

# DÁIL ÉIREANN

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## AN COISTE UM CHUNTAIS PHOIBLÍ

## COMMITTEE OF PUBLIC ACCOUNTS

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*Dé Máirt, 5 Samhain 2019*

*Tuesday, 5 November 2019*

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The Committee met at 7.10 p.m.

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### MEMBERS PRESENT:

Deputy Bobby Aylward,	
Deputy Peter Burke,	
Deputy Shane Cassells,	
Deputy Catherine Connolly,	
Deputy David Cullinane,	
Deputy Alan Farrell,	
Deputy Alan Kelly,	
Deputy Marc MacSharry,	
Deputy Catherine Murphy,	
Deputy Kate O'Connell.	

DEPUTY SEAN FLEMING IN THE CHAIR

## 2018 Annual Report of the Accounts of the Public Services

### Chapter 9 - Greenhouse Gas-Related Financial Transactions: Discussion

**Chairman:** Apologies have been received from Deputy Imelda Munster. We will take the normal business of the committee at Thursday's meeting. The Comptroller and Auditor General Report on the Accounts of the Public Services 2018 includes a chapter on greenhouse gas-related financial transactions. Ireland has a number of targets related to climate change that it must meet and there are potential financial consequences for not meeting these. Ireland has not met its targets since 2013 and has spent €121 million purchasing carbon credits to date to comply with these obligations. The Department of Communications, Climate Action and Environment estimates that a further €2 million to €14 million will need to be spent up to 2020 in this regard.

In its Periodic Report No. 6, this committee addressed the failure of the Department of Communications, Climate Action and Environment to reach targets relating to carbon emissions and renewable energy. Today, we have invited before us representatives from the Central Statistics Office, CSO, and Economic and Social Research Institute, ESRI, to discuss research they have carried out and published relating to carbon taxation and measures taken that have affected carbon emissions. We have noted this in recent months. We are not trying to decide policy but rather ascertain whether those already implemented are having a positive effect or otherwise.

Three research papers have been circulated to members: Fossil Fuels and Similar Subsidies from the CSO; Carbon Taxation in Ireland: Distributional Effects of Revenue Recycling Policies, which is an ESRI special article; and The Economic and Distributional Impacts of an Increased Carbon Tax with Different Revenue Recycling Schemes, an ESRI research paper published in October. Today's meeting will help inform the committee and we will have a meeting with representatives of the Department of Communications, Climate Action and Environment on 19 November, which is in two weeks. We will meet representatives of the Revenue Commissioners on 28 November and we can raise issues relating to carbon tax collection.

I welcome our witnesses. From the CSO there is Mr. Paul Morrin, assistant director general, and Mr. Gerry Brady, senior statistician; and from the ESRI we have Dr. Aykut Mert Yaku and Dr. Miguel Tovar Reaños, research officers. I thank them for coming before the committee this evening on a voluntary basis to discuss their research. This is unlike other meetings, when we have Accounting Officers who are obliged to be present. We wanted the witnesses to assist us in our work such that when we meet the Accounting Officer, we will have a good volume of information. We are not experts in the area so we thought a meeting with the witnesses would be helpful in informing us in our subsequent meetings.

I remind members and witnesses, as well as those people in the Gallery, that all mobile phones should be switched off or put in airplane mode. Merely putting phones in silent mode can still lead to them interfering with the recording system.

I wish to advise witnesses that by virtue of section 17(2)(l) of the Defamation Act 2009, they are protected by absolute privilege in respect of their evidence to this committee. If they are directed by the committee to cease giving evidence on a particular matter and they continue to do so, they are entitled thereafter only to qualified privilege in respect of your evidence. They

are directed that only evidence connected with the subject matter of these proceedings is to be given and they are asked to respect the parliamentary practice to the effect that, where possible, they should not criticise nor make charges against any person, persons or entity by name or in such a way as to make him, her or it identifiable. That is a standard warning read at every meeting and it is not specifically directed at today's witnesses. It is routine.

Members of the committee are reminded of the provisions of Standing Order 186 to the effect that they shall refrain from inquiring into the merits of a policy or policies of the Government or a Minister of the Government or the merits of the objectives of such policy. While we expect witnesses to answer questions asked by the committee with candour, we should remember to treat witnesses with courtesy. We have received opening remarks for today's meeting and these can be noted and published.

**Mr. Paul Morrin:** I thank the Chairman for giving the CSO the opportunity to address the committee. The first two paragraphs of the opening statement are for the official record.

We have been invited to discuss the research paper, Fossil Fuel and Similar Subsidies, but this is part of a wider Irish and international context for environmental statistics. I will briefly describe this context before describing the research paper in some detail. The United Nations system of environmental economic accounting, SEEA, is a statistical system bringing together economic and environmental information to a common framework to measure the condition of the environment, the contribution of the environment to the economy and the impact of the economy on the environment. The SEEA contains an internationally agreed set of standard concepts, definitions, classifications, accounting rules and tables to produce internationally comparable statistics.

The statistical office of the European Commission, EUROSTAT, has developed a series of mandatory and voluntary environmental accounts modules based on the SEEA. The CSO publishes a broad range of statistical releases on the EUROSTAT SEEA modules and other areas of environment statistics. The releases most relevant to the committee's recent discussions, in addition to the research paper, Fossil Fuel and Similar Subsidies, relate to environmental taxes, environmental subsidies and similar transfers, environmental accounts air emissions and domestic building energy ratings, BERs.

The following sections provide a brief summary of the research paper and the relevant official environmental releases. I will first deal with the research paper.

**Chairman:** Before he continues, will Mr. Morrin explain the term "similar subsidies"?

**Mr. Paul Morrin:** In this context, similar subsidies have an environmental element. The spread relates to various domains that are not to do with fossil fuels. It includes the agricultural sector and such. The key issue is that there is an environmental impact.

**Chairman:** The subsidies Mr. Morrin is talking about are connected with fossil fuels.

**Mr. Paul Morrin:** Fossil fuels and similar subsidies, which go beyond fossil fuels.

There is a fair bit of detail in my statement. I will try to be brief. Fossil fuel subsidies are a sustainable development goal, SDG, indicator. The rationale behind the SDG indicator 12.c is to reduce "inefficient fossil-fuel subsidies that encourage wasteful consumption" by restructuring taxation to reflect environmental impacts. A UN environment report recommended that data for the SDG indicators should be compiled using a combination of direct transfers, price

supports and tax expenditure, which is consistent with the approach followed by the CSO in its research paper.

Data on direct supports were mainly obtained from Government appropriation accounts, the annual accounts of Government Departments and agencies and through direct requests to a Department or organisation. Indirect supports are also known as tax expenditures. A tax expenditure is defined under Irish legislation as a transfer of public resources that is achieved by either reducing obligations with respect to a benchmark tax or provisions of tax legislation that reduce or postpone revenue for a comparatively narrow population of taxpayers relative to the tax base. Tax expenditures are defined relative to a system of benchmark taxes. The reduced excise duty on auto diesel is compared with that for petrol. Data on tax expenditures were obtained from Revenue or estimated using information from Revenue.

The CSO estimated that the total amount of fossil fuels and similar subsidies in 2016 was €4.1 billion, comprised of €2.5 billion of fossil fuel supports and €1.6 billion of other supports. The fossil fuel supports comprised €534 million of fossil fuel subsidies and almost €2 billion in indirect fossil fuel supports in 2016. It is broadly recognised that, aside from the environmental impact, these supports can have important social and economic purposes while being detrimental to the environment. For example, agricultural subsidies accounted for €1.5 billion of the €4.1 billion total in 2016 but are recognised as important supports for the rural economy. That is the key category that the Chairman is talking about.

EUROSTAT is developing a new module on potentially environmentally harmful subsidies. The new module builds upon work done by the United Nations, the Organization for Economic Co-operation and Development, OECD, the International Energy Agency and the International Monetary Fund. The work undertaken by the CSO to date in this field of study is a work in progress and, for that reason, it was published as a research paper. When the methodology for the new EUROSTAT module has been finalised, the CSO will review the approach taken in the research paper to ensure that our methodology is consistent with the EU requirements being developed by EUROSTAT in consultation with member states, including Ireland.

The legal basis for the environmental taxes statistical release is included in the statement. Environmental taxes are levied on something that has a proven specific negative impact on the environment. Examples include the plastic bag levy, the vehicle registration tax and the carbon tax. Some €235 million was collected under the carbon tax in 2010, which increased to €431 million in 2018. Total environmental taxes in 2018 were just over €5 billion and constituted 7.1% of the total amount collected under all taxes.

The carbon tax and carbon credits are both classified as environmental taxes. The CSO uses various data sources to disaggregate these taxes with the NACE industrial classification, which includes households as an additional sector. In the period from 2010 to 2018, €33.5 billion was collected from both carbon taxes. The Revenue Commissioners publish the amount of carbon taxes collected for each fuel. In 2018, 42% of carbon taxes were collected for road transport diesel and 11% of carbon taxes were for petrol, so road transport accounts for 53% of the total. Kerosene accounted for a further 14%, marked gas oil for 13%, natural gas for 12% and solid fuels for 6%.

The environmental subsidies and similar transfers release is compiled in accordance with EUROSTAT methodological guidelines. The module has not yet been included in the EU regulation. Environmental subsidies are intended to support activities that protect the environment or reduce the use and extraction of natural resources. Examples include the capital investment

plan for wastewater treatment and the organic farming scheme. Total environmental subsidies paid in 2017 were €895 million. Production of energy from renewable resources accounted for 32% of the total paid out. Wastewater management accounted for 26%, protection of biodiversity accounted for 23% and heat and energy saving subsidies for 9%.

The legal basis for the environmental accounts air emissions statistical release is provided in the statement. The CSO obtained the air emissions inventories data from the Environmental Protection Agency and disaggregate them by NACE sector as required by EUROSTAT. In each of the years from 2007 to 2016, households accounted for between 22% and 24% of total greenhouse gas emissions. In absolute terms, household emissions decreased from 15.4 million tonnes of carbon equivalent in 2008 to 12.7 million tonnes in 2014 before increasing to 13.5 million tonnes in 2016.

The final release that I will describe is the domestic building energy rating statistical release. The Sustainable Energy Authority of Ireland provides the CSO with a file containing the details of all domestic building energy rating audits and the CSO publishes them quarterly. Around half of the total number of dwellings in the State have had a BER audit but the requirements of the scheme mean that some types of dwellings are under-represented, such as older rural houses that are not being sold or rented. The BER data show how ratings vary by county, period of construction, type of building and the type of main space heating fuel. Counties Longford, Offaly, Westmeath, Tipperary, Leitrim, Mayo, Roscommon, Sligo, and Cavan have the highest proportions of G-rated dwellings, which is the lowest category. An analysis of the BER ratings for households using peat as their main space fuel shows that 42% had a G rating. The proportion of G ratings for other solid fuels were lower, at 29% to 38%.

**Chairman:** I thank Mr. Morrin. We will have opening remarks from Dr. Tovar Reaños and Dr. Yakut.

**Dr. Miguel Tovar Reaños:** I thank the committee for the opportunity to discuss our research. I work for the ESRI in the area of energy and environment. I am the lead author of the ESRI paper, Carbon taxation in Ireland: distributional effects of revenue recycling policies. The study was funded by the ESRI's energy policy research centre. It shows that a well-designed carbon tax and revenue recycling mechanism could reduce emissions and alleviate income inequality. Consequently, this research finds that environmental and distributional policy goals are not necessarily in conflict if the policy is designed appropriately. The model does not consider the economy-wide effects that will happen if taxes are changed. This part of the research is discussed by my colleague, Dr. Mert Yakut.

When simulating a carbon tax increase of €30 per tonne, we estimate that carbon emissions would fall by 3.9%. A tax increase of €80 per tonne would yield a 10.2% reduction in emissions. We use data on household expenditure and income and statistical methods to simulate the mix of products that people would buy once a carbon tax was applied. For additional taxes of €30 or €80 per tonne, we estimate that on average, each household would pay €2.70 or €6.80 more per week, respectively. While reducing emissions, an additional carbon tax is found to disproportionately affect low income households. Poorer households spend a greater proportion of their income on energy, and therefore on carbon tax, than richer households. This negative distributional effect can be corrected by returning some of the additional revenue to households using a recycling mechanism. The study shows that if revenues were recycled in a manner that targets poor households, inequality would be reduced. The study also estimates the distributional effects of allocating the additional revenue equally across households as a carbon cheque would do. For additional taxes of €30 or €80 per tonne, this mechanism brings



a smaller reduction in income inequality than the targeted mechanism. In addition, a carbon cheque mechanism implies additional administrative costs.

We use individual level data on household expenditure and income from the Central Statistics Office. In addition, we use data on commodity prices from the same source. This study focuses on household consumption behaviour under different scenarios of changes in prices and income.

**Dr. Aykut Mert Yakut:** I thank the committee for this opportunity to present our research. I am a research officer working in the energy and environment modelling group at the ESRI. My colleagues and I are analysing the economic and environmental impacts of climate change policies. In October 2019 we published a report entitled, *The Economic and Distributional Impacts of an Increased Carbon Tax with Different Revenue Recycling Schemes*. The committee has invited me to discuss the results presented in the report. It examines the distributional impacts of an increased carbon tax with different revenue recycling schemes. A revenue recycling scheme is a policy option designed to eliminate or at least lessen the negative consequences of a tax increase by using the revenue raised. The climate action plan proposes that the level of the carbon tax should reach €80 per tonne of CO<sub>2</sub> emissions in 2030. In a trajectory of an incrementally increasing carbon tax, the report compares ten revenue recycling scheme options. The results indicate that total emissions will continue to grow over time owing to economic growth and an increase in population. The suggested increase in the carbon tax will be helpful to Ireland in reducing its emissions, but it will not be sufficient on its own to meet the country's legally binding targets for non-emissions trading system, ETS, emissions in 2030. The strong economic growth profile of the economy will be marginally affected. In the case of no recycling of carbon tax revenues, the annual average growth rate of real gross domestic product will drop from 3.3% to 3.288%. In this case, on the other hand, household income and public fiscal balances deteriorate most among considered revenue recycling schemes.

Using carbon tax revenues to reduce other taxes such as sales, wage or corporate taxes can reduce the macroeconomic impacts of a carbon tax increase and lead to increases in household income but they often result in disproportional effects on poorer households. In other words, an increase in carbon tax has regressive impacts. Returning carbon tax revenues to households in the form of transfers can, however, significantly reduce the regressive impacts at the expense of poorer macroeconomic performance. Rural households face higher and regressive increases in consumption prices than urban households. In urban areas, however, middle income households face the highest price impacts. Carbon-intensive production sectors such as transport and mining will be hit the hardest by a carbon tax increase. In contrast, low carbon-intensive sectors such as the accommodation sector can benefit from a carbon tax increase.

**Chairman:** I thank the witnesses. I must acknowledge that their opening statements were very brief. It is a very comprehensive report and some of the findings are very technical. I got frightened when I saw the mathematical formulae by which some of the figures were calculated.

Deputies Catherine Murphy and Cullinane have indicated in that order. We do not have a set order of speakers. Members should indicate if they wish to comment.

**Deputy Catherine Murphy:** I thank the witnesses for their reports. There has been a carbon tax in Ireland since 2010, but until next year it will have never stood alone. Instead the revenue raised has been included in central funds. It has been announced that from next year the revenue raised by way of the increase in the carbon tax, as opposed to the full amount, will be ring-fenced. Is there any relationship between using carbon tax revenue wholly and demon-

strably for climate change purposes and changes in behaviour? Is there any such information available? How can channelling the revenue into central funds help to change behaviour, or can it?

**Dr. Miguel Tovar Reaños:** In the empirical literature carbon taxes have been shown to be the most cost-effective way of changing behaviour to reduce the consumption of polluting commodities. The literature also shows that the use of revenue raised through these taxes should be transparent in order that people will accept their imposition. These considerations should come together in the implementation of such a policy.

**Deputy Catherine Murphy:** Let us suppose that transparency is lacking. There is a ring-fenced fund of €410 million, but it will be more than €500 million next year. Is it fair to say that if this revenue was to be used to fund a retrofit scheme or a pay-as-you-save scheme, it would have a different effect from using it as part of general taxation?

**Dr. Miguel Tovar Reaños:** Carbon taxes have been applied in different ways throughout Europe. For example, in some cases Nordic countries use the revenue for general purposes. These countries have the highest rates of carbon tax in Europe. In other countries such as France the revenue raised has been used to subsidise retrofitting schemes and the like, as mentioned by the Deputy. It really depends on the existing level of inequality in the relevant country and the level of transparency in the setting of the taxes. In general, our research shows that economic inequality is created if a tax is imposed on commodities such as fuel for transportation or heating and the money raised is not returned to people. Some households depend more heavily on these fuels, for example, those living in older houses or rural areas. It is important to return some of the revenue to protect poorer households and compensate for the regressive effects of commodity taxation.

**Deputy Catherine Murphy:** At what point will the median household start to pay carbon tax, rather than benefit from transfers?

**Dr. Miguel Tovar Reaños:** Our research shows that poorer households spend more on energy and pay more in taxes in proportion to their income. We show that if some of the revenue was used to protect those in the lowest deciles of income distribution, the policy would work well enough. We must also distinguish between rural and urban areas. There is an income and a geographical dimension.

**Deputy Catherine Murphy:** I do not see the UN sustainable development goals mentioned. Does the policy reflect those goals and take account of poorer people? My understanding was that an acknowledgement of the need to do this was built into the system in order that carbon taxation would not be punitive. Is that a fair representation?

**Mr. Paul Morrin:** The sustainable development goals are supposed to be comprehensive. They cover all aspects of people's lives. There are supposed to be subdivisions of the goals, but the high level indicators for many of the goals are still being developed, including for fossil fuel subsidies. The aim is to break them down as much as possible to assess the impact on people's lives.

**Deputy Bobby Aylward:** I wish to follow the same line as the previous speaker. Is increasing the carbon tax the only way to coerce people to live environmentally friendly lives? Is increasing taxes all the time to change people's bad fossil fuel habits the only way forward the witnesses can see? Do they have any alternative way to get people to move from fossil fuels

such as diesel, petrol and coal? Are there other incentives that could be offered besides hitting them with an increase in the carbon tax all the time? Excise duty is levied on petrol and diesel to keep the country running and we are adding more and more. How can we compensate the people mentioned by the previous speaker, the marginalised and the poor, who do not earn high wages or are in receipt of social welfare payments? How are we going to compensate them? Those on a big wage or who have money can afford all these taxes and to live the same kind of lifestyle they have been living because they have extra money, but the people who are caught are the marginalised, who are barely surviving from week to week. All these taxes will hit them more. It is getting harder for them to survive. The Government is saying it will compensate them in a certain way, but I believe that, at the end of the day, they will still lose out. I have a general question. Is there any other way of getting people to change their habits besides imposing tax after tax?

**Dr. Aykut Mert Yakut:** Price is one of the basic determinants of the consumption decisions of consumers. If the price of a commodity increases, we expect the consumption of that commodity to decrease. On other options, transportation may be electrified, for example, and electricity can be produced from more renewable sources. This is also an option, but there is an investment cost. People can change their heating system at home, but this also involves a cost for the households or the Government. Someone must cover the cost. Increasing carbon tax works in two ways. It disincentivises the use of fossil fuel related commodities while at the same time collecting revenue to finance investment to change the way of doing business in the country. Otherwise, a government must find some fund from somewhere else or cut other expenditure to finance all the expenditure in question. Therefore, there is another political economy issue.

**Deputy Bobby Aylward:** We have an old saying that a small feather can break the camel's back. For how long can carbon taxes be raised before the camel's back is broken? Are we going to continue to raise taxes and leave people behind? That is all I am trying to get across. I am wondering whether there are incentives other than taxes to change habits.

**Mr. Gerry Brady:** Mr. Morrin mentioned environmental subsidies. They amounted to €895 million in 2017. Retrofitting and such action would result in lower emissions and lower energy use. A very positive way to improve the environment is to have a scheme specifically designed in this regard.

**Deputy Bobby Aylward:** What kind of time span are we talking about for the retrofitting? How many years are envisaged before there is a full retrofitting system in place allowing every household, including those in rural areas, to be retrofitted? We are talking about ten, 15 or 20 years, perhaps. Am I right?

**Mr. Paul Morrin:** We only produce the statistics. That is beyond our remit. Obviously, it is a huge task.

**Deputy Bobby Aylward:** Have the witnesses a time span for rolling it out?

**Mr. Paul Morrin:** It depends on the funding available, I guess.

**Deputy Bobby Aylward:** We are talking about 20 years plus.

**Mr. Paul Morrin:** That is the situation.

**Deputy Bobby Aylward:** That is facing reality. The alternatives we are talking about are



solar and wind farms, in particular. Especially in the middle of the summer, there may be no wind. There might be sun. No matter what kind of system is put in place, there will be times, perhaps based on seasonal factors, when we will be short of energy because the turbines will not be turning. We still have to have an alternative, such as fossil fuels, including diesel or coal. For what percentage of the year can we depend on renewables? When will we have to go back to the system we have in place now? Are there statistics on that?

**Mr. Gerry Brady:** The contribution from renewables is increasing all the time.

**Deputy Bobby Aylward:** I know that.

**Mr. Gerry Brady:** In winter, when people need heating, there tends to be more wind. As the Deputy mentioned, it is a slow process. The contribution from renewables should keep climbing over time.

**Deputy Bobby Aylward:** Does Mr. Brady see a day coming when we will be completely dependent on renewables and self-sufficient?

**Mr. Gerry Brady:** It is possible. One may have to fall back on natural gas, which may not be as polluting as other fossil fuels. There will be variability throughout the year. A mix of fuels is needed to be able to manage when that happens.

**Deputy Bobby Aylward:** I will come to agriculture but I want to ask another question first. We have targets set but we are not reaching them. We are not even reaching halfway. I cannot remember exactly what reduction is required by 2030. Do the witnesses see us reaching the target or getting anywhere near it in the next ten years? Will we be behind every year and paying a penalty to Europe every year for being in breach? Will the witnesses give us an idea as to when we will actually catch up regarding our emissions reduction targets?

**Dr. Miguel Tovar Reaños:** First, if the carbon tax were increased by €80 per tonne, there would be a reduction in emissions of almost 11%. One could do nothing and pay charges for doing nothing. At the end of the day, a price has to be paid for the carbon generated in the economy, so if a carbon tax is created, it means there is some revenue that can be used to compensate poor households or invest in renewables or other kinds of green initiatives. The options are quite clear. We have to reach the targets. The instruments that exist are established and clear around the world, including Europe. Carbon taxation is a policy used throughout the world now. As far as we can see, those are the options. We either create policy instruments that can give some extra money or revenue or we just pay the fees, which will be just throwing money into a hole.

**Deputy Bobby Aylward:** I come from an agricultural background. I am still involved in agriculture. I was this morning, anyway. Agriculture is blamed for 30% of the greenhouse gas emissions but we have a great product here – a green grass product that is naturally produced. Forests are being burned in the Amazon at the moment just to create land. While the policy is probably coming from Europe, we are to import from the South American countries. First, those countries have to burn off the land and produce grass on it. We have a natural product here. There is an emissions cost in South America. The finished product there – we are talking about beef – has to be loaded and brought across the whole Atlantic to Europe. Where is the common sense? Where are the policies on all this? We are able to produce beef here naturally. I am talking about farming here and keeping our own industry going. Comparing like with like, what is happening does not make sense to me. It is a lot of nonsense to say we should cut

back on what we are producing, 90% of which we export, while bringing in beef from South America. What will be the cost to the environment? Will we have to burn forests to do it? We will have to drag the product half way across the world on the Atlantic Ocean, presumably on diesel-powered ships.

With regard to agriculture, we are not getting enough credit. I am an active farmer. We have green grass and are getting no credits for the grass we are producing, which is a natural product coming out of the ground. We are getting no credits for hedgerows. I bought a new machine two years ago just to trim our hedges and to keep the environment right for biodiversity or wildlife, including birdlife. We are maintaining the hedgerows, yet we are being penalised for producing 30% of the emissions, or so we are told. We get no credits for what we are doing. Should this not be recognised in Europe or among the powers that be? We should be getting credits for maintaining biodiversity, maintaining our hedges and maintaining our growth, in addition to ensuring road safety and maintaining ditches. As a farmer, I believe we are getting an unfair deal through the system and in the way the system is being reported and the statistics are being made up. That is only an opinion. I will ask about this when I get the opportunity. Farmers are getting a raw deal. They are being told their emissions amount to 30% of the greenhouse gases of the whole country, yet they get no credit for maintaining hedgerows and biodiversity in general – the bees and birds. It is a job to get answers.

**Mr. Gerry Brady:** There is a development of ecosystem accounts and that will recognise the contribution from farming, land and hedgerows and adjust the timing maybe of certain-----

**Deputy Bobby Aylward:** Can I stop Mr. Brady there? My understanding is that there are no credits at all for hedgerows. There are no credits at all in the 30% emissions. We are not being allowed any credits for growing hedgerows, trees and grass. That is my understanding but, if I am wrong, tell me so.

**Mr. Gerry Brady:** As ecosystem accounts develop, there will be recognition of the important role played by agriculture.

**Deputy Bobby Aylward:** Why not now? Why are we being bled for 30% and getting no credits at the moment, whatever will happen in the future?

**Mr. Gerry Brady:** The ecosystem accounts will fully describe the importance of agriculture and land in the ecology of the country.

**Deputy Bobby Aylward:** Maybe our emissions should only be reduced by 15% if we are to get credits for what we are doing instead of this 30% figure being thrown up and urban dwellers saying that the farmers are polluting the country with their silage. Maybe this should be looked at sooner rather later and credits given where credits are due.

**Mr. Paul Morrin:** On the other point, it is obvious that all of these statistics need to be measured at a world level, which is why these sustainable development goals are so important. We need to know about the problems in Brazil. That is very important for the environment. It is a slow process and developing these statistics at a world level takes a long time.

**Chairman:** Deputy Connolly will be the next speaker. Deputy Kate O'Connell will be after that. She missed her slot but we will bring her in next. I will slot Deputy Cullinane in as soon as possible.

**Deputy Catherine Connolly:** One might draw the unwarranted conclusion that women are

not very good at figures and that is cause for reflection.

I thank our guests for all the documents. It makes for difficult reading for me, as an ordinary member of the Committee of Public Accounts, but it is very helpful.

Separate to the CSO, our guests considered the implication of increasing carbon tax. Based on their results, and previous research, it is accepted that carbon tax is regressive and, in accepting same, actions must be taken to undo its regressive nature and equalise it out. Within that limited research, our guests have come to the conclusion that carbon tax should be an element in a climate policy to change people's behaviour.

I come from a different background. More women might help a sense of balance. I can think of many other ways to change. I welcome the research, it is good information and will help us but are there not many other ways of changing people's behaviour besides punitive measures?

**Dr. Miguel Tovar Reaños:** Information campaigns have also been implemented.

**Deputy Catherine Connolly:** There were four criteria and that was one of them. Have our guests done research on that?

**Dr. Miguel Tovar Reaños:** Quite a lot of empirical research shows that information campaigns can change behaviour but they are not as strong as a carbon tax.

**Deputy Catherine Connolly:** Can Mr. Reaños refer me to that research?

**Dr. Miguel Tovar Reaños:** The US has done a lot of research on energy efficiency measures for some electronics. That can review some part of the consumption of energy but the strong part of the research shows that taxation is the best way to go if one is looking to-----

**Deputy Catherine Connolly:** I do not accept that and I do not see research on that before me, not that I blame our guests for that. They were asked to look at particular criteria and a particular model.

Many years ago, in Galway, we aimed to reach 45% recycling and that could only be done over five years. However, following a six-week pilot project, we achieved 70% recycling through encouragement and education. People were ahead of the engineers, management and politicians. A paper was written about it, entitled Incineration: A Burning Issue or a Load of Rubbish? What I learned from that, and continue to learn, is that people are way ahead of us and want to change. They just need policies that help them and create the environment where they can change. I would love to see research on that. I am just using Galway as a good example where people led the way and recycled against all expert advice. The effect of it has been written up.

I am a human being and mother. There are many other ways to encourage changes in behaviour, rather than a punitive tax, which is regressive, and then having to come up with some imaginative way to undo it. We are starting from the position that it is a regressive tax, as our guests have acknowledged, and then trying to undo it with a view to changing an element of behaviour. It is unnecessary because people want to change.

A climate emergency has been declared and that has not been led by politicians but by the people on the ground who have forced us to act. The people are ahead of us. Other policies would be much more beneficial and I would love to see research on that.

**Mr. Paul Morrin:** That is a fair point. We do not have enough information on people's attitudes and opinions. It seems as if there has also been a generation shift. We have done some work on attitudes to the environment.

**Mr. Gerry Brady:** We did a household survey on environmental behaviours and found that a family was the most environmentally friendly household. Their attitude may have been influenced by children in school who are exposed to the green school programme. We also asked people what most influenced them if they were buying a car and it was the fuel cost. Only a small proportion identified the environment as their main priority when they were selecting a car.

**Deputy Catherine Connolly:** I am not sure where Mr. Brady is doing that research. I can only go on my experience. We knock on many doors and climate change has been the main issue in the past two elections. The electorate has been way ahead of the Government and politicians. The main issues are climate change, health and housing. People were crying out to be a part of the solution. I am not taking issue with Mr. Brady's research; I am just saying it is very limited with a particular view, as opposed to having the remit to look at how behaviour changes. That requires psychologists and representatives from other disciplines.

**Mr. Paul Morrin:** Attitudes seem to be changing quite quickly and we are going to repeat that module soon. Things seem to be moving on quite quickly.

**Deputy Catherine Connolly:** The only narrative put forward by management in Galway in 2001 was that an incinerator was essential. The people of Galway disagreed. It has all been undone since because the waste collection has been privatised. For a number of years, we led the way in the pilot project with 70% recycling and, on an ongoing basis when it was rolled out, 56% of waste was diverted from landfill on a voluntary basis through educational policies. Of course, the result was that the system was privatised and we went backwards but it is a very good example of behavioural change being by the people.

**Mr. Gerry Brady:** With green bins and brown bins, there has been considerable change.

**Deputy Catherine Connolly:** That was way back.

**Mr. Gerry Brady:** I know that. The volume going to landfill now is coming way down. People are changing quickly.

**Deputy Catherine Connolly:** I agree. In fact, people changed a long time ago but Governments did not keep up with the change.

I want to ask about the energy rating. Just over half of the households in Ireland are energy rated. When our guests go from door to door doing research-----

**Mr. Paul Morrin:** The Sustainable Energy Authority of Ireland, SEAI-----

**Deputy Catherine Connolly:** The SEAI gives the figures?

**Mr. Paul Morrin:** Exactly.

**Deputy Catherine Connolly:** Is the authority rolling out a policy to assess each house?

**Mr. Paul Morrin:** It is, but in reality a rating becomes relevant when people sell or rent a house.

**Deputy Catherine Connolly:** That is the point at which it occurs.

**Mr. Paul Morrin:** Yes.

**Deputy Catherine Connolly:** I have a final question about urban and rural households. Do rural households have lower or higher emissions? I thought they would be higher but the conclusion of the report referred to lower emissions. Do rural households have higher emissions? The conclusions, on page 25, state “though rural households emit less than urban households, a carbon tax increase will result in higher emissions reduction by rural households than by urban households”. Will Dr. Yakut explain that?

**Dr. Aykut Mert Yakut:** Is that on page 25?

**Deputy Catherine Connolly:** It is in the conclusion on page 25. It states: “Concerning emissions reductions at a household level, though rural households emit less than urban households, a carbon tax increase will result in higher emissions reduction by rural households than by urban households.”

**Dr. Aykut Mert Yakut:** I think it is a typo.

**Deputy Catherine Connolly:** It is a typo.

**Dr. Aykut Mert Yakut:** Panel (a) of figure 3 on page 17 deals with emissions per household type in 2018 and shows that rural households emit more than urban households.

**Deputy Catherine Connolly:** Will Dr. Yakut explain that further?

**Dr. Aykut Mert Yakut:** Panel (a) of figure 3 on page 17 shows, on the left-hand side, five contacts from rural and, on the right, five contacts from urban. Rural households, on average, have higher emissions than urban households.

**Deputy Catherine Connolly:** Rural households have higher emissions.

**Dr. Aykut Mert Yakut:** Yes.

**Deputy Catherine Connolly:** Therefore, the sentence on page 25 is a misprint.

**Dr. Aykut Mert Yakut:** Yes, I guess it is a typo.

**Deputy Catherine Connolly:** I thank Dr. Yakut. The CSO said households account for 23% to 25% of greenhouse gas emissions. Will the witnesses explain that statistic?

**Mr. Gerry Brady:** We get the data from the EPA’s national inventory and we then reclassify it by base industrial sector, including households. In the EPA data, all road emissions would go under the category of transport whereas we would take emissions by private vehicles owned by households and put it under the household sector.

**Deputy Catherine Connolly:** Is it just household transport or transport overall that the CSO looks at?

**Mr. Gerry Brady:** It would be overall, but road transport and heating in winter would be the major parts.

**Deputy Catherine Connolly:** Which leads to the 23% to 25% figure.



**Mr. Gerry Brady:** Yes.

**Deputy Catherine Connolly:** Overall greenhouse gas emissions do not include the emissions trading scheme, ETS, emissions, which are left out. Is that correct?

**Mr. Gerry Brady:** The emissions by all sectors, businesses and households, would be included.

**Deputy Catherine Connolly:** Even those that are in the ETS.

**Mr. Gerry Brady:** They still have emissions.

**Deputy Catherine Connolly:** Of course they have, but they come under the ETS. Is that included?

**Mr. Gerry Brady:** It would be in the total national inventory.

**Deputy Catherine Connolly:** When we look at that national inventory-----

**Mr. Gerry Brady:** It is around 20% to 25%.

**Deputy Catherine Connolly:** Households account for 25% of the greenhouse gas emissions. When we say “households”, that includes energy, cars and so on.

**Mr. Gerry Brady:** Home heating and road transport.

**Deputy Catherine Connolly:** The other 75% is business, agriculture, services and transport generally.

**Mr. Gerry Brady:** Yes.

**Deputy David Cullinane:** I welcome the witnesses. I welcome the opportunity to have a discussion on this issue and I thank the Chairman for facilitating it. I will start with the ESRI, which has done some analysis on carbon tax increases. Deputy Connolly spoke about the fact that carbon taxes are regressive. If carbon tax is regressive as a starting point, then as I understand it, the ESRI is arguing that either welfare transfers or a tax and dividend model might mitigate the regressive nature of the carbon tax. Is that correct?

**Dr. Aykut Mert Yakut:** Yes.

**Deputy David Cullinane:** The figures are contained in the ESRI opening statement. Would it not be better if we provided people with alternatives? For example, if we were making grants available for people to transition from heating their homes with oil or gas, would that not be a better way of using money rather than increasing the carbon tax? Would providing alternatives not be a better option than increasing carbon tax, whether it is public transport, ensuring that people can transition from using carbon fuels to heat their homes, or making electric cars cheaper, more accessible and more favourable? Has the ESRI done any analysis of those alternatives and what the outcome would be in terms of reduced emissions? Rather than focus on carbon tax increases, would we be better to focus on enabling people to change their behaviour? What analysis has the ESRI done on the enabling part rather than on the tax part?

**Dr. Aykut Mert Yakut:** Our research does not include those kinds of details.

**Deputy David Cullinane:** Why not?

**Dr. Aykut Mert Yakut:** Our model is based on energy economy and environmental protection, and we cannot cover every aspect of an issue.

**Deputy David Cullinane:** The ESRI looks at this purely from a revenue perspective.

**Dr. Aykut Mert Yakut:** It is also on climate change.

**Deputy David Cullinane:** Climate change is about reducing carbon emissions. There are a number of ways in which we can reduce carbon emissions. One, which I will argue shortly, is through carbon tax increases. However, if people do not have the alternatives, they just pay whatever the carbon tax increase is, and if they do not change their behaviour, we do not reduce emissions. Would it be better to do an analysis on what alternatives are necessary to enable people to make a transition? A carbon tax is designed to change people's behaviour. Is that correct?

**Dr. Aykut Mert Yakut:** Yes.

**Deputy David Cullinane:** That is the logic of it. It could be argued that, so far, it has not really changed people's behaviour and has been a form of raising revenue, and even the whole discussion around it has been about ring-fencing the money for investment in climate mitigation measures. If it does not change people's behaviour to the extent we would want it to, would it not be better, from a climate action perspective, to do an analysis on what would happen if we provided people with the opportunity to make real changes, either through grants or other support? Would it be a better way of reducing our carbon emissions if we enabled people, rather than using the stick of increasing taxes?

**Dr. Miguel Tovar Reaños:** There is a further part of the research I am involved in at the ESRI. We are investigating how much reduction in CO<sub>2</sub> emissions one can get by improving the rating of the dwelling. That research is still ongoing so we do not have results yet, but that will come at some point. It is also important to highlight that there are many factors that could lead people to retrofit their houses. To take the case of a person who is renting a dwelling, he is not in a position to ask for grants to retrofit the house because he does not own the house, so this is a kind of market imperfection that exists. Even for people who own their house, the literature shows there is a lot of resistance to investing.

**Deputy David Cullinane:** What Dr. Tovar Reaños is giving me are the challenges. I know what the challenges are. The ESRI opening statement noted that when simulating a carbon tax increase of €30, the ESRI estimates that carbon emissions will fall by 3.9%. What did carbon emissions fall by last year?

**Dr. Miguel Tovar Reaños:** They increased.

**Deputy David Cullinane:** The witnesses are seriously sitting there, telling me that if we increase carbon taxes by €30, we would see a reduction of 3.9% in carbon emissions, when we already have existing carbon taxes which are much more substantial. Why is it 3.9%? Why not 4% or 4.5%? Where did the 3.9% come from?

**Dr. Miguel Tovar Reaños:** This is changing behaviour so-----

**Deputy David Cullinane:** How?

**Dr. Miguel Tovar Reaños:** The demand. It is based on elasticities.

**Deputy David Cullinane:** How do people change their behaviour? I am trying to get to what people will do. Let us say that, in the ESRI model, carbon taxes increase by €30 and the ESRI estimate that carbon emissions will fall by 3.9%. What are people doing that will reduce the carbon emissions based on this model? The witnesses should tell me what an ordinary family will do if their home is heated by oil or gas, they have a petrol or diesel car and they live in a rural area and do not have access to public transport. What will they do to reduce their carbon footprint, based on a €30 increase, that will see emissions fall nationally by 3.9%? What specifically will they do? The witnesses should tell me specifically, through their model, what people will do to reduce their emissions.

**Dr. Miguel Tovar Reaños:** The general idea of the model is that people will change the mix of products they buy. Therefore, if there is an increase in energy commodities, they will reduce their consumption of those commodities. The whole bundle will change if there is an increase in prices. We calculate also that some people-----

**Deputy David Cullinane:** Excuse me, how will their bundle increase? For a customer with ESB or Airtricity, what bundle will they choose that will reduce their emissions? We do not have smart metering at the moment, although it is being rolled out. I imagine if that was rolled out it would provide people with data to enable them to monitor use and how they can make changes.

I do not buy the logic put forward by the ESRI representatives or the suggestion that there will be bundles to enable people to change their behaviour relating to electricity and heating their homes simply by increasing the €30 carbon tax. I do not see it. Can the ESRI explain to me specifically what a family that has a home heated through oil or gas will do differently if the carbon tax is increased by €30?

**Dr. Miguel Tovar Reaños:** The model follows the logic of the demand for the product. If there is an increase in the product supply, it will reduce the demand.

**Deputy David Cullinane:** Will they stop heating their homes?

**Dr. Miguel Tovar Reaños:** The model calculates that people have a price for the suffering. We calculate that as lost income. People put a price on the loss of comfort or heating. That is why we say the carbon is regressive.

**Deputy David Cullinane:** The ESRI cannot seriously say it will decrease by 3.9%. Emissions went up last year and we know agriculture is one of the big polluters. The ESRI cannot seriously be saying that a carbon tax increase of €30 would reduce emissions by 3.9%. What is the carbon tax at the moment?

**Dr. Miguel Tovar Reaños:** It is €20 per tonne.

**Deputy David Cullinane:** The ESRI officials are suggesting that an increase from €20 to €30 would mean a 3.9% decrease.

**Dr. Miguel Tovar Reaños:** It is an increase of €10 per tonne.

**Deputy David Cullinane:** I know what the difference is. I am saying that I cannot imagine how it tallies given where we are at the moment. We already have significant carbon taxes. I cannot image how increasing the charge from €20 per tonne to €30 per tonne would result in a 3.9% emissions reduction. The ESRI has not really convinced me that people will make the

changes, other than perhaps putting on the electricity a little less. I am not convinced. For example, can the average family afford an electric car?

**Dr. Miguel Tovar Reaños:** No.

**Deputy David Cullinane:** The average family cannot afford an electric car. If such a family lives in rural Ireland where there is no public transport, they have to use the car. Do they stop bringing their children to school?

**Dr. Miguel Tovar Reaños:** We calculate it as a loss of income, as I said.

**Deputy David Cullinane:** We are talking about changing behaviour. The ESRI officials have said it will reduce carbon. It is not about their income. It is about reducing the carbon footprint and emissions. What if a family cannot afford an electric car? The ESRI is making the assumption that there will be a reduction of 3.9%. I am trying to understand what that assumption is based on. What are they going to do? What is that family going to do? The family cannot afford an electric car and they do not have public transport if they live in a rural village. What are they going to do to reduce their carbon footprint? What are the options for them?

**Dr. Miguel Tovar Reaños:** As I said, the model is showing us that people will reduce the demand of certain commodities. We identify who is suffering more for these things and a loss in comfort. We put a price on that as is the normal methodology in economics. We put a price on people deciding to reduce demand to a certain level and it will cost them a given amount of money.

**Deputy David Cullinane:** What are they going to do? The ESRI officials are not telling me what an individual is going to do, apart from the possibility that people might turn off electricity. They may or may not do so. That is a real assumption because they may be unable to do so. There are several ways in which people can reduce emissions. People can change their car - that is one option. They can use public transport if it is available. If it is not available, there is not much for them. They can change the way their homes are heated. They can get a grant or spend money on deep retrofitting. What if the majority of families cannot afford a deep retrofit or an electric car and already use public transport? I am trying to understand what substantial changes they could make. Any changes would have to be substantial to reach a 3.9% drop.

That is only for households. I have not taken into account industry, which produces a great deal of carbon. Agriculture produces a great deal of carbon too. There would have to be a significant change in behaviour for the State to see a 3.9% reduction in its carbon footprint. A carbon tax increase would not have a major impact on industry or agriculture to that degree. I imagine the majority of the reduction comes from ordinary households. Is that correct?

**Dr. Aykut Mert Yakut:** No.

**Deputy David Cullinane:** Where does it come from?

**Dr. Aykut Mert Yakut:** The climate change proposal is a package. It involves increasing the share of renewables, electrification of transportation, increasing carbon tax to change individual behaviour and retrofitting.

**Deputy David Cullinane:** We are talking about carbon taxes. I asked about this earlier. I agree there are alternatives and other things we can do. I am asking specifically about carbon taxes. If we are going to reach a 3.9% reduction, does the model envisage that the majority of

the changes would come from individual behaviour?

**Dr. Aykut Mert Yakut:** The model only includes households.

**Deputy David Cullinane:** Exactly. It does not include farming or business.

**Dr. Aykut Mert Yakut:** No, it is only households.

**Deputy David Cullinane:** Yet, we know from the last figures we saw that agricultural emissions went up. Is that not correct? I have high regard for the ESRI as an organisation but I am really struggling to believe that an increase of €10 would see a fall of 3.9%. I would have to see more evidence. I am not convinced by it.

**Chairman:** Is that simply one scenario? Is the prediction based on assumptions or is it simply a potential scenario?

**Dr. Miguel Tovar Reaños:** It is based on elasticity, which is basically how people respond to prices. A recent paper was published in the *American Economic Review*, which is one of the top journals in economics. It showed the response to taxes could be even larger than price responses.

**Deputy David Cullinane:** That may be the case if people have alternatives. For example, I supported the sugar tax. That is a good example of where there is an alternative. I can order a Coke Zero instead of a Coke, and that changes my behaviour. The plastic bag levy is another example of taxes and levies that work. They can work where people have an easy alternative they can use. What about carbon tax increases and what people would have to do to change their behaviour? If a home is heated through oil or gas, the occupier has to make a substantial change and investment. If a consumer wants to buy an electric car, it is a substantial investment. We know the majority of people cannot afford to make those changes. That is why I am questioning the assumption of the ESRI that emissions will drop by 3.9%. I simply do not find it credible. I want to ask a question of the Central Statistics Office before I finish.

**Chairman:** I want to ask a question first. Is the 3.9% an average? Some people will make a significant change. More people will make no change. Some might go in the opposite direction. Not everyone will make a 3.9% decrease.

**Dr. Miguel Tovar Reaños:** It is an average.

**Deputy David Cullinane:** I still do not find the figures credible. Having said that, they are the figures we have. It is our job to probe and understand them. I am not convinced by the answers I have gotten.

I want to move to the CSO. We are obliged to study the Report of the Comptroller and Auditor General. Page 128 states that emissions from the European Union emissions trading system sectors do not count towards national emissions targets. Is that not correct? Why is that?

**Mr. Gerry Brady:** That is more a policy area. It would not involve the CSO.

**Deputy David Cullinane:** I understand that but I am asking why. Does the CSO understand the logic of why they are not included?

**Mr. Paul Morrin:** The targets are set outside the CSO, as is the decision-making behind it.

**Deputy David Cullinane:** I understand that. I am not saying the CSO makes the decisions.



Can the CSO explain to me why they are excluded?

**Mr. Gerry Brady:** I think the idea is that it is a controlled system that is being managed via the EU ETS. That is the basic idea.

**Deputy David Cullinane:** Is aviation part of that?

**Dr. Aykut Mert Yakut:** Yes, aviation is included in the ETS.

**Deputy David Cullinane:** Aviation is included. Aviation is a big polluter. Yet we are excluding aviation from the national emissions targets. To me that is extraordinary. What about private jets? Do we have any analysis on the use of private jets?

**Dr. Aykut Mert Yakut:** Those firms pay the price of the ETS. Recently, the price has been higher than the carbon tax in Ireland. It is €25.

**Deputy David Cullinane:** Is there research on the carbon footprint of that sector?

**Dr. Aykut Mert Yakut:** We do not have any such research.

**Deputy David Cullinane:** What about the CSO?

**Mr. Gerry Brady:** We have some air emissions data. Private jets, relatively, would be a small proportion. There is a difference in the way CSO compiles data. It would be on a residence principle. The emissions of an Irish airline throughout the world would count against Ireland.

**Deputy David Cullinane:** There are 13 aircraft operators that participate in what is called the EU ETS. Is it the case that they are not included in the national emissions target?

**Mr. Gerry Brady:** I think the landing and take-off emissions are included but the journey-----

**Deputy David Cullinane:** The Comptroller and Auditor General said in his report that emissions from ETS sector do not count towards national emissions targets.

**Dr. Aykut Mert Yakut:** Yes, that is true. They are not part of the national targets.

**Deputy David Cullinane:** I imagine that is problematic since they are serious polluters.

**Dr. Aykut Mert Yakut:** The logic is that they are regulated by the ETS and there is a market for carbon pricing. The EU reduces the number of total allowances every year. For instance, beyond 2020 in the air transportation sector, annual allowances will be decreased by 2.2% annually until 2030. As the cost of the EU ETS will increase, the burden of carbon emissions on the sector will be higher in the future, relative to what it is today. As they are regulated by other markets within the European Union, there are national plans in every EU country.

**Deputy David Cullinane:** The State needs to conduct more research, not only on carbon taxes. We are doing ourselves a disservice by focusing too much on carbon taxes and carbon tax increases. There should be more of a focus on how we can enable people to make a transition. Deputy Connolly spoke about this aspect. Most people want to see a transition as they want to be able to make a change. However, it may not be affordable for them to do so, even if we were to increase the carbon tax. For many, changing from heating their house with oil or gas to an alternative that would be more energy efficient would involve quite a substantial invest-

ment. It would not be cheap. The same can be said about changing one's car. I have also cited the example of those who cannot depend on public transport. No bus of any description passes through the village in which I live. The families who live in the village do not have access to a bus service. To bring their children to school, they either have to walk a long distance, cycle with them for seven or eight miles, or drive. Most have no choice but to drive. We need to conduct much more research, not just on the impact of increasing taxes, as I am not convinced by what I have seen. We do not need to encourage people to make a transition because they are encouraged already. We must conduct more research on how we can enable them to do it.

**Chairman:** We will put some of those questions directly to representatives of the Department in two weeks' time, as they have more of a policy role than the witnesses.

**Deputy David Cullinane:** I thank the witnesses.

**Deputy Kate O'Connell:** I thank the witnesses for coming at this late hour. I will follow on from Deputy Cullinane said.

It was stated the ETS was being managed. Is it being managed at a European level? Is that what Mr. Brady meant? I am going backwards from where I had intended to start. The big polluters are expected to be managed under the ETS, while everyone else will be subject to a separate metric. There is unfairness for the real person stranded in a village in County Waterford without a bus service. He or she will feel a huge sense of unfairness.

I refer to the ETS model, for which I am not blaming the witnesses, unless it was their idea. The whole point of it is to reduce carbon emissions, but, technically, one can buy one's way out of it. Based on my reading of the system, if a company is profitable enough, it can buy its way out, until it is no longer profitable. All the while, the environment is heating up. This is an economic response to an environmental problem. I do not mean to cause offence, but it is a typical accountant solution to a social, environmental and human issue. The ordinary man in County Waterford will be expected to put on an extra jumper or walk, but someone with a large company with ETS-graded emissions can buy his or her way out. That is where we are going to fall down when we try to sell it to normal people. It is similar to what happened when turf-cutting was banned on bogs in the midlands. While I agree in principle with stopping people from cutting turf because peat is great at trapping carbon, it was very difficult for people to see a power station down the road pumping out peat smoke when they were not allowed to cut turf for domestic use. People are logical. They knew that the black smoke from Rhode power station was the same product as that which was coming out of their open fires. I have a serious moral issue with this set-up because the big guys can get out of it until their profitability narrows to the point where they cannot buy their way out. I personally do not see that as a solution to climate change.

Deputy Aylward referred to farmers receiving more credits for the planting of trees and products that trap carbon. I am not sure what he asked as I came in half way through, but is consideration being given to the carbon trapping potential of hedgerows, wild set-aside land or grassland? They all trap carbon and are being maintained by farmers who are the custodians of the countryside. Will they receive money for the grass also, or will it just be for the trees? If not, why not? Can anyone answer that question? Will farmers be given some money for the rest of the green stuff with which they deal which also absorbs carbon dioxide?

**Mr. Gerry Brady:** Many of the subsidies under our environmental subsidies scheme are for farmers' green actions.

**Deputy Kate O'Connell:** I know that.

**Mr. Gerry Brady:** There are very specific-----

**Deputy Kate O'Connell:** I understand that. We had the rural environmental protection scheme and now have the green low-carbon agri-environment scheme.

**Mr. Gerry Brady:** Yes. They are-----

**Deputy Kate O'Connell:** No, they are not. Deputy Aylward is probably far more knowledgeable in this area than I am, but it is my understanding the REPS which became the GLAS was a rural environmental scheme which had nothing to do with carbon emissions. It involved maintaining hedgerows, wildlife and so on. If money is being given to farmers to benefit from the carbon trapping potential of trees, why is it not being given for the many beautiful fields of green pasture in County Kilkenny which are trapping the carbon we produce every day? Are we separating the plants that merit a carbon tax? Who makes that decision?

**Mr. Gerry Brady:** There are afforestation grants which would be part of that-----

**Deputy Kate O'Connell:** I know that. I am talking specifically about carbon. Farmers will receive credits to encourage them to plant trees. It is a carbon credit. Why are they not receiving them for grassland and hedgerows? It is the same trick, albeit with different levels or quantities of carbon. I cannot see why the scheme only applies to one species.

**Mr. Gerry Brady:** The EPA compiles the national inventory. The land use, land-use change and forestry, LULUCF, sector takes into account whether the grassland is permanent pasture or in rotation. Within our emissions, we can obtain credits for carbon sequestration and how grassland is managed. The EPA and Teagasc do a lot of work in that area.

**Deputy Kate O'Connell:** Farmers are not-----

**Mr. Gerry Brady:** There are credits for our total emissions.

**Deputy Kate O'Connell:** There are no credits for grassland or hedgerows.

**Deputy Bobby Aylward:** There are no credits for hedgerows. There are thousands of kilometres of hedgerows in this country.

**Deputy Kate O'Connell:** Which are trapping carbon.

**Deputy Bobby Aylward:** I have miles of hedgerows on my farm, for which I receive no credits, although I am maintaining them.

**Deputy Kate O'Connell:** They are potentially trapping carbon at a greater rate than particular species of large trees, for which carbon credits are granted. I wonder about this. I have no vested interest, but I become really concerned when I see such differences. Who is gaining? I am not suggesting anyone here is, but why are farmers being encouraged to plant a particular type of tree when so many metres of hedges are doing the same job? Who makes the decision? Is it the people who are making money out of the planting of trees? I am not referring to farmers but to the investment people who are waiting on them to grow. No one would make a capital return on a hedge in County Kilkenny, but it absorbs carbon, which is what I thought this was all about.

We export about 90% of our agri-products to other countries in Europe, including the United

Kingdom, and further afield. Something occurred to me about that, about which I might be wrong. As I did not know about this meeting, I was under some pressure to prepare for it. I refer to oil imported from Saudi Arabia. Oil imported from Saudi Arabia is taxed in Ireland. In a similar vein, should it not be the eater, rather than the producer, who pays the carbon tax on food? People in Saudi Arabia drill the oil out of the ground and it is then brought here. I understand that the fumes from the fuel go into the air and the fumes from the production of agricultural products are going the other way. Who decides on the difference between the two products? Who thought that was a good idea? In terms of environmental impact, would it not make sense to charge the lad who wants the expensive steak that costs a great deal to produce?

**Dr. Aykut Mert Yakut:** Oil producing exporter countries have some power in the market so they will not pay any tax for drilling oil. This is mainly a political economy issue rather than an environmental one.

**Deputy Kate O'Connell:** This decision was made on the basis of who was the more powerful.

**Dr. Aykut Mert Yakut:** More or less, yes.

**Deputy Kate O'Connell:** It is getting interesting now.

I will move on to methane, an issue that bugs me. I am not sure if any of the witnesses are familiar with organic chemistry. The documents indicate that 72% of our emissions are non-ETS and one third are agriculture. Is that just the production of food? Does that include fumes from tractor or does it relate only to livestock?

**Dr. Aykut Mert Yakut:** It is everything.

**Deputy Kate O'Connell:** Fumes from a tractor are a certain type of emission. Cattle produce methane which breaks down. Methane is given a global warming potential of 25 versus carbon. I assume all the witnesses are familiar with that. It means methane is 25 times worse than carbon. I hope the witnesses, as statisticians, will get this. Methane breaks down after 12 years but has a 25 times greater warming effect. That is the concept but it does not take into account that methane breaks down in 12 years. It is not that it continues to rise and is never broken down. There is a process of methane breaking down to carbon. The British Veterinary Association is arguing, as I do, that this variable is wrong. The report attributes a disproportionate level of emissions to agriculture. I fully support the expert climate committee. The report is about culling the herd. My argument would be that if the herd size is left static - I am not suggesting this should be done - the same amount of methane will be produced and it will break down after 12 years. However, it has been given a heating rate 25 times higher than carbon in the current calculations. The British Veterinary Association recently developed an algorithm specifically for livestock which takes into account that methane does not break down to nothing but turns into carbon. However, it has been given a rating that is 25 times worse than carbon. Ultimately, it ends up as carbon after 12 years. If the witnesses are suggesting that the solution to the overheating of the environment is to cull livestock, we will all die of hunger. Separate from that, farmers produce food in this country to a high standard and we are all privileged to eat it. Methane is being given a bad name because it is not as warming as it is alleged to be in the document. The British Veterinary Association questions the current variable and is seeking to have another variable used for livestock. The CSO witnesses might respond on this question.

**Mr. Gerry Brady:** It is the United Nations which sets the methodology for the inventory

emissions that are compiled by the EPA. We get those data from the EPA and disaggregate them by NACE sector. The inventory methodology is based on the territorial principle, so the country where the emissions are happening. The oil comes from Saudi Arabia but it is driven in a car in Ireland so the emissions-----

**Deputy Kate O'Connell:** That is what I was saying.

**Mr. Gerry Brady:** The same applies to meat. That methodology is set by the UN. It is not a national methodology.

**Deputy Kate O'Connell:** Yes, but the weighting of the agriculture sector is my concern. I am a representative of people in Ireland. I note from the document that 28% of our emissions are tradeable, while 72% are not. We will be disproportionately affected because we have accepted this variable according to which methane is 25 times more warming than carbon. Methane in its non-broken down form is 25 times more warming than carbon. Something has to be done because, as a country, we are being unfairly treated owing to the 72%: 28% ratio of non-tradeable and tradeable emissions. Another issue relates to whoever decided it was a good idea to let the people with the ETS tradeable emissions away with it. That seems so unfair to the ordinary person. I understand the science and logic behind it but whereas the big stuff is being managed, which I am never happy about, the smaller stuff is not. Ironically, Ireland is on the back foot because of our lack of industrialisation in that we cannot buy our way out of it. We are being even more disproportionately affected by the methane weighting.

This point may have nothing to do with the witnesses. We want the earth to cool down. There is an idea that food miles do not count. When representatives of the Department of Agriculture, Food and the Marine appeared before this committee a few weeks ago I made a suggestion about some of the larger supermarkets. I was doing some online shopping at the weekend and the vegan section appeared on the website in question before other sections offering balanced diet options. I asked myself whether people believe that eating soya or almonds produced in a country far from here is better for the environment than having a steak? I suggested to the Department witnesses that perhaps there should be an indicator on the packet that one might be eating this low biological value protein or whatever one has found but it has come all the way from Afghanistan on a jet this morning. They suggested that could be considered anti-competitive. If the point is to ensure the environment cools down, that seems to me to be selling our souls to more powerful people. All of this adds up to it being very difficult to bring people with us on this issue. Ordinary people understand that taking one transatlantic flight emits as much as driving a car for a year. They understand that we do not grow quinoa in Kilkenny but other people do not get it. We cannot expect a family to replace their oil heating system with a heat pump when overall they are still producing the same heat.

**Mr. Gerry Brady:** It is a very difficult area and different approaches could be taken. To give an example in Ireland, we import a large amount of finished goods, for example, cars. The emissions associated with the manufacture of cars and aeroplanes that would be used in Ireland do not count against Ireland. They would be counted against where the steel and automobile manufacturing is located. There are swings and roundabouts.

**Deputy Kate O'Connell:** I understand that. We produce so much food, yet the emissions trading only applies to slightly more than one quarter of our emissions. I would prefer to have a dinner in front of me than have the lights on. I prefer to have a plate of good food than to have the television on. I am not sure whether we can sell all of this to ordinary people. I think it is deeply flawed. It is specifically deeply flawed in terms of agriculture. We need to do some



work. It would be useful if we looked at the British Veterinary Association algorithm I have mentioned because it would help us. We have heard about elasticity and how people respond to prices. We are being told that if a person with a static income is in Waterford with no bus, the solution is to put on another jumper if he or she has one. I am not sure that is what we should be doing. I am not sure we should be telling people to set off for school by foot an hour earlier, or to turn the lights off and use a candle. Is that sort of behaviour regressive? What if people require huge amounts of energy to power their computers? It might not be so difficult to put on an extra jumper if one has an extra jumper. This is about families. We are hoping to roll out broadband to rural Ireland and everywhere else in Ireland to give people equal access to education and the world. I am concerned about people who might not be able to afford to turn on the Internet because of having to buy a new jumper. I have a problem with this approach. I am fond of figures and accountants. As politicians, we have a social and human responsibility for how people live their lives. I do not think the solution is an extra jumper.

**Chairman:** Representatives of the Department will come before the committee. The witnesses who are before us this evening have produced statistics.

**Deputy Kate O'Connell:** Yes. I know it is not their fault.

**Chairman:** The next time we have a meeting on this topic, it will be possible to put most of these questions to officials from the Department.

**Deputy Kate O'Connell:** I thank the witnesses for being here at this hour of the evening.

**Chairman:** I would like to ask about words that come up in the public mind. Gas is deemed to be a transition fuel. Who came up with that definition? It comes from carbon, just like everything else. Is it a matter of convenience?

**Mr. Gerry Brady:** It is generally seen as less polluting than coal or peat.

**Chairman:** Correct.

**Mr. Gerry Brady:** There would be an international acceptance of that.

**Chairman:** Has this been determined by the UN?

**Mr. Gerry Brady:** It is still a fossil fuel.

**Chairman:** Yes.

**Mr. Gerry Brady:** People sometimes say it is a cleaner fossil fuel.

**Chairman:** Fair enough.

**Mr. Gerry Brady:** It is a transition.

**Chairman:** Is that a UN or EUROSTAT rule?

**Mr. Gerry Brady:** It has been seen in papers. It was mentioned earlier that if we were short of wind energy and we had to fall back on a fossil fuel, natural gas might be the option.

**Chairman:** I would like to concentrate on a CSO paper, Fossil Fuel and Similar Subsidies 2012-2016, for a couple of minutes before we finish up. This is one of the reasons I wanted to talk here. The Revenue Commissioners have given us some information about the collection

of carbon taxes. The last figure I saw was for 2018. When officials from Revenue come in, we will ask them for an update. I suppose I am putting on the record what was collected. We have had a general discussion. Part of it comes back to whether the revenue collected from carbon tax is being spent to meet the required targets. The job of this committee is to examine where the money that is collected is being spent. That is kind of where we are at. I know there are climate plans, etc., but that is probably for another committee. The figures here are quite small. I want to put them on the public record so people will know them. In 2018, approximately 40% of carbon tax receipts - €182 million - came from auto diesel. Carbon tax receipts from petrol were €48 million. There were receipts from aviation and gasoline as well. They were the principal items which seemed to be a big element of the total carbon tax collected.

We want to address how carbon taxes are used. We are very taken with the report that has been published by the CSO. I want to read from it. As it was written by the witnesses, they will be familiar with it. I want to help the people who are listening by putting this on the public record. According to the report in question, “The OECD has undertaken a considerable amount of work on potentially environmentally damaging subsidies”. This is one of the reasons we are here now. The Committee of Public Accounts wants to talk about this particular topic. We spoke about the emissions trading system at previous meetings. Under the heading of “CSO Methodology”, the report makes it clear that “A subsidy is classified as a potentially environmentally damaging subsidy if it is likely to incentivise behaviour that could be damaging to the environment irrespective of its importance for other policy purposes” such as social policies and other policies. The report continues:

Examples of such subsidies include providing fossil fuels at lower prices to certain industries and providing fuel allowances to households to alleviate fuel poverty. Providing fuels at a subsidised price may result in increased emissions through unnecessary use of such fuels. An alternative to household fuel allowances is refurbishment of the property through improved attic, wall, floor, and window insulation. Those measures would greatly reduce the amount of energy required to heat a dwelling as well as resulting in much improved heat retention.

This is one of the issues we want to focus on. The report includes a commentary on the various damaging subsidies. In 2016, €2.5 billion was provided for fossil fuel supports. I ask the witnesses to explain what that involves. Does it involve VAT refunds on fuel? What does it involve?

**Mr. Gerry Brady:** It is a mixture of rebates. We use the excise rate on petrol as a benchmark. When a comparison is made with diesel, marked gas oil or kerosene, which have a lower excise rate, the amount of revenue forgone can be seen. The quantity of auto diesel may be 3.5 billion litres. When that is multiplied by the difference in the excise tax, a calculation of revenue forgone for auto diesel can be made.

**Chairman:** Is Mr. Brady saying we are being incentivised to use more diesel?

**Mr. Gerry Brady:** As it is lower than petrol, it can be interpreted-----

**Chairman:** Who said that petrol was the benchmark? Was that decision made by EURO-STAT or by the UN? Is it an Irish benchmark?

**Mr. Gerry Brady:** Generally, most countries use petrol as the benchmark.

**Chairman:** Okay.

**Mr. Gerry Brady:** There are other methodological approaches. This is one we have gone with.

**Chairman:** What is involved in the category of agriculture and food supports, which came to €1.49 billion in 2016?

**Mr. Gerry Brady:** Generally, the idea that agriculture would produce methane or whatever-----

**Chairman:** Okay.

**Mr. Gerry Brady:** Payments which encourage agricultural production are very beneficial for the economy and the rural economy, but increased production will lead to increased emissions.

**Chairman:** Right.

**Mr. Gerry Brady:** In that sense, they can be identified as negative for the environment even though they have very important economic and social-----

**Chairman:** I would like to come back to the paragraph from the CSO report that I read a few moments ago. It appears somewhat perverse from a climate change perspective that we are incentivising the use of diesel, which is more harmful to the environment. We know that for other policy reasons, fuel allowance is given to people to help them to heat their houses during the winter. Much of that is spent on fossil fuels. We collect taxes and give them to people to maintain or increase their burning of fossil fuels. I almost see it as a bit of a cash for ash scheme, if Mr. Brady will pardon the slight analogy. It is not quite in the same category. Does Mr. Brady get the logic of what I am saying? We are giving the taxes we are collecting to people to continue to burn fossil fuels and create more ash up the chimney or wherever it goes. We have our own little cash for ash system. It is not in public view. We just want to put it out there. That was the nickname given to the scheme in the North of Ireland. Is there a parallel? I ask Mr. Brady to respond to the point I am making. Is my logic valid?

**Mr. Gerry Brady:** There is probably a balance to be struck between investing €15,000 or €20,000 in a major deep retrofit and the provision of a winter payment. It is question of balancing the short-term fix against the long-term action.

**Chairman:** Does any country have a policy whereby the subsidies given do not prove damaging to the environment? Is there any country at which we can look in that regard?

**Mr. Gerry Brady:** We have the environmental subsidies. Therefore, the balance between the subsidies that would be seen as benefiting the environment-----

**Chairman:** Yes, we have some of them.

**Mr. Gerry Brady:** -----and those that might be regarded as harmful might be different in different countries.

**Chairman:** What is the balance in Ireland at a macro level in terms of buildings, what is used and environmentally positive measures? I refer to making it cheaper to buy diesel, for example, which is more damaging, raising money, understandably, for other social and economic reasons. I wish to look at the issue solely from the point of view of the environment in order that we look at where some of the taxes are collected, encouraging people to continue to

increase their CO2 emissions.

**Mr. Gerry Brady:** The environmental subsidies are increasing. They amount to perhaps about €900 million, which is lower than the figure for subsidies we would see as negative.

**Chairman:** Mr. Brady is saying we are spending more on subsidies that have a negative impact on the environment in terms of climate change. That seems to be what he is saying.

**Mr. Gerry Brady:** Yes, in terms of revenue forgone.

**Chairman:** One of the reasons we are here is to put this issue into the public domain. I do not know who is watching the meeting at this hour of the evening, but they might pick up on it. When I saw the CSO's figure, I was taken aback, but when I looked at it, I understood it. We are collecting all of this revenue from the carbon tax and there is little transparency as to how the extra amount provided for in the budget will be spent next year. However, the Comptroller and Auditor General has said there is a need for a whole-of-government approach in Accounting Officers being able to demonstrate where this tax revenue will go. I am not suggesting it should be put into a separate fund or anything like it - it can be accounted for in a transparent way in the general fund operated by the Revenue Commissioners or the Central Fund - but we just want to see greater transparency. I know that in the Estimates for this year there was a move by including a schedule and an appendix to start showing where some of the revenue would be spent, but some of that is not connected to the carbon tax. Some of the items are EU-funded agriculture schemes that were introduced to provide income support for farmers and food production. Now they are being wheeled in as measures that are good for the environment. They do serve that purpose, but they were probably primarily introduced to provide income support at the beginning. Is there a further breakdown of the information available to the CSO that it could supply to us? We are not asking it to carry out any more research. We will have representatives of the Department before the committee to talk about the broader issue and some of the policy issues that have been thrown at us. We will put this one to them directly when they are before us in a couple of weeks' time.

**Mr. Paul Morrin:** It is important that everyone bear in mind what is included in the figure of €4.1 billion and all of the different parts. Lots of social objectives will be met by the figure of €4.1 billion. This is a research paper we have developed in line with the standards set. The EUROSTAT standards are coming at us and the figure might change over time as the standards change, whereas the figure for the subsidies is much more concrete. The crucial point is that everyone should bear all of this information in mind. There are a lot of moving parts.

**Chairman:** In Table 1 included in the CSO's submission there is a sum of €4.1 billion. Are items such as the fuel allowance outside that figure?

**Mr. Gerry Brady:** No. It is included in the-----

**Chairman:** They are included in the direct subsidies that are potentially damaging to the environment that the CSO has included in its detailed table, for which the figure comes to €1.8 billion. Then there are the indirect subsidies that are potentially damaging to the environment, for which the figure comes to €2.3 billion. In the last chapter it is stated fossil fuel subsidies are income forgone through taxation. We are spending €4 billion each year on what the CSO calls environmentally damaging subsidies.

**Mr. Paul Morrin:** The important point is that there is transparency. There are very detailed tables which set out every piece of the jigsaw and there is further information on benchmark

rates and so on. All of the parts are described. We have, therefore, been totally clear about what is-----

**Chairman:** I do not have a figure for what the increase in the budget is expected to be next year. Is it €100 million? I am not sure what the figure is. If the figure for income forgone is €4.1 billion per annum for subsidies that are damaging to the environment, the little extra collected is trivial. It only amounts to crumbs relative to the big picture, hence the earlier comments about taxation. It is only a small part. What was provided for in the budget was only a drop in the ocean relative to the figure of €4 billion. Mr. Morrin is nodding. Am I understanding it properly?

**Mr. Paul Morrin:** The objective is to measure everything and put all of the facts into the public domain.

**Chairman:** It is good that we have the figures in front of us. We could not have this debate if we did not have the reports. We are here to debate the issue in the cold light of day.

**Mr. Paul Morrin:** The committee should be aware that the figure of €4.1 billion might change over time as European methodologies develop and so on.

**Chairman:** Upwards or downwards.

**Mr. Paul Morrin:** Who knows?

**Chairman:** As of now, it is a standard. For how long has that approximate standard been in place? I am looking at figures for the period from 2012 to 2016. It has been generally-----

**Mr. Paul Morrin:** It is a research note. The statistics dating all the way back to 2012 might change if the standards change eventually.

**Chairman:** Is that imminent as in next year or the following year?

**Mr. Gerry Brady:** EUROSTAT will develop a data collection system. With it will come manuals and guidelines, followed by the UN sustainable development goals and the work being done by the OECD and the IMF. It will all come together in an international methodology. Whether the committee takes the approach of trying to cost the damage is to the environment, some countries might argue that the carbon tax should be €150 per tonne. Another approach would be to look at the cost of production, which would give a very different figure. Some of the debate on methodology still has to happen. If the excise rate for diesel was to be changed, if the rate was to be the same as that for petrol, the amount for auto diesel would be gone because there would be no difference in the-----

**Chairman:** How much extra revenue would it yield based on what has been collected?

**Mr. Gerry Brady:** The Chairman has an idea of the figure from the paper, but Revenue would be the expert.

**Chairman:** Revenue officials will be before the committee. It is a Revenue figure and we can ask it about it. At this stage we just want to have some of these figures put into the public domain as carbon tax is an issue. When people heard the debate in recent weeks on increasing carbon tax, I think they forgot the fact that we had been collecting over €400 million each year since 2010. That fact may have escaped them.



Vehicle registration tax, VRT, is based on emissions. Where does it come into the CSO's equation? Is the new emissions-based VRT that was introduced in 2008 seen as positive compared to the old vehicle rates system that was in place prior to 2008? The amount collected in VRT is very high. It is €900 million, or nearly €1 billion.

**Mr. Gerry Brady:** The ESRI did some work to see what the impact of the tax was. I think that was one of the areas at which it looked. It can be quite difficult to produce the effect one wants, but there was an ESRI paper - I think in early 2018 - on the use of fiscal instruments to change the impact of measures on the environment.

**Chairman:** Lastly, are there industries that are less harmful to the environment through producing CO2 emissions than others? Did I read that tourism was good because it provided accommodation? Is there any employment information on all of the industries? If Ireland was a greater tourism destination, would that be another way of reducing our CO2 emissions over a period of time, not just in taxation but in changing how we organise and what our country does?

**Mr. Gerry Brady:** In terms of-----

**Chairman:** Which industries are low?

**Mr. Gerry Brady:** Service industries are low, such as tourism. We have classified the air emissions by NACE sector.

**Chairman:** For people watching, will Mr. Brady explain that word, NACE?

**Mr. Gerry Brady:** It is whether they are pharmaceuticals, food manufacturing, agriculture, transportation, or IT.

**Chairman:** Is that dealt with in these reports?

**Mr. Gerry Brady:** It is in our air emissions release.

**Chairman:** Will Mr. Brady send a link to that to our secretariat, please?

**Mr. Gerry Brady:** Okay. One can similarly look at employment and value-added by those NACE sectors. Then they can be compared and it can be seen what is the value added in a sector that has a higher level of emissions.

**Chairman:** One way a country could improve a situation is to engineer over a period of time what it does or produces into sectors that have lower carbon emissions. That is a big ask. It is a long-term strategy. Governments have strategies for long terms, over years and decades. If we were to move into some of those industries, it might be a better way of dealing with this particular issue.

**Mr. Paul Morrin:** The statistics are there to examine it at least. We have some statistics on it.

**Chairman:** I ask Mr. Morrin to send on the link. Those were the type of points I wanted to raise. We wanted to talk about this issue and we will be talking to the Department, which is the Accounting Officer to this committee. We wanted to get some hard information from the witnesses in terms of the report that they produced so that we are not just talking to the Department on a general basis. There is a volume of information on the record now for the Committee of Public Accounts to use as a base when we are discussing the matter with the Department in the

next couple of weeks. We have a base of information that will help us in those discussions and maybe in formulating a short report on that matter in due course.

I thank all of our witnesses for coming in at short notice at this late hour of the evening. They are voluntary witnesses and we thank them for their input. It will help us to take this matter further with the Department when its representatives are here in the coming weeks. I thank both the witnesses from the CSO and the ESRI for their attendance here and for their valuable help. The clerk will pursue any follow-up information that has been mentioned. We have agreed that already.

The meeting is now adjourned until Thursday, 7 November, when, as already indicated, we will be meeting representatives from the Department of Employment Affairs and Social Protection.

The committee adjourned at 9.13 p.m. until 9 a.m. on Thursday, 7 November 2019.