative remit (sustainable management of the national fisheries resource).

EMISSIONS DATA

2019 - 1.5 M kg CO_2eq

2030 - 0.87 M kg CO_2eq

2050 – 0 M kg CO_2eq

Delivering 'Deeper' Energy Savings

IFI has been working since 2017 on consolidation of its Environmental Management Systems (EMS) to help minimise the impact on the environment resulting from IFI activities and facilities. IFI has ambition to align with international standard ISO14001 (Environmental Management System) and International Standards Organisation (ISO) 50001 energy management standard over the period of its current climate action framework and mandate. IFI's Climate Action Mandate (2021 onwards) will set out IFI's approach to reducing the environmental impact of its activities through ongoing development of IFI's Environmental Management System (EMS) activities in order to deliver:

- Improved energy efficiency through energy auditing and subsequent action.
- Reduced generation and improved management of wastes, emissions, effluents.
- Conservation of natural resources.
- Efficient sustainable agency operation with associated cost savings.
- Environmental / climate action initiatives that are aligned with the legislative remit and strategic aims of IFI.

IFI practices the following 5 basic structured energy management steps:

Commit: IFI signed up to a partnership agreement with SEAI in 2017. IFI have appointed a key senior manager in IFI (Pat Doherty – Head of Finance and Energy Performance Officer) to provide leadership and accountability in the area of energy management IFI has allocated significant resourcing (empowered IFI staff to act via programme management restructuring and the formation of a national Green Teams network in addition to appointment of local energy champions) and has chosen appropriate pathways to energy transition management / certification.

Identify: work to identify actions and projects based on IFI energy performance data

Plan: IFI has availed of strategic planning assistance through IFI's partnership agreement with SEAI and is building energy management capacity through integration of facilities management, finance and human resource functions in IFI's energy management planning. IFI sets annual energy saving goals.

Take Action: IFI has shown significant ambition and intent through positive action and project implementation. IFI has availed of project design, development and supervision support and has committed significant time and resources to a suite of energy related projects from design through to implementation and monitoring.

Review: IFI is thoroughly committed to an evidence-based energy management programme. IFI is measuring energy improvement results using in-house digital systems in addition to the SEAI's energy portal monthly returns. Regular review is undertaken with a view to continually improving IFI's energy performance.

Achieving our Goals

KEY MILESTONES

- Fleet Decarbonisation.
- Property Energy Upgrade Delivery
- Progressive Water / Wastewater / Waste Reduction
- Progressive stakeholder engagement levels (measured by staff surveys, project activity etc.)
- Development of full Circular Economy Programme

By 2050 IFI will be

CARBON NEUTRAL

2009 2020 2030 2050

NWRBD Spotlight Document

February 2022

greenteam@fisheriesireland.ie

IFI GREEN TEAMS

SPOTLIGHT ON GREEN TEAM INITIATIVES IN THE NWRBD

WHAT'S INSIDE:

Charging into 2022

Ballyshannon Base Extension

Biodiversity and Climate Action

Going Green

CHARGING INTO 2022

ENERGY SAVING INITIATIVES IN IFI

The offices at IFI-Ballyshannon achieved a BER rating of B2 in July following a series of energy saving initiatives undertaken over recent years (insulation, external cladding and windows replacement). – This is **the first IFI base nationally to achieve a B rating** which is the target for all public offices. A massive achievement for all in NWRBD after years of hard work, , much of it overseen by **Gerry McCafferty** (Inspector).

Some of these energy saving initiatives include:

- Installation of **rainwater harvesting** facilities for washing of RIB's
- Installation of a **new master fuse board** and three phase electricity connection to enable onsite charging for electric vehicles.
- Replacement of old electric storage heaters with new **energy efficient units.** (2x 1000watt and 1x 1500watt)
- Installation of an **energy efficient dehumidifier unit.** (Additional units also installed at IFI Thorn Road and Corlismore bases).
- **Two new e-car charging points** have been installed and commissioned.

IFI Ballyshannon is also set to be the next site for a **32 photovoltaic solar panel system**. The roof of the newly fitted boathouse will be the site in question, with planning permission already submitted we look forward to this addition in 2022.

The team in IFI Ballyshannon are not stopping there, with sights firmly set on 2022 the team have provisions made for **six additional e-vehicle** charging points, future proofing the base for anticipated additional e-car use in the coming years.

New IFI Corporate sign and planning application notice for PV installation

BALLYSHANNON BASE EXTENSION

STORAGE, WATER HARVESTING, AND ENERGY SAVING

The new **DELTA RIB Boat storage extension** at IFI- Ballyshannon is now complete. This new development has provided the basis for a number of associated energy saving initiatives which are now in place or nearing completion including a rainwater harvesting and mains water outlets for power washing of RIBs and a new designated cage units for storage of drysuits, lifejackets and other PPE.

ENERGY AUDITS

ENERGY SAVING INITIATIVES IN IFI

Energy audits were carried out by **Tom McGrory** at both the **IFI- Glenties and Letterkenny** (Thorn Road) bases and full reports completed.

Major works must be undertaken at the Thorn Road base to **reduce heat loss** and **reduce our carbon footprint**. Works include retrofitting of the office block with 50mm insulation, installation of PVC double glazed internal windows, a new insulated roller door, a new pedestrian door at entrance to building and installation of new Grant Vortex condensing boiler with new double radiators. We have received one quote for works to date and are awaiting on more contractors to price the works

Many thanks to **Tom McGrory and the team** in Letterkenny for their support to date.

IFI CORLISMORE

The last of the **insulated roller doors** was installed to the outside stores building to **improve security, weather proofing and energy rating of the building.**

ESKE & EANY ANGLING CENTRES

Alan Mahon and the **team in Ballyshannon** have completed the installation of additional roof insulation to both Eske & Eany Angling Centres as well as the outside offices at IFI Ballyshannon.

BIODIVERSITY AND CLIMATE ACTION

AT GLENTIES ANGLING CENTRE

Biodiversity area at Glenties Angling Centre

A new designated **Biodiversity Area** is being developed on the grounds of Glenties Angling Centre on the banks of the Owenea River to highlight and promote the **benefits of sustainable and biodiverse riparian habitats.**

Local development staff, **Raymond Brennan, Paul Burke,** and **Cornelius McMullan** commenced clearance and creation of a **short looped walk** around the area through existing mixed broad leaf (birch and willow scrub) and coniferous woods. **Wooden seating** has been installed and plans to **level and extend paths** will be implemented over time.

Glenties Angling centre is now home to a **bee habitat** frame. This habitat was installed in the biodiversity area.

Bee Habitat at Glenties Angling Centre

Felling of **22 dangerous non-native trees** was completed on the 18th October at Glenties Angling Center. These trees will be replaced with planting of young **native broad leaf specimens** (e.g. oak and birch) which will be set back from the angling center along the Owenea River.

The contractor appointed for the removal of trees at the Glenties Angling Centre came on site on the 18th of October and had works completed by 22nd. The contractor returned in early November to **create biodiversity piles from leftover branches and ivy.**

Restoring native plant habitat is **vital to preserving biodiversity.** By creating a native plant garden, each patch of habitat becomes part of a collective effort to nurture and sustain the living landscape for birds and other animals. **Planting new native forests offer many benefits to our waterways.** These forests will minimise soil erosion, reducing the run off of sediment such as silt into our waterways. They absorb and store polluting chemicals. As these trees grow they shade and cool the river itself. They capture the rainwater in the trees canopy and reduce and slow down flood flow into rivers.

GOING GREEN

WORKS UNDERTAKEN THROUGH THE CATCHMENT CARE PROGRAMME LISA DOYLE (CATCHMENT OFFICER- ARNEY R.)

Arney R – pre and post (installed riparian fencing) works

Roo Blacklion Co Cavan post-works (drone image)

Buffer zone and fencing installed along the R Arney Co Fermanagh

Rainwater harvesting installed at Blacklion Co Cavan

WIN €100 ONE4ALL

IFI Green Team initiatives are designed with all of IFI in mind, readily adapted to local sites and most importantly, complimentary to the work we do everyday. We are always looking for new members and of course, new ideas. We would love to hear from you and your ideas for our green initiatives. Take our survey and be entered into a draw to win a €100 one4all voucher

CLICK HERE TO TAKE OUR SURVEY AND BE IN WITH A CHANCE TO WIN