Enterprise, Waste & Circular Economy

Q71: What are the main barriers to consumers embracing the Circular Economy, e.g. lack of awareness, increased costs compared to disposable products, lack of access to circular goods and services?

[redacted]Cre- Composting and Anaerobic Digestion Association of Ireland:

In relation to recycling food waste/biowaste. Everyone needs to be provide with a biowaste collection service. The National food waste recycling campaign needs to continue for at least 5 years so households can be educated.

Q72: What other opportunities exist to support decarbonisation through the acceleration of a transition to the circular economy?

[redacted] Cre- Composting and Anaerobic Digestion Association of Ireland:

The opportunities exist in there is a lot more food waste could be source separated in Ireland. A national communications campaign that would happen every year is needed to educate people on how to recycle food waste and all the benefits associated with this. The food waste would then be composted and anaerobically digested. The final compost and digestate products would be used beneficially. By doing this, it decarbonised the sector and is an example of local processing in the circular economy in Ireland.

The capture of CO2 from the upgrading of Biogas to Biomethane can be used in horticulture and to offset industrial CO2 production. There are new technologies emerging all the time for use of green CO2 including the production of protein for feed, use in refrigeration, beverage and slaughterhouses.

Transport

Q60: What other opportunities exist to support the decarbonisation of the Transport sector?

[redacted]Cre- Composting and Anaerobic Digestion Association of Ireland:

The use of biomethane is heavy good vehicle is an ideal fit for the transport sector. This has started to happen in Ireland with BGW Foods using biomethane fuelled trucks. In Northern Ireland McCulla transports are using biomethance vehicles to move food around the island for a supermarket chain. Granville Ecopark now have biomethance vehicles for the collection of food waste.

The Government policy of only looking at zero tailpipe emission options is fine for cars and short haul vans, where electric vehicles will take over, but for long haul and HGV, electric vehicles are not an option. Hydrogen is also years away from deployment. Government should relax this criterion to at least 2030 and incentivise biomethane uptake in this sector. A useful document published by the European Biogas Association on biomethane for decarbonisation of transport is a good source of information 'The potential of biomethane for a faster decarbonisation of transport should not go to waste'.

Biomethane, both as bioCNG and bioLNG can be deployed quickly with an immediate positive impact on HGV transport. When technology allows, biomethane is also a viable route to green hydrogen, so when the hydrogen market develops, the biomethane can be easily redeployed.

Agriculture & LULUCF

Q61: What are the opportunities to increase take-up of measures identified in AgClimatise and encourage adoption of other practices which reduce emissions?

[redacted]Cre- Composting and Anaerobic Digestion Association of Ireland:

To quantify and reward sustainable farming practices, to fund innovation and research to improve yields from manure based energy generation and to adopt a renewable fertiliser obligation.

Q62: What policies and measures would be needed to support farmers diversify their farm activities to include opportunities such as bioenergy, vegetable growth, forestry, organic farming, etc.?

[redacted]Cre- Composting and Anaerobic Digestion Association of Ireland:

In terms of bioenergy, the anaerobic digestion of liquid animal manures should be supported by Government policy. A centralised based anaerobic digestion plant would provide the scale to make it viable in which local farmers are supported in terms of getting their animal manures processed and then getting back a nutrient rich fertiliser which could be used to displace the buying of chemical fertilisers. For more solid manures from straw bedding of animals, farmers could be provided with a capital grant to purchase a PTO driver windrow turner in which farmers could compost their own solid manures into compost. This compost is stable and could be used to displace chemical fertilisers but also it would aide the carbon sequestration in soils. In addition to individual farmers getting support to purchase equipment, a group of farmers could be supported to purchase a PTO windrow turner that they could all share. The option of a existing agricultural contractor having their own windrow turner to which a complete service could be provided to farmers should also be considered.

To include tariff considerations on bioenergy imports, and incentives for co-operative farming structures and distribution.

In America for example the biogas sector is supported with the American Carbon Intensity-based Low Carbon Fuel Standard model. Research was conducted under a FIRM research project by NUI Galway/Teagasc. This study demonstrated digestate emitted much less CH4 and CO2 when spread, compared to slurry.

Regenative agricultural practices should be supported and one of the best ways is farmers to manage soils with cover crops, changes in farming practices and the addition of compost/digestate. Farmers should be encouraged to trade carbon credits and this should be done on a farm by farm basis in which soil samples are taken to independently show increases in carbon sequestration in soil. An example of this is in Austria.

Austria: the 'Humus Projekt'
The 'Humus Projekt' refers to an Austrian private scheme for soil carbon credits. In this project, participating farmers can sell so called 'soil carbon credits' equivalent to the amount of carbon they have additionally stored in their soil during project participation. Companies wishing to reduce their carbon footprint buy the carbon credits. Started as a local initiative in 2007, the scheme now involves more than 100 farmers throughout the country. The Austrian retailer Hofer AG (part of Aldi) is the main buyer of credits.

When a farmer starts participating in the project, a baseline measurement is carried out of the stable organic matter (humus) in his soil. He then starts working on storing additional organic matter, e.g. by applying organic soil improvers, planting green cover, reduced tillage etc. An important role is for an initial high compost dosage of 100 -200 tonnes/ha: it is claimed that this high dose kickstarts/resets microbiological soil life and helps the further rapid build up of soil organic matter. After two to five years a second measurement of soil organic matter is carried out. The additional soil organic matter stored during the first 2-5 project years is calculated, and converted to a corresponding amount of CO2. The farmer then receives a payment of carbon credits equivalent to 60% of this amount of CO2. Five years later another (third) measurement of soil organic matter is undertaken. If the content is at least equal to the quantity during the second measurent, the farmer receives a second payment corresponding to the remaining 40% of the credit value.

The carbon credit price is € 45-/tonne, of which € 30,- is for the farmer and € 15,- for the scheme management. Costs for soil sampling and soil analyses, as well as coaching of farmers throughout the project is included in scheme management costs. The relatively high carbon credit price is acceptable to buyers because of the credible layout of the scheme, and the local context ('carbon in soils of local farmers instead of trees in Brazil').

Marin Carbon
In response to the rapid pace of global climate change, the Marin Carbon Project (MCP) seeks to enhance carbon sequestration in rangeland, agricultural, and forest soils through applied research, demonstration and implementation in Marin County.

From the original three demonstration farms, MCP has supported the creation of 12 full carbon farm plans covering 9,054 acres. Four more ranches were selected for plans in the fall of 2017, with the goal of completing and supporting 20 ranches in practice implementation by 2020. Over 20 years, the potential carbon reduction associated with these plans is 123,679 MTCO2.

Australia
Dr Christina Jones said in March 2019 farmer Niels Olsen was the first farmer in the world to be paid for sequestering carbon in a regulated government run carbon credit scheme.

• Olsen was paid for sequestering 11.2t co2e/ha and he was paid 13.7t CO2E/ha.
• The current rate of carbon credit in Australia is around €10/t, so sequestrating 13.7Tcoe/ha generated an income of €137/ha.

Q63: What can be done to maximise the use of manure and silage as feedstock for biomethane generation in closed digesters and inject into the gas grid to offset natural gas?

[redacted] Cre- Composting and Anaerobic Digestion Association of Ireland:

The technology to process manures and silage is proven. A financial support scheme needs to be put in place for anaerobic digestion plants that are off a viable scale. This would likely be community-based plants. To include a subsidy to compensate for yield diversity in biogas produced from manure - improve price competitiveness to alternatives.

Ireland has a golden opportunity to establish a new industry in rural Ireland that will create jobs and help meet our commitments for renewable energy and climate change, through the deployment of anaerobic digestion technology. This is a proven and environmentally friendly technology that can deliver multiple energy, climate, environmental, societal and economic benefits. There has been very little development of AD to date in Ireland. The major roadblock to expansion in Ireland has been an ongoing lack of economic viability for developers and investors. Improved fiscal incentives are required to enhance the attractiveness of AD in Ireland for investment.

Incentivising the use of bioCNG and bioLNG for Heavy Goods Vehicles (HGV) and long-haul transport will provide a market for green gas and carbon trading (RTFO). Biomethane is best placed to replace transport fossil fuel in the short to medium term, prior to the roll out of new fuel cell technologies, expected after 2030.

Q67: What opportunities exist for increased use of cover crops, incorporating straw into tillage and for the application of regenerative agriculture practices? How can farmers be supported to take up these practices?

[redacted] Cre- Composting and Anaerobic Digestion Association of Ireland:

We do not support the incorporation of straw into tillage land. The carbon in straw is not stable and when added to the soil it then starts a process of decomposing and using up available nitrogen in the soil in this process, which otherwise could be used by plants for growth. The better practice to return straw to soil is to let the straw be baled and then used by farmers to bed farm animal or feed animals. The bedding manure should then be composted and then the compost which would have stable carbon would be a far superior product to add back to the soil to aide better soil health and carbon sequestration.

Farmers should be supported in a capital grant to purchase a PTO windrow straddle turner to compost their straw based farm bedding.

There is a lot of opportunity to for farmers to use more cover crops and adapt to new practices such as min tillage.

Overall, if farmers were paid for sequestering carbon in a regulated government run carbon credit scheme, this would encourage the use of cover crops.

Q69: What other opportunities exist to support the decarbonisation of the agriculture, land-use and marine sectors?

[redacted], Cre- Composting and Anaerobic Digestion Association of Ireland:

Overall, if farmers were paid for sequestering carbon in a regulated government run carbon credit scheme, this would encourage the use of cover crops, the processing of animal slurries in anaerobic digestion and the composting of manures.

There is an opportunity to capture CO2 from the upgrading of Biogas into biomethane, thereby creating a market for green CO2 which can be used to replace industrial and potentially food grade CO2, as happens in Italy (Biogas done Right). There, CO2 is recovered and used in the beverage market.

Marine Environment

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