OPW OPENING STATEMENT

JOINT COMMITTEE ON CLIMATE ACTION

24th October 2018

I thank the Chairman and the Committee for the invitation to attend today and brief the members on the activities of the OPW with regards to climate action.

I would note that there are two areas of the work of the OPW that are particularly relevant to climate action, namely the **Estate Portfolio Management** (energy efficiency of our public building stock) and our **Flood Risk Management** function (adaption measures undertaken as a result of climate change)

Flood Risk Management

In relation to flood risk, projections indicate that climate change will have a considerable impact on flood risk in Ireland.

- A rise in mean sea level together with increasing storm frequency is already being observed and this upward trend is projected to continue into the future, increasing the risk to our coastal communities, infrastructure and assets.
- It is projected that the number of heavy rainfall days per year may increase, along with potentially wetter winters, which could lead to an increase in flooding from rivers and from urban flash floods when intense rainfall events overwhelm the storm water drainage networks.
- The projected wetter winters, particularly in the west of the country, could give rise to increased groundwater flooding associated with turloughs.

These potential impacts of climate change are likely to have serious consequences for Ireland, where our cities and most of our main towns are located either on the coast or alongside our estuaries or rivers.

While there is considerable uncertainty associated with many aspects of climate change, the OPW does take the potential for change into account in the development of flood risk management policies and strategies and in our design and implementation of flood risk management measures.

Under the remit of the National Climate Change Adaptation Framework 2012, the OPW in 2015 prepared a Flood Risk Management Climate Change Sectoral Adaptation Plan. That Plan summarised the relevant science on climate change and the current state of knowledge with regards to its impacts on flooding and flood risk in Ireland and outlined the flood risk management adaptation practice in Ireland at that time.

In May this year, the Minister of State for the Office of Public Works and Flood Relief, Mr. Kevin 'Boxer' Moran TD launched the Flood Risk Management Plans. These Plans are the final output from the National Catchment Flood Risk Assessment and Management, or 'CFRAM', Programme. This was the largest study of flood risk ever undertaken by the State and assessed the risk in 300 communities around the country that are home to approximately 3 million citizens; about two-thirds of our population and around 80% of the properties potentially at risk from our primary sources of flooding, namely rivers and the sea. While these 300 communities included all of our cities and almost all of our major towns, about half of the 300 areas studied were small, often rural, communities with a population of less than 2,000 people.

Key findings of the CFRAM Programme were that some 34,500 properties within the 300 communities have been identified as being at risk from a significant flood event, but that there is an economic basis to invest in flood relief schemes to protect 95% of these properties to the 100 year standard for fluvial schemes and the 200 year standard for coastal schemes. To do this we need to design and construct another 118 flood relief schemes, in addition to the 42 completed and 33 underway. Up to €1bn investment is required. This funding is committed by the Government through the National Development Plan to 2027. OPW is doubling its annual investment on flood risk management to €100m in 2021.

This ten year investment Programme requires careful planning and a prioritisation at the national level has been adopted - one that maximises the benefits delivered and supports all regions.

The CFRAM Programme and the preparation of the flood maps included the assessment of risk for two potential future scenarios taking into account the potential impacts of climate change, as well as for the current situation. These future scenarios include a rise in mean sea level of 0.5m and 1.0m and an increase in peak flood flows in rivers of 20% and 30% for the two scenarios respectively.

The flood maps for the 300 communities assessed under the CFRAM Programme, including the future scenario flood maps, were published in May this year through our publicly accessible web portal; www.floodinfo.ie, and are being made available to the local authorities and other stakeholders to inform the preparation of their Local and Sectoral Adaptation Plans. They can also assist with future planning decisions and emergency response planning.

The CFRAM maps compliment strategic flood maps that cover the entire coastline of the country that were prepared under the Irish Coastal Protection Strategy Study. These maps, which also include maps for the two potential future scenarios, are currently under review to take into account the most recent available observed data, and also the coastal wave environment.

The identification of the flood relief measures that are set out in the Flood Risk Management Plans included an assessment of their adaptability to these future climate change scenarios.

Since May together with the local authorities, the OPW has been moving into the detailed development and implementation of these 118 measures that includes further detailed assessment of adaptability for future climate change. Hence each scheme will be subject to an assessment within its particular context, and, as appropriate, provisions will be made in the design and construction of the schemes to cater for potential future changes.

The findings of the CFRAM Programme with respect to potential future risks and vulnerabilities, and ongoing engagement with the other Sectors to promote the cross-sectoral consideration of flood risk and flood risk management in adaptation planning, will inform the preparation by the OPW of a revised, statutory Climate Change Sectoral Adaptation Plan for Flood Risk Management in line with the requirements of the Climate Action and Low Carbon Development Act 2015 and the National Adaptation Framework published in January 2018.

While substantial work has already been done in assessing the potential impacts of climate change for flooding and flood risk, the OPW will continue to engage across sectors of Government and with the climate science research community to help inform and monitor the evolving state of knowledge with regards to climate change.

We will continue to review and extend our understanding of the potential impacts of climate change on flooding and flood risk across the country to inform the planning for adaptation in flood risk management measures, strategies and policies, but also to provide vital information to the local authorities and other sectors and stakeholders in their planning for adaptation. Through this work, the implementation of the non-structural flood risk management measures set out in the Flood Risk Management Plans, such as the development of a National Flood Forecasting Service and the investigation of natural water retention measures, and in evaluating the adaptation requirements for the €1bn programme of flood relief schemes we are now embarking upon, we are working with our partners to enhance the adaptive capacity within Ireland with regards to flooding and flood risk.

Estate Portfolio Management

The role of the OPW in property is largely focused on providing property solutions to central Government Departments and other State organisations.

In 2009, as part of the EU's 2020 climate & energy objectives, Ireland set a 2020 national target of 20% for improvements in energy efficiency. While the overall national target was set at 20%, Ireland chose to set a more ambitious target of 33% for improvements in energy efficiency within its own public sector. The purpose of setting a more challenging public sector target is to demonstrate leadership on energy efficiency for the whole of our economy and society.

The '*Public Sector Energy Efficiency Strategy'*, published by the Department of Communications, Climate Action and Environment in 2017, sets out the very significant achievements of the Irish public sector to date in improving its energy efficiency with savings of 21% reported in 2016 . However the report also identifies a need for a "step change in activity" to reach the Government's target of 33% by 2020.

The built environment contributes significantly to total energy use, in the region of 40% of the overall. The savings reported for the public sector to date are a considerable achievement. A significant proportion of these savings have been realised through

behavioural change, the elimination of energy waste and low cost capital projects. There is however, a finite limit on how much can be achieved by these measures and once reached, capital investment is necessary to make further savings, particularly in areas such as larger scale projects including Nearly Zero Energy new build and deep retrofit of existing buildings

The OPW manages one of the largest Property portfolios in the State providing and sourcing accommodation for Central Government Departments, Agencies and the Gardaí. We provide in-house technical expertise to our clients with regard to the design, construction, purchase, leasing and maintenance of their buildings. The organisation has taken a lead role over many years in assisting our clients to maximise energy efficiency and in the identification and implementation of energy retrofit projects.
The OPW devised and implemented a staff energy awareness programme called "Optimising Power@Work" in our portfolio of buildings. The level of engagement from staff has been exceptional and considerable savings have resulted with relatively low level of investment.

The majority of the existing inherited buildings in the OPW's portfolio provide accommodation for the Central Government Departments, Agencies and the Gardaí, but there are also specialist facilities such as Data Centres, Laboratories, Museums, etc. A good indication of the overall energy efficiency of these existing buildings can be found from analysing the Operational BERs (Display Energy Certs). The vast majority (79%) have a rating of a 'C' (42%) or 'D' (37%). On the upper end of the scale, only 10% have a 'B' rating or better and on the lower end 11% have an 'E' rating or worse. The majority of the poor performing buildings have exceptional electrical loads (large data centres) or are historic properties.

Although the main concentration of the OPW's energy conservation efforts has been in the Central Government portfolio, in recent years we have expanded our energy efficiency services to the wider public sector. This programme is intended to repeat the success of "Optimising Power@Work. The Department of Communications Climate Action and Environment have funded this work. We are actively working with public sector organisations including the HSE, third level institutions, the Irish Prison Service and Local Authorities.

The OPW has developed a 3 step process with regard to increasing the energy efficiency in our building portfolio:

Step 1: Behavioural Change, Elimination of Waste and Optimisation of Existing Controls

The OPW has achieved average energy savings of approximately 18% through the Optimising Power @ Work behavioural change campaign in Central Government buildings. Launched in 2008, this campaign operates in 280 large Central Government buildings, covering approximately 80% of energy usage across OPW's property portfolio. The main focus of the programme is to encourage behavioural change of building occupants, optimising existing control systems and eliminating energy wastage. The three fundamental elements of the campaign are:

- Technology: availability of real time energy reports from energy monitoring equipment installed in each participating building
- Specialist Resources: energy specialists working with energy teams in each building
- Staff Engagement: active energy teams operating in each building

In 2014, the Department of Public Expenditure and Reform and the Department of Communications, Climate Action and Environment provided €9M funding to expand the programme into the wider public sector. OPW are leading the campaign, however, the service requirement is largely outsourced to specialist private sector companies. The public sector campaign is now operating in Large Acute Care Hospitals (16 No.), Universities (2 No.), Institutes of Technology (5 No.), Local Authorities (10 No.), Prisons (9 No.), Specialist Facilities (5 No.), HSE Estates Administration Buildings (3 No.)

Step 2: Upgrading of Mechanical & Electrical Systems

There are significant energy savings to be achieved by upgrading existing mechanical and electrical systems, particularly in older buildings. Most buildings will benefit from upgrading of existing lighting systems, boilers and controls. These interventions can be

carried out with minimum disruption to the normal operation of the occupants. Typical savings of 8%-10% can be expected, with payback periods of 8-12 years.

In 2017, the Department of Communications, Climate Action and Environment (DCCAE) provided €3.5M in funding for an energy efficiency retrofit pilot programme in central government buildings. The programme was a joint venture between DCCAE, Sustainable Energy Authority of Ireland (SEAI) and OPW. Last year 11 large buildings were upgraded (mainly lighting and controls projects). In 2018, funding has been increased to €9.5M and energy retrofit works are currently underway in 33 large buildings. This year's retrofit programme includes boiler upgrades, control system upgrades and some fabric upgrades. These retrofits will lead to significant electrical and thermal fuel savings. The OPW will closely monitor the levels of savings achieved through the existing Monitoring & Targeting System.

In addition to the above DCCAE through SEAI has also provided €1M funding for a pilot energy works programme in a selection of smaller buildings. As part of this initiative, there are currently fabric, lighting and boiler upgrades being carried out in 28 smaller Central Government buildings.
Substantial energy savings are being achieved in the buildings that were retrofitted during 2017. Typically, electrical usage on lighting has been reduced by 60% - 70%, with overall electrical loads in the buildings reduced by 20%-40%.
In order to meet the Government's public sector energy targets, substantial investment, to expand the energy retrofit programme into all large buildings within OPW's portfolio during 2019 and 2020, will be needed.

Step 3 Deep Retrofit

Deep Retrofit is a combination of major fabric upgrades and M&E systems upgrades. Such works yield very significant reductions in energy usage. In effect, it involves stripping the building back to the bare structure and installing very high performing insulation and glazing systems, improving air tightness and installing high efficiency mechanical and electrical services. It is not practical to carry out these works while buildings are occupied. This type of intervention is only considered where it is opportune i.e. the building is being vacated. The OPW has a number of buildings in the project pipeline that will be suitable for deep retrofit such as Tom Johnson House and 22 Clare Street, both office refurbishments.

Conservation and Restoration

A key part of the States portfolio relates to the heritage sites, buildings, parks and gardens within our care. The conservation and restoration works within these sites are undertaken with an emphasis on both conservation standards and energy conservation.

The ability to upgrade the energy efficiency of a historic structure whilst maintaining the appropriate conservation standards can be seen in recently completed projects such as the refurbishment works to Government Buildings South Block.

New Build

The Energy Performance of Buildings Directive requires Member States ensure that after 31st December 2018, all new buildings occupied and owned by public authorities, are Nearly Zero Energy Buildings (NZEB). The Directive provides that the public sector must lead by example in this regard. Revised Irish Building Regulations, Part L, for Buildings other than Dwellings were published in 2017. However, in order to satisfy the requirement that after 31st December 2018, all new buildings occupied and owned by public authorities are NZEB, an Interim Public Sector Performance Specification was published on 1st January 2017. This involved the Department of Housing, Planning and Local Government (DHPLG), OPW and SEAI working together to formulate this Specification.

The OPW is currently designing all new buildings to be NZEB standard. Considerable work is being carried out by our design teams to ensure compliance with the new requirements especially with regard to on-site renewable technologies e,g, photovoltaics, heat pumps, solar thermal, etc. The OPW has worked closely with the DHPLG in the development of the new 'Technical Guidance Document Part L - Conservation of Fuel and Energy - Buildings other than Dwellings'.

OPW has maintained a long standing tradition of building design based on sustainability and energy efficiency, from the publication of *'Green Design; Sustainable Building for Ireland'* in 1996 to the recent completion of a number of building programmes. These programmes include seven courthouse projects across the country, three large scale Garda divisional / regional headquarters buildings and the OPW schools programme all of which achieved BER rating of A3. Moving forward, under the National Development Plan 2018 – 2027 the OPW is charged with the delivery of a number of large scale building projects, the design and construction of which will require compliance with the NZEB standard, in particular:

- Forensic Science Laboratories at Backweston Campus, Co. Kildare
- Garda Security and Crime Operations Centre, Military Road, Dublin 8
- Lesson Lane Office Development

These projects are currently at the detailed design phases and have incorporated into the architectural design the required strategies to ensure compliance with the NZEB standards.

Summary

The OPW has completed under the National CFRAM Programme a detailed assessment of current, and potential future, flood risk for two-thirds of the population, including of our cities, towns and villages at potentially significant risk, and are implementing a one-billion Euro programme of investment in flood relief schemes to protect people and property both now and for the future, taking account of the increases in flood risk that climate change can bring. In parallel, we will continue to build both our depth and scope of understanding of potential future flood risks, and will work with our partners and stakeholders to enhance our adaptive capacity against such risks.

The OPW is playing a leading role in Ireland's compliance with public sector targets by ensuring that buildings within the portfolio managed by OPW are designed to comply with energy efficient standards.
There has been substantial work done to date with regard to energy efficiency in Central Government buildings. Significant savings have been achieved and the OPW will continue to work with our clients to help them maximise their energy efficiency. To continue to make these improvements a significant capital investment to retrofit the remainder of the OPW's building stock will be required.