

Sent via email only to communications@olev.gov.uk

10 July 2020

Energy industry supports greater ambition on electric vehicles

I am writing on behalf of Energy UK to formally express our support for the Government's proposal to bring forward the phase-out date for internal combustion engine vehicles. Key points that we would like to raise include:

- **A 2030 phase out date:** Energy UK supports the phase out date being brought forward from 2040 to 2030 instead of 2035, in light of the significant environmental, economic and financial benefits of an ambitious electric vehicle (EV) uptake.
- **Targeted Government support:** A rapidly growing EV market over the next 3- 5 years is absolutely critical if we are to meet an ambitious phase out date. The target must be underpinned by an effective package of support to increase EV sales, in particular in relation to the upfront cost of electric vehicles and to address market failures in the provision of EV charging sector in some geographic areas. We acknowledge, however, the need to phase out support over time as the cost of EVs comes down and the chargepoint network develops.
- **Power sector readiness:** Providing that the appropriate frameworks are in place to support low carbon generation, deliver flexibility markets and incentivise smart charging, we do not anticipate any problems in delivering the additional electricity that will be required with a 2030 phase out target. Government should however set a policy objective within the Energy White Paper for deployment of flexibility as an enabler of meeting net zero at least cost.
- **Zero emission vehicles only:** From 2030, only zero emission vehicles should be available to purchase. While plug-in hybrids have a role to play as a transitional technology, we need to be putting the groundworks in from 2030 to ensure that all vehicles on the road are fully zero emission by 2050.
- **Local infrastructure plans:** To identify and address EV charging infrastructure gaps, local authorities should be resourced to develop local EV chargepoints plans within Local Area Energy Plans.

Please see in the appendix below for further detail on these points and for responses to the five areas you requested information on.

If you have any questions please do not hesitate to get in touch.

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Appendix

Introduction to Energy UK

Energy UK is the leading trade association for the GB energy industry with a membership of over 100 suppliers, generators, and stakeholders with a business interest in the production and supply of electricity and gas for domestic and business consumers.

Energy UK members are very active in the electric vehicle (EV) space, offering EV tariffs, smart charging and vehicle to grid, leasing EVs either directly or in partnership with other companies, and installing chargepoints in homes, businesses and in the public domain. As such we hope our input to this consultation is useful.

The phase out date

Energy UK strongly supports the phase out date for internal combustion engine vehicles being brought forward from 2040, as we have long called for. As the Committee on Climate Change highlights in its Net Zero Technical Report a 2040 phase out date would leave “around 9.8 million petrol, diesel and plug-in hybrid vehicles on the road”¹ in 2050, putting into sharp focus the importance of bringing forward the phase out date.

In light of the climate emergency and the importance of decarbonising the transport sector, along with the associated benefits of doing so for society at large, Energy UK believes that the phase out date should be brought forward to 2030 rather than 2035.

While this may appear daunting there are a number of factors that support this position:

- As argued by the Committee on Climate Change, by 2030 it is highly likely to be cheaper to buy a (subsidy-free) battery electric vehicle than an internal combustion engine vehicle, making EVs the obvious choice for new vehicle purchases². There will be even further savings when taking running costs into account.
- Phasing out the sale of new internal combustion engine vehicles does not mean banning their use or the sale of second hand vehicles. As such those that do not yet want a zero-emission vehicle will still be able to buy and use whichever vehicle they want.
- Setting a 2030 target will of itself support a faster uptake of EVs. It sends a stronger signal to drivers and to industry around the UK’s commitment to phasing out internal combustion engine vehicles. This gives vehicle manufacturers, local authorities, chargepoint operators, network operators, and energy companies, etc added confidence to invest in the necessary infrastructure and make the changes needed for a rapid uptake of EVs.

The benefits of a more rapid uptake of EVs are society-wide, including cleaner air, high skilled job opportunities and reduced carbon emissions. However EVs also offer significant benefits to their users: a smooth driving experience, fewer maintenance requirements and lower running costs, to name but a few. Transitioning to net zero must be consumer-focused to succeed, delivering concrete benefits to consumers. EVs represent one of the starkest examples of where consumer benefits and decarbonisation are perfectly aligned. Encouraging their uptake must therefore remain a top priority for Government.

Between 1990 and 2019 carbon dioxide emissions from power stations have been cut by 72% despite electricity consumption increasing by 6%³. Between 2018 and 2019 alone, emissions were cut by 8% (ibid). These dramatic decreases demonstrate what can be achieved over a short amount of time when market forces and a clear and ambitious policy framework are aligned. This also highlights the

¹ p148, <https://www.theccc.org.uk/publication/net-zero-technical-report/>

² pp141-143 <https://www.theccc.org.uk/publication/net-zero-technical-report/>

³ p7

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/875485/2019_UK_greenhouse_gas_emissions_provisional_figures_statistical_release.pdf

opportunity that is now in front of us, as we leverage the progress made in decarbonising power into the transport sector. In stark contrast to the power sector, transport emissions have only dropped by 5% between 1990 and 2019 with the sector now accounting for 34% of UK carbon dioxide emissions⁴.

While meeting the proposed target will be challenging, we strongly believe that urgent action is required to achieve net zero and contribute to global efforts to meet a 1.5 degree target, in line with our COP21 commitments made in 2015. There is a significant policy gap in the transport sector, as highlighted in the Transport Decarbonisation Plan: Setting the Challenge (figure 18)⁵.

The definition of what should be phased out

Energy UK supports an ambitious phase out target. In our May 2018 letter to the then Secretary of State for Transport, we urged Government to ban the sale of all vehicles with a zero-emission range of less than 70 miles. However, since then the electric vehicle market has developed considerably, with new models being brought to market, a number of high-profile industry commitments and announcements and the cost of batteries dropping significantly.

As such Energy UK urges Government to ensure that from 2030 all new vehicles sold are zero emission vehicles.

While plug-in hybrids (PHEVs) have a role to play as a transitional technology over the next decade, to meet our net zero target we ultimately need all passenger mileage to be zero emission. The only technologies that can deliver that with confidence are zero emission vehicles. Failing to phase out PHEVs could leave a significant number of these vehicles on the roads in 2050 with no meaningful or realistic levers to ensure these vehicles are operated in zero emission mode.

A minimum zero emission range for new PHEVs for 2025 and continued improvements in internal combustion engine efficiency would also play an important role alongside the introduction of the phase out target. The former would encourage the market to deliver PHEVs that deliver a practical zero emission range. PHEV drivers would then be more likely to use their vehicles in electric mode, getting them more accustomed to driving in zero emission mode and recharging, and therefore helping pave the way for full battery electric vehicle adoption.

As argued in the section above, drivers will still be able to use plug-in hybrid electric vehicles and buy them second hand in the 2030s and into the 2040s, ensuring that their role as a transitional technology over the coming decades can still be taken advantage of. This may be particularly important for business fleets where there are not yet zero emission vehicle models available for all vehicle types.

Barriers to achieving the ambitions set out in the consultation

At the moment, the most pressing barriers to the adoption of battery electric vehicles are upfront cost, charging infrastructure, vehicle range, choice and supply. Over the course of the next decade, ensuring that the energy system is able to meet the increased electricity demand from electric vehicles will also be key, something we explore in the section on the impacts on different sectors.

Upfront cost, vehicle range and choice is expected to improve considerably during the 2020s with the launch of new models and as battery costs continue to drop⁶. The potential remaining barriers to meeting a 2030 phase out date are therefore that of charging infrastructure and vehicle supply.

EV charging infrastructure

⁴ p10

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/875485/2019_UK_greenhouse_gas_emissions_provisional_figures_statistical_release.pdf

⁵ p56 <https://www.gov.uk/government/publications/creating-the-transport-decarbonisation-plan>

⁶ <https://about.bnef.com/electric-vehicle-outlook/>

One of the key factors determining the business case for EV charging infrastructure is utilisation. As the number of users increases so does utilisation, improving the business case and providing the confidence for operators to invest in rolling out more chargepoints. As such while Government support for EV charging infrastructure is important, the key for charging infrastructure lies in getting more EVs onto the road.

The majority of charging events are likely to take place at home and at workplaces, with a smaller proportion of charging on-route and destination. The private sector has shown its willingness to invest in charging infrastructure as a result of which the UK now has over 30,000 public charging connectors across more than 11,000 locations, including over 7,500 rapid charging connectors across more than 2,000 locations⁷. This is something we must actively encourage and nurture.

Government intervention into the EV charging sector should be limited to instances where commercial provision is not currently viable. Targeted intervention where there is a such market failure is absolutely the right approach. Blanket support for public charging infrastructure is not needed or appropriate. There are two primary areas that Energy UK sees as presenting a risk of market failure: ultra-rapid chargers and on-street charging. More broadly, consideration should be given to destination charging infrastructure where there will be societal value to encouraging footfall, such as town centres and seasonal tourist areas.

Ultra rapid chargers are being looked at as part of the Rapid Charging Fund and the associated strategic review, which we look forward to seeing the detail of in due course. Energy UK was pleased to see the announcement of £500m in the March 2020 Budget to support the connection cost for ultra-rapid chargers in England. This should be coordinated with Scotland and Wales with equivalent funding to ensure a coherent approach for motorists across GB.

One remaining barrier that Energy UK would however flag with that regard is the connection process. While installing a chargepoint itself needn't be an overly complex process, the power network upgrades can be. Speeding up these processes will be important to deliver the pace of change for a 2030 phase out date and will therefore need to be looked at by Government and the regulator. Immediate improvements that could be made include a standardised and consistent connection process across DNOs and a reduction in the length of substation lease lengths (from 99 years), which is at odds with industry requirements.

The Distribution Network Operators (DNOs) and the Energy Networks Association have shown their willingness to engage with industry to try and improve these processes however it is likely that more wide sweeping changes are needed from Ofgem to streamline the connection process and enable DNOs to invest ahead of need, where appropriate, to remove bottlenecks. There is a clear challenge in that the customer triggering the network upgrade bears all the costs, customers that come after then access the capacity for a fraction of the cost. This creates a first mover disadvantage and discourages investment rather than supporting it.

On-street charging is another area that could present a risk of market failure and we would urge OLEV to ensure that it is captured under the planned strategic review of public charging infrastructure, also announced in the Budget. At the moment the delivery of on-street charging is patchy at best, a factor of a given local authority's willingness to act and their resources. That cannot continue if we are to provide drivers with the confidence to make the switch to EVs. A centrally-coordinated demand-led process, as used Amsterdam^{8, 9}, whereby new EV owners can request an on-street charger near their home, is an example of the type of policy needed to scale up on-street charging. While 66% of homes in England have off-street parking, that leaves a third of English homes relying on on-street parking or with no

⁷ <https://www.zap-map.com/statistics/>

⁸ <https://www.interregeurope.eu/policylearning/good-practices/item/1699/amsterdam-s-demand-driven-charging-infrastructure/>

⁹ https://issuu.com/gemeenteamsterdam/docs/plan_amsterdam_4-2018_the_electric

parking provision at all¹⁰, a problem that is likely to be particularly acute in densely populated areas. In London for instance, around two thirds of EVs in residential areas are expected to have to charge on-street in 2025¹¹.

Consideration should also be given to locations where there may be societal benefits in providing a number of chargepoints that may be underutilised to encourage footfall. Examples include town centres whose businesses depend on consumers who may otherwise go to out-of-town shopping centres, and tourist areas like Cornwall, mid-Wales, the Lake District or the Scottish Highlands which have significant seasonal demands and availability of charging infrastructure could influence British holiday choices. It is important that rural areas are not left behind when it comes to the provision of public EV charging.

These charging infrastructure gaps can be best identified by the local communities with the engagement with a range of stakeholders. To help identify, coordinate and fill these gaps, incentives and resourcing for Local Area Energy Plans (LAEPs) could be included within the RIIO ED2 price control as this would enable a more cost-effective development of electricity distribution systems and local flexibility options. As well as empowering local authorities to help accelerate transport decarbonisation, heat zoning could also be included with LAEPs to deliver similar benefits for heat decarbonisation.

Vehicle supply

Based on current waiting times in the market it appears that EV demand in the UK is outstripping supply, with many OEMs unable to keep up with demand. The current COVID-19 crisis is an exceptional situation for OEMs and requires careful consideration and a specific response. However once we return to business as usual extended waiting times for EVs are not sustainable if we hope to scale up to 100% market share for zero emission vehicles.

It will be important that as ever-tighter CO₂ regulations come into force in the EU and as Brexit negotiations continue the UK does not become a dumping ground for vehicles that cannot be sold in the EU. All options will need to be considered to prevent that. EU CO₂ regulations have been vitally important to the EV market to date and it will be important that these targets are not relaxed over the coming years.

As a minimum, alignment with the European CO₂ tailpipe standard must be a priority to ensure the UK is considered a priority for export of EVs, alongside other European countries. Technology neutral levers, such as tighter CO₂ regulations and / or a zero emission vehicle mandate, should be actively considered for the UK market alongside interim targets to ensure we are on track to a full phase out date and to ensure the UK market is allocated sufficient quantities of EVs.

Energy UK is conscious that supply chains cannot be overhauled overnight, however with sufficient lead time strong regulatory measures of this nature would support the full phase out target by 2030 and ensure the UK market is adequately supplied with EVs.

The impact of these ambitions on different sectors of industry and society

Energy UK has long called for an ambitious phase out target and we stand ready to play our part to achieve it. If the phase out date is brought forward to 2030, we do not anticipate any problems in delivering the additional electricity that will be required.

In other words, the power sector could support a phase out date from as early as 2030.

Energy UK has reached this position by considering whether or not the power sector is able to meet the likely peak demand from EVs, the overall additional energy demand and install the required capacity (generation and flexible assets) for a 2030 phase out date. We are confident that with appropriate

¹⁰ Annex table 1.4 <https://www.gov.uk/government/statistics/english-housing-survey-2016-stock-condition>

¹¹ p41 <http://content.tfl.gov.uk/ev-uptake-and-infrastructure-impacts-study-updated-nov-2016.pdf>

support for low carbon generation, smart charging and well-functioning flexibility markets, the UK can meet the power demand to ensure that only zero emission vehicles are sold from 2030.

This position is supported by two recent studies that have looked at this issue. Together they demonstrate that with a sufficiently ambitious energy policy the UK energy system can generate, transmit, distribute and supply the electricity needed for a 2030 phase out of new internal combustion engine vehicles.

Energy UK would first highlight the work undertaken by Imperial College London and Vivid Economics for the Committee on Climate Change on accelerated electrification and the GB electricity system¹². In this modelling up to 24 million EVs are connected to the electricity system by 2030, and 37 million by 2035. This would mean that nearly all vehicles on the road are EVs by 2035, representing a level that is consistent if not more ambitious than a 2030 phase out scenario. The report finds that:

- With smart charging, rapid EV uptake increases peak demand in 2035 by 7GW, annual generation by 37TWh in and requires 20GW of additional installed capacity compared to the 2035 central scenario.
- While the electricity system must expand significantly between now and 2035, there are sufficient onshore, offshore and solar resources to do so and past build rates of low carbon generation assets indicate this is feasible.
- If renewables are used to meet the new demand then the per kWh cost of electricity could be brought down.
- The demand side response and smart charging needed for that level of EV uptake is technically feasible.
- New distribution network investment would be needed however this would represent no more than 4 per cent of the cost per kWh of electricity.

Further analysis was undertaken by Vivid Economics for WWF¹³ that specifically examines the impact of bringing forward the phase out date from 2040 to 2030. The research suggests that it would result in up to 20 million EVs in 2030, compared to 13 million under a 2040 phase out target scenario. This requires an additional 6GW of installed capacity in 2030 (169.5GW vs 163.5GW) and 13 TWh in additional annual generation (378TWh vs 365TWh) when smart charging is used in both scenarios.

Put another way, bringing forward the phase out target from 2040 to 2030 requires an approximately 4 per cent increase in installed capacity and annual generation in 2030.

A key conclusion which Energy UK would highlight in this report is that:

“The charging profile is a more important factor than the number of electric vehicles in the cost of integrating electric vehicles into the electricity system. In other words, the smartness of the transition to electric vehicles will be the main factor determining how cost effective the transition is, not the speed of the transition.” (p18)

This is something that Energy UK has consistently sought to convey: providing that smart charging is in place the power sector will be able to meet electricity demand for a rapid EV uptake. The role of smart charging is further reinforced in National Grid’s Future Energy Scenarios where smart charging could nearly half EV peak demand in 2030, with vehicle to grid potentially reducing EV peak demand even further¹⁴.

What measures are required by Government and others to achieve the earlier phase out date

¹² <https://www.theccc.org.uk/publication/accelerated-electrification-and-the-gb-electricity-system/>

¹³ <https://www.wwf.org.uk/sites/default/files/2018-06/Final%20WWF%20Accelerating%20the%20EV%20transition%20-%20part%202.pdf>

¹⁴ Community Renewables scenario <http://fes.nationalgrid.com/fes-document/>

A 2030 phase out date is ambitious and will be challenging. To meet the target a comprehensive policy framework will be needed to cover all aspects of the transition, including a sustainable and stable set of incentives for both vehicles and chargepoints, a consistent vehicle taxation regime, forward looking regulation and enabling market frameworks.

It will be important to ensure that future policy and regulatory decisions in the EV and energy sector are consistent and aligned with the phase out date and our 2050 net zero target. Meeting our net zero target requires us all to be pulling in the same direction, putting the consumer at the forefront.

As argued repeatedly in this response, we will need the policy and regulatory frameworks to enable smart charging, create the necessary flexibility markets and support low carbon generation. These topics are too large to cover in detail here, however we have included key asks and are working closely with the relevant Government departments.

Meeting the 2030 target will of course also need a rapid expansion of the EV market, requiring strong incentives to buy EVs and only withdrawing them gradually as EV costs fall and market share rises, alongside targeted support for charging infrastructure. A rapidly growing EV market over the next 3-5 years is critical to achieving the full phase out date. Building momentum in the early 2020s is essential to put us on the right pathway for an ambitious phase out date.

Government support for EVs and EV infrastructure

The importance of increasing EV sales over the coming decade cannot be overstated. A 2030 phase out target must be backed up by an appropriate package of support to be credible.

There is a useful parallel in the power sector with the phase out of coal. Carbon pricing and other Government policies, as well as market trends, have resulted in coal generation falling dramatically over the past decade or so. This meant that the announcement to end the use of coal was uncontroversial and has broad industry support. Similarly, providing that the EV market continues to grow, phasing out the remaining internal combustion engine vehicles sales will be widely supported. A rapid growth in EV sales in the coming years will increase acceptance of an ambitious phase out target. Support is needed to deliver that market growth.

There is considerable scope to strengthen the appeal of EVs through better coordinated incentives and vehicle taxation – a joined up bonus-malus scheme that encompasses vehicle excise duty and upfront grants, while admittedly challenging to set up, would create a consistent, clear, fiscally sustainable and future-proofed way to encourage drivers to switch to EVs.

There is also of course the challenge of fuel duty, on which Energy UK would urge Government not to transfer it to energy bills. Energy bill levies are regressive, hitting those least able to pay the most. It should also be noted that even when zero emission vehicles make up 100% of vehicle sales the majority of vehicles on the road will still be ICE vehicles, meaning that declining fuel duty is not an immediate issue.

Energy UK appreciates that it is not necessarily feasible to tackle all of these issues in the short term, as such, in the meantime Energy UK calls on Government to:

- **Link the Plug-in Car Grant (PICG) to the market share of EVs, communicating in advance the milestones that will trigger a gradual reduction to zero.**

The PICG is one of the most important, and visible, policies for EVs. The continuation of the PICG is key to consumer and industry confidence. Setting out a clear timetable for the reduction in grant levels and linking it to the market share of EVs helps ensure that the policy achieves its objective of supporting the early EV market while giving Government a clear exit strategy.

Adding a 'malus' component to internal combustion engine vehicles could make the PICG a revenue-neutral scheme, which would also create a stronger incentive to switch to a cleaner vehicle.

Government should also consider including a range component to the grant system to avoid penalising longer-range battery electric vehicles, which are necessarily more expensive as they have larger batteries. This could work by requiring that as the price of a car increases, it needs to fulfil a higher range criteria in order to qualify for the grant.

- **Provide a timeline for removal of the OLEV chargepoint grants, such as the EV Home Charging Scheme and the Workplace Charging Scheme.**

Grants are an important enabler to kickstart an early market however Energy UK appreciates that support is time limited. Providing visibility to industry on when these grants will be reduced and removed is important for business confidence and to avoid a cliff edge. Sudden changes in support are detrimental to the customer journey and industry confidence, something that applies to both the PICG and OLEV chargepoint grants. We would urge Government to provide industry with as much warning as possible when changing grant levels.

Flexibility markets that are fit for purpose

Energy UK frequently engages with BEIS and Ofgem on these topics however as OLEV considers the EV uptake we would also like to reiterate the importance of open, competitive flexibility markets, including for smart charging.

Balancing supply and demand and ensuring the energy networks are able to cope with mass EV adoption requires a smart, flexible energy system. Energy UK's paper 'Delivering on the Potential for Flexibility'¹⁵ outlines an industry consensus on what needs to happen to create flexibility markets, which will be essential in meeting any phase out target. This includes:

- Appropriate, clear, and stable market mechanisms
- Regulated monopolies, such as distribution network operators, being barred from participating in ancillary service markets, as they are from energy markets, including an exclusion from managing EV charging
- A renewed plan on how to deliver a smart, flexible energy system.

We believe that Government should use the Energy White Paper to set a policy objective to ensure the deployment of flexibility to meet net zero at least cost. This would send a strong signal and clarity to investors that decentralised assets will have a revenue stack in the future.

Low carbon generation

Low carbon generation will make up 75-85% of overall generation in 2030 thanks to ambitious government targets such as the 40GW of offshore wind by 2030 target¹⁶. If the UK is to comply with the newly legislated target of net-zero emissions in 2050 however, the Committee on Climate Change has identified that electricity demand may double due to electrification of heat and transport, which in turn would require a four-fold increase in low-carbon electricity generation¹⁷.

Energy UK believes that the UK should pursue a mix of low-carbon technologies in this expansion of the electricity sector, with strong growth in renewables supported by a replacement of the ageing UK nuclear fleet, new technology solutions such as hydrogen and Carbon Capture Usage and Storage (CCUS), all complemented by increased system flexibility and storage.

¹⁵ <https://www.energy-uk.org.uk/publication.html?task=file.download&id=7421>

¹⁶ <https://www.theccc.org.uk/publication/net-zero-technical-report/>

¹⁷ <https://www.theccc.org.uk/publication/net-zero-the-uks-contribution-to-stopping-global-warming/>

Allowing onshore wind and solar to compete for Government support was a very welcome first step. It will now also be important that planning rules are reviewed so that applications for new onshore wind turbines in England face a fair and reasonable local planning process and are treated in the same way as other renewable or low carbon energy projects. Alongside this, major low-carbon projects like new nuclear power plants and Carbon Capture Usage and Storage (CCUS) will play a vital role if the UK is to reach the net-zero target by 2050 – so we need to look carefully at the challenge of enabling investment of the scale required while keeping the cost down for consumers.

Smart charging

While smart charging is vital for the energy system it is also through smart charging that we can deliver the best customer experience. The EV user experience is already incredibly attractive and smart charging strengthens this even further. Smart charging offers greater control and convenience, cutting the cost of recharging and allowing drivers to tailor their experience according to their own preferences and requirements, for instance having the option to charge when electricity is cheapest, cleanest or when their own assets are generating.

As argued above, having smart charging in place is arguably more important for security of supply than the pace of EV uptake. It is therefore essential that Government commits to a consumer centric, market-based approach to smart charging to ensure that providers are given the freedom to innovate and come up with compelling, easy to use propositions.

This includes as part of phases one and two of the smart charging consultation as well as the issue of DNO managed charging, which Energy UK is concerned could undermine the market for smart charging unless stringent pre-requisites are put in place. For the longer term solution for smart charging, while Energy UK appreciates Government's concerns about the cyber security of smart charging, mandating a single solution is ill-advised. Instead setting outcomes-based requirements will help balance cyber security and grid protection risks, while meeting innovation and consumer uptake objectives.

Smart charging is a fundamental requirement to the successful integration of EVs into the energy system. Overly prescriptive regulation – such as mandating that smart charging communication signals must go through the DCC – will severely hamper competition and innovation in smart charging, to the detriment of all. Instead this option should be kept open as one solution among many. Please see the Energy UK response to the 'Electric Vehicle Smart Charging' consultation for more detail on the Energy UK positioning. We are also progressing research into alternative smart charging solutions and how they might meet Government's four objectives for smart charging. This should be finalised over the summer and will be shared with Government as soon as possible to inform the decision-making process.