



Engineers Ireland Submission on Budget 2022

Summary

Engineering is integral to modern life, from the production of medicines to the provision of public services, from the computerised networks of devices we all use every day to the infrastructure on which our society depends. The challenges we face, including improving efficiency and making use of evolving digital technologies, will all require and benefit from engineering.

With over 25,000 members, Engineers Ireland is the voice of the engineering profession in Ireland. Our members come from every discipline of engineering and work in every sector of the economy. Our institution is committed to channelling the expertise of our professional engineering membership in finding practical and cost-effective solutions to the significant societal challenges. This underpins the importance of having the voice of the engineer heard in public policy by providing evidence on a wide range of engineering issues, including sustainability, wellbeing, and innovation.

Budget 2022 - Capital investment

We recommend a strategic approach to capital investment taking account of the following trends:

- **A Green New Deal** for Ireland to include energy system integration and achieving 70% renewable electricity, a seaport to support offshore wind development, a hydrogen strategy, a radical national retrofit strategy, re-engineering our transport system, active State land management, and multi-annual funding for water, wastewater and flood risk management. These should be reflected in the National Development Plan (NDP) and include citizen engagement.
- **A National Programme for Digital Transformation** to include the accelerated rollout of the National Broadband Plan and 5G, reinforced cybersecurity, and a digital-first public sector. This would support remote working and the expansion of an Industry-4.0-ready and sustainable manufacturing base. Digital tools (including Modern Methods of Construction) will drive efficiencies in the capital programme.
- **Education & Skills** are necessary to deliver on Government Policies and achieve a green and digital future. There are pressing shortages of engineers in many disciplines to fill skills-gaps emerging for the sustainable recovery; professional engineering apprenticeships are an important component of the solution. A reskilling imperative calls for a culture of lifelong learning, which professional bodies like Engineers Ireland can lead on through Continuing Professional Development programmes. A nationwide digital literacy programme can combat disinformation and foster the adoption of new technologies. Our higher education system needs a sustainable funding model to respond to current challenges and to prepare for longer-term transitions.

Budget 2022 - Priorities

Engineers Ireland is highlighting five priorities to the Department of Public Expenditure and Reform:

1. **Infrastructure: Invest in infrastructure for economic stimulus, decarbonisation & quality of life**
 - Accelerate an ambitious capital investment programme as a central element of a medium-term economic recovery plan. Link the NDP to the National Planning Framework (NPF) objectives, as part of Project Ireland 2040.
 - Determine and prioritise infrastructure programmes and projects based on an overarching strategy, setting out high-level policy outcomes, specific programme outputs, stages, and a

critical path analysis to determine interdependence of the stages to meet the outcomes efficiently.

- Create a policy environment which supports integration of non-Exchequer financing opportunities such as the European Recovery Fund, European Green Deal, European Investment Bank and Public Private Partnerships, with public financing.

2. Climate Action: Take urgent action to make Ireland carbon neutral

- Build out grid infrastructure, stimulate offshore wind development and establish flexibility and capacity mechanisms; build out EV charging infrastructure; and develop a new approach to support increased numbers of building retrofits.
- Re-engineer our towns and cities for public transport, cyclists and pedestrians and invest in sustainable transport solutions for all communities. Progress BusConnects, MetroLink, the DART Expansion Programme & DART Underground Project (planning) and Luas expansion.
- Reduce leakage from the water mains network to 35%, eliminate the discharge of untreated effluent, upgrade existing infrastructure: water supply at Vartry (Wicklow), water treatment at Lee Road (Cork), wastewater treatment at Ringsend (Dublin), Cork Lower Harbour, Eastern & Midlands Region Water Supply Project and the Greater Dublin Drainage Project.
- A strategic plan should be developed for the efficient delivery of the 118 schemes identified in Flood Risk Management Plans (Flood Plans) and smaller schemes.
- Climate action must be fully integrated in the planning system; Government and other political actors should help to build public support through citizen engagement, community leadership and facilitating a just transition.

3. Housing: Build safe and sustainable homes and communities

- Strengthen the building regulatory regime by removing the opt-out for one-off dwellings (SI 365 of 2015) and by increasing the resources of local authorities for inspection and enforcement.
- Progress with 'Build-Digital' and other measures in the National BIM Strategy to promote productivity, innovation and digitalisation in construction.
- New homes should be smart, enabling the integration of the latest telecommunications technology, with adaptable layouts, as occupants' needs change.
- The Housing for All plan should be implemented, including priority for the revitalisation of existing towns and villages as attractive environments in which to live, work and shop.

4. Education and Training: Embrace further and higher education and lifelong learning

- Introduce a sustainable funding model for higher education, including core funding, programmatic funding, infrastructure investment and industry-academic collaboration.
- Continue the implementation of the STEM Education Policy Statement 2017-2026 targeting: Increase by 20% the total students taking Chemistry, Physics, Technology and Engineering for Leaving Certificate; increase by 40% the number of females taking STEM subjects for Leaving Certificate. Increase the number of students moving into third-level engineering and technology sectors to meet our country's current and future needs.
- Lifelong learning should be promoted and supported. It should include new technical competences, emotional intelligence, creativity, communication, ethics and leadership.
- The tax treatment for professional subscriptions should be restored to the Taxes Consolidation Act 1997 provisions.

5. Enterprise and Innovation: Future-proof our economy by preparing for the future of work

- Invest in telecommunications infrastructure, including broadband, 4G and 5G, to support the growth in data traffic associated with connected networks and the 'internet of things'.
- Deliver the National Broadband plan to support economic and social development and to enable the delivery of traditional infrastructure (housing, roads, public transport), supporting regional development, reducing congestion and improving quality of life.



- A national Industry 4.0 portal should be developed to provide information (targeting SMEs) on best practice, national infrastructure and available education and training.

Comprehensive information on each of these priorities can be found on the following pages.

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See overleaf.



Engineers Ireland Submission on Budget 2022

Full Submission

Engineers Ireland is highlighting five priorities for Budget 2022

1. Invest in infrastructure for economic stimulus, decarbonisation, and quality of life
2. Take urgent action to make Ireland carbon neutral
3. Build safe and sustainable homes and communities
4. Embrace further and higher education and lifelong learning
5. Future-proof our economy by preparing for the future of work

This submission is designed around delivering on the overall ambition and the specific measures outlined above. In general, rebuilding the economy and achieving the ambition outlined in the Programme for Government will require substantial investment in infrastructure and education to act as an economic stimulus, create jobs and overcome ongoing challenges in housing, climate, digitalisation, and Brexit. Such investments will provide vital social, environmental, and economic facilities for our citizens and our natural environment, and will enhance our country's wellbeing, inclusion, and competitiveness.

Additionally, new technologies and ways of working are rapidly changing our society and economy. Engineers Ireland will work with Government to ensure that engineers can lead in the innovative use of new technologies and take advantage of the digital transformation. Investment is needed in further and higher education will assist students and third-level institutions as they navigate through challenges presented by Covid-19. Investment in education at third level will be critically important to safeguarding Ireland's engineering graduate pipeline. Our engineering graduates will play a central role in national recovery and in creating a sustainable future for Ireland. Budget 2022 represents a major opportunity to power national recovery and to make the transformation towards a cleaner, safer and sustainable future.

1. Infrastructure

Invest in infrastructure for economic stimulus, decarbonisation and quality of life

High-quality infrastructure is an important element of a modern society and economy. It strengthens economic growth through job creation and enhancing efficiency, productivity, and competitiveness. Correctly targeted infrastructure investment also underpins social cohesion, through providing vital facilities for citizens, such as public transport and broadband, and helps to tackle challenges in climate change, Brexit, and demographics. Engineering and infrastructure delivery can therefore play a central role in stimulating the economy and improving the quality of life.

Capital investment fell dramatically during the last recession and it is very positive to note the commitment of this Government to investing in our nation's infrastructure and the many benefits that it brings for Irish society, economy and environment. Budget 2021 significantly increased capital investment to €10.1 billion.

This represents €600 million more than the planned increase under the NDP and includes capital spending related to Brexit and Covid-19 measures. This is the first time that Exchequer capital investment has surpassed €10 billion. Spending was provided for transport (roads, public transport and active travel), housing (social housing, servicing sites and retrofitting), education and other areas.

As a result of cuts to capital expenditure during the last recession, growing population and changing demographics, there are ongoing deficits in many sectors, including housing, health, transport, energy, water and waste. As well as physical infrastructure, Ireland also needs to expand our digital networks (e.g. telecoms, high-speed broadband, smart grids for energy management).

In relation to our infrastructure and rankings, in [June 2021](#), the National Competitiveness and Productivity Council, NCPC, said:

“Infrastructure is an area where improvements still need to be made. Ireland continues to rank poorly in Technological Infrastructure, particularly on investment in Telecommunications (59th), Communications Technology Meeting Business Requirements (48th), and Internet Bandwidth Speeds (36th). These rankings are particularly worrying in an era of remote working.”

Now, more than ever, increased and targeted capital investment is needed for economic stimulus. With Ireland’s competitiveness ranking moving one place from 12th place in 2020 to 13th place in 2021, the NCPC said:

“More recently, cost pressures and a failure to keep pace with improvements in other jurisdictions have resulted in Ireland’s position slipping. The global Covid-19 shock has negatively impacted the labour market and domestic economy.”

Engineers contribute to the development of infrastructure and the built environment from many perspectives: preliminary concepts, pre-planning and design, scope and design of civil/structural/building services projects, project management, inspection and certification, health and safety supervision, and much more. Engineers Ireland asked our members for their views on the current state of Ireland’s infrastructure.

Of the 1,829 engineers who responded to the statement ‘Ireland’s infrastructure is in good condition with capacity for future development’, 28% agreed, 44% disagreed and 28% neither agreed nor disagreed (Figure 1). These results highlight the need for action to improve the current level of service provided by our infrastructure, but also to build capacity for future needs. Engineers Ireland posed the same statement to a similar sample of members in 2018 (immediately prior to the publication of the NDP) and it is positive to note that the proportion disagreeing with the statement has fallen from 56% in 2018 to 44% in 2021.

Ireland's infrastructure is in good condition with capacity for future development

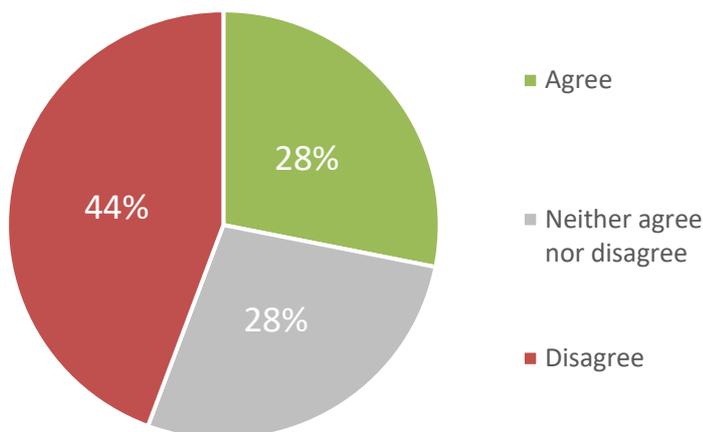


Figure 1. Engineers' views on the condition and capacity of Ireland's infrastructure (1,829 responses)

In our submission to 'Review to Renew', (in relation to the revised NDP) we stated that capital spending should be increased across the lifetime of the NDP, focused on decarbonisation and balanced regional development. By 2030 we will have 1.1 million additional people living on our island.

This additional funding need not all come from Government. In addition to infrastructure directly funded by the State, appropriate policy measures de-risk major projects and can attract large-scale private investment in areas like wind energy. We should seek to maximise available non-Exchequer financing opportunities such as the European Recovery Fund, European Green Deal, European Investment Bank and Public Private Partnerships.

Infrastructure programmes and projects need to be determined and prioritised on the basis of an overarching strategy. This should set out the high-level policy outcomes, the specific outputs from programmes, the stages that are required, and a critical path analysis to determine the interdependence of the stages to meet the outcomes efficiently. We are supportive of the approach of linking the NDP to the National Planning Framework objectives as part of Project Ireland 2040.

The revised NDP should maximise the opportunity for an ambitious capital investment programme to be a central element of a medium-term economic recovery plan, beyond the focus on the short-term stimulus impact of the shovel-ready projects. For example, the NDP should support the implementation of the Climate Action Plan commitments and net zero by 2050, drive digitalisation and deliver much-needed housing and balanced regional development in line with the National Planning Framework.

2. Climate Action

Take urgent action to make Ireland carbon neutral

Climate change is one of the greatest global challenges for this and future generations. Engineers Ireland endorses the UN Sustainable Development Goals (SDGs) to end all forms of poverty, fight inequalities and tackle climate change, while ensuring that no one is left behind. Engineers have a key role to play in the transition to a sustainable, carbon-free society. For example, SDG 9 calls for the building of resilient infrastructure, promotion of inclusive and sustainable industrialisation and

fostering innovation. Engineers also are to the forefront of renewable energy and other technologies.

Plans to decarbonise heat and transport focus on electrification, which is directly dependent on decarbonising the electricity generation system. Efforts to decarbonise our energy system must therefore be supported by planning and investment in infrastructure and new technologies. There are some critical enablers for technology adoption which must be progressed immediately: Build out grid infrastructure, stimulate offshore wind and establish flexibility and capacity mechanisms; build out EV charging infrastructure; and develop a new approach to support an increased number of building retrofits.

Our transport system is car-dependent with negative impacts on greenhouse gas emissions, air quality and traffic congestion. Large-scale public transport is needed to reduce car dependency and to accommodate forecasted increases in travel demand, including BusConnects, MetroLink, the DART Expansion Programme and Luas network expansion. We would like to see planning continue on the DART Underground Project. We should re-engineer our towns and cities for public transport, cyclists and pedestrians and invest in sustainable transport solutions that meet the needs of rural and urban communities.

In the water sector, we must meet our obligations under EU directives to efficiently supply adequate quantities of safe drinking water and ensure wastewater is adequately treated to protect the environment. Our recommended actions include reducing leakage from the water mains network to 35%, eliminating the discharge of untreated effluent, upgrading existing infrastructure such as water supply at Vartry (Wicklow), water treatment at Lee Road (Cork), wastewater treatment at Ringsend (Dublin), Cork Lower Harbour, Eastern & Midlands Region Water Supply Project and the Greater Dublin Drainage Project. In the flooding area, Engineers Ireland calls for excellent and maintained flood defences and warning systems and sustainable land-use practices. A strategic plan should be developed for the efficient delivery of the 118 schemes identified in Flood Risk Management Plans (Flood Plans) and smaller schemes, drawing on international best practice.

Climate action must be fully integrated in the planning system and the political system, using long-term modelling and evidence-based solutions, while engaging communities and the general public on the benefits of each individual project. Some engineering projects in renewable energy, public transport, and waste, for example, do not enjoy universal public support despite their major contribution to climate action. Government and other political actors should help to build public support through citizen engagement, community leadership and facilitating a just transition.

3. Housing

Build safe and sustainable homes and communities

While home completions have increased in recent years, the pandemic disrupted the construction sector and the level of residential output is far below the estimated level of housing demand based on demographic trends. A constraint to delivering housing is often the unavailability of public infrastructure, such as transportation, water and wastewater, telecommunications and energy. There should be increased funding and coordination of the planning and delivery of public infrastructure to improve stability of supply and affordability of new homes. The Land Development Agency must have a strong mandate and resources to actively manage State-owned land.

Our housing stock requires immediate retrofitting to improve living conditions and to achieve climate targets. Vacant buildings should be brought back into active use. The Government's commitment to upgrade 500,000 homes by 2030 is welcome, however, more clarity and a roadmap, including financial incentives and skills development is needed. In the longer term, two million housing units in Ireland will need to be retrofitted to achieve the energy performance levels required.

The building regulatory regime could be reinforced by removing the opt-out for one-off dwellings (SI 365 of 2015) and by increasing the resources of local authorities for inspection and enforcement. Also, the Construction Industry Register Ireland, the voluntary register of builders, contractors and specialist subcontractors, should be placed on a statutory footing to promote a greater commitment to compliance, safety and quality.

Modern methods of construction have the potential to increase housing output, quality and innovation. We would like to see greater understanding, support and development of modern methods of construction. 'Build-Digital' should be established and funded as a Centre of Excellence to promote productivity, innovation and digitalisation in construction. Moreover, to future-proof the housing stock, new homes should be smart, enabling the integration of the latest telecommunications technology, and should be adaptable, allowing evolution in the layout of rooms and spaces as occupants' needs change.

There are strong interrelationships between housing and the various other sectors of the built environment. Whether it is renewable energy supplies, public transport connections, broadband access or water capacity, a holistic approach to our complex built environment is needed if we are to overcome our current and future housing challenges.

The Housing for All plan should be implemented, including priority for the revitalisation of existing towns and villages as attractive environments in which to live, work and shop, particularly their main streets. This should consider incentivisation and actions at Local Authority level and innovative ways to combine public and private sector finance. The delivery of the National Broadband Plan is pivotal for access to basic services in many of Ireland's towns and villages.

4. Education and Training

Embrace further and higher education and lifelong learning

Core funding per student at higher level has decreased detrimentally in the recent period and, in some institutions, laboratory equipment and other facilities have almost become obsolete. Inadequate resourcing undermines teaching, learning and research and the ability of our higher education institutions to be globally competitive. A sustainable funding model for higher education is urgently needed, including core funding, programmatic funding, infrastructure investment and industry-academic collaboration.

Science, Technology, Engineering, and Maths (STEM) skills are vital to achieving a knowledge-based, sustainable future for Ireland. Work on the implementation of the STEM Education Policy Statement 2017-2026 should continue, targeting: Increase by 20% the total students taking Chemistry, Physics, Technology and Engineering for Leaving Certificate; increase by 40% the number of females taking STEM subjects for Leaving Certificate; and building robust and sustainable partnerships between

schools, business and industry, public sector bodies, research organisations, further and higher-level institutions and the arts. The engineering industry is very willing to engage with young people (and their teachers) to help spark their imagination about engineering and to provide them with careers information.

A ready supply of engineers will be crucial for the delivery of Project Ireland 2040, Climate Action Plan, Housing for All and Future Jobs Ireland. However, the number of students moving into third-level engineering and technology sectors needs to be much larger to meet our country's current and future needs. For example, Civil & Building Engineering graduate numbers have fallen by more than 50% in the last five years. Almost all (94%) engineering employers consider a shortage of experienced engineers to be a barrier to growth. The National Skills Bulletin, which informs Government employment and education policy, recognises shortages in almost all engineering occupations. At the same time, there is a significant gender gap in the engineering profession and additional efforts should be made to encourage women to enter and remain in engineering.

In an era of digitalisation and rapidly-changing skills needs, lifelong learning is becoming increasingly important and should be promoted and supported. For example, on joining Engineers Ireland, all members make a fundamental commitment to ongoing self-improvement. It is this underpinning ethos – the professional obligation to learn – that is a decisive contributor to the credibility in society of the engineering profession. Lifelong learning should not only include new technical competences, it should explore skills in emotional intelligence, creativity, communication, ethics and leadership.

As the professional body for all disciplines of engineering, Engineers Ireland ensures that engineers are properly qualified, competent and maintain professional standards. However, recent Revenue guidance has restricted the qualification of professional subscriptions for BIK exemption, thereby disincentivising investment in, and promotion of, professional education and standards. The tax treatment for professional subscriptions should be restored to the Taxes Consolidation Act 1997 provisions. See [‘Building Ireland’s Future: The Role of the Professions’](#) for more information.

5. Enterprise and Innovation

Future-proof our economy by preparing for the future of work

The Covid-19 pandemic has highlighted the potential for technically enabled remote working and more balanced regional development. At the same time, it has served to highlight the potential costs of an increasing digital divide (regionally and/or between socio-economic groups; or within and between business sectors).

Data is the new asset in the digital economy and having secure reliable and fast access to this asset across the country will contribute positively to the economic development of all regions. Investment in telecommunications infrastructure, including broadband, 4G and 5G, is needed to support the exponential growth in data traffic associated with connected networks and the 'internet of things'. Fast broadband is pivotal for access to basic services in many of Ireland's towns and villages and will enable increased use of 'eHealth' and 'internet of farm'.

There is an opportunity to rethink and redesign our work environment post Covid-19 as a hybrid model of working at home and in the office may emerge. This could give renewed impetus to the towns and cities identified in Project Ireland 2040 that had been earmarked for future growth and development. A benefit of the hybrid model would be to encourage a rebalancing of the economy in our country across the regions.

For these reasons, a modern and accessible digital/broadband infrastructure is a foundational element of a modern economy and society, and not just something for specific sectors. The delivery of the National Broadband plan is key to economic and social development including more balanced regional development. Investment in digital infrastructure also enables the delivery of traditional infrastructure (housing, roads, public transport), supporting regional development, reducing congestion and improving quality of life. Integrated planning should consider the work environment post Covid-19 in a more holistic manner, and adapt our infrastructure investment to engineer a new future.

New connectivity and production technologies are ushering in a revolution in global manufacturing generally referred to as Industry 4.0 – the 4th Industrial Revolution. At the same time, new technologies such as Building Information Modelling (BIM) are disrupting the construction industry. These developments pose major challenges and opportunities for Ireland, in areas such as skills, research, enterprise and innovation.

The skills required to perform many jobs are transforming rapidly such that the demand for manual skills is falling while the need for analytical thinking and innovation continues to grow. The World Economic Forum have referred to a 'reskilling imperative'. In this context, it is positive to note Government's 'Technology Skills 2022: Ireland's Third ICT Skills Action Plan' which targets more than 47,000 graduates with high level ICT skills by 2022. Other policy initiatives include increases in the Training Levy, the €300m Human Capital Initiative and the Future Jobs Initiative.

To ensure that the Irish economy provides high-value employment and growing exports, investment and coordination is required in higher education, re-skilling and apprenticeships. Engineers, as technically competent professionals committed to ethical practice, lifelong learning and leadership, are well placed to help to future-proof our economy and society. Engineers Ireland will work with Government to ensure that engineers can lead in the innovative use of new technologies and take advantage of the digital transformation.



Engineers Ireland welcomed the Industry 4.0 Strategy 2020-2025 and we are committed to supporting its implementation for the benefit of the manufacturing industry, engineering profession and Ireland as a whole.

We believe that a national Industry 4.0 portal should be developed to provide information (targeting SMEs) on best practice, national infrastructure and available education and training. Also, research and development in higher education, private industry, and partnerships between the two should be incentivised.

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See overleaf.



Appendix 1. National recovery and budgetary approach

The pandemic highlighted the vulnerability of many of our economic, social and healthcare systems. The pandemic also demonstrated the agility of the nation to engineer dramatic improvements for the good of society, including innovation in healthcare technology and the built environment. As we focus now on the recovery, which is moving apace, and the eventual elimination of Covid-19 public health measures, enabled by a very successful vaccine rollout programme, we must build increased resilience into these systems for the future and transform our society for the better. There is a real opportunity now to make sustainability and climate action central to Ireland's recovery, to both reduce human impact on the environment while improving quality of life.

Capital investments are needed to stimulate economic recovery, however, these should be linked to achieving more medium-term and long-term strategic policy goals. In October 2020, Engineers Ireland published our State of Ireland 2020 report on infrastructure, advocating for a digital and green recovery. Appendix 4 overleaf, outlines its main recommendations.

There are three overarching trends which we recommend should be considered in a strategic approach to capital investment:

- a) **Climate action** will focus on the accelerated reduction in greenhouse gas emissions, supported by a statutory net zero target for 2050 and funding available through the European Green Deal. Engineers Ireland has called for a Green New Deal for Ireland to include energy system integration and achieving 70% renewable electricity, a seaport to support offshore wind development, a hydrogen strategy, a radical national retrofit strategy, re-engineering our transport system, active State land management, and multi-annual funding for water, wastewater and flood risk management. These areas should be reflected in a revised NDP. Communities must be at the heart of this transition, involved as early as possible and receiving clear benefits from infrastructure projects.
- b) **Digitalisation** is transforming how and where we live, work and learn. Engineers Ireland has called for a National Programme for Digital Transformation to set out a vision for an equitable, secure and sustainable transition to a digital society fuelled by data, the reusable raw material of the 21st century. This will require digital infrastructure such as the accelerated rollout of the National Broadband Plan and 5G, reinforced cybersecurity, and a digital-first public sector. This infrastructure would also support remote working and the continued expansion of an Industry-4.0-ready and sustainable manufacturing base. Digital tools (such as Modern Methods of Construction) will drive efficiencies in the capital programme, and we are strongly supportive of the work of the Construction Sector Innovation and Digital Adoption Group. Digitalisation can also enable balanced regional growth, enabling skilled workers to live outside the greater Dublin area.
- c) **Education and skills** are necessary to deliver the NDP, the Programme for Government and achieve a green and digital future. In particular, there are pressing shortages of engineers in many disciplines. Our higher education system needs a sustainable funding model to respond to current challenges and to prepare for longer-term transitions. A reskilling imperative meanwhile calls for a culture of lifelong learning ('digital skills' and 'human skills'), which professional bodies like Engineers Ireland can lead on and support through their Continuing Professional Development programmes. A nationwide digital literacy

programme can combat disinformation and foster the adoption of new technologies. New ways of learning, such as professional engineering apprenticeships, indicate a future path to fill skills gaps emerging for the sustainable recovery.

Engineers Ireland has been generally supportive of the Government's budgetary approach in recent years, which used an informed and strategic method to overcoming major challenges facing our society and economy. Budget 2022 should build on the progress made in previous budgets such as:

- Basing investment decisions on Project Ireland 2040 principles and objectives
- Delivering sustained increases in public capital investment
- Fully funding Departments' capital programmes for a 5-year period and funding Strategic Investment Priorities to their completion or to 2027

Appendix 2. Engineers Ireland response to key Government Policy Measures

- **Programme for Government**
- **The Climate Action and Low Carbon Development (Amendment) Act 2021**
- **National Recovery and Resilience Plan**
- **Summer Economic Statement 2021**

Engineers Ireland welcomed the [Programme for Government](#) published in 2020. Indeed, we had advocated for many of the measures for several years. In particular, we support the 'Recovery Fund' for 2020-2022 as a targeted stimulus to increase domestic demand and employment. One of the three elements of the Fund is 'Infrastructure Development': prioritising productive and labour-intensive capital investment projects focused on areas such as housing, retrofitting and public and active transport to directly assist and maintain employment, but support future employment.

The Programme for Government commits to a New Green Deal and a programme of climate action consisting of an acceleration of Ireland's carbon emissions reduction and five-year carbon budgets. We welcome the [Climate Action and Low Carbon Development \(Amendment\) Act 2021](#). Since July 2021, Ireland is now on a legally binding path to net-zero emissions no later than 2050, and to a 51% reduction in emissions by the end of this decade. The Act provides the framework for Ireland to meet its international and EU climate commitments and to become a leader in addressing climate change. As stated by Eamon Ryan, TD, Minister for Environment, Climate and Communications, on the signing of the Act by the President of Ireland:

"The extreme weather events around the world over the past month have shown us all that we must act quickly, to protect ourselves and our planet. Our immediate target of halving emissions by 2030 is challenging, but it is also an opportunity to transform our economy, create new jobs, protect our environment and build a greener and fairer future. We will all need to work together to achieve this, in renewable energy, active and sustainable travel, in business, agriculture and across Government. But the signal we are sending today is that now is the time for action."

The [National Recovery and Resilience Plan](#) 2021 (NRRP) is aligned with domestic policies such as the Economic Recovery Plan (ERP) and the ongoing review of the [National Development Plan](#) which will

set new five year rolling Departmental capital allocations and overall ten year capital ceilings out to 2030. Consistent with the NRRP, the priorities for the NDP include reform, sustainability, regional development, innovation and skills, and climate action. The first objective of the NRRP is to ensure that in the recovery from the impacts of the pandemic, Ireland introduces innovative and radical ways to decarbonise society.

Regarding education and training, a core function of Engineers Ireland, we also support improving awareness of STEM career paths beyond purely technical careers and examine the scalability of existing pilot projects to encourage diversity in STEM subjects in line with the [STEM Education Policy 2017-2026](#); developing a long-term sustainable funding model for Higher Level education in collaboration with the sector and supporting research and researchers; a National Digital Strategy, including further developing Ireland's leadership in new digital technologies including cloud computing, data analytics, blockchain, Internet of Things and Artificial Intelligence; and Increasing lifelong learning rates from 9% currently to 18% by 2025 and increasing the total number of new apprentice registrations to at least 10,000 per annum.

We appreciate and as stated in the [2021 Summer Economic Statement](#), that in calibrating the Government's budgetary strategy the current pressures on the public finances are not sustainable, But as Government seeks to reign in current spending, its intention is to protect capital spending. We welcome that capital investment will rise to €13.6 billion or 5% GNI by 2025. This is double the level in 2017, before Project Ireland 2040. Housing is a particular concern for our citizens and we welcomed the publication of the multi annual Housing for All Policy on 2 September with its focus on social and affordable homes, and in the coming period, the revised NDP to 2030.

Appendix 3. Engineers Ireland resources for public policy

All Engineers Ireland policy submissions including our Budget 2022 priorities are underpinned by our core policy values:

- Advancing the safety, health, and well-being of the public
- Promoting the principles and practices of sustainable development and the needs of present and future generations
- Leading rapid and transformational developments in digital and other technologies for the benefit of all
- Promoting knowledge and skills, professional standards, diversity, and public confidence in the engineering profession
- Acting with integrity, objectivity, evidence, authority, and transparency as an organisation

Our Budget 2022 priorities draw on our published Policy Resources here below such as *The State of Ireland* series and *Engineering barometer* series.

Protecting Biodiversity – the role of engineers (issues paper) 2021

https://www.engineersireland.ie/LinkClick.aspx?fileticket=7_YWTYmZ1NM%3d&portalid=0&resourceView=1

Engineering 2021: A barometer of the profession in Ireland

<https://www.engineersireland.ie/Professionals/News-Insights/Campaigns-and-policies/Reports/Engineering-barometer>

The State of Ireland 2020: Engineering a green and digital recovery

<https://www.engineersireland.ie/LinkClick.aspx?fileticket=g50i6d5KQZg%3d&portalid=0&resourceView=1>

Engineers Priorities for General Election 2020

<https://www.engineersireland.ie/LinkClick.aspx?fileticket=OfZwgT-zlBI%3d&portalid=0&resourceView=1>

The State of Ireland 2019: A review of housing and infrastructure in Ireland

<https://www.engineersireland.ie/LinkClick.aspx?fileticket=SHtzZx9nDDg%3d&portalid=0&resourceView=1>

The State of Ireland 2018: A review of infrastructure in Ireland (focus on water, wastewater and flooding)

<https://www.engineersireland.ie/LinkClick.aspx?fileticket=Ra5lZEwneb0%3d&portalid=0&resourceView=1>

The State of Ireland 2017: A review of infrastructure in Ireland (focus on transport and communications)

<https://www.engineersireland.ie/LinkClick.aspx?fileticket=TgRUScOZwdA%3d&portalid=0&resourceView=1>

The State of Ireland 2016: A review of infrastructure in Ireland (focus on energy)

<https://www.engineersireland.ie/LinkClick.aspx?fileticket=GGvThaGnM6E%3d&portalid=0&resourceView=1>

Industry 4.0: Manufacturing Industry in Ireland policy statement

https://www.engineersireland.ie/LinkClick.aspx?fileticket=sYqemAuM_Tk%3d&portalid=0&resourceView=1

Building Ireland's Future: The Role of the Professions

<https://www.lawsociety.ie/globalassets/documents/submissions/building-irelands-future-role-professions.pdf>

Appendix 4. The State of Ireland 2020 recommendations

Infrastructure for economic stimulus

1. To stimulate the economy and deliver much needed infrastructure, increase capital spending by €25 billion over the lifetime of the National Development Plan. This investment should be targeted at decarbonisation and aligned to the National Planning Framework.
2. Enact the following pieces of legislation to improve planning and project delivery:
 - Marine Planning and Development Management Bill 2020 to provide a planning regime for offshore renewable energy;
 - Water Environment (Abstractions) Bill 2018 to enable the Eastern and Midlands Region Water Supply Project;
 - Housing, Planning and Development Bill 2019 to speed up planning.

3. Ensure that critical State and semi-State bodies are sufficiently resourced to deliver the significant countrywide increase in infrastructure that is required over the next decade.
4. Increase the national procurement threshold for open tendering for works and works related services from €50,000 to €250,000.

A Green New Deal for Ireland

5. Implement the European Green Deal by accelerating greenhouse gas emissions reductions, enacting the Climate Action (Amendment) Bill 2019 for net zero emissions by 2050 and seeking funds through the European Green Deal Investment Plan.
6. Put communities at the heart of a sustainable recovery by involving local citizens as early as possible in the development of new infrastructure and ensuring local communities benefit directly from it.
7. Ensure the delivery of a low-carbon, reliable and resource-efficient energy system at the least possible cost for society in Ireland through energy system integration, including: direct electrification of end-use sectors, achieving the 70% renewable electricity by 2030 target, a hydrogen strategy for Ireland, and collaboration and public engagement.
8. Ireland's electric grid will need new system services, capacity and interconnectors to be developed as soon as possible to ensure Ireland continues as a world leader in renewable electricity integration, which will also support electrified heat and transport.
9. Urgently identify a seaport to support offshore wind development. The port will need sufficient port depth, quay length and storage space.
10. Actively manage public land, through the mechanism of the Land Development Agency and/or other means. Ensure there is a strong legislative framework and sufficient capacity to coordinate the development of State lands and to assemble strategic land banks from a mixture of public and private lands.
11. Develop and implement a radical national retrofit strategy, providing absolute clarity and a roadmap for retrofitting over the next 20 years. As well as improving the building fabric, this should include retrofitting the heating supply by replacing oil boilers with heat pumps in rural areas and gas boilers with district heating in urban areas.
12. Re-engineer our towns and cities for walking, cycling and public transport through 'hard' and 'soft' measures and by progressing major projects such as BusConnects, Metrolink, light rail systems and the DART Interconnector.
13. Provide multi-annual funding for the delivery of Irish Water's capital investment plan and for the delivery of the Flood Risk Management Plans.

A Digital Ireland

14. Adopt a National Programme for Digital Transformation setting out a vision for an equitable, secure, and sustainable transition to a digital society.
15. Accelerate the rollout of the National Broadband Plan and 5G mobile networks.
16. Adopt an all-island approach to physical, digital and social connectivity and support the development of connected digital enterprise hubs.

17. Legislate for a post-Brexit Common Data Space for the island of Ireland and prioritise its implementation so as to underpin the emergence of an all-Ireland data economy.
18. Review the security of the State's critical infrastructures and digital services and reinforce their protection from cyberattacks.
19. Accelerate public sector modernisation focusing on a digital-first culture with collaborative working practices, transparent processes and algorithms, and the sharing and reuse of data.

Education for a green and digital future

20. Introduce a sustainable funding model for higher education, including core funding, programmatic funding, infrastructure investment and industry-academic collaboration.
21. Increase the number and range of professional engineering apprenticeships through industry-led consortia and expand Skillnets to fill skills gaps for the sustainable recovery.
22. Invest in a culture of lifelong learning, targeting digital skills (such as data analytics, AI and cybersecurity) and 'human' skills (such as communications, management and critical thinking).
23. Launch a nationwide digital literacy programme to combat disinformation, to foster the uptake of digital technologies, to raise awareness of the abuse of personal data and to counteract the socio-economic and geographical digital divides which have been exacerbated by COVID-19.

ENDS