



THE IRISH ACADEMY OF
ENGINEERING
ENGINEERING & TECHNOLOGY

THOUGHT LEADERSHIP IN A TIME OF GREAT CHANGE

26th Annual Report

APRIL 2023 – MARCH 2024
INCLUDING
THE OFFICIAL LIST OF FELLOWS
AT
31 MARCH 2023

Joseph F. Harford
Hon. Secretary



**Seamus
McKeague**
BSc FIAE

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Introduction

This Annual Report reviews the activities of the Irish Academy of Engineering in its twenty sixth year as the Academy and its seventeenth year as a Company Limited by Guarantee and one which is recognised for Charitable Status.

The report covers the year from April 1st, 2023 to March 31st, 2024.

The financial year remains unchanged as the calendar year ending December 31st, 2023.

“Over the past year, the Academy has made significant strides forward.”



Seamus McKeague
President

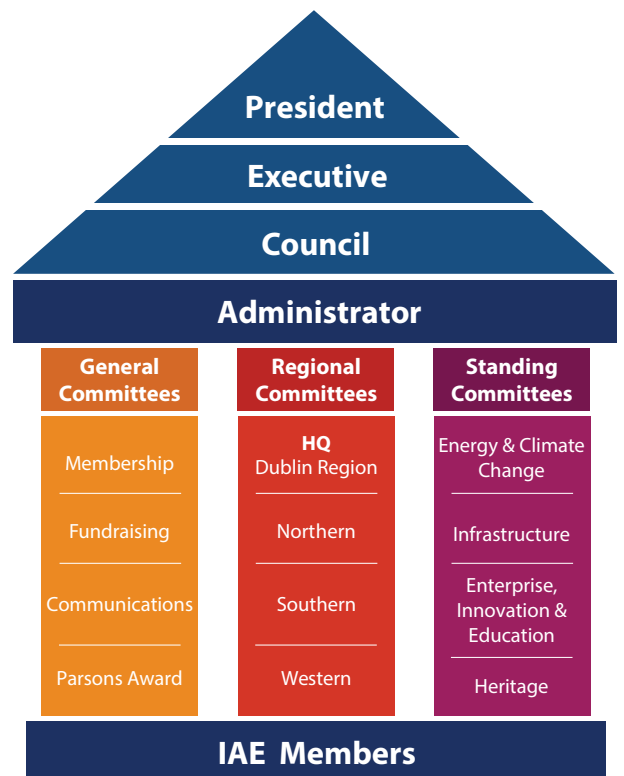
President's Review of 2023-2024

It has been both an honour and a privilege to serve as your President since May 2023.

Over the past year, the Academy has made significant strides forward. I extend my heartfelt gratitude to our Council, Executive, Standing Committees, and Regional Committees for their unwavering dedication to advancing our mission of providing thought leadership amidst a period of profound change.

Upon assuming the role of President, I undertook a comprehensive review of the Academy's finances, strategy, and vision in collaboration with the executive team. This led to the publication of a document outlining the Academy's scope of work, its societal relevance, and funding mechanisms, providing clarity on our organizational structure and mission.

During the financial review, it became evident that our expenditures did not align with the organization's income. To ensure the Academy's financial stability and sustainability, we opted to streamline operations. As part of this streamlining effort, the role of Chief Executive was made redundant. I'd like to thank Gabriel for his time at the Academy and the contributions he has made. Gabriel's departure on 30th April will necessitate increased commitment from all members, committees, and fellows. Subsequently, there will be a heightened focus on subcommittee activities, and there will be bi monthly communication meetings organised on Zoom as a means of increased communications. The current organizational structure as of the AGM stands as follows :



Current Organizational Structure

Council/Directors(D):

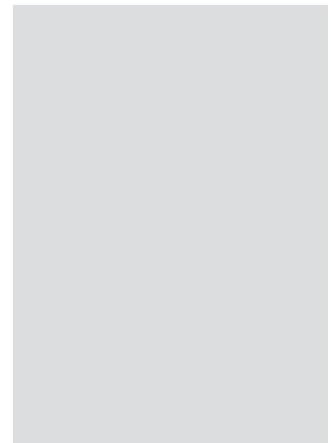
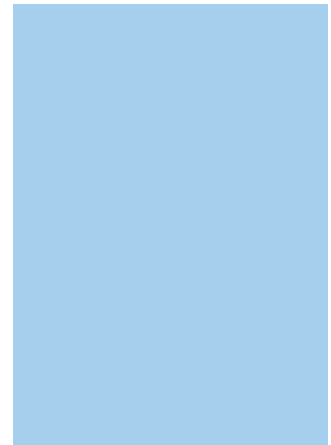
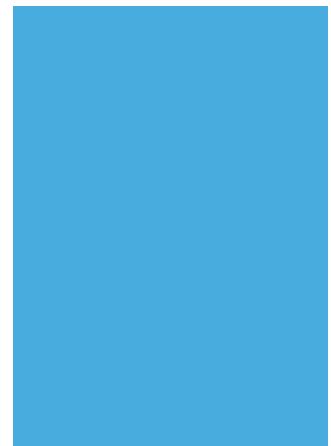
- Seamus McKeague, President (D)
- Patrick Lynch, Honorary Treasurer (D)
- Joe Harford, Honorary Secretary (D)
- Tom Leahy, Past President (D)
- Jim Browne
- Mark Gantly
- Eileen Harkin-Jones
- Mary Kelly
- Brendan Murphy

Committees:

- Infrastructure Standing committee-Tim Corcoran (Chair)
- Energy and Climate Change Standing committee - Eamonn O'Reilly (Chair)
- Enterprise, Innovation and Education Standing committee Mark Gantly (Chair)
- Heritage Committee: Dr. Ron Cox (Chair)
- Membership Committee: Sean Finlay (Chair)
- Philanthropy/Fundraising: Tom Leahy (Chair)
- Communications and Publications (CAP): Tom Leahy (Chair)

Regional Committees:

- Northern Region Branch: Jonathan Hegan (Chair)
- Western Region Branch: John Killeen (Chair)
- Southern Region Branch: Brendan Murphy (Chair)
- Parsons Award Committee: John McCanny (Chair)



Events

- 
- AGM May 2023
 - Euro-CASE Board Meeting – May 2023
 - RAE Annual awards event – July 2023
 - Euro-CASE Annual Conference – September 2022
 - Attendance at CAETS 2023 Conference – October 2023
 - Progress Group Visit – October 2023
 - Annual Sir Bernard Crossland Lecture – February 2024
 - Dervilla Mitchell Lecture – March 2024
 - ACEI Awards Dinner – March 2024



Looking Ahead

The Academy is continuing to grow and evolve. The Academy embarked on a growth strategy, defining our mission as “Thought Leadership in a Time of Great Change.” This reaffirms our commitment to offering independent commentary and advice, leveraging the expertise of our membership.

Our standing committees and working groups continued to produce insightful reports and coordinate public events, thanks to the dedication of their chairs and fellows. I encourage further participation in these groups to advance our shared objectives.

Internationally, the Academy actively engaged in various Euro-CASE activities and became a member of CAETS, enhancing our global presence in engineering and technology circles.

I extend a warm welcome to our existing and new patrons and philanthropists whose support sustains our mission. I’d like to extend a special thanks to Administrator Fiona McCarron for her exceptional work throughout the year. As we look ahead to 2025, our focus will be on promoting the Academy, releasing new publications, and fostering better communication among our members and committees.

In closing, I express profound appreciation to my colleagues on the Executive, the Council, and our esteemed Academy Fellows for their steadfast support and dedication over the past year. Together, we will continue to drive the Academy forward in service to our communities.

Seamus McKeague
President

A handwritten signature in black ink that reads "Seamus McKeague". The signature is written in a cursive, flowing style.

“I express profound appreciation to my colleagues... for their steadfast support and dedication over the past year.”

Chief Executive's Report

This report represents my seventh and last AGM report as Chief Executive of the Irish Academy of Engineering. Indeed, by the time many of you read this I will already have departed as my last day in the job is 30th April 2024. I will thus not be attending the AGM this year. So, this is very much a valedictory communication.

This past year represents the first of two in the term of office of Seamus McKeague as President. Seamus's elevation is a welcome return of a representative of the Northern region to the top position. The all-island nature of the Academy is very real and is recognised by all as a vital component in the DNA of the organisation. It is timely that it should receive this welcome boost.

Each successive President has big boots to fill – the Academy has generally been well served in my view by the individuals who have occupied the role during my tenure: Brendan Tuohy, Tony Smith, Jim Browne, Tom Leahy and now Seamus McKeague.

Seamus follows Tom's successful presidency. Tom brought managerial talents to the job based on his extensive public sector career. He had a broad vision for the role balanced with an eye for detail. Seamus too has brought his own brand of fresh thinking to the organisation and the role of President rooted in his private sector experience. Fresh thinking is a desirable thing in any organisation and perhaps especially one that is rapidly leaving its 25th anniversary in the rear view mirror.

As part of that thinking the President proposes that a much greater reliance be placed in future on the voluntary contributions of the membership in forming and driving the agenda of the Academy. In that context he feels the role of a paid chief executive is one that can be dispensed with. This ambitious plan will inevitably be accompanied by risk. It will require

a significantly increased level of engagement by a much greater proportion of Fellows than has been customary over the years. That engagement will also need to be sustained into the future. If successful it will represent not only a dramatic re-invigoration of the organisation but will result in a significant reduction in operating costs. These outcomes, if achieved, will be welcomed by all.

There has been a noticeable recent element of "passing the baton" as active and prominent Fellows have sadly died (Michael Hayden and Finbar Callanan to name two) or have stepped down from positions they have very successfully occupied for often extended periods (Bill Grimson, Tony Smith, Don Moore, Pat Lynch). All these individuals have made enormous contributions to the work of the Academy. No doubt the AGM will record its appreciation to those who have stood down in the past 12 months. It is an encouraging mark of the continuing vitality of the organisation that all have been succeeded by equally committed and talented Fellows.

Looking back at the last 12 months the activities that stand out for me particularly are the strengthening of our relationship with the Royal Academy of Engineering (RAE) and the continuing very active programme of involvement in the "tech" space, initiated in 2022-2023.

Looking at the latter first. This was manifested in further outreach to incubator/startup hubs around the island following on the excellent start made in 2022-23 when visits were made to hubs in Belfast, Galway and Dublin. During the past year the President and I visited hubs in Derry/Londonderry (Catalyst North West) and Cork (Republic of Work) in August and September respectively.

A further element in this programme was the completion of the series of "tech lunches" with the third and (for now) final event being held in November. The other two were held in

cont.

January and May of 2023.

Each lunch event was attended by the President (TL and then SMcK), myself and a selection of Fellows and guests. Included amongst the Fellows were Niall Olden, Brian Caulfield, Steve Orr and Conor McCarthy. Guests were drawn from across the broad tech sector including incubator and technology ecosystem organisations (Portershed, Dogpatch, Scale Ireland), State agencies (Enterprise Ireland), individual tech entrepreneurs and representatives from the venture capital world.

The purpose of the lunches was two-fold (at least). First, they provided a “getting-to-know-you” opportunity in an informal and social context. It introduced the Academy to a broad range of people actively engaged in a dynamic, growing and increasingly important area of technology endeavour in Ireland.

Secondly, it provided an opportunity for the Academy to better acquaint itself with the key personalities and issues in the sector.

A further objective of the lunches, as originally envisaged by Niall Olden FIAE (who kindly sponsored the events), was to facilitate the introduction of individual Fellows whose skill sets and experience might be of value to specific early stage companies. Fellows could make their services available on a pro bono basis as part of the mission of the Academy – though it was acknowledged this could also lead to a more formal relationship between the parties, e.g. a Fellow might be invited to join the board of a start up company.

In reviewing the “tech lunch” programme of 2023 I believe the two-fold purpose set out above has been achieved in reasonable measure. A total of 55 invitations were issued

(excluding the Presidents and CX) of which 34 were accepted (61%). Several individuals attended 2 events and a few attended all three. The feedback received from both internal and external attendees has been universally positive. I would hope this success and the momentum generated will be further underpinned and extended in the future by a continuation of the programme, even if on a more limited basis.

Turning to the RAE relationship. As Fellows will recall the two academies entered into a 3-year Memorandum of Understanding (MoU) in May 2022, following the visit of the RAE President, Prof. Sir Jim McDonald, to Ireland in October 2021. The MoU requires the academies “to work together to identify practical opportunities to link existing workstreams and to explore ambitious stretch projects across areas of shared interest”.

We moved quickly to implement the goals of the MoU with discussions regarding possible options taking place in the early part of 2023. It was decided to pursue two options: (i) the extension of the RAE’s Enterprise Fellowships programme to include the whole island of Ireland (NI is already covered by its membership of the UK) and (ii) to undertake a study in (the Republic of) Ireland akin to the successful “Engineering Economy and Place” project completed by the RAE in the UK.

A joint application to Inter-Trade Ireland (ITI) for funding to support these two projects was made. The application was successful and an award was approved in June 2023. Funding is thus in place for both projects from both ITI and the RAE.

An inter-Academy Steering Committee was established to oversee the programme of activities

cont.

to be served by Gillian Gregg of the RAE and myself and comprising:

- Norman Apsley (RAE)
- Gavin Campbell (RAE)
- Eileen Harkin-Jones (RAE)
- Seamus McKeague (IAE)
- Tom Leahy (IAE)
- Mark Gantly (IAE)

The steering committee had its inaugural meeting in the Harbour Master's building in Belfast in October 2023.

In addition the RAE has recruited a Senior Programme Manager (SPM) to be based at the Enterprise Hub at the Ormeau Baths in Belfast to assist in progressing the programme and other duties. Ms Kathryn McKenna commenced in this role on 19th February 2024.

The Enterprise Fellowships each receive a £70k grant award plus 12 months training, coaching and mentoring support, with lifetime Hub Membership, upon completion. It is believed the programme will provide a mechanism to build North/South Engineering SME Leaders networks, bringing together Fellows, Awardees and experts from all jurisdictions and in doing so create the conditions for cooperation and collaboration.

The Irish Academy's contribution will emerge in due course following the award to the initial 2 Enterprise Fellowships this spring followed by 2 more in the summer/autumn. Depending on the sectors or specialisms of the successful candidates the Academy will seek to propose appropriate mentors from the membership to work with the candidate to help them achieve their goals.

The Engineering Economy project is a 24-month programme involving 9 months data collection and analysis, followed by a period of review and extended dissemination with policy makers, stakeholders and sector leaders in Ireland and Northern Ireland. A final stage will involve the development of a next-steps

framework.

By extending the project to the island of Ireland a whole-of-island engineering economy analysis will be enabled for the first time at the level of individual local authority. In turn, this will support the development of Engineering Innovation Audits at a highly localised place-level, identifying opportunities to compare how engineering growth performs in relation to place characteristics. It is anticipated that ultimately local policy makers and funders will use the data generated to benchmark activity, to generate learning and thereby identify opportunities for new and or deeper all-island collaboration.

All of these initiatives help enormously to enmesh the Academy generally with the tech sector on the island in a way we have not been before and thereby to dramatically enhance the status, visibility and credibility of the Academy in that sector and more widely. In addition, the Academy is deepening and strengthening its relationship with a major neighbouring sister Academy which, with appropriate assiduity, can be expected to reap further rewards in the years to come.

As regards other activities over the past year or so I propose to set these out in the in the attached table. I compliment the chairs and all members of the various committees who contributed to the output over the past year. As always it is by our output you will know us.

I might highlight the successful event on 5th March 2024 when Dervilla Mitchell FIAE of Ove Arup gave a very interesting and enlightening talk on her very successful career to an appreciative invited audience in 22 Clyde Road. This event represents a viable model for future similar talks.

Thank you to all the Fellows I have engaged with over the past 7 years and of course to Fiona. I have enjoyed my time with the Academy and regret it has ended prematurely but I wish you all and the organisation every success for the future.

Summary of Activities for 2023-24

Committee	Activity Description	Status
Infrastructure (Tim Corcoran)	Pre-Budget Submission Submission on the All-Island Rail Strategy Submission on Ports Strategy (2024)	Completed
Energy and Climate Action (Don Eamonn / O'Reilly)	<ul style="list-style-type: none"> Report on Green Hydrogen SMR Nuclear (2024) 	Completed In Prep
Enterprise, Innovation and Education (Mark Gantly)	NFD	
Heritage (Ron Cox)	Committee in abeyance	
Communications (Tom Leahy)	Updating of the website as required	Ongoing
Nothern (Jonathan Hegan)	<ul style="list-style-type: none"> Meetings held June, Oct and Nov Meeting held on 8th Feb (2024) 	Completed Completed
Southern (Brendan Murphy)	<ul style="list-style-type: none"> Meeting held on 5th Sept and 28th Nov (Sept meeting in Cork attended by President and CX) Engagement with Southern regional assembly Review of All Island Rail Strategy and submission 	Completed Ongoing Completed
Western (Jon Murphy)	President and CX visited Galway 1 6 Nov met Mark Gantly and Jim Browne	Completed
Philanthropy and Fundraising Committee Completed	<ul style="list-style-type: none"> Monthly meetings of the steering committee; Bi monthly meetings of S and N regions Paper on possible projects for funding by CRH developed Meeting CRH 15 th Feb (2024) President and CX met Michael O'Flynn in Cork on 6 th Sept Other leads being pursued 	Ongoing Ongoing Completed Completed Ongoing
Membership Committee (Sean Finlay)	<ul style="list-style-type: none"> 10 Nominations for 2023 reviewed and recommendations passed to Council 5 nominees have accepted 	Completed Completed
Parsons Medal	<ul style="list-style-type: none"> New committee established under chairmanship of Prof. Sir John McCanny Award planned for 2024 	Progress

Other Matters	Activity Description	Status
Internal Meetings (2023)	<ul style="list-style-type: none"> 5 x Executive meetings (Jan, March, June, Aug, Nov) 4 x Council meetings (Feb, April, July, Oct) 1 x AGM 23.05.23 	<p>Completed</p> <p>Completed</p> <p>Completed</p>
Regional Meetings (2023)	<ul style="list-style-type: none"> Belfast - June Cork - September Belfast - October Galway November 	<p>Completed</p> <p>Completed</p> <p>Completed</p> <p>Completed</p>
Events incl. Euro CASE and CAETS (2023)	<ul style="list-style-type: none"> Tech Hubs Site Visits <ul style="list-style-type: none"> - Portershed (Galway) Jan; - Dogpatch (Dublin) March; - Catalyst NW (Derry) Aug; - Republic of Work (Cork) Sep 3 No. Tech Lunches (Jan, May) Sir Bernard Crosland Lecture (Belfast) Feb Pres, ImmedPP, CX EuroCASE (Madrid) Madrid: President and CX attended the Annual Conference; Pres attended the Board meeting: 25/26 Sept; See https://www.euro case.org/a ll_annual_conference/annual_conference_2023/ CAETS (D&I) Working Group : Joe Harford attended 3 Oct CAETS (Zagreb): President and Immed Past President attended Annual Conference 9/10 Oct RAE Eng ineering CEOs Annual Lunch , Belfast: 17 Oct attended by Presid ent, Immed Past President and CX 	<p>Completed</p> <p>Completed</p> <p>Completed</p> <p>Completed</p> <p>Completed</p> <p>Completed</p> <p>Completed</p>
IAE/RAEng joint activities	<ul style="list-style-type: none"> Launch of the ITI funded joint projects with RAE in Belfast, Oct 2023 Recruitment of SPM: Dr. Kathryn McKenna to commence on 19 th Feb First formal meeting of steering group- scheduled for Belfast 21 st Feb Closing date for first 2 EF applications is 26th Feb Engineering Economy and Place study to commence mid March 	<p>Completed</p> <p>Completed</p> <p>Completed</p> <p>Completed</p> <p>Pending</p>
Publications	<ul style="list-style-type: none"> Green Hydrogen Review of Irish Water MegaTrends Integrated Land Use and Transportation Strategy for Gtr Dublin SMR Nuclear 	<p>Completed</p> <p>Completed</p> <p>Completed</p> <p>Completed</p> <p>Pending</p>
Public Affairs	<ul style="list-style-type: none"> Submission on All Island Rail Strategy Submission on Po rts policy Enquiry from Charity Regulator resolved satisfactorily 	<p>Completed</p> <p>Completed</p> <p>Completed</p>
Other Comms(2023)	<ul style="list-style-type: none"> Newsletters Briefing Notes (RAE / IAE) Notifications to Members Social Media (x) 	<ul style="list-style-type: none"> 3 No. 1 No. Re CADETS 4; RE EuroCase: RE SAPEA: 4; Re NAE: 4 Misc: 2 c.160 posts <p>Completed</p> <p>Completed</p> <p>Completed</p> <p>Completed</p>

Gabriel J. Dennison BL (Dr.)
Chief Executive
April 2024

REPORT ON THE ACTIVITIES OF THE STANDING & REGIONAL BRANCH COMMITTEES

1. ENERGY & CLIMATE ACTION

Chair:

Eamonn O'Reilly

MEMBERSHIP	Leo Clancy	Don Moore	Barry J O'Sullivan
	Anne Marie Conibear	Jerry Murphy	Paddy Power
	Gerry Duggan	Tim McGloughlin	Brian Sweeney
	Ger Hurley	Terry Nolan	David Timoney
	Paddy Larkin	Kieran O'Brien	Luuk van der Wielen
	Pat Lynch	Jim O'Brien	Ed Walsh
	Dick Meaney	Neil O'Carroll	Des Murphy (E)
	Mary Moloney	Brian Ó'Gallachóir	

ACTIVITIES

The Committee published one report during the year, A Commentary on the Medium Term Prospects for Ireland's Hydrogen Economy.

This report was supported by a substantial Briefing Note, Hydrogen as an Energy Carrier in the Irish Context. The latter has not yet been published.

A Commentary on the Medium Term Prospects for Ireland's Hydrogen Economy (August 2023)

During 2022, the committee focused on the implications of the energy crisis in Europe for Ireland's energy security and highlighted the need to restore confidence in Irish energy supply.

Building on this, a programme of work was identified in 2023 to analyse the policy response to these problems in the context of national long-term policies to decarbonise the energy sector by 2050.

The first phase of this programme of work focussed on the possible role of hydrogen in the energy transition and coincided with Government's publication of a National Hydrogen Strategy in July 2023. In this strategy, hydrogen is identified as the fuel of choice to provide back-up generation capacity to address the challenges associated with system stability, seasonal wind variability and curtailment. The strategy also envisaged a large potential for hydrogen exports from Ireland, including in the form of ammonia.

As a general principle, fossil fuels should, where possible, be replaced in the provision of energy services (such as transport, heating and industry) by electrification.

However, the report questioned some of the central thinking in the National Hydrogen Strategy as to how this could be achieved using hydrogen as a back-up for renewables:

- The technology for large scale green hydrogen production is unlikely to be available on an unsubsidised commercial basis before the late 2030s.
- Large storage capacity will be required. However, hydrogen is difficult to store and the only proven storage arrangements are in salt caverns. Ireland does not have any known salt caverns onshore which might be suitable for this purpose.
- There are uncertainties as to whether the depleted gas fields at Kinsale could be used to store green hydrogen because the technology is unproven, the cost of cushion gas at Kinsale would be considerable and the production capacity of the field would likely be insufficient.
- Producing green hydrogen by electrolysis, transporting it, storing it and combusting it to generate electricity is an extremely inefficient process and in the order of 80% of the initial electricity input into the system would be lost.

In relation to the potential for Ireland to develop a large and valuable hydrogen export industry, the report questioned the viability of this given Ireland's already very high electricity prices.

These findings point to a fundamental problem in national energy policy where very large targets have been set for renewable generation (of at least 54,000 MW by 2050) with the potential to generate far more energy than the country consumes today (192 TWh compared to 140 TWh in 2022) for energy services which, after electrification, would be far more energy efficient than they are today.

HYDROGEN AS AN ENERGY CARRIER IN THE IRISH CONTEXT

The extent to which green hydrogen has, in recent years, been promoted as a solution to many of the challenges of the energy transition has contributed to uncertainty as to how the energy transition can be achieved in Ireland. In too many instances, hydrogen is promoted and uncritically accepted as a solution without there being proven technical solutions available capable of being deployed in Ireland by 2050, as required by national policy.

The work to produce Hydrogen as an Energy Carrier in the Irish Context was undertaken to provide a solid basis for A Commentary on the Medium Term Prospects for Ireland's Hydrogen Economy and drew on extensive published work to identify technical, economic and environmental challenges that would have to be overcome if hydrogen-based solutions were to be contribute to Ireland's energy transition.

This research looked at six areas:

- Sources, characteristics and production of hydrogen
- Transporting hydrogen
- Hydrogen storage
- Hydrogen use in land transportation
- Hydrogen for home heating
- Use cases for hydrogen in Ireland

The central conclusions supported the view that, wherever possible, energy services should be electrified. However, the corollary impact of this on the future role of Ireland's other energy storage and distribution networks (gas and petroleum) needs further detailed study so that the impacts of electrification can be fully understood and addressed in national energy policy.

Finally, the Briefing Note concluded that the scale of the challenges to store and transport green hydrogen are so great that it would be unwise to proceed at a policy level on the assumption that they definitely can be overcome. Risk management requires that other options be considered, and this thought fed directly into the programme of work for 2024 which commenced in the first quarter of the Academy's reporting period to March 2024.

PROGRAMME OF WORK FOR 2024

Building on A Commentary on the Medium Term Prospects for Ireland's Hydrogen Economy, two further reports are planned for 2024.

- Work on the first report - Should Ireland consider small modular nuclear reactors in the country's future energy mix? – commenced in early 2024.
- The third report – with a working title Beyond 2040 – is planned to address the policy challenge of identifying and implementing an energy transition path to achieve the 2050 goal of net zero GHG emissions while maintaining the support of the population at large.

The three reports - on hydrogen, SMRs and Beyond 2040 - are intended to build on the thinking in previous reports over the past decade and ensure that the views of the Academy develop coherently over time.

The unifying theme across all of the recent reports is the need for an overarching national plan for the energy transition that addresses the competing challenges of technological readiness, delivery of large programmes of infrastructure projects in a short timeframe of just 26 years to 2050 and, very importantly, the cost to consumers.

In addressing these challenges, the work of the Energy & Climate Action Committee will complement the work of the Infrastructure Committee on the topic of delivering large infrastructure projects.

DON MOORE

During December, Don took the decision to step down as Chair of the Energy & Climate Action Committee and I was honoured to be asked to take over this role.

I have followed the work of the committee for many years and have always been impressed by the quality and, when required, the forthrightness, of its publications. Under Don's chairmanship, a high standard was set and maintained and Don's efforts and contribution to the work of the Academy deserve the recognition they have received from his colleagues.

Eamonn O'Reilly
Chair, Energy & Climate Action Standing Committee

2. INFRASTRUCTURE COMMITTEE

Chair:

Tim Corcoran

MEMBERSHIP	Brendan Barrett	Jonathan Hegan	Terry Nolan
	Adrian Bell	Mary Kelly	Padraic O'Donoghue
	Leo Clancy	Peter Langford	Jack O'Leary
	Anne Marie Conibear	Tom Leahy	Margaret O'Mahoney
	Gerry Carty	Finn Lyden	Una Parsons
	Tom Costello	Conor McCarthy	Michael Phillips
	Theo Cullinane	John McGowan	David Porter
	Gerry Duggan	Ken McIntyre	Paddy Power
	Ciaran Fahy	Seamus McKeague	PJ Rudden
	Kieran Feighan	Don McQuillan	Peter Quinn
	Sean Finlay	John H. Martin	Michael Shelly
	David Gavaghan	Jerry Mehigan	Tony Smyth
	Anne Graham	Mary Moloney	Cormac Sreenan
	Jerry Grant	Dave Murphy	
	Michael Hand	John Murphy	

ACTIVITIES

1 PREBUDGET SUBMISSION TO GOVERNMENT AUG 2023

SUMMARY

In the light of unprecedented Exchequer surpluses, the Irish Academy of Engineering (IAE) believes Ireland currently has an historic opportunity to make good infrastructural deficits, better provide for the future needs of a growing population, promote balanced regional development and address the challenges of climate change.

In advance of the 2024 Budget, the Academy recommends to Government the following actions:

- An increase of €1bn in capital spending on key infrastructure in the 2024 budget and following years:
- A National Infrastructure Fund that would ring fence additional capital infrastructure spending, even if future corporation tax yields decrease.
- A coordinated transport plan that includes trains, buses and other forms of public transport and supports balanced regional development.
- A detailed, coordinated and step-by-step implementation plan for transition from fossil fuels to green energy while ensuring continuity of energy supply.
- A speedy completion of Government proposals to revise the statutory consent system.

John T Murphy (chair), Padraic O'Donoghue, Gerry Duggan, Jonathan Hegan, Eric Porter, David Orr.

2 ALL ISLAND STRATEGIC RAIL REVIEW - SUBMISSION ON DRAFT FOR CONSULTATION TO DEPARTMENT OF TRANSPORT SEPT 29, 2023

SUMMARY

The All-Island Strategic Rail Review (AISRR) Draft Report has been published for consultation jointly by the Department of Transport in Ireland and the Department for Infrastructure in Northern Ireland. The review is intended to inform the future development of the railway system across the island of Ireland to 2050, in line with net-zero emissions commitments in both jurisdictions.

The Academy submission comments on various aspects of the AISRR making suggestions and observations. It also makes a number of recommendations including:

- An All-Island Strategic Transport Review looking at all modes must be undertaken. The AISRR will be an input to such a review.
- The Academy supports investment in and development of rail infrastructure where it delivers sustainable and cost-effective solutions.
- The rail interventions in the AISRR need to be appraised from an economic and environmental perspective with particular attention paid to realistic capital cost estimates as well as realistic forecast trip rates.
- A multi-modal freight study needs to be undertaken (all-island).
- A strategy needs to be developed in relation to electrification.
- A DART Underground solution between Heuston and Spencer Dock should be revisited.
- Benefits could be achieved by developing large P&R facilities connected to motorway junctions and new or redeveloped rail/bus stations.
- Existing infrastructure improvement and quick wins (subject to economic and environmental appraisal) should be progressed as early as possible – including but not limited to
 - Online improvements to increase train speeds and service including Dublin - Cork/Limerick and Dublin - Belfast Lines.
 - Selective Four tracking on the approaches to Dublin and Belfast.
 - Double tracking sections of single track subject to economic/environmental appraisal.

3 REVIEW OF NATIONAL PORTS POLICY 2013 PUBLIC CONSULTATION - SUBMISSION TO DEPARTMENT OF TRANSPORT 15 JAN 2024

Prepared by Eamonn O'Reilly (chair of Energy Standing committee), with inputs from infrastructure committee members countrywide and from a number of external stakeholders known to these members.

CONCLUSIONS AND RECOMMENDATIONS

1. Infrastructure projects in ports take a long time to be progressed from concept to completion. Experience suggests that a lead time of at least 20 years is appropriate for planning large port infrastructure projects.
2. Ireland does not have a good track record in planning and delivering infrastructure of many kinds in advance of demand. This has resulted in evident capacity deficits in many sectors of the economy.
3. Major capacity deficits have not yet emerged in our ports sector but the imminence of Dublin Port reaching its capacity limit by or before 2040 creates a risk that there could be significant deficits in national port capacity

after 2040 if future growth continues at anything like the long established trends of the past.

4. The National Planning Framework is premised on a population increase of one million people by 2040. Such an increase will lead to an increased demand for goods through our ports and National Ports Policy needs to ensure that port capacity planning is sufficient to meet this increased demand.
5. The 2040 time horizon of the belatedly published Executive Summary of the Irish Ports Capacity Study is too short in relation to the long-term needs of the sector and should not, therefore, be relied on as the basis for National Ports Policy in the future.
6. Instead, National Ports Policy should focus on bringing projects in all of the Tier 1 and Tier 2 ports through the consent phase with long duration grants of planning permission (15 to 20 years) so that port infrastructure construction projects can commence at relatively short notice (one to two years) as required.
7. Port infrastructure is expensive and very large infrastructure investments are beyond the means of at least three of the country's largest ports (Rosslare, Waterford and Shannon Foynes). In the other two ports (Dublin and Cork) it is likely that their capacity to finance new port infrastructure could be exhausted within the next decade or so. Appropriate funding mechanisms for port infrastructure projects need to be provided in National Ports Policy.
8. For smaller ports, these funding mechanisms might even be required to cover the cost of bringing projects through the planning phase. Such costs can be substantial (€3 million to €7 million) in comparison to the small financial scale of these ports.
9. The need for new funding mechanisms is particularly essential in respect of ORE port projects which urgently require certainty of financing if they are to proceed on time to support national energy and climate change policy.
10. The 2040 time horizon of the belatedly published Executive Summary of the Irish Ports Capacity Study is too short in relation to the long-term needs of the sector and should not, therefore, be relied on as the basis for National Ports Policy in the future.
11. Instead, National Ports Policy should focus on bringing projects in all of the Tier 1 and Tier 2 ports through the consent phase with long duration grants of planning permission (15 to 20 years) so that port infrastructure construction projects can commence at relatively short notice (one to two years) as required.
12. Port infrastructure is expensive and very large infrastructure investments are beyond the means of at least three of the country's largest ports (Rosslare, Waterford and Shannon Foynes). In the other two ports (Dublin and Cork) it is likely that their capacity to finance new port infrastructure could be exhausted within the next decade or so. Appropriate funding mechanisms for port infrastructure projects need to be provided in National Ports Policy.
13. For smaller ports, these funding mechanisms might even be required to cover the cost of bringing projects through the planning phase. Such costs can be substantial (€3 million to €7 million) in comparison to the small financial scale of these ports.
14. The need for new funding mechanisms is particularly essential in respect of ORE port projects which urgently require certainty of financing if they are to proceed on time to support national energy and climate change policy.
15. The idea that Dublin Port should be moved to a new location was first seriously considered in a report for Government in 2009. This report concluded that nothing should be done at a policy level to block either the proposed expansion of Dublin Port or the proposed development of Bremore. The Academy believes that this finding should be endorsed in the new National Ports Policy in order to avoid planning uncertainties being introduced which could prevent the final phase of development at Dublin Port proceeding.
16. Beyond this, the Academy believes that the optimum location for a possible new port should be determined

by Government based on strategic environmental assessment so that if and when a new port might need to be planned and constructed, there is a solid planning and policy foundation in place.

17. In the meantime, the Academy believes that the capacity of our existing Tier 1 and Tier 2 ports should be maximised before the development of a new port might need to proceed.
18. Port access remains a critical issue for ports notably road access for Rosslare, Ringaskiddy and Foynes. While rail connectivity is desirable, rail freight can only ever provide an insignificant proportion of the access requirements for ports. Also, national rail capacity is far more important for passenger transport and this need should be prioritised in national policy over rail freight. It is important that National Ports Policy does not introduce requirements for ports to have rail freight connections which cannot be met.
19. Onshore power will be needed in ports to facilitate the decarbonisation of shipping and also to address localised air pollution caused by NOx and PM emissions from ships at berth. The Academy recommends the completion of a detailed technical and economic study as to how onshore power supplies will be provided to meet this inevitable future requirement.

4 INFRASTRUCTURE COMMITTEE WORKING GROUPS

Three working groups are preparing reports as follows:

WORKING GROUP 1 - DELIVERING MAJOR PUBLIC SECTOR INFRASTRUCTURE - CHALLENGES

Jerry Grant, Tony Smyth, Gerry Duggan, John T Murphy, Mary O'Donovan, Michael Hand, Michael Tiernan, Kieran Feighan, Tim Corcoran

Strategic Level Issues being considered:

- Technical and Programme/Project Management capacity of Government Depts, State/semi-State Agencies, and Local Authorities
- Business Case Development
- Capacity of the Construction Industry
- Competitive market
- Environmental Issues/ Planning
- Strategic Infrastructure Plans
- Coordination by Government Delivery Agencies
- Consistency of Government/Agency plans
- Government Policy/Strategic Plans conflicts with what can be delivered.

Current status: Text being developed, expect to be completed by end of May 2024

WORKING GROUP 2 - PUBLIC SECTOR CONSTRUCTION SECTOR CONTRACT STRATEGY

Ciaran Fahy (chair), Theo Cullinane, Michael Shelly, Tony Smyth, Tim Corcoran

The working group is researching:

- Issues with public sector contracts in Ireland
- Project risks
- Contract strategy that might be better suited to delivering major public sector infrastructure projects, including transport, health, education and other essential services projects.

Current status: stakeholder discussions are taking place. Drafting of text is due to commence later this month (April)

WORKING GROUP 3 - PLANNING AND DEVELOPMENT CONSENTS FOR RENEWABLE ENERGY,

John Martin, Peter Langford, Ria Lyden, Jack O'Leary, Tom Leahy, Tim Corcoran.

The report is addressing challenges associated with meeting the Government's Climate Action Plan, concentrating on

- o onshore and offshore wind energy
- o solar energy
- o grid connections and grid capacity.

Current status: First draft is complete. Final draft due the end of April 2024

TONY SMYTH

Last Spring 2023, Tony decided to step down as chair of the Infrastructure Standing Committee. I would like to thank Tony for his Trojan work over a considerable number of years and for his continuing support to me over the last year.

Tim Corcoran

Chair, Infrastructure Standing Committee

3 ENTERPRISE, INNOVATION & EDUCATION COMMITTEE

MEMBERSHIP

Chairman: Mark Gantly

MEMBERSHIP	Jim Browne	Tom Leahy	John O’Dea
	Julie Byrne	John McCanny	Eoin O’Driscoll
	Leo Clancy	Danny McCaughan	Ed Walsh
	Martin Cronin	Brian MacCraith	Joseph Walsh
	Francis Hardiman	John McGowan	Gerry Wrixon
	Joe Harford	Dick Meaney	
	Eileen Harkin-Jones	Brendan Murphy	

ACTIVITIES

Mark Gantly

Chair, Enterprise, Innovation & Education Standing Committee

4 HERITAGE COMMITTEE

There were no meetings of the Engineering Heritage Standing Committee during the session 2023-2024. This was due to the absence of engineering heritage issues being brought before the committee for debate. In the meantime, the recording and appreciation of the heritage of Ireland’s engineering sector continues to be of importance. A younger chairperson is required who could draw together a fresh committee to consider and report on engineering heritage issues. The future of the John DeCourcy Heritage Award is dealt with elsewhere in the annual report.

Ron Cox (Chair) April 2024.

5 SOUTHERN BRANCH COMMITTEE

MEMBERSHIP

Chairman: Brendan J. Murphy

MEMBERSHIP	Paddy Caffrey	Jerry Mehigan	Brian O’Gallachoir
	Philip Callery	Mary Moloney	Jack O’Leary
	Theo Cullinane	Tony Moloney	Barry O’Sullivan
	Tara Dalton	Dermot Moynihan	Barry J. O’Sullivan
	Frances Hardiman	John Mullins	Niall Olden
	Edmond Harty	Dave Murphy	Bob Savage
	Peter Langford	Jerry Murphy	Joseph Walsh
	Pat McGrath	John Murphy	Gerry Wrixon
	Dick Meaney	Neil O’Carroll	Ger Hallissey (E)

ACTIVITIES

Quarterly scheduled hybrid meetings of the Southern Branch membership took place in 2023, three of the four were hosted by Arup Cork. Hybrid meetings have facilitated a larger attendance and also facilitate the participation of the President and CE at regional meetings. Our May meeting took place in UL CONFIRM Research Centre, Limerick.

As new Fellows of the Academy are appointed, those based in the Southern Region are invited to attend our meetings and give a short outline of their background, what they are interested in and how they will contribute to the work of the Academy at regional, divisional and national level.

At each meeting, there is an update given on the overall work of the Academy via the circulated CE report to Council. This has been welcomed by members as a means of keeping in touch with the national & international work of the academy.

The Chair and the President also briefs members of recent decisions of Council as well as the financial and governance position of the Academy, again this is important as it ensures members are aware of the overall running of the Academy.

An update on the work of the three IAE standing committees of Infrastructure, Energy & Climate Action, Enterprise, Innovation & Education are given at each meeting and commented on.

In 2023 the Southern Region has had various presentations as follows, this innovation has proved to be very popular with the fellows.

May: Hydrogen as an Energy Carrier in the Irish Context by David Timoney & Ger Hurley

May: Small Modular Reactors by T. McGloughlin

September: Presentation by T. Smyth on Irish Water Services in the 21st Century a Review.

September: IAE Infrastructure Committee, an introduction by its Chair T. Corcoran

November: Presentation by J. Murphy on the IAE submission for the All - Island Strategic Rail Review.

Our work programme for 2022/23 included:

- Atlantic City Regions – Infrastructure Review
- National Backbone Grid
- Irish Ports – Supporting Offshore Wind Development

Implementation and monitoring of the RSES and ongoing cooperation with the SRA (Southern Regional Assembly)

There was active engagement by fellows in these work programmes e.g. meetings, consultations and submissions.

Brendan Murphy,
Chair, Southern Region

6 NORTHERN BRANCH COMMITTEE

MEMBERSHIP

Chairman: Jonathan Hegan

MEMBERSHIP	Gavin Andrews	John Hill	James McLoughlin
	Eric Beatty	David Jones	Don McQuillan
	Adrian Bell	Alfie Kane	Gordon Millington
	Jayne Brady	Paddy Larkin	Bill Morrison
	Gavin Campbell	John V. Martin	Máire O’Neill
	Alan Cooper	John McCanny	Steve Orr
	Philip Donald	Daniel McCaughan	David Porter
	Vincent Fusco	Billy McCoubrey	Michael Ryan
	David Gavaghan	David McIlhagger	William Stafford
	Eileen Harkin-Jones	Seamus McKeague	

ACTIVITIES

In the past year the Northern Region continued to forge a good working relationship with the Royal Academy of Engineering (RAEng) through their Belfast Hub. Our fellow members, Sir John McCanny and Gavin Campbell are at the forefront of this collaboration.

In particular, on behalf of our Academy, they have been Co-ordinating the Royal Academy’s initiative to offer Enterprise Scholarships to candidates in Ireland as well UK. Successful applicants in Ireland will be chosen in April 2024.

Representatives from IAE, including the President and DG, attended the Royal Academy’s launch of this initiative in the magnificent ballroom of the Belfast Harbour’s Building on the 17th October 2023.

Jonathan Hegan continued as Chair of the organising committee for the Annual Sir Bernard Crossland Lecture at the Queen’s University, in conjunction with Engineers Ireland. In February 2024 the lecture was delivered by Dr Jayne Brady, Head of the Civil Service in Northern Ireland. Jayne is a Fellow of our Academy. The event was attended by almost 200 delegates, including our President and DG. This lecture is now established as one of the keynote events in the University’s calendar.

Planning is already underway for the 2025 Lecture but details of the speaker are yet to be finalised.

Jonathan has decided to stand down after 15 years as Chairman of the committee. He will be succeeded by Mr Peter Quinn, former President of Engineers Ireland and who is a Fellow of the Academy.

The Autumn meeting of the Northern Region took place on the 2nd November 2023. It was well attended by our local members who were given an update on the Academy’s affairs by Immediate Past President, Tom Leahy. Also, Tim Corcoran gave a PowerPoint presentation of the Academy’s response to the public consultation on the Strategy for the future of Railways on the Island. This included a significant contribution from the Northern Region. The Winter meeting of the Region took place on 8th February 2024. Again this meeting was well attended including Members “tuning in” on line. Our President, Seamus McKeague, gave a report on the current work of the Academy and encouraged the Region to propose new Members as well as

THOUGHT LEADERSHIP IN A TIME OF GREAT CHANGE

introducing potential Patrons. There was much discussion about influencing Government policy, particularly on the proposed improvements to the Belfast to Dublin train service.

At this meeting Sir John McCanny agreed to Chair the newly created committee for the Award of the Parsons Medal in 2024. Sir John was a recipient of this prestigious award in 2017.

The Spring meeting for the Region will take place on 30th May at Catalyst.

Our special thanks go to Fellow colleague, Dr Steve Orr, for hosting these meetings in his offices at Catalyst in the Titanic Quarter, Belfast.

On a sadder note to finish, we regret to inform you of the resignation from the Academy of our good friend and colleague, Dr. Norman Apsley. Norman contributed regularly to the Region's activities and was a major influencer in establishing our current good working relationship with the Royal Academy of Engineering.

Jonathan Hegan MBE, CEng, FIEI, FICE, FIAE
Chair, Northern Region.

7 WESTERN BRANCH COMMITTEE

MEMBERSHIP

Chairman: John Killeen

MEMBERSHIP	Jim Browne	Mike O'Flynn	Luuk van der Wielen
	Mark Gantly	Úna Parsons	Ed Walsh
	John O'Dea	Helen Ryan	
	Padraic O'Donoghue	Michael Tiernan	

ACTIVITES

No meetings were held during 2023. A meeting schedule is to be arranged for 2024.

John Killeen
Chair, Western Region

8 COMMUNICATIONS AND PUBLICATIONS GROUP (CAP)

MEMBERSHIP

Chairman: Tom Leahy

MEMBERSHIP	<p>Tim Corcoran (Chair of Infrastructure Standing committee)</p> <p>Mark Gantly (Chair of Enterprise, Innovation and Education Standing committee)</p> <p>Don Moore (Chair of the Energy and Climate Action Standing Committee) to December 2023 - Replaced by Eamonn O'Reilly in January 2024.</p>
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ACTIVITIES

This has been a busy year and the following are some of the key highlights.

PUBLICATIONS

2023/24 has been a productive year with 3 major publications:

1. **August 2023** – Publication of IAE commentary on the Medium Term prospects for Ireland's Hydrogen Economy
2. **September 2023** – IAE commentary on the draft All Island Rail Review published by The Department of Transport and the NI Department for Infrastructure.
3. **January 2024** – IAE commentary on the public consultation in ROI on the Review of National Ports policy 2023.

The regular newsletters ensured Academy members received regular communication of the work of the Academy.

Newsletters:

- July 2023 – Summer Newsletter
- December 2023 – Winter newsletter.

Website – Following the design and launch in September 2017 with greatly improved look and functionality a new website masthead was designed and implemented incorporating “**Engineering and Technology**” and in 2019 the new tag line **Thought Leadership in a time of great change**. This is now used on all IAE branding including letterheads, business cards and reports. Thanks go to our service provider One Productions and IAE administrator Fiona. The ability to make rapid changes while retaining the overall design at very low cost speaks to the durability of the 2017 revamp. Immediate Past President Tom Leahy provided regular updates on events and publications on the website.

Academy website updates:

March 2024 - Dervilla Mitchell Lecture - On 5th March 2024 Dervilla Mitchell CBE FIAE was welcomed by Academy President Seamus McKague, Immediate Past President Tom Leahy and Hon Sec Joe Harford when

she delivered a lecture entitled “40 years a growing”.Dervilla is Deputy Chair of Arup Group and global Ethics Director.

February 2024 - The Academy's Southern Region held their spring 2024 meeting on 27th February 2024. The meeting and site visit was held at DELL Technologies Campus at Ovens in Cork by kind invitation of Academy Fellow Bob Savage – Vice President, Regional CIO for EMEA and Cork Site Leader Dell Technologies.

January 2024 – Launch of joint IAE/RAE Enterprise Fellowships. This is a 12-month accelerator programme designed to support talented researchers and graduates to transform breakthrough engineering innovations into disruptive spinouts and graduate startups. Enterprise Fellowships are funded and delivered by the Royal Academy of Engineering Enterprise Hub, and they do not charge fees or take any IP or equity. For the very first time these fellowships (Including bursary of £70,000) are open to NI & ROI and are a tangible outcome from the **Signing of 6-year Memorandum of understanding (MoU) with the Royal Academy of Engineering in May 2022.** This followed the very successful visit to Ireland by Sir Jim Mac Donald President of the Royal Academy of Engineering culminating in a visit by both Presidents Tom Leahy & Jim McDonald to Belfast and to meet with H.E. President Higgins in Áras an Uachtaráin in October 2021. This MoU is part of the enduring legacy under which both Academies will work together on matters of shared interest.

December 2023 - Irish Academy chair international committee on AI- Tom Leahy FIAE, Immediate Past President, was delighted to inform you that Professor Barry O'Sullivan, a Fellow of our Irish Academy of Engineering, has agreed to serve as Chair of the working Group(WG). You can find a biography for Barry at <http://osullivan.ucc.ie/> This is a first for Ireland to chair a working group of the International body CAETS on the topic of Artificial Intelligence and we support Barry in his new role.

November 2023 - Máire O'Neill FIAE awarded the 2024 Royal Irish Academy Gold Medal in the Engineering Sciences. **Máire O'Neill FIAE**, Regius Professor in Electronics and Computer Engineering, director of the Centre for Secure Information Technologies (CSIT) and director of the UK-wide Research Institute in Secure Hardware and Embedded Systems (RISE) at Queen's University Belfast, has been awarded the 2024 Royal Irish Academy Gold Medal in the Engineering Sciences. The Royal Irish Academy awards two Gold Medals every year. They are awarded to individuals who have made a demonstrable and internationally recognised outstanding scholarly contribution in their fields.

October 2023 – Joint RAE/IAE Academy event in Belfast. The President, Seamus McKeague FIAE, Immediate past President Tom Leahy FIAE and the Chief Executive, Dr. Gabriel Dennison attended the inaugural Engineering Economy CEO lunch organised by the Royal Academy of Engineering and held in Belfast on 17th October. The lunch was addressed by Dr. Hayaatum Sillem, CEO of the RAE, by the President of the Royal Academy Prof. Sir Jim McDonald (who made his address remotely due to a fogbound Glasgow Airport) and by the President of the Irish Academy.

October 2023 - Annual Conference of Euro-CASE . The President and Chief Executive represented the Academy at the recent Annual Conference of Euro-CASE hosted by the Royal Academy of Engineering (Spain) in Madrid. The theme of the conference was The Role of Engineering in Securing Supplies and Technologies.

September 2023 - CAETS annual conference 2023 and Council meet in Zagreb. The President and immediate past President attended the CAETS 2023, hosted by the Croatian Academy of Engineering in Zagreb, Croatia, the CAETS Council elected two new member academies: Academy of Engineering, Singapore and Academy of Engineering in Poland. Events included a technical symposium, themed e2-mobility, which addressed topics including electrification of transport and integration with energy systems; batteries – the core technology; hydrogen, fuel cells and electro-fuels; autonomous driving; and mobility modal shift – roads, railways, ships or planes. Annual business meetings of the CAETS Board and Council were also held.

June 2023 - New Book by Dr. Ronald Cox FIAE - Dublin Port Chief Engineers', a new book by Dr. Ron Cox FIAE, chair of the Academy's Heritage standing committee, was launched on 26th June by the Chairperson of the Dublin Port Company, Jerry Grant FIAE, at the Dublin Port offices . Dr. Cox's book "delves into the captivating world of Irish engineering history and explores the legacies of Bindon Blood Stoney and John Purser Griffith and the profound and lasting impact they had on the development of Dublin's port". Jerry Grant FIAE Chair Dublin Port launched the book at the Port offices. Guests at the launch incl. Tom Leahy FIAE Immediate Past President and PJ Rudden FIAE

June 2023 - On Thursday 22nd June 2023 the Academy held an in person meeting of the Executive and Northern Region committee in Belfast. The meeting was held in the Boardroom of the Historic Ulster Reform Club. President Seamus McKeague thanked NI Chair Jonathon Hegan for the arrangements and hospitality and outlined his plans for the coming year.

COMMUNICATIONS RELATED ACTIVITIES

5-year Academy strategy – President Tom Leahy proposed a new 5-year strategy based on the balanced scorecard business tool to integrate the work of the academy into a forward-looking strategy. This was unanimously endorsed and approved by Council. In December 2021 the Executive held an in-person workshop to identify key tasks for 2022. In addition to an annual review of progress there was a mid- term assessment in December 2023 of this strategy. A key outcome was a move to a more sustainable and volunteer lead Academy.

Philanthropy fundraising – The National Fundraising committee is chaired by CAP Chair Tom Leahy who is both Immediate Past President and an active member of this committee, which is focussed on sourcing additional funding to further develop the ability of the Academy to deliver on its mission. New 3 year pledges totalling €42,000 over 3 years were secured in 2023. It is a challenging task to secure funding for the work of the Academy and thanks go to the members of this committee.

New Guidance on Publications –A revised communications guidance note was published and agreed by Council in 2022. It provides detailed guidance both on publications and on support material required to accompany reports. This was reissued in 2023 to all Standing committee chairs to ensure governance on all publications.

Spokespersons - The Executive have approved list of authorised spokespersons on key topics, who can also address relevant communication issues.

Parsons Medal – Due to Covid 19 it was not possible to progress the award of this medal and in 2024 a new committee was established under the Chairmanship of Sir John McCanny to rejuvenate this Academy award in 2024.

NEW COMMUNICATION STRUCTURE

With effect from May 2024 the CAP Committee will be abolished and replaced with a VC meeting on the Last Tuesday of each month comprising:

- Chairs of the 3 IAE Standing committees
- Executive Committee (President, Immediate Past President, Hon. Sec. and Hon. Treasurer)
- Administrator

This will strengthen the communications within the Academy and improve the two- way flow of information between the existing very active committees and the Executive.

My thanks go to my fellow Directors Seamus McKeague, Joe Harford Hon. Sec. and Pat Lynch Hon. Treasurer and the members of the communications and publications group for their active support.

My thanks also go to our Administrator Fiona McCarron and our outgoing Chief Executive Gabriel Dennison who parts company with the Academy at the end of April 2024 after 7 years with the Academy

Tom Leahy,

Immediate Past President

Chair, Communications and Publications (CAP) Committee

ORGANISATION AND MEMBERSHIP OF THE ACADEMY

ORGANISATION

The membership of the Council/Board of Directors, the Executive Committee and the Membership Committee at March 31st, 2023 is as follows:-

COUNCIL

- Seamus McKeague, President/Chairman
- Tom Leahy, Immediate Past President
- Patrick Lynch, Honorary Treasurer
- Joe Harford, Honorary Secretary
- Jim Browne
- Mark Gantly
- Eileen Harkin-Jones
- Mary Kelly
- Brendan Murphy

OFFICERS/DIRECTORS

- Seamus McKeague, President
- Tom Leahy, Immediate Past President
- Patrick J. Lynch, Honorary Treasurer
- Joseph F. Harford, Honorary Secretary

MEMBERSHIP COMMITTEE

- Sean Finlay, Chairman
- Anne Butler
- Eileen Harkin-Jones
- Mary Kelly
- Seamus McKeague
- Brendan Murphy
- Mary O'Donovan
- Úna Parsons
- Joe Harford, ex-officio

HONORARY SECRETARY'S REPORT

Meetings of Council/Executive

Throughout the year, a total of four Council Meetings were held, all of which were conducted by way of teleconference. In addition, five Executive Meetings were held in person, where a broad range of topics were discussed and important decisions were taken. Of particular importance was the need for the Academy to become a more volunteer-led organisation, the need to involve newly elected Fellows more in committees and the work of the Academy, active management of philanthropic projects and funding, governance, involvement with CAETS and more interaction with the Regional Committees.

Membership Committee

The new Membership Committee, under the chairmanship of Sean Finlay, reviewed nominations for new Fellows under the revised membership two-stage nomination procedures. The Academy is endeavouring to encourage new Fellows to be more active and contribute to the work of the Academy. The Membership Committee was impressed by the quality of nominations and made its recommendations to the Council. 9 new Fellows will be awarded their parchments at a formal ceremony next June.

Governance

All our regulatory financial filings were completed on time and without any adjustments by our external auditors, Mazars. As a registered charity, the Academy is obligated to comply with The Charities Regulator's Governance Compliance Code. We invested significant effort in ensuring that we met the requirements of the code. We also filed our Annual Report for the year 2023.

Insurance

It was decided it would be prudent to have in place appropriate insurance to protect the Academy, its staff and Fellows in the event of litigation. Using a major Irish insurance broker we obtained numerous proposals from various insurance companies to cover risks relating to the activities of our Directors and Officers, Public and Employee Liability and Business Travel liability. Competitive quotations were received and policies are now in place.

Official List of Members

A full list of members as of March 31st 2024, the official year end date, is also included in succeeding pages. Names only are quoted for reasons of confidentiality. Full details of all members are held in the Official List of Fellows which is kept under secure conditions in the Administrative Office of the Academy at 22 Clyde Road. Access to the Register is normally restricted to the Officers of the Academy and the Chief Executive and is made available, as required, to members of the Council/Board of Directors, the Executive Committee and the Membership Committee either by the Administrator, Ms Fiona McCarron or the Honorary Secretary.

Deceased Members

Obituaries are included in this Annual Report for distinguished colleagues who died during the year. We extend sincere sympathy to their families, colleagues and friends.

Parsons Medal

The Parsons Medal commemorates Sir Charles Parson the youngest son of William Parsons, 3rd Earl of Rosse, and one of Ireland's most distinguished engineers. With the restrictions in place, the awarding of the Parsons Medal was put on hold because of the Covid pandemic. A new committee under the chairmanship of Sir John McCanny has been formed and we are now inviting nominations from the Fellowship for consideration. Preliminary plans are being made to have the awards ceremony later this year.

International activities

During the past year, the Academy has been active with several committees of the International Council of Academies of Engineering and Sciences (CAETS), including the Communications Committee and the EURO-CASE Finance Committee. Tom Leahy has been serving on both of these committees. The Communications Committee has been awarding a prize to inspire young people to consider engineering as an exciting and meaningful career. It also reminds policymakers and the general public of the importance of engineering in their lives.

Joe Harford has also been involved with the Diversity and Inclusion Committee, which encourages all those involved in engineering and sciences to promote diversity, equality, and accessibility. The committee discusses ways to help make everyone feel welcomed, valued, and respected.

Joseph F. Harford
Honorary Secretary

OBITUARIES

Professor Patrick Dowling (1939 – 2023)

Patrick Dowling was born in Sandymount, Dublin in 1939. He was educated at University College Dublin, graduating in 1960 with a degree in civil engineering.

Prof. Dowling then went to work at Imperial College London, where in 1986 he was appointed to their chair in structural engineering, which he held for the next 15 years. He was afterwards Vice-Chancellor and Chief Executive of the University of Surrey from October 1994 to his retirement in June 2005.

In 1996, he was elected a Fellow of the Royal Society.

Dowling served as President of the Institution of Structural Engineers (1994–95), Chairman of the Steel Construction Institute, Vice-President of the Royal Academy of Engineering, Chairman of the Engineering Council, President of the Association for Science Education and as Chairman of the British Association for the Advancement of Science. He was appointed Deputy Lieutenant of Surrey in 1999 and appointed a CBE in the New Year Honours List of 2001. In 2006 he was awarded the James Alfred Ewing Medal of the Institution of Civil Engineers.

He was awarded Fellowship of the Irish Academy of Engineering in 2000.

Patrick J. Dowling died on 28 April 2023, at the age of 84

May he rest in peace.

Brian Kearney (1940 – 2023)

Brian died peacefully in the care of TLC Carton Nursing Home, after a long illness bravely fought. Beloved husband of the late Patricia. Deeply regretted by his children Peter, Conor, Emer and Lise and nephew John Paul, daughters-in-law Ciara and Simone, son-in-law Didier, grandchildren Neil, Guilia, Sean, Killian, Max, Sally, Tara and Louis, his wide circle of friends and colleagues in Royal Dublin Golf Club, PM, Belvedere College and St. Fintan's Parish Committee.

A UCD electrical engineering graduate with a Masters in industrial engineering, Brian originally worked for Irish Cement (later to become part of CRH plc.). Brian co-founded PM Group in 1973 with Jim Walsh and took over the role of Chief Executive in 1988. Brian spearheaded initiatives such as the alliance with Foster Wheeler in the late 1980's, the move to Tallaght in the late 1990's and the introduction of Non-Executive Directors on the Board, which gave the Company a system of corporate governance that was second to none. The company had grown to over 1,000 people at the time of his retirement in 2003.

Brian was President of the Institution of Engineers of Ireland 2002 – 2003. He was awarded Fellowship of the Irish Academy of Engineering in 2001.

May he rest in peace.

Dr. Finbar Callanan (1931 – 2023)

Finbar Callanan was born in Cork city in 1931, the son of Denis Callanan, a railway agent, and Annie Elizabeth Fry. He grew up in Rosslare, to where the family relocated, and he was educated at Mount Sion CBS, Waterford and at UCC, where he studied civil engineering and obtained a BE degree in 1951.

He undertook his early training with Westmeath County Council, before joining the Marine Section of the Office of Public Works in 1953 to survey the west coast of Ireland for potential fishery harbours. His interest in harbours continued with Waterford Harbour Commissioners and T J S Mallagh. He joined Bord na Mona in 1956 as Senior Civil Engineer at Boora Works, then the largest peat producing works in Western Europe.

In 1956 Finbar married Maureen Kinsella, and in 1960 he moved to headquarters as Assistant Development Engineer. In 1965, he was appointed Project Engineer in charge of forward planning for the expansion of sod peat production, and the mechanisation of peat winning processes. As Planning Engineer from 1973 to 1975, he was responsible for the development and production planning of the Bord's many diverse activities. Following his appointment as Chief Operations Engineer in 1975, he concluded his career with Bord na Mona in 1979 as Chief Civil Engineer.

In 1979, Finbar was invited to accept the post of Director General and Secretary of the Institution of Engineers of Ireland. His involvement in the organisation of the engineering profession had begun as far back as 1960 when he was Secretary of the Midland Region of Cumann na n-Innealtóiri (The Engineers Association). He was subsequently founder of the Dublin Region and the Engineers Club.

He chaired the Joint Executive Committee, which coordinated the unification in 1969 of the Cumann and the institution of Civil Engineers of Ireland to form the Institution of Engineers of Ireland (IEI), now Engineers Ireland. During his Directorship from 1980 until 1996, membership of the Institution increased from 3,200 to around 12,600, which gave the Institution a more credible voice representing engineers both at home and abroad.

Following his retirement from the Directorship of the IEI, Finbar Callanan was the prime instigator, along with Gordon Millington OBE FIAE, in the foundation of the Irish Academy of Engineering (IAE). Between them ensured its all-island identity. Finbar served as the Academy's first Secretary (1996-2004) and as its President in 2006.

Finbar will be very fondly remembered by many. He had a warm and engaging personality and was an erudite, genial and convivial companion. His deep love of engineering and his service to the profession over a long and productive lifetime has left a lasting legacy in the continued success of Engineers Ireland and in the foundation of the Irish Academy of Engineering.

May he rest in peace.

Dr. Liam Connellan (1936 - 2024)

Liam was a giant of Irish engineering and public life and contributed enormously to the economic development of the country, and to the engineering profession, over several decades. He was a stalwart of the Academy and contributed imaginative and innovative ideas and effective leadership and direction. Notwithstanding his eminence and stature he will be remembered by all as a kind, thoughtful and personable colleague.

Liam grew up in Strokestown, Co. Roscommon and received his early education in Garbally College, Ballinasloe and at the Christian Brothers School, Roscommon. In 1957 he graduated from University College Dublin with a B.E. (Mech and Elec). He extended his studies through training in Sweden and with the British Thomson-Houston Works in Rugby. In 1960 he joined ACEC Electrical Manufacturers in Waterford as Divisional Engineer. In 1965 he joined the Irish Management Institute as one of its first management specialist staff and during this period he travelled around Ireland conducting management training programmes.

Following the death of twelve senior Irish business people in the Staines aeroplane disaster of 18th June 1972, Liam was invited to become Director General of the Confederation of Irish Industry (CII) in which role he was also a member of the Executive Committee of UNICE – the Confederation of European Industry. In those years, following Ireland's accession to the then Common Market, tariff barriers were being removed and industry in Ireland was rapidly growing. Liam prized all-island cooperation in economic development. He had a close working relationship with his Northern Ireland counterparts in the Confederation of British Industry (CBI) and helped institute the Joint North-South Business Council which is still in existence today.

After his period at the CII Liam continued his public service by being appointed the first chair of the National Roads Authority (NRA). He also served as President of the Royal Dublin Society and of Engineers Ireland.

Ar dhéis Dé go raibh a anam uasal.

Professor Sean McNamara (1942 – 2024)

Professor Seán McNamara graduated in engineering from the then University College Galway in the 1960s. He completed his PhD degree in Brown University in the United States and returned to Galway where he was appointed to the inaugural Professorship of Mechanical Engineering in 1981. He served as Chair and Head of the Department of Mechanical Engineering at University College Galway, later the National University of Ireland Galway, until he retired. He set out a clear vision for the education and training of mechanical engineers. He was committed to the delivery of a research led undergraduate programme, while ensuring that students had the opportunity to combine theory and practice through industrial placement. Over the years he built a very fine team of academics and researchers and encouraged and succeeded in developing a very active and productive research environment, while always ensuring the quality of the teaching programmes, all of which were accredited by Engineers Ireland.

With colleagues in the mid-1990s he led out on the introduction of a biomedical engineering degree to the University, initially as an option for students entering 3rd year mechanical engineering and then a standalone ab initio degree. This undergraduate programme together with taught and research postgraduate programmes which developed later prepared engineers for future employment in the burgeoning medical device industry in the West of Ireland. Today hundreds of NUI Galway engineering alumni are employed in the medical sector alone. Many others have gone into related careers in medicine and biomedical research.

In 1999 an interdisciplinary research centre, the National Centre for Biomedical Engineering Science (NCBES), was established at NUI Galway, funded by the Ireland's Programme for Research in Third Level Institutions (PRTLII). The NCBES brought together scientists, engineers, information technologists and clinicians to research innovative therapies for cardiovascular disease, orthopaedics, reproductive medicine, and cancer. Sean McNamara was actively involved in developing this centre and supporting the effort it represented to bring together academics and researchers from across the University to advance biomedical engineering science in Galway. The success of this initiative can be seen today in the location of CÚRAM, the National Centre for Research in Medical Devices in Galway. Funded by Science Foundation Ireland, CÚRAM has over 40 industry partners, and is led by a colleague Professor Abhay Pandit, who was recruited to the University by Sean McNamara.

Sean McNamara was a leader in the promotion of industry - university research cooperation and in the translation of research into industrial and commercial activity. In the late 1990s he founded MCS – Marine Computation Services – later MCS Kenny and more recently acquired by the John Wood Group.

MCS, based on research work undertaken by Sean and his colleagues was a provider of subsea engineering consultancy services. The company was and continues to be engaged in offering overall concept design and riser configuration layout, including top tension and buoyancy requirements, stack-up design and optimization, development of operability curves and disconnect and hang-off analysis.

Sean McNamara was a committed and visionary academic engineer. Throughout his career he fostered a culture of excellence and innovation in his professional engineering work, his students and his colleagues. His contributions to the careers of his students, the disciplines of mechanical and biomedical engineering and to the University will long be remembered.

May he rest in peace.

Sir Peter Gregson (1957 – 2024)

Sir Peter was Vice-Chancellor of Cranfield University from 2023 – 2021 and President and Vice-Chancellor of Queen's University Belfast from 2004-2013 and led the Queen's University with distinction. Under his leadership, Queen's entered the Russell Group in 2006 as one of the UK's leading research intensive universities, was named Entrepreneurial University of the Year in 2009 and secured two Queen's Anniversary Prizes for Higher and Further Education in 2005 and 2011. He received a Knighthood for Services to Higher Education in 2011.

Sir Peter made a remarkable contribution to the University, Northern Ireland and Queen's internationally. He was a values-led, inspirational leader, whose commitment to Queen's students, staff and the wider University community was unwavering.

Sir Peter was awarded Fellowship of the Irish Academy of Engineering in 2007.

The Academy extends its deepest condolences to Lady Gregson, their daughters Ellie, Maria and Chrissie and the family circle.

May he rest in peace

OFFICIAL LIST OF FELLOWS (AS OF MARCH 31ST, 2024)

Ms Aoife Ahern	Dr. Tara Dalton
Mr. Lionel Alexander	Dr. Philip Donald
Prof. Gavin Andrews	Prof. Linda Doyle
Dr. Norman Apsley	Prof. Patrick Dowling
Mr. Brendan Barrett	Mr. Kieran Drain
Mr. Fred Barry	Mr. John Duffy
Prof. Muhammed Basher	Mr. Gerry Duggan
Prof. Eric Kirkland Beatty	Mr. Ciaran Fahy
Mr. Gerald Beesley	Prof. Orla Feely
Mr. Adrian Kennedy Bell	Mr. Kieran Feighan
Dr. Jayne Brady	Prof. Mark W.J. Ferguson
Prof. Jim Browne	Mr. Sean Finlay
Dr. Nael Bunni	Prof. David FitzPatrick
Mr Maurice Buckley	Prof. Vincent Fusco
Mr. Frank Burke	Mr. Mark Gantly
Ms Laura Burke	Mr. David Gavaghan
Ms. Anne Butler	Mr. Don Godson
Mr. Dermot Byrne	Dr. John D. (Jack) Golden
Prof. Gerry Byrne	Ms Anne Graham
Ms Julie Byrne	Mr. Jerry Grant
Dr. Paddy Caffrey	Prof. Jane Grimson
Mr. Philip Callery	Mr. William (Bill) Grimson
Mr. Gavin Campbell	Mr. Michael Hand
Mr. Gerry Carty	Ms Frances Hardiman
Mr. Brian Caulfield	Mr. Joseph F. Harford
Mr. Leo Clancy	Prof. Eileen Harkin-Jones
Dr. Darragh Colgan	Dr. Edmond Harty
Ms Anne Marie Conibear	Mr. Jonathan Hegan
Dr. Liam Connellan	Dr. John Allan Hill
Mr. Alan Cooper	Ms Ann-Marie Holmes
Mr. Tim Corcoran	Prof. Gerard Hurley
Mr. Tom Costello	Prof. David Jones
Dr. Ronald Cox	Mr. Alfie Kane
Mr. Martin Cronin	Mr. John A. (Jack) Kavanagh
Mr. Theo Cullinane	Mr. Brian Kearney
Prof. Patrick Cunningham	Dr. Mary Kelly
Dr. Martin G. Curley	Prof. (Michael) Peter Kennedy

OFFICIAL LIST OF FELLOWS (AS OF MARCH 31ST, 2024)

Dr. Pat Kenny	Dr. Dervilla Mitchell
Dr. John J. Killeen (Honorary)	Mr. Anthony M. Moloney
Mr. Peter Langford	Dr. Mary Moloney
Mr. Paddy Larkin	Mr. Don Moore
Mr. Tom Leahy	Ms Regina Moran
Dr. J. Owen Lewis	Prof. J.W.O. Morrison
Mr. Bernard Looney	Mr. Dermot Moynihan
Mr. Martin Lowery	Mr. John Mullins
Mr. Finn Lyden	Dr. Brendan J. Murphy
Mr. Patrick J. Lynch (Honorary)	Mr. David Murphy
Prof. Brian MacCraith	Prof. Jerry Murphy
Dr. Frank McCabe	Mr. John Murphy
Mr. Paul McCambridge	Mr. Martin Naughton
Prof. Sir John Vincent McCanny	Mr. Terry Nolan
Dr. Daniel McCaughan	Prof. Brian Norton
Prof. Conor McCarthy	Prof. Fergal O'Brien
Mr. William James McCoubrey	Mr. Kieran O'Brien
Mr. Danny McCoy	Mr. Richard James (Jim) O'Brien
Prof. Sir Jim McDonald (Honorary)	Mr. Neil O'Carroll
Mr. Sean McEwen	Mr. John O'Dea
Prof. Tim McGloughlin	Prof. Colm O'Donnell
Mr. John McGowan	Prof. Padraic O'Donoghue
Mr. Patrick McGrath	Ms Mary O'Donovan
Prof. Peter McHugh	Mr. Eoin O'Driscoll
Mr. David McIlhagger	Prof. Brian O'Gallachoir
Mr. Ken McIntyre	Mr. Mike O'Flynn
Mr. Seamus McKeague	Mr. Kenneth O'Hara
Prof. James McLaughlin	Mr. Jack O'Leary
Mr. Padraig McManus	Mr. Liam O'Mahony
Dr. James McQuaid	Prof. Margaret O'Mahony
Mr. Don McQuillan	Prof. Máire O'Neill
Mr. Albert Manifold	Mr. Eamonn O'Reilly
Mr. John H. Martin	Prof. Barry O'Sullivan
Mr. John V. Martin	Mr. Barry J. O'Sullivan
Mr. Richard (Dick) Meaney	Mr. Niall Olden
Mr. Jerry Mehigan	Dr. Steve Orr
Dr. Gordon S. Millington (Honorary)	Prof. Abhay Pandit

OFFICIAL LIST OF FELLOWS (AS OF MARCH 31ST, 2024)

Mr. Michael M. Phillips

Mr. David Porter

Mr. John Power

Mr. Paddy Power

Prof. Patrick Prendergast

Mr. Peter Quinn

Mr. Walter Rafferty

Mr. P.J. Rudden

Dr. Helen Ryan

Sir Michael J. Ryan

Ms Marguerite Sayers

Mr. Robert (Bob) Savage

Prof. William Scanlon

Dr. Reg Shaw

Dr. James Sheehan

Mr. Michael Shelly

Mr. Eamonn Sinnott

Mr. John A. (Tony) Smyth

Prof. Cormac Sreenan

Mr. William Stafford

Dr. Brian N. Sweeney

Dr. Michael Tiernan

Dr. David J. Timoney

Dr. Ed Walsh

Mr. David Waters

Prof. Roger Whatmore

Prof. Gerry Wrixon

INCOME AND EXPENDITURE ACCOUNT (JANUARY 1ST TO DECEMBER 31ST, 2023)

Commentary

The Academy entered the year with a Bank Credit balance of €83,631.46 and closed 2023 with a credit balance of €101,152.40. A number of factors contributed to this situation.

The Academy Income includes Fellow's Subscriptions and Special Contributions (additional sums contributed by Fellows in excess of the standard subscriptions requested). The combined above contributions were €44,978.53 in 2023, which is greater than the 2022 amount by €9,220.19. The generous additional contributions by a number of Fellows amounted to €8,739.94 in 2023.

The Academy also benefitted from generous support totalling €79,817.85 from thirteen of our fifteen Corporate Patrons who supported the work of the Academy through annual financial payments. This also included €20,000.00 outstanding for 2022. Philanthropy income from four sources amounted to €29,607.90 in 2023.

The Academy, by virtue of its Charitable Status, is able to recover part of the tax element of individual contribution of a number of Fellows amounting to €3,800.82 for 2023.

On the Expenditure side, the largest single item is for Personnel Costs arising from the remuneration paid to the two Academy part-time staff, amounting to €100,971.46. The remaining significant costs are those associated with philanthropy expenditure (€9,225.00) and also administration, bank charges, Government fees, website and computer charges.

General Project costs of €4,581.75 were incurred in 2023, which comprised costs associated with design and print on reports published during the year.

The final bank balance at year-end 2023 was €101,152.00

Patrick J Lynch
Honorary Treasurer

INCOME AND EXPENDITURE BUDGET V ACTUAL JANUARY 1ST TO DECEMBER 31ST 2023

	2023 Budget		2023 Actual
Bank Balance January 1st 2023	€83,631.46		€ 83,631.46
Income			
Subscriptions	39,000.00		36,238.59
AGM & Fellows/Conferring Lunch	2,000.00		1,954.00
Corporate Income	90,000.00		79,817.85
Philanthropy Income	60,000.00		29,607.90
Special Contributions	4,000.00		8,739.94
Tax/VAT Recovery from Charitable Status	5,000.00		3,800.82
Miscellaneous	500.00		-
	200,500.00		160,159.10
Balance	284,131.46		243,790.56
Expenditure			
Personnel Costs	100,600.00		100,971.46
Printing/Telephone/Postage	1,000.00		57.50
Administration	3,000.00		2,113.87
Euro-CASE & CAETS	7,000.00		3,601.00
Meetings & Travel	6,000.00		4,885.35
AGM & Fellows/Conferring Lunch	6,000.00		7,127.84
General Project Expenditure	10,000.00		4,581.75
Philanthropy Expenditure	20,000.00		9,225.00
Philanthropy Funded Projects	5,000.00		3,997.50
Engineers Ireland	4,000.00		4,350.00
Website & Computer Charges	2,000.00		360.39
Bank Charges and Government Fees	2,000.00		1,366.50
	166,600.00		142,638.16
Projected Bank Balance Dec. 31st 2023	117,531.46		
Actual Bank Balance at Dec. 31st 2023			101,152.40

NOTES



THE IRISH ACADEMY OF
ENGINEERING
ENGINEERING & TECHNOLOGY

THOUGHT LEADERSHIP IN A TIME OF GREAT CHANGE

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