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Submitted to Call for Expert Evidence - Climate Action Plan 2021
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About you

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Carbon Pricing and Cross-Cutting Issues

1 What further opportunities exist within our taxation system, beyond measures already implemented and planned, to promote emissions reductions, either on an economy-wide basis, or in specific sectors?

Please provide details in the text box provided:

+ Clear plan to phase out all fossil fuel subsidies [1], to be completed no later than end of 2025
+ Develop national “energy system transformation bonds”, with state guaranteed return for personal investors)
+ Reform the PSO (including re-brand: e.g., PESTF - Public Energy System Transformation Fund) so that it scales with energy consumption
+ Introduce a national floor price, with 10-year minimum escalator, on ETS
+ Introduce national floor prices, with 10-year minimum escalator, on fossil fuels (petrol, diesel, kerosene, natural gas, coal, LPG). This would involve reform and rationalisation of other related taxes/levies.
+ Introduce a progressive aviation-ticket tax (frequent-flyer levy) [2]

[1] https://www.cso.ie/en/statistics/environmentaccounts/fossilfuelsubsidies/
[2] https://stay-grounded.org/wp-content/uploads/2019/04/progressive-ticket-tax-frequent-flyer-levy.pdf

2 What supporting policies might be required to offset the impact of any taxation changes on low income households or those most at risk from fuel poverty?

Please provide details in the text box provided:

+ Consider/deploy Tradable Energy/emissions Quotas (TEQs) [1, 2].
+ Universal Basic Income [3] and/or Job Guarantee [4]

[1] https://flemingpolicycentre.org.uk/teqs/
[2] https://tinyurl.com/BMcM-TEQs
[3] https://basicincome.ie/
[4] https://gimms.org.uk/job-guarantee/

3 What further measures might be required in the planning system to realise the objectives of the National Planning Framework in respect of climate action?

Please provide details in the text box provided:

4 What specific additional measures might be required to promote sustainable growth in our urban centres, including to realise the potential of a “15-minute city”?

Please provide details in the text box provided:

The first principle here should be to prioritise personal mobility, in the forms of walking, cycling, e-bikes, e-scooters etc.; followed by shared-mode motorised transport for longer distances. The recent ITF shared mobility study for Dublin [1] shows an excellent blueprint for what would be possible, not just in Dublin, but in any major urban centre in Ireland. However, this would require strong measures to limit and constrain low occupancy motor vehicle use (however powered). Thus large scale reallocation of finite road space to walking, safe (segregated) cycling, and shared mode vehicles, in the form of both conventional fixed route/fixed frequency public transport and dynamic, on-demand, shared mobility service, typically in medium-duty (“minibus”) vehicles. Ideally these vehicles would ultimately all be zero emission: but the quickest, deepest, emission reduction is by enhancing occupancy, even using conventional ICE vehicles.

It is essential to make shared mode transport consistently lower marginal cost for users than individualised, single passenger (private car) transport. This can be realised via a suite of measures that have the effect of increasing the costs of (single occupancy) car transport while reducing the costs and availability of comparable shared mode journeys. This may include expansion of fully pedestrianised areas, expansion of segregated cycleways, exclusion

of private cars from urban cores, congestion charging, restrictions and increased charges for parking, enforcement of existing parking regulations (particularly in relation to footpaths in residential areas). Alternative personal mobility devices (e-scooters etc.) need to be put onto a clear statutory footing (with standards equivalent to e-bikes) as a matter of urgency. Simple, integrated, multi-modal public transport fares (time and/or zone based) should also be an early priority. So-called “integrated ticketing” already exists, in the form of the Leap card; but there has been no deployment of “integrated fares”. This has been announced as a final step in Dublin BusConnects: but, as it is not dependent on route redesign, new infrastructure or vehicle deployment, it should be progressed without delay.

Measures should be considered to progressively reduce overall private car fleet size and increase occupancy in private vehicles, such as incentives for car sharing and car pooling.

[1] https://www.itf-oecd.org/sites/default/files/docs/shared-mobility-simulations-dublin.pdf

5 What specific additional measures might be required to promote sustainable growth in rural areas?

Please provide details in the text box provided:

Rural public transport services should be substantially strengthened in scope and frequency, drawing on the most current understanding of quantitative measures of transport access [1]. Local transport services should be seamlessly integrated (in routes, timetables, ticketing and through fares) with urban and inter-urban public transport services, on a national (preferably all-island) basis.

[1] https://transportist.org/transport-access-manual-a-guide-for-measuring-connection-between-people-and-places/

6 Are there further measures that the Government should take to channel private finance into low-carbon investments in Ireland?

Please provide details in the text box provided:

7 Are any changes required in Ireland’s research policy to channel research funding into climate action-related topics?

Please provide details in the text box provided:

Given the stated mid- to long-term policy direction that Ireland’s primary energy supply should evolve to become dominated by variable renewable sources (wind and solar especially), across all sectors, not just current electricity use, it is likely that hydrogen will need to play a key role both as an interseasonal storage vector, and in certain specific end uses where electrification is especially difficult (high temperature heating, heavy transport). There is therefore a strategic interest for Ireland in focussed research, both basic and applied, on: electrolysers, hydrogen storage (at various pressures and capacities), hydrogen fuel cells, and systems integration around hydrogen production, transport and end use. This would extend also to research into ammonia - production, transport, storage and end use, especially in shipping. Aviation will continue to rely predominantly on hydrocarbon fuels for at least the next three decades: accordingly, there is a significant potential role for fully synthetic hydrocarbon aviation fuel production, in regions with comparatively large renewable energy resources. Given Ireland’s strategic reliance on, and commitment to, the aviation sector, this may also be a critical research priority.

Taking account of the now severe constraints on the remaining global “budget” of GHG emissions, compatible with meeting the Paris Agreement temperature goals, it may be increasingly necessary to deploy measures to actively remove carbon dioxide from atmosphere (CDR). As a minimum, this will be needed to address residual emissions of nitrous oxide (essential to ongoing agricultural activities for global food security); but is also currently assumed at potentially much larger scales in many global scenarios for meeting the Paris goals, if gross GHG emissions do not fall sufficiently rapidly in the next two decades. Possible approaches to CDR include both so called “nature based” and technological interventions (and hybrids between the two). Consideration should be given to a major strategic research initiative into these areas in Ireland to ensure that the most appropriate approaches can be developed, matched with our specific national circumstances.

8 Is there any additional information you would like to submit in relation to Carbon Pricing and Cross-Cutting Issues?

Please provide details in the text box provided:

Development of national, economy-wide, carbon pricing should take full account of the constraints of the Paris Agreement global temperature goals and the corresponding expert international analysis [1], and also explicitly reflect the requirements of global climate justice and solidarity. This would appear to generally favour a significantly higher carbon price, sooner, than has been considered in Ireland to date.

[1] https://tinyurl.com/4bsuaeur

Electricity

1 What options are available to increase the penetration of renewable electricity beyond the 70% committed to in Climate Action Plan 2019?

Please provide details in the text box provided:

Notwithstanding its explicit role in EU policy, renewable penetration mandates are a poor basis for effective climate action, as they are, at best, weakly correlated with absolute emissions reduction. The existing "70% RE penetration" goal for the electricity sector must be complemented with an explicit, 10 year, absolute emissions ceiling ("sectoral emissions ceiling" in the terms of the pending Climate Action Amendment Bill 2021). This should allow for migration of some existing direct fossil energy use in transport and heating into electricity; but should strongly constrain emergence of any NEW consumption of electricity (unless and until electricity supply has been fully decarbonised).

The current classification of imported wood chip (for power generation in Edenderry) as “renewable” is fundamentally unsatisfactory. This practice should cease (no later than 2025).

To achieve significantly deeper decarbonisation that currently envisaged it will firstly be essential to reduce (ideally eliminate) reserve requirements that keep fossil fuel generating plant running even when not required to service demand. Secondly, within the decade to 2030, the reliance on fossil fuel (primarily natural gas) generation for filling in periods of low wind and solar availability must be progressively reduced or eliminated. The only credible technology options for this are nuclear fission, fossil fuel with CCS and large scale storage of "green" hydrogen. Of these, nuclear currently lacks social licence, is not available in suitable configurations, and would be highly unlikely to be deployable within the next 10 years. CCS retrofit to existing natural gas plant may be feasible. However, given growing insecurity in natural gas supply, and significant residual emissions associated with CCS plant (upstream and downstream, including CH4 as well as CO2) this could be at most a transitional measure. Accordingly, given the urgency now required, incentivisation of rapid deployment of green hydrogen production and use in existing and new gas turbine plant appears as the most strategic option for Ireland. This approach would best complement the proposed rapid deployment of additional wind and solar capability, serving to effectively cap or eliminate dispatch down. This strategy would also allow development of systems integration expertise that would be of great export potential.

2 What can be done to increase the uptake of offshore wind and solar PV in particular, in the context of the Programme for Government ambition?

Please provide details in the text box provided:

Current barriers to deployment include lack of transmission network capacity, complexity and delays in permitting, and lack of a regular/dependable programme of RESS auctions. It is critical that all of these be addressed. However, even then, the emerging risk of excessive dispatch down of wind and solar generation may undermine the financial viability of new projects. Thus a strategic approach to capping or eliminating dispatch down may well be essential to ensure a strong project pipeline. As already noted, specific strategy and incentives to support production and storage of green hydrogen, for use in existing and new gas turbine generating plant appears as a key potential mechanism to limit dispatch down particularly in the period 2026-2030. This could potentially be addressed via dedicated auctions for electrolyser, storage and H2-based generation capacity.

Separately, limited social licence for new deployments, particularly of onshore wind and new transmission infrastructure, may also significantly constrain deployment rates. There is a key role for national and local government to engage proactively with local communities, to clearly communicate the national need for rapid energy infrastructure deployment, while ensuring that communities also see tangible and meaningful local benefits and opportunities.

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

Please provide details in the text box provided:

"Renewable gas" is such an ill-defined term that it is not useful and should be entirely avoided in energy policy development.

As already indicated there is a strong potential role for green hydrogen in the power generation sector specifically in Ireland. While this has previously been envisaged as a longer term prospect (2035+), under the conditions of a much more rapid build out of new wind and solar generation, this timeline needs to be brought forward. Otherwise, growing dispatch down will stifle further RE projects. Further, declining indigenous natural gas supply, and increasingly volatile international energy markets, raise significant natural gas security of supply concerns, within this decade. However, even with current levels of technology maturity, pilot scale deployment of green hydrogen (up to, say, 100MW electrolyser power, 24-hour+ storage) could be possible even in the period 2021-2025, with a view to significant scale up in the period 2026-2030.

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

Please provide details in the text box provided:

As already discussed, there are multiple strategic weaknesses in the case for CCS deployment in the power sector in Ireland. These include: very significant residual emissions (upstream and downstream, including CH4 as well as CO2); declining indigenous natural gas supply (with consequent security-of-supply concerns); limited territorial sites suitable for CO2 storage (which may, in any case, be better retained for future use in conjunction with active CO2 removal from atmosphere, should that prove necessary in future decades); and limited technology maturity of CCS plant in general. At best, CCS deployment (say on existing natural gas generation plant) would appear to represent a relatively short term transitional measure for Ireland: accordingly, there is a strong national strategic interest in "leapfrogging" this, if possible, by rapid deployment of strategic green hydrogen infrastructure (production, storage, transport, power generation) instead.

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

Please provide details in the text box provided:

Decarbonisation in electricity is, in part, a race between deployment of decarbonised generation sources and expansion of electricity demand. Again, measures to limit emergence of NEW energy demand (as opposed to migration of existing energy demand into the electricity sector) should be given strong consideration unless and until electricity supply has been fully decarbonised.

There is a valid case to facilitate societal consideration of possible nuclear generation (“small modular reactors”). Earliest feasible deployment would likely be in the 2030-2035 timeframe: but even that would be possible only if general societal discussion gave a mandate for this early in the current decade (say no later than end 2022). Conversely, if societal debate resolved on continued exclusion of nuclear (say to 2039) that would clarify and facilitate the planning of electricity system evolution in its absence.

6 What measures might be taken to improve the resilience of the electricity system to the impacts of climate change?

Please provide details in the text box provided:

With the potential emergence of more extreme weather events, which can compromise electricity supply, coupled with wider reliance on electricity for critical services (progressively heating and transport) there may be a strategic need to develop localised "backup" generation capacity that can still operate on an "islanded" basis at the level of individual households or small geographical communities. At the transmission system level, greater redundancy, including via undergrounded lines, may be appropriate.

Transport

1 What further policy measures might be required to enable Ireland to meet the CAP 2019 target of 936,000 electric vehicles on the road by 2030?

Please provide details in the text box provided:

As with renewable electricity penetration, this is simply a bad policy goal. It must be complemented with (or replaced by) proper "sectoral emissions ceilings", over relevant carbon budget periods, allocated to transport overall and to transport subsectors also.

In any case, under current measures, the target of 936,000 electric vehicles on the road by 2030 appears entirely unachievable, as it would require close to 90% of new light duty vehicles sales to be electric over most of the period 2021-2030. Given that in 2020, BEV sales penetration was of the order of 4.5%, this is a huge gap, and much stronger measures are required. Specifically, this may include bringing forward the proposed ban on sales of new ICE cars (including hybrid) from 2030 to perhaps 2027 or even 2025; complemented with a steeply rising VRT regime on ICE cars in the interim. This could be coupled with a rationing system for supply of fossil motor fuels, with a strongly declining cap over the next 5-10 years. This might be best integrated with the deployment of the more general Tradable Energy/emissions Quotas (TEQs) system [1, 2].

Note that, given the urgency of transport decarbonisation, and the typical 15-20 year service life, the case for any incentivisation of hybrid ICE/electric vehicles (plugin or not), as opposed to full battery electric, is now relatively weak.

[1] https://flemingpolicycentre.org.uk/teqs/
[2] https://tinyurl.com/BMcM-TEQs

2 Is there scope to increase this target for 2030? What should the new target be?

Please provide details in the text box provided:

As already noted, a raw target of EV fleet numbers is a very poor proxy for absolute transport sector decarbonisation. It should be abandoned as a "headline" target, in favour of the sectoral emissions (budget) ceilings under the new rolling 5-year GHG budget framework (but may conceivably remain as a subsidiary target in service of such a headline emissions ceiling). Nonetheless, the absolute number of EVs is much less important than the number of km travelled by ICE vehicles, and their occupancy. Policy focus should be much more oriented on minimising ICE vehicle km (regardless of vehicle fleet numbers) and maximising occupancy on those journeys.

3 What specific measures might be required in the commercial transport sector to encourage a change to EVs or other zero carbon alternatives?

Please provide details in the text box provided:

Again, the most direct measure would be to bring forward the ban on sales of new ICE (including hybrid) LDVs from 2030 to 2027 or 2025. This should be coupled with a clear cost escalator for the purchase and operation of LDVs over the 5-15 year time horizon that typically affects purchase decisions. This could include VRT escalation and the introduction of fossil fuel rationing, via TEQs [1, 2] or otherwise.

[1] https://flemingpolicycentre.org.uk/teqs/
[2] https://tinyurl.com/BMcM-TEQs

4 What additional measures should be considered to promote greater use of public transport or active mobility options?

Please provide details in the text box provided:

The first principle here should be to prioritise personal mobility, in the forms of walking, cycling, e-bikes, e-scooters etc.; followed by shared-mode motorised transport for longer distances. The recent ITF shared mobility study for Dublin [1] shows an excellent blueprint for what would be possible, not just in Dublin, but in any major urban centre in Ireland. However, this would require strong measures to limit and constrain low occupancy motor vehicle use (however powered). Thus large scale reallocation of finite road space to walking, safe (segregated) cycling, and shared mode vehicles, in the form of both conventional fixed route/fixed frequency public transport and dynamic, on-demand, shared mobility service, typically in medium-duty (“minibus”) vehicles. Ideally these vehicles would ultimately all be zero emission: but the quickest, deepest, emission reduction is by enhancing occupancy, even using conventional ICE vehicles.

It is essential to make shared mode transport consistently lower marginal cost for users than individualised, single passenger (private car) transport. This can be realised via a suite of measures that have the effect of increasing the costs of (single occupancy) car transport while reducing the costs and availability of comparable shared mode journeys. This may include expansion of fully pedestrianised areas, expansion of segregated cycleways, exclusion of private cars from urban cores, congestion charging, restrictions and increased charges for parking, enforcement of existing parking regulations (particularly in relation to footpaths in residential areas). Alternative personal mobility devices (e-scooters etc.) need to be put onto a clear statutory footing (with standards equivalent to e-bikes) as a matter of urgency. Simple, integrated, multi-modal public transport fares (time and/or zone based)

should also be an early priority. So-called “integrated ticketing” already exists, in the form of the Leap card; but there has been no deployment of “integrated fares”. This has been announced as a final step in Dublin BusConnects: but, as it is not dependent on route redesign, new infrastructure or vehicle deployment, it should be progressed without delay.

[1] https://www.itf-oecd.org/sites/default/files/docs/shared-mobility-simulations-dublin.pdf

5 What specific policies might be required to reduce overall passenger kilometres driven within the private car fleet?

Please provide details in the text box provided:

Rural public transport services should be substantially strengthened in scope and frequency, drawing on the most current understanding of quantitative measures of transport access [1]. Local transport services should be seamlessly integrated (in routes, timetables, ticketing and through fares) with urban and inter-urban public transport services, on a national (preferably all-island) basis).

[1] https://transportist.org/transport-access-manual-a-guide-for-measuring-connection-between-people-and-places/

6 Is there scope to effect a change in the composition of the private car fleet to shift the vehicle mix away from higher emitting classes?

Please provide details in the text box provided:

Given the extreme urgency of deep decarbonisation, and the slow turnover of transport fleets, incremental "nudging" towards marginal improvements in emissions intensity no longer appear commensurate with the challenge. As already indicated, much more stringent measures are needed for an early phase out of ICE vehicles sales, and significant constraints on the km travelled by the existing fleet (especially at low occupancy) over its remaining, multi-decadal, lifetime.

7 Is there scope to further increase biofuel blends rates beyond those already planned under the 2019 Climate Action Plan?

Please provide details in the text box provided:

Biofuel blending poses both technical and wider policy issues. There is some technical potential for increased blending rates, for example with HVO. However, given the wide variety of emissions intensities of different biofuel production pathways [1], it remains very important to ensure that only the lowest possible GHG intensity biofuels are used.

[1] https://tinyurl.com/yn8ksm7v

8 Are there any specific obstacles in the planning system preventing greater modal shift?

Please provide details in the text box provided:

9 Are there specific further measures that should be undertaken to increase the availability of electric vehicle changing points, whether in public areas or on private property?

Please provide details in the text box provided:

10 What could be done to make the public sector transport fleets more climate friendly?

Please provide details in the text box provided:

The highest short term priority is to promote modal shift from very low occupancy private cars to much higher occupancy vehicle usage, including via car sharing, journey pooling, conventional fixed route/fixed frequency public transport and dynamic, on-demand, shared mobility service, typically in medium-duty (“minibus”) vehicles. Ideally all these vehicles would ultimately all be zero emission: but the quickest, deepest, emission reduction is by enhancing occupancy, even using conventional ICE vehicles.

Wherever feasible, public transport vehicles should have provision for easy carriage of bikes, e-bikes, and other personal mobility devices.

11 What changes should be considered in relation to the management of Ireland’s road network (e.g. reducing speed limits, additional road pricing, or restrictions for specific vehicles in urban areas) to promote emissions reductions?

Please provide details in the text box provided:

Reducing motorway speed limits generically to 100 kph would be a modest but useful intervention. Similarly, exclusion of private cars from urban cores, congestion charging, restrictions and increased charges for parking all have a potential role. Most critically, any such measures must be strongly enforced. Allocate much more road space for public transport (bus lanes etc) and for "active" modes (segregated pedestrian and cycle paths). This is urgently required in both urban and rural areas (and is possible at much lower cost than new road construction). Substantially increase signalling priority for pedestrian and cycle traffic in urban areas.

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

Please provide details in the text box provided:

Place a moratorium on the construction of new road infrastructure unless and until the road vehicle fleet has been fully decarbonised.

13 What specific measures could be undertaken in transport infrastructure to address existing and future locked-in climate change impacts?

Please provide details in the text box provided: