Sectoral Emissions Ceilings

Q4: What do you view as the key actions required to ensure the emission reduction targets set out in the Sectoral Emission Ceilings are met?

[redacted]Flex Power Solutions Ltd:

Electricity will be the vector to decarbonise heat and transport. Some form of sector coupling will be needed as heat users move from one sector to the other.

The electricity sector targets should not hinder decarbonisation by switching away from fossil fuels to electricity. Especially if the new demand can be focused at times of over generation.

Q5: What do you view as the main challenges/obstacles to the Sectoral Emission Ceilings being met?

[redacted]Flex Power Solutions Ltd:

Cross sector collaboration.

The heat sector can help solve curtailment of renewable electricity generation and simultaneously decarbonise large parts of the heat sector.

Public Sector

Q80: Where can the most optimum investment be made by the public sector in climate action?

[redacted] Flex Power Solutions Ltd:

Install hybrid heating systems which can switch off fossil fuels and switch on electric boilers on hours when there is excess generation and Eirgrid is being forced to dispatch off the RESe generators.

Renewable Gases

Q13: What role does renewable gas have in the power generation sector?

[redacted] Flex Power Solutions Ltd:

Little if any in this decade.

It is not available at large scale.

It would be more costly on citizens than other decarbonisation options.

However all technology will be needed at some point towards zero carbon in future decades.

Renewable hydrogen is not yet a mature technology and should only be considered after all energy efficency and direct electrification options are exhausted.

Renewable gas from land use risks increasing global emissions by displacement of food production.

Enterprise, Waste & Circular Economy

Q21: What measures can be taken to decarbonise high temperature heating in industry?

[redacted] Flex Power Solutions Ltd:

10,000v electrode boilers are mature technology which can be deployed to every industrial heat users to act as virtual electricity interconnectors.

These units are the most cost efficient and sustainable technology to decarbonise high temperature heat and hot water applications.

Used in a hybrid system, co-located with existing boilers, they can hugely reduce industrial decarbonisation early in this decade.

Each can be delivered on a single lorry. They have no moving parts so are very reliable. They have been used in other countries with large hydro resources for decades. A singe unit can deliver up to 60MW or 90tonne per hour high temperature steam. Far in excess of must irish industrial site needs.

They can provide dispatchable demand services to Eirgrid to keep the wind turbines turning in times of excess generation and in areas of constraint. Aldi they can provide zero carbon system services currently proved by fossil fuel generators.

Eirgrid must upgrade their scheduling and dispatch software to give real-time signals to switch the units on in when they is excess generation.

SEAI should study the potential decarbonisation using 39% wind factor for wind and up to 50% when off shore is deployed around our island.

Q24: What role could Carbon Capture and Storage (CCS) have on industry, and what steps would encourage its deployment?

[redacted], Flex Power Solutions Ltd:

We prefer policymakers not to select technology.

It is preferable for policymakers to develope a technology neutral auction for carbon reduction.

All technology could compete and Irish citizens would get faster decarbonisation and best value for money.

Q25: What other opportunities exist to drive the decarbonisation of the enterprise sector?

[redacted], Flex Power Solutions Ltd:

Hybrid delivery of industrial heat from dispachable 10,000v electric boilers. This is the most cost efficient and fastest to deply opportunity to achieve cumulative carbon ceilings in industry.

Development by ESBN and Eirgrid of interruptable Import Grid Capacity. This would allows industry install electric boilers only to be used in times when the local grid is congested with too much indigenous renewable electricity. It would facilitate maximum use of the existing grid infrastructure.

Q27: Are the measures that can be taken to assist businesses sustain the additional operating costs associated with moving to new low-carbon technology?

[redacted] Flex Power Solutions Ltd:

Some low carbon technology is cost saving such as energy efficiency. Also hybrid delivery of heat with dispatchable electric boilers is cost reducing if regulatory barriers are removed to give industry (and district heating) access to the wholesale electricity price in hours when there is excess generation.

Our preferance to assist business is to deliver a technology neutral auction to support the cost of decarbonisation and deliver best value for irish citizens

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

[redacted] Flex Power Solutions Ltd:

Using electrode boilers we can use excess renewable electricity to offset imported fossil fuels in the heat sector.

Sector coupling of heat and electricity can solve problem in both and reduce the cost of decarbonisation than both sectors operating in stand alone silos.

This maximise the use of existing grid infrastructure.

Electricity

Q11: What options are available to increase the penetration of renewable electricity beyond the up to 80% committed to in Climate Action Plan 2023?

[redacted]lex Power Solutions Ltd:

Direct electrification of industrial steam.

Hybrid delivery of high temperature steam from existing fossil fuel boilers and co-located 10,000v electricity boilers. The electricity boilers can switch on when ever there is ample wind generation or a solar generation.

This requires sector coupling and for SEAI, ESBN and eirgrid to work together to unlock the synergies in both sectors.

Q12: What can be done to accelerate/facilitate the delivery/deployment of offshore wind and solar PV in particular, in the context of Climate Action Plan 2021 and the REPowerEU ambition?

[redacted]Flex Power Solutions Ltd:

Electrification of industrial heat using 10,000v electrode boilers would allow industry act as virtual interconnectors.

It is available mature technology commonly used in countries who have had lage hydro resources.

It is cheaper that other curtailment technology.

It would use indigenous renewable power to reduce our fossil fuel imports.

It would increase the out of renewable assets which would otherwise be curtailed down.

It would reduce the PSO cost on citizens.

It would reduce the amount of grid infrastructure needed.

Most importantly it can be done fast, and has the biggest impact on cumulative carbon ceilings.

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However all technology will be needed at some point towards zero carbon in future decades.

Renewable hydrogen is not yet a mature technology and should only be considered after all energy efficency and direct electrification options are exhausted.

Renewable gas from land use risks increasing global emissions by displacement of food production.

Q14: What role could carbon, capture and storage have in decarbonising our power sector?

[redacted] Flex Power Solutions Ltd:

The cost would be greater than other decarbonisation option in this decade.

Q15: What other opportunities exist to support the decarbonisation of the electricity sector?

[redacted] Flex Power Solutions Ltd:

The heat sector can act as virtual interconnector by switching on electricity consumption at huge scale using 10,000v electrode boilers in times of amble generation.

Hybrid delivery of industrial heat.

This will help mitigate the potential of 45% curtailment by 2030.

All the dairy, food, drink, pharma, chemical etc industrial heat users can maximise the use of existing grid infrastructure to offset fossil fuels with indigenous zero carbon electricity.

Q17: What role do you see for electricity storage and demand-side response in providing flexibility to a system comprised of high renewable penetration and in supporting the decarbonisation of the electricity sector?

[redacted] Flex Power Solutions Ltd:

Ireland is unique.

We have a massive zero carbon resource in our wind.

Eirgrid are pioneers, achieving success which other countries will follow.

To harness our resource we will need many new innovative technology. Probably all technology to achieve zero carbon.

Demand side response will be the first easy wins. Market signals are need to promote conservation in times of grid shortage but also more importantly to promote massive consumption in times when renewable generation are being turned off. E.g. hybrid delivery of steam is one such innovative technology. Legacy network tariffs with no recognition of SNSP (WIND) are barriers. PSO levies applied to Max Import Capacity are another barrier.

After demand side response then energy storage is important. Note we say "energy storage" not "electricity storage" this is because there are synergies is sector coupling heat and electricity. Thermal storage is more cost effective than electricity storage.

Electricity storage, especially long term electricity storage will also be needed for Ireland to capitalise on our indigenous wind resources.

Q18: What financial incentives are needed to increase renewable generation capacity?

a. To incentivise commercial scale production.

b. To incentivise microgeneration.

[redacted] Flex Power Solutions Ltd:

Our preferance in support for decarbonisation would be for technology neutral auctions for carbon reductions. All technology could compete in the same auction and the best value would be delivered for irish citizens.

In saying this, the RESS auctions seem appropriate for commercial production.

Q19: What are the regulatory challenges for reaching the renewable energy share targets?

[redacted] Flex Power Solutions Ltd:

Confusion over compensation for curtailed wind. Customers ultimately must pay for the assets be it through energy payments or PSO levy. Make clear simple decisions to give investors certainty.

Delay and uncertainty around DS3 services and renumeration is stopping investment in vital service to support renewables.

Price signals. All price signals must align with Government decarbonisation targets. They should promote electricity consumption in times of high SNSP. This prices include: PSO levy, network charges, capacity charges, imperfection charges, transmission loss adjustment factors.

Priority grid connections.

Built Environment

Q29: How can we encourage SMEs to upgrade the energy efficiency of the buildings they own?

[redacted] Flex Power Solutions Ltd:

Deliver technology neutral auctions to reduce carbon. This would promote the most efficient decarbonisation projects first and ensure best value to irish citizens. If upgrading of building is the best route then industry and dedicated specialist will seek out and combine these projects.

Q34: How could the roll-out of district heating be accelerated and what needs to be done to expand its coverage in Ireland?

[redacted] Flex Power Solutions Ltd:

District heating could be deployed in communities who host wind turbines and solar installations. In these areas there will be regular over generation issues resulting in curtailment of the zero carbon energy. This could be diverted to heating and district heating. Combing electric boilers with cheap thermal storage could result in a win win for the RESe developers, the local community and reduce the PSO cost and grid development cost on citizen as a whole.

Q92: Have you identified any research and innovation gaps which need to be addressed? If so, how can these gaps best be addressed?

[redacted] Flex Power Solutions Ltd:

Many exclude innovative technology from industry.
Many new business supports focused only on export potential.
Few are dedicated on decarbonisation of irelands economy.
Many are focused towards academia.
Create a technology neutral support for decarbonisation in line with Government policy. Deliver it through reginal LEOs and other business accelerator programs.

Q93: Are there important areas of research and innovation, where Ireland currently does not have sufficient capability, that need to be developed? If so, what are these areas?

[redacted] Flex Power Solutions Ltd:

Electrification of heat.
Hybrid delivery of industrial heat.
Sector coupling of electricity and heat.