

RIIO-ED2 Overarching Working Group

Meeting 6



29 May 2020

Impacts of electricity network investment to enable the EV roll out – how can information on wider economy returns inform policy and/or regulator decision making?

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Ofgem RIIO 2 Overarching Working Group

Introduction to CEP and our approach

- The Centre for Energy Policy (CEP) is a multi-disciplinary hub that facilitates and **conducts research**, discussion, the **exchange of knowledge** and **policy engagement** on energy and climate issues.
- Uniquely, we offer a broader perspective on energy and climate policy challenges, going beyond technology-driven analyses to consider how understanding the **wider economic, societal and political context** of decision making can help us unlock solutions and break down ‘policy barriers’.
- We have particular expertise in conducting **wider economy scenario analyses** and **political economy narrative development** to investigate and communicate how different actions and options are likely to impact **across the wider economy**, how and where value is generated, which sectors and regions it accrues, and how this may help us consider questions of ‘who pays’.



CEP research wider economy impact of EV infrastructure

Our research (funded by EPSRC CESI and SPEN) integrates energy and economic system modelling approaches to investigate the crucial question of **who ultimately pays for the costs of upgrading the power network to facilitate the intended roll out of EVs.**

Development of our research programme:

- First stage –EPSRC CESI funded project involving collaboration between the Centre for Energy Policy and Scottish Power Energy Networks: Upgrading electricity networks to support the initial stages of the projected EV roll-out (to 2030).

Key findings

- **Net positive impacts on GDP (trajectory $\uparrow 0.1\%$), employment (up to 3000 jobs) and household incomes**
- These impacts vary across time and particularly in response to the **extent to which investment activity can be spread out** (key – minimising disruption to the wider economy and smoothing cost recovery via consumer bills)



Model development

- First, an **energy system model** (UK TIMES) is used to simulate scenarios involving different assumptions around extent 'smart' charging capability and consumer response for projected EV rollout
- Secondly, the outcomes of the UK TIMES on the required investment costs and efficiency gains realised through using EVs for private transport is used to inform the **economy-wide UK ENVI Computable General Equilibrium (CGE) model**



EV investment scenarios modelled

Three EV charging scenarios are analysed using the UK TIMES model, based on National Grid's Future Energy Scenarios (FES) 2019

1. **Mixed charge slow:** the adoption of smart charging takes longer, with only 15% of all EVs doing smart charging by 2030, 30% by 2040, then increasing rapidly to 75% by 2050.
2. **Mixed charge central:** this scenario shows a steadier adoption of smart charging, with 20% smart charging by 2030, 60% by 2040 and 75% by 2050.
3. **Mixed charge fast:** smart charging is adopted faster by EV users, with 45% smart charging by 2030, 70% by 2040 and 75% by 2050.

Other key assumptions

- We assume a large EV penetration reaching **99% EV penetration by 2050**
- We consider the EV rollout in these scenarios to affect all transportation in cars and vans – personal transport only.
- In addition, we assume an efficiency improvement with EV rollout - about 30% by 2050, relative to 2010 levels
- Costs of investment recovered via energy bills over 45 year lifetime of assets created – 1/3 of spend is within UK



Key Findings – sustained positive macroeconomic impacts

- A shift in fuelling away from using import-intensive petrol and diesel towards the output of the electricity sector is **likely to enable net positive gains in activity levels in many sectors** of the economy from the outset, accompanied by increased returns to and employment of labour and capital across the economy.
- Over time, as the EV roll-out gains pace, this can be expected to deliver larger and clear sustained net economic gains **that substantially offset the wider economy costs associated with paying for network upgrade activity.**
- The boost, triggered and driven by more demand for UK electricity and greater consumer/household spending across a wide range of UK sectors, is likely to be sufficient for many UK industries outside of those supplying conventional vehicles and fuel to **enjoy sustained expansion**

Key Findings – impact on labour productivity and earnings

- The new key findings arise from consideration of **real earnings associated with job creation** and the quality of GDP, through **labour productivity** (GDP per employee/hour of work). Both are key metrics in public policy evaluation
- The expansion that emerges from our simulation is characterised by **both earnings and GDP expanding faster than employment** across all timeframes and investment levels/spread. This means that the boost involves a shift in the composition of expanding activity in **favour of higher average wage and/or value-added sectors** (of which the UK Electricity industry is one, on both measures).
- This type of shift is also important in terms of what it means for the tax base and the levels of revenues that we find accrue to the public budget year-on-year.



Key Findings – implications for a ‘Just Transition’

- All three scenarios we consider have a net positive effect on the wider economy – although timing and scale of investment has some control on just how positive
- Infrastructure upgrades to facilitate a transition to electric vehicles could help create more and higher value jobs which could be important for a green recovery
- Consideration should be given to the likely sustained upward pressure on the price of electricity faced by UK business and domestic consumers



How can the information be used?

Question: should wider economy returns from DNO level investment be considered at level of the regional economy served by that DNO or for the national economy?

Findings could be used in a number of ways:

- At a macro messaging level – indications are that this type of investment is good for the economy, a Just Transition and potentially has a role in a green recovery.

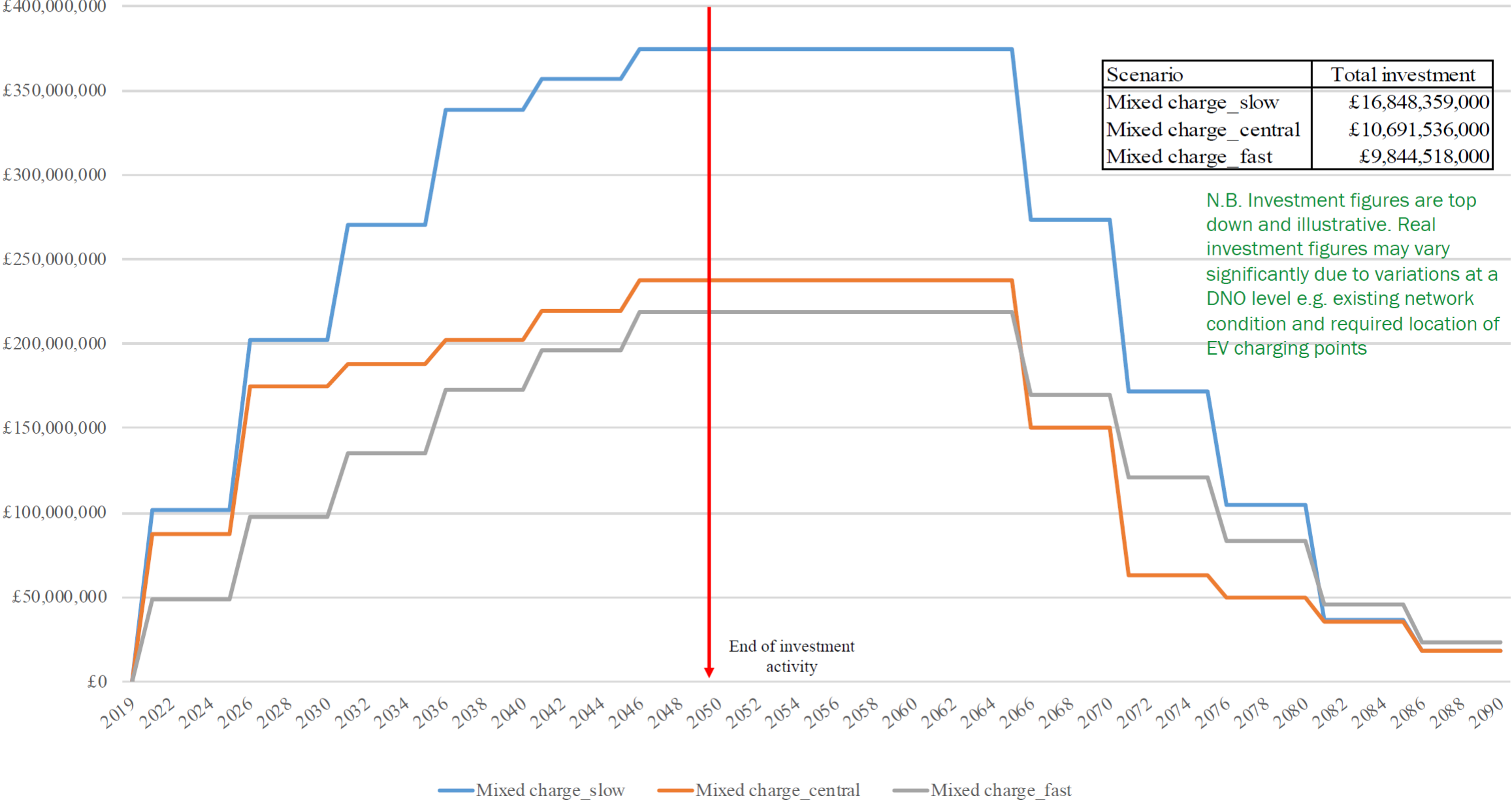
If considering impact at a lower level:

- Earnings is the most obvious input to social cost-benefit analysis
- Value of gains are identified by year – can be discounted, cumulative and NPV impacts could be considered across different required return periods etc.
- Alongside or integrate to existing SCBA?
- Analysis conducted here at national level for national level investment requirement – regional/DNO level would depend on data, but scenarios could be scaled

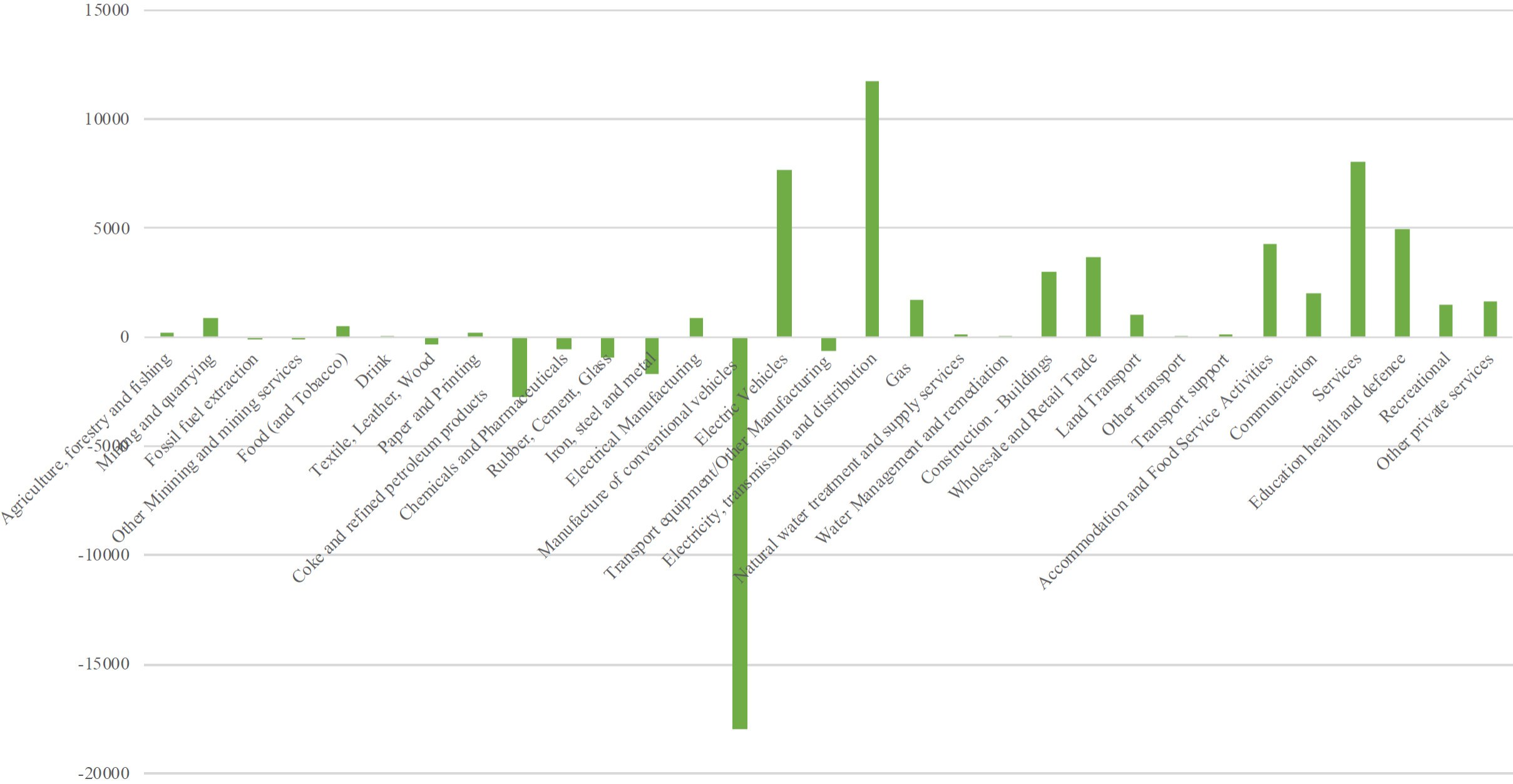
Q & A



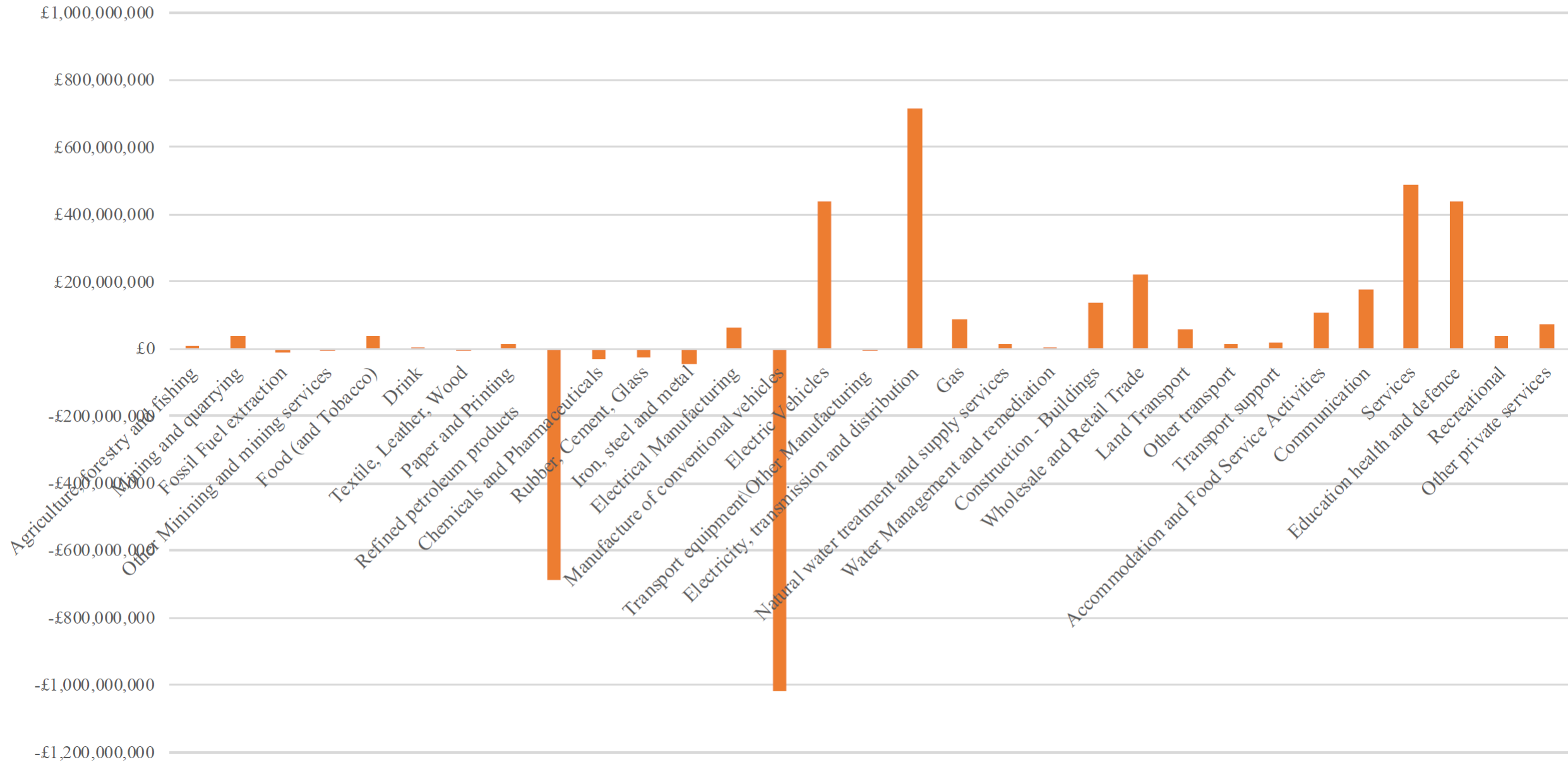
Evolution of total investment for slow, central and fast investment scenarios to enable the 99% EV roll out by 2050



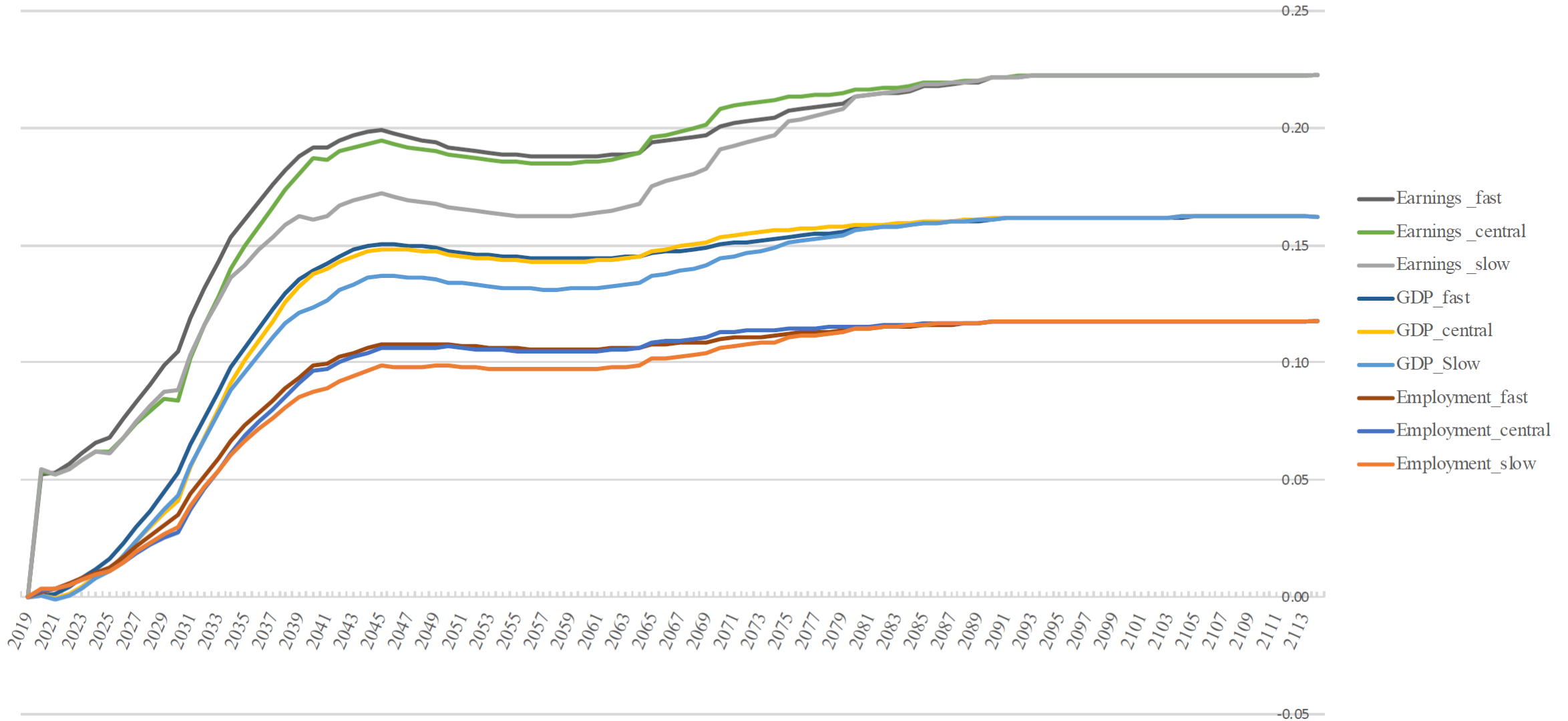
Net long run impacts of sectoral employment (FTE change relative to base year values) from 99% EV penetration in the UK by 2050,enabled by electricity network upgrades



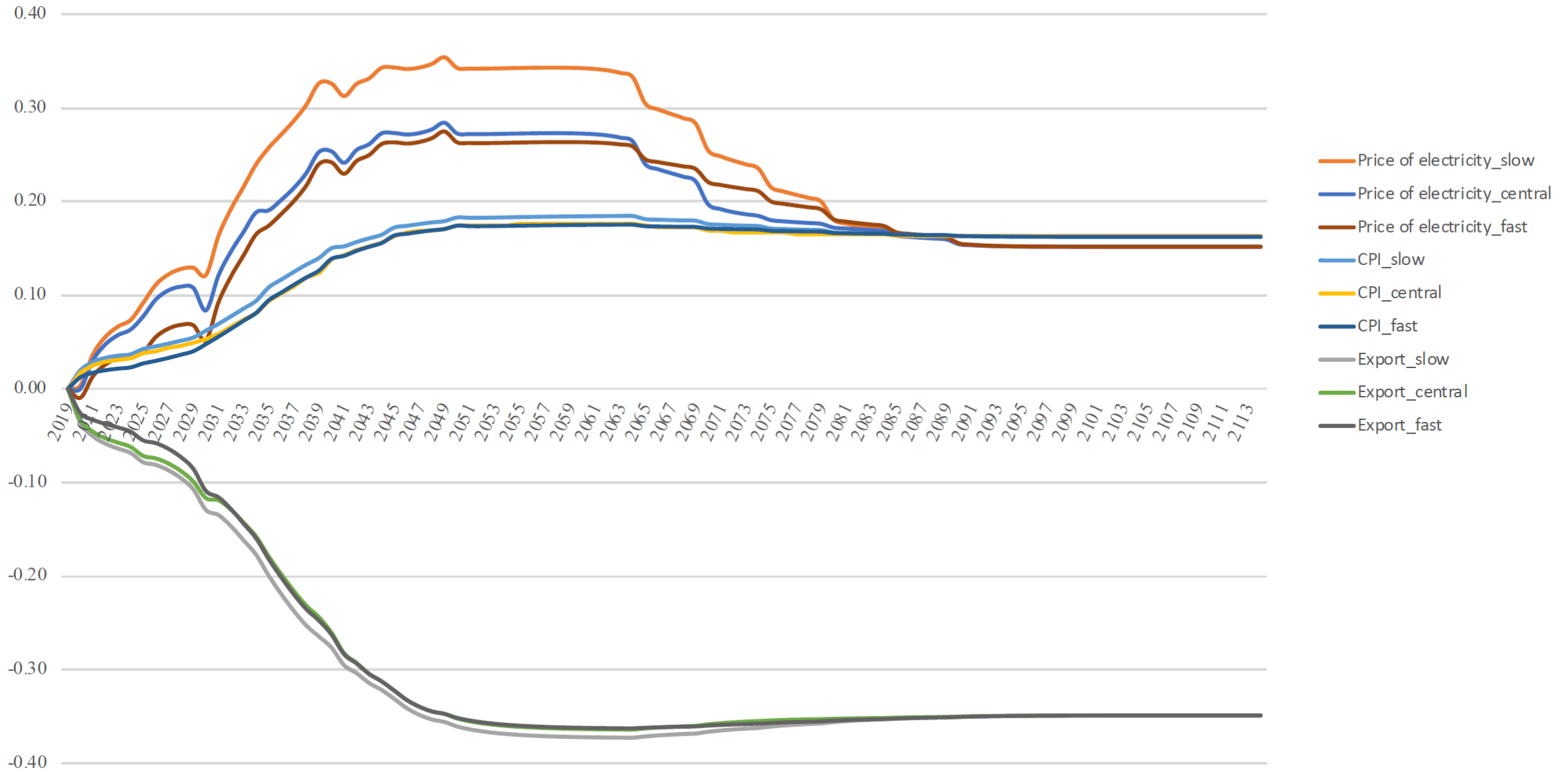
Net long run impacts of earnings from employment (value change relative to base year values) from 99% EV penetration in the UK by 2050, enabled by electricity network upgrades



Evolution of net impacts (% change relative to base year values) on UK GDP, employment and earnings from employment for slow, central and fast investment scenarios to enable the 99% EV penetration by 2050



Evolution of net impacts (% change relative to base year values) on UK prices of electricity, the CPI and exports for slow, central and fast investment scenarios to enable the 99% EV penetration by 2050



Cost Effective Electrification of Transport Sector Under Uncertainties

G. Strbac, S. Giannelos, P Djapic, P Falugi
Imperial College London

Key challenges

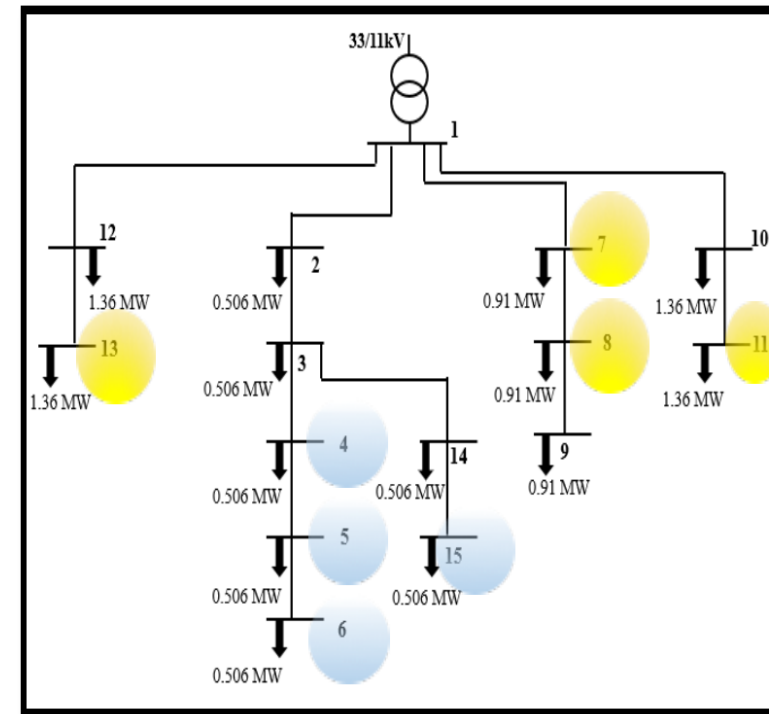
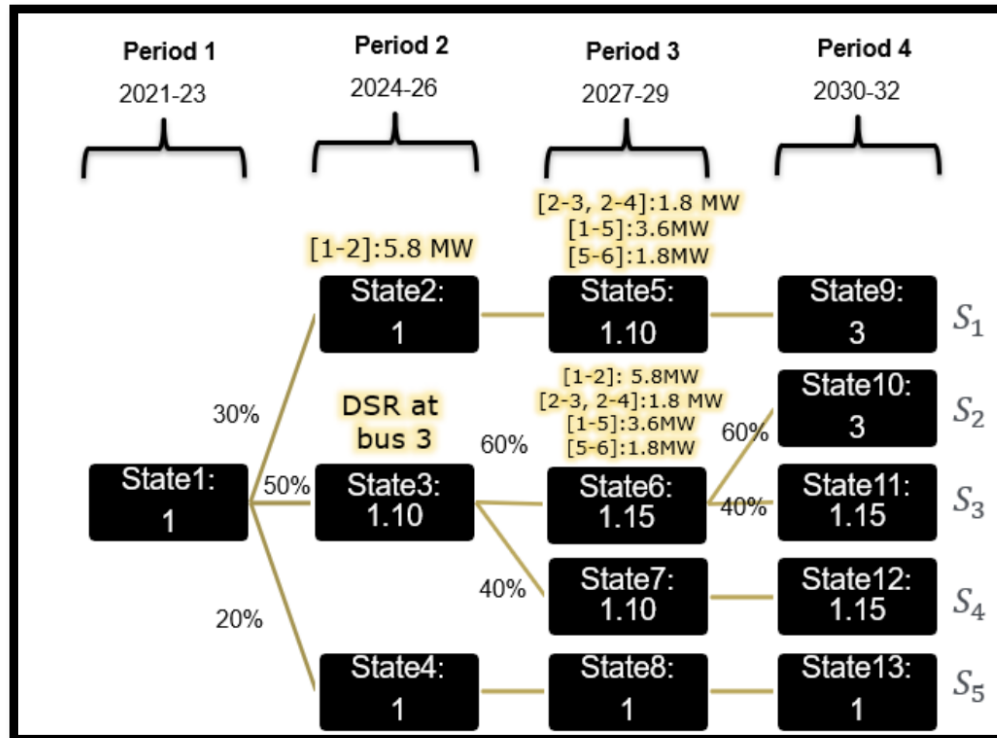
- Significant proportion of the transport sector is expected to be electrified in the near future.
- A fundamental challenge in delivering this transition is in **Spatial**, **Temporal**, **Magnitude** and **Technical** related **uncertainties**, associated with the *uptake of EVs* and *charging infrastructure*.
 - **Spatial** dimension i.e. where will EVs charge?
 - **Temporal** dimension i.e. when will the EVs appear?
 - **Magnitude** dimension i.e. how many EVs?
 - **Technical** dimension i.e. what is the EV charging infrastructure? (slow, fast, charging stations).

Need for new network planning frameworks

- **Network reinforcement** will be required to facilitate this transition while considering **flexibility options** in order to
 - Avoid delay in deployment of EV charging infrastructures, due to **high social costs**.
 - Ensure **minimum stranded** network reinforcement.
- Updated planning framework needed as current approaches need to take better account of uncertainty and our evolving knowledge of flexibility
- **Planning frameworks:**
 - *Stochastic Planning (SP)*
 - *Least-Worst Regret (LWR)*

Stochastic Planning & LWR-based planning (1)

- Both the SP & LWR are scenario-tree based modelling methodologies for investment decision making under multi-dimensional uncertainties.



Stochastic Planning & LWR-based planning (2)

- **The SP** framework minimises the total expected costs under all possible scenario realisations
- The **LWR** framework provides the solutions that minimise the maximum regret i.e. the maximum extra economic cost paid due to following a scenario that ends up not being realized.
 - (applying a “best solution” across all scenarios and find the maximum costs)
- Note that the SP is dependent on probabilities of different scenarios, which may be subjective, as opposed to LWR that does not considered probabilities

Role and value of flexibility technologies

- **Flexibility technologies** can provide solutions to deal with uncertainties before their realization (where/when/how much)
 - Demand Side Response and Storage
 - Dynamic Line Rating
 - Soft Open Points
 - Coordinated voltage control
- Flexible technologies may be able to
 - **Delay** or **Displace** network reinforcements
 - Or these may **not be cost-effective** in the event that demand growth is large (in this case network reinforcements will be needed)
- This will have significant impact on **contract length for flexibility**
- **Comparison** of flexible technologies versus traditional reinforcement needs to be made on a level playing field
 - Need for network reinforcement ahead of requirement
 - Flexibility can be deployed in a much shorter timescale

- In the context of the expected electrification of transport sector, series of studies will be carried out, that will **provide fundamental evidence** regarding the approach that should be adopted to address the following challenges:
 - **Strategic versus incremental network reinforcement under uncertainties**
 - **Comparison of network planning approaches: Stochastic Planning and LWR planning**
 - **Assessment of the role and value of flexible technologies (e.g. Smart Charging, Vehicle to Grid, etc) for supporting cost-effective electrification of transport sector under uncertainties**
 - **Methods for the quantification of the option value of flexible technologies and contract lengths**
 - **Impact of centralised and decentralised EV charging infrastructure on network upgrade needs and costs**

RIIO-ED2 – Building an evidence base with devolved and local government

Scottish Government, SSEN, SPEN

May 2020

Note that this is an early stage exploration of options for developing an evidence base to support ED2. The content does not imply a view from Scottish Government at this stage.



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The question and the proposal



- What evidence should DNOs aim to collect from Local and Devolved Government and included in ED2 business plans?
- What could be considered 'good evidence' to support local and regional pathways?
- How do we ensure that everyone shares a common understanding of what constitutes 'good evidence'?

That DNOs and Ofgem, working together with representatives of devolved and local government should develop a checklist approach to building an evidence base around LA / DA ambitions with examples of what constitutes strong and weak evidence bases.



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Work to date

- Initial discussions between SPEN, SSEN and Scottish Government to work up proposal
- Wider engagement :
 - Call with GLA, Welsh Government and Energy System Catapult.
 - Bilateral call with Warrington Borough Council as an example of a LA who SPEN are working with closely
 - Setting up bilateral call with Oxfordshire County Council as an example of a LA who SSEN are working with closely
 - Intend to engage with a couple of Scottish LAs over the next month.



What is the challenge? Local / Regional Stakeholders

- Ofgem's August 2019 Open Letter Consultation on approach to setting the next electricity distribution price control states "Engagement with stakeholders is central to the RIIO price controls".
- The RIIO-2 framework encourages network companies to increase their engagement with stakeholders, including Local Stakeholders, through an 'enhanced engagement process'
- This will help ensure business plans reflect current and future customers' needs and includes stakeholder evidence to support and justify investments. This should given greater confidence at "input" stage and help avoid unnecessary investment or reduce the risk of "stranded assets".
- Network companies support this approach. There has also been strong stakeholder support through the Ofgem Working Groups.
- SEN and SPEN have made it a central part of their business planning process at both Transmission and Distribution level.
- **However, stakeholder input and evidence can take many forms. It is important that there is clarity around what constitutes "good evidence". This should be reflected in Ofgem guidance for RIIO-ED2.**
- ***It is also important that stakeholders are aware of, and agree with, views of what constitutes good evidence.***
- ***It is critical to have a shared common understanding as without this there is a risk of misalignment during business plan development.***



What is the challenge? Government Stakeholders

- Devolved, regional and local governments represent a distinct group of stakeholders with unique roles within the energy system.
- More so than other stakeholders, and along with UK Government, they **have a profound impact over the space within which the energy system develops. They have a unique role from policy development through to co-ordination, delivery and accountability.**
- Through this process they can play a particularly important part in shaping the energy system.
- Key to this are the following characteristics of Government Stakeholders. They:
 - have a **democratic mandate** for their policies and ambitions.
 - often have **statutory obligations**, the delivery of which are legally binding on those governments.
 - can significantly influence the development of the energy system **through a wide range of policy levers** such as the granting of consent or planning permission, support for specific technologies, or the tailored and distinct focus of economic development aims and objectives.
 - can often **provide financial support** to support particular policy ambitions
 - **have access to detailed data** which will have relevance to the development of energy networks, some of which may be personal / private or otherwise restricted from being openly shared in the public domain. (e.g. public sector energy usage, information on the local building stock, operational data on government funded energy infrastructure)
 - often act as a **coordinator of delivery along with businesses, third sector, community and other government stakeholders** operating in their geographical areas



Government Stakeholders – What could an evidence base look like?

Direct Evidence– Energy Policies

Targets and
Milestones

Policy
Documents

Financial
Support

Wider Policy Levers
including consenting
/ planning

Data and
Analysis

Partnership working
between DNOS and
Government

These directly evidence and describe broader policy landscape and goals (e.g. economic / social etc.)

Evidence about interaction with government at other geographic levels and with stakeholders

Relationship of targets and Policies
to those at higher geographic
government levels

Relationship of targets and policies
to those at lower geographic
government levels

Evidence of cross party
consensus?

Evidence about relation to business, third sector and community etc.

Indication of *involvement*
of other organizations in
policy delivery

Evidence of *awareness*
and *buy in* of other
organizations

Evidence of financial
commitment / funding in
other organizations

Evidence from other categories of
stakeholder e.g. utilities showing
alignment of plans



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The start of a framework for assessing LA and DA evidence base? (1 of 2)

Evidence Check list	High Marking	Low Marking
Overarching energy policy narrative	++ Self consistent ++ clear objectives ++ overall pathways identified ++links to wider government policies. ++Referenced, supported by and supportive of wider economic and social policy	-- No narrative available - Exists but poorly articulated - piecemeal - internal contradictions - Limited narrative for delivery. - Does not link to wider economic / social policy
Status of targets and policies	++ Statutory and legally binding ++ Aspirational but with clear policy levers and/or financial support.	- Aspirational and without indication of how they will be delivered.
Relationship to targets and policies at higher geographical governance levels	++ DA or LA policies <i>required by</i> policies at higher geographical government levels ++ DA and LA policies clearly <i>consistent with and supportive of</i> policies at higher geographical government targets + DA and LA policies <i>not inconsistent with</i> policy at high geographical levels	- DA and LA policies <i>inconsistent with</i> policy at higher geographical levels
Are targets and policies clearly backed up with financial support?	++ Financial support committed in budgetary process which has received parliamentary / council agreement + Plans for financial support clearly laid out with pathway to delivery	- Only vague indication of financial support without commitment. -- No indication of financial support
Are targets and policies clearly backed up with policy levers? (e.g. planning, building standards, consent, business support)	++ Policy levers already in place and operating. ++ Policy levers committed through legislation or regulations with clear pathway to delivery within appropriate timescales. + Process to commit to policy levers is in place + Clear public commitment from elected officials to deliver policy levers	-- No indication how policy levers will be used to deliver targets - Indication of how policy levers will be used, but little or no public commitment to delivering.
Are targets and policies clearly backed up with published Data and Analysis relating to the current status of the target / policy? (<i>Backward looking analysis</i>)	++ Statistics available that specifically benchmarks the current status of the energy system <u>in relation to specific targets / policies</u> . + Quantitative evidence isn't available but Qualitative data (e.g. survey results) available.	- No relevant data is available



The start of a framework for assessing LA and DA evidence base? (2 of 2)

Evidence Check list	High Marking	Low Marking
Is delivery of the targets / policy backed up with modelling and analytical evidence showing that the targets can be delivered? (<i>Forward looking analysis</i>)	++ Modelling, scenarios, forecasts or other analytical work has been carried out showing – quantitatively – the development of the system and provides evidence that the targets / policies can be met, are capable of delivery and will deliver value. ++ Evidence from trial projects available.	- No modelling or analysis to support delivery of policy ambitions.
Is there evidence of cross-party consensus? <i>*Note that provision of evidence here may not be something that government stakeholders can provide themselves.*</i>	++ Clear evidence of commitment / agreements from main opposition parties to the policy ++ Evidence of <i>parliamentary</i> support which goes beyond the governing party. E.g. through committee reports ++ Evidence of cross party structures in place	oo No evidence of cross party support -- Clear evidence of cross party dis-agreement
Is there data and or modelling that benchmarks the current state of the wider energy system and supports the policies, targets and narrative? (<i>Backward / forward looking analysis more generally across policy landscape</i>)	++ In addition to target / policy specific statistics, there is a broader range of statistics and data together with commentary drawing out the overall picture of the energy system.	- No wider statistics / data available
Is there evidence that industry, business and third sector are supportive and engaged in delivering the policy and targets? (<i>*Potentially for DNO to gather rather than DA / LA to provide?</i>)	++ Formal commitment from business and third sector organisation to support delivery + Evidence of ambition from business and third sector organisation to support delivery	- Evidence that business and third sector are not aware of the target / ambition -- Evidence that business and third sector <i>do not</i> support the target or policy
Is there evidence that governments at lower geographical levels are supportive and engaged in delivering policies and targets?	++ Formal commitment from government organisations at a lower geographical level to support delivery + Evidence of ambition from government organisation at a lower geographical level to support delivery	- Evidence that government organisation at a lower geographical level are not aware of the target / ambition -- Evidence that government organisation at a lower geographical level <i>do not</i> support the target or policy



Initial feedback:

Supportive

- Strong support for more in-depth informed discussion between devolved / local government and DNOs which can continue through the ED2 period and beyond
- Potential critical role of Tools/processes like LAEP's to be part of this
- The need for a shared common understanding
- Importance of ED2 BP reflecting local / devolved carbon budgets and related energy system aspirations and local area modelling
- Important for LAs to work closely with DNOs to deliver local projects

And suggestions for development

- A clear note that LA / DA policy and project development will not follow ED2 timescales and ED2 business plans should be able to adapt to policy development on an ongoing basis.
- Need to think about LA /DA resource to engage in this, and need to think from their perspective, not just from the DNO/Ofgem perspective
- Consideration of LAEPs and other local area energy planning work.
- Need to help less well engaged LAs e.g. examples of best practice etc.



For discussion...

- Do you agree that there is a risk that we fail to share an understanding of what a local / devolved government evidence base looks like?
- Do you agree that the list of attributes for local / devolved government is a fair representation of what these organisations do? Do you agree that these attributes are relevant to network investment decisions? Are there any missing? (1. democratic mandate, 2. statutory obligations, 3. a [wide] range of policy levers, 4. provide financial support, 5. have access to detailed data , 6. and are a coordinator of delivery along with businesses, third sector, community and other government stakeholders)
- Do you think that we have identified the correct types of evidence?
- Do you think a pre-agreed framework, checklist can be useful?
- What are the difficulties of an approach like this?
 - e.g. does it favour DAs / LAs with greater resources or understanding? Is it something that you think DAs /LAs would be in a position to support
 - Would it be practical to implement?
 - Is it an undue burden on those DNOs with lots of LAs / DAs to consider?



Appendix Slides



Ofgem's approach to funding Strategic Investment to deliver net

Regulatory approach to determining expenditure and setting allowances

- The work of DNOs and the funding they receive is tightly regulated by Ofgem for the regulatory period – for RIIO-ED2 this will be five years (2023-2028)
- It is well recognised that significant investment will be needed by DNOs (and other energy networks) to facilitate policy objectives around decarbonisation, decentralisation & digitisation of the energy sector
- At the same time there is a growing requirement to ensure the services DNOs provide meet current and future customers' needs while delivering value for money and keeping bills as low as possible
- As a result, there is increased scrutiny in RIIO-ED2 of stakeholder evidence and commitment in order to help justify the scale, nature, location and timing of network investment and to minimise the risk of network investment that is not required or not fully utilised
- Network companies must present robust, well justified and evidenced plans to secure funding in RIIO-ED2



Proposed funding mechanisms for RIIO-ED2

Building blocks of funding mechanisms include.....

Base revenue

- Sets allowances up front for the most certain investment projects for the ED2 period
- Evidenced by detailed stakeholder plans and least regret Cost Benefit Analysis modelling

+
Uncertainty Mechanisms

- Mechanism allows us to adjust revenues in period as the world around us changes and / or more certainty emerges
- Same level of evidence required to release funding as with base revenue above

+
Output Delivery Incentives

- Incentives provide additional revenue where service quality improvements are delivered beyond the minimum standard set by Ofgem (*i.e. beyond what is expected for the baseline allowance*)

+
Innovation Allowance

- A separate allowance to cover research and development activities that carry higher risk and might not otherwise be delivered under base revenue i.e. to test solutions in ED2 with a view to rolling out and delivering additional benefit, if proven viable, in ED3 or ED4



Update on local and regional scenarios

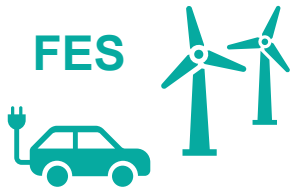
OAWG 29 May 2020



Summary

- The Local and Regional Scenarios sub group has considered different approaches to scenarios for ED2
- The group identified four options Ofgem could adopt (although with some opportunity to further divide them)
- We have extensively considered pros and cons of each option, to add to Ofgem's previous list
- We have also identified 'lessons learnt' through our process, which could be useful for Ofgem's sector specific methodology consultation

DNOs' approach to scenarios has moved on since the equivalent process for ED1



- GB Future Energy Scenarios is an established process, outlining different credible pathways for the future of energy
- Distribution Future Energy Scenarios have been developed to give a regional and local picture

Coordination



- Open Networks workstream 1B (planning and forecasting) includes work on a whole systems FES. This includes improvements to DNO / ESO / TO liaison and establishing a feedback loop from respective DFES to GB FES and back again.

Stakeholder



- Stakeholder engagement is a core part of planning for the future, DNOs are aligning their own future planning with those of local stakeholders where there is a robust case to do so.

Recap from previous update:

We have considered four options for our approach to scenarios in ED2

We see two further options in between those previously identified by Ofgem:

1. Fully regional scenarios

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- Companies free to set their own (well justified scenarios) for their plan
- Could be based on company DFES

2. Regional scenarios but common approach

- DNOs set the same scenario framework following GB FES assumptions
- Companies apply their own, well justified regional adjustments, via a consistent methodology (as per Open Networks WS 1b Product 2)

3. Common set with 'best view'

- As per the approach used at RIIO-ED1, all DNOs produce a common set of scenarios.
- These could be based on ENA common RIIO-2 scenario or a development
- DNOs provide their base plan on their own best view.

4. Common set of scenarios

ofgem

- One or more scenarios consistently applied across all companies
- These could be based on ENA common RIIO-2 scenario or a development
- Ofgem selects the best view

Recap from previous update:

We used criteria in five groups to assess each option

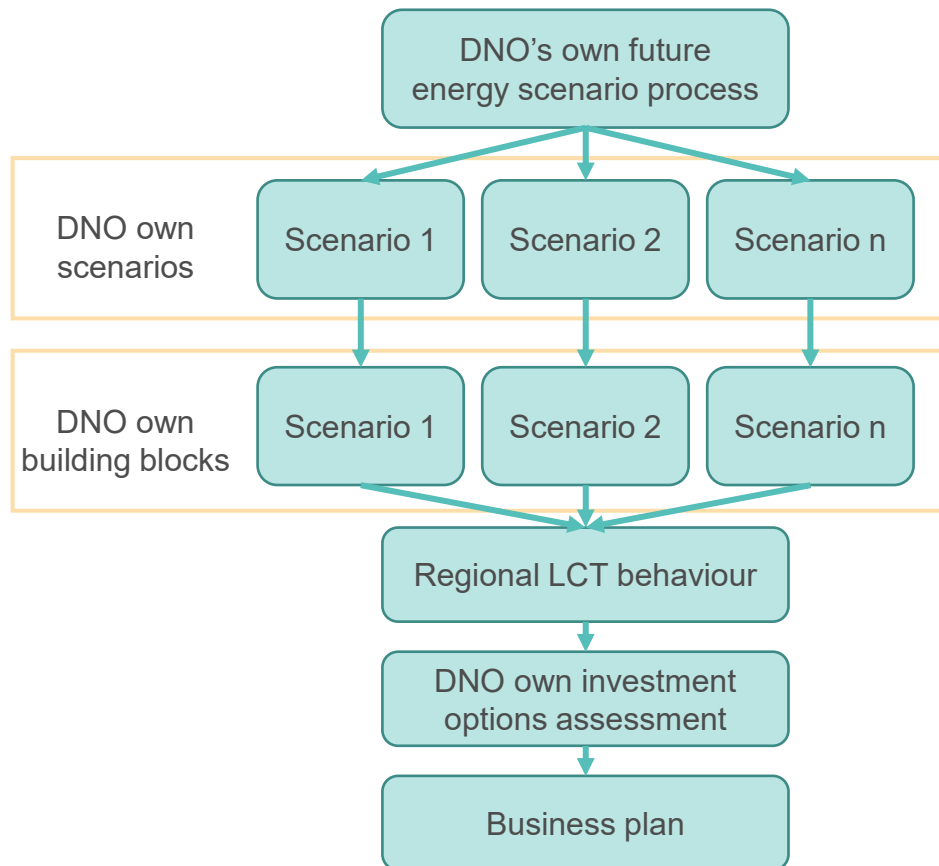
Criteria have been divided into 5 groups, and the desirable characteristics for scenarios discussed and agreed with the working group:

Regionality	Benchmarking	Risk and uncertainty	Effort	Plan development
Enables local stakeholder views to be represented/reflected in the scenario	Enables Ofgem to perform consistent comparative benchmarking across companies	Reduces risk of windfall gains/losses because scenario was wrongly calibrated from the outset	Avoids burden of effort for Ofgem to prepare and evaluate scenarios	Provides sufficient ex ante allowances, without over reliance on uncertainty mechanisms
Scenario likely to reflect the best view of 'reality' for companies on the ground	Enables Ofgem to perform consistent comparative benchmarking across a range of scenarios	Enables strategic investment to achieve net zero	Avoids burden of effort for companies to develop (or agree) scenarios	Supports a whole system approach - at a national level
Provides consistent 'guidelines' companies can use to test their own view of the most likely scenario	Provides a good suite of data for calibration of uncertainty mechanisms	Minimises the risk of asset stranding	Can make use of the most up to date information	Supports a whole system approach - at a regional level
	Enables early work on a core baseline scenario for benchmarking purposes	Gives "ownership" of the scenario and plan to the licensee	Makes use of credible and consistent DFES that are already being prepared	

High level results and indicative process flows are contained in the following slides.

Pros and cons: option 1 (fully regional scenarios)

- Companies free to set their own (well justified scenarios) for their plan, which could be based on company DFES



Regionality

Fair

- ✓ Flexibility to cater for local needs
- ✗ No consistent framework/methodology to incorporate local needs into scenarios

Benchmarking

Poor

- ✓ Easier to benchmark costs 'within' the company across their different credible future views
- ✗ Lack of commonality makes it difficult to benchmark across different companies

Risk & uncertainty

Mixed

- ✓ Scenarios close to companies' best views minimises risks of asset standing and facilitates strategic investment
- ✗ Bespoke approaches risk some being poorly calibrated
- ✗ Difficult for Ofgem to assess uncertain investment proposals, with no consistent framework

Effort

Mixed

- ✓ Lower effort to coordinate between companies and set a framework
- ✗ Higher effort for companies to develop scenarios
- ✗ Higher effort for Ofgem to compare different methodologies

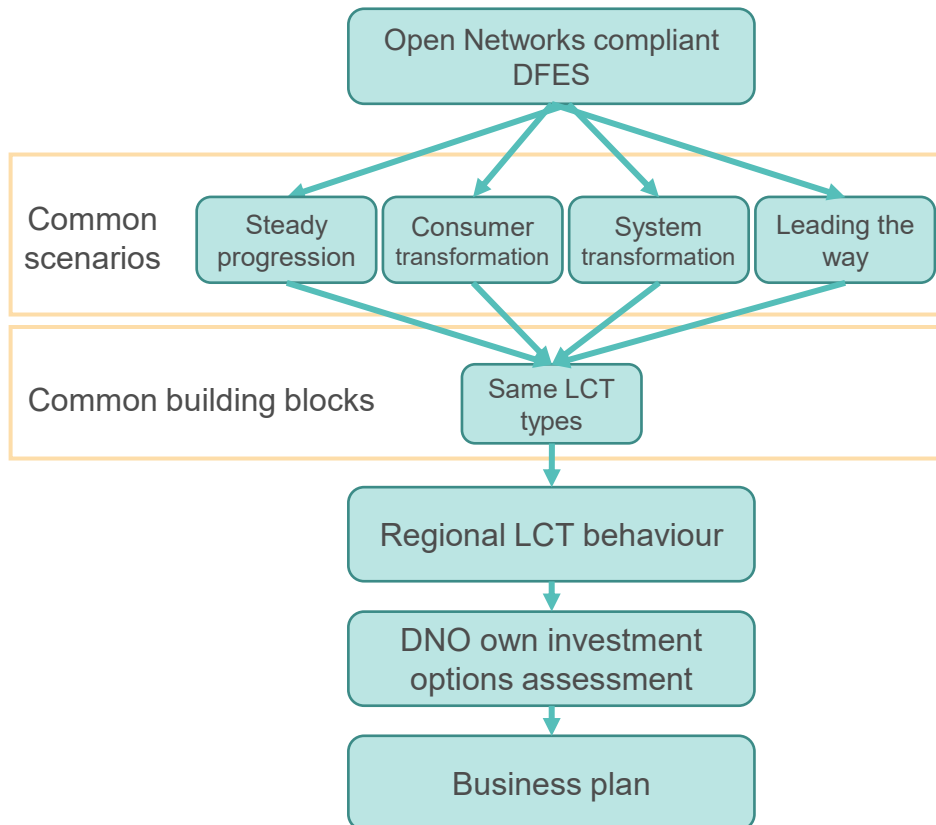
Plan development

Mixed

- ✓ Easier to set ex-ante allowances based on local needs, making local whole systems initiatives easier.
- ✗ Lack of an explicit link to GB FES makes this harder at a national level

Pros and cons: option 2 (regional scenarios with common approach)

- DNOs set the same scenario framework following GB FES assumptions
- Companies apply their own, well justified regional adjustments, via a consistent methodology (as per Open Networks WS 1b Product 2)



Regionality

Good

- ✓ Bottom up approach allows regional situations to be brought in
- ✓ Common approach to incorporating local stakeholder input

Benchmarking

Mixed

- ✓ Common framework allows easier comparisons across different companies
- ✗ Early benchmarking difficult unless this took place in line with existing DFES / GB FES

Risk & uncertainty

Good

- ✓ Flexibility to align scenario with DNO's best view of the future
- ✓ Ownership sits with DNOs
- ✗ Some risk of asset stranding / inappropriate strategic investment if inaccurate scenario chosen

Effort

Mixed

- ✓ Builds on existing work on DFES and Open Networks
- ✓ Significant effort early in the process to develop and agree a framework
- ✗ Effort for Ofgem to review regional adjustments

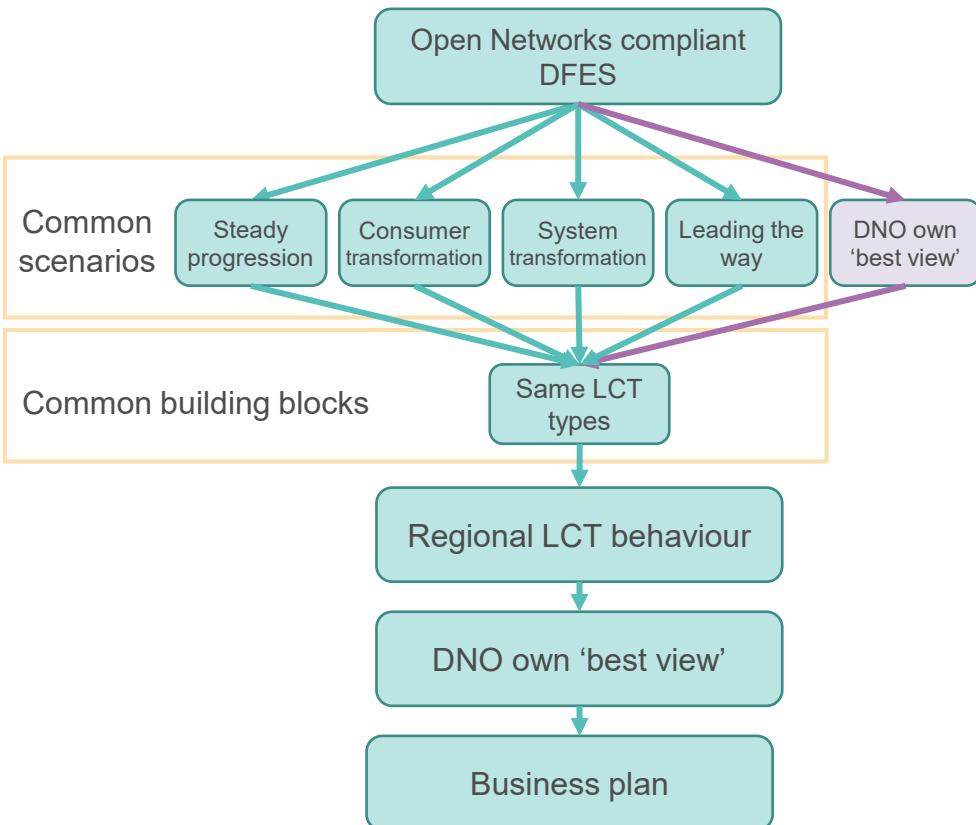
Plan development

Good

- ✓ Bottom-up picture allows regional coordination to facilitate whole systems
- ✗ Individual company scenarios will not line up with GB FES

Pros and cons: option 3 (common set with best view)

- As per the approach used at RIIO-ED1, all DNOs produce a common set of scenarios.
- DNOs provide their base plan on their own best view



Regionality

Mixed

- ✓ Best view allows alignment with stakeholder plans in regions
- ✗ Need to align with common scenarios could limit alignment

Benchmarking

Fair

- ✓ Common scenarios give Ofgem a way to compare costs across DNOs
- ✓ If agreed early, common scenarios allow an early view of costs
- ✗ Only one best view means it is difficult to assess costs in different credible futures

Risk & uncertainty

Fair

- ✓ Best view allows companies to include a scenario close to their best expectation, reducing risk of asset standing and facilitating strategic investment
- ✓ Common scenarios make it easier to spot best views that are outliers

Effort

Mixed

- ✓ Easier for Ofgem to compare and assess business plans using common scenarios
- ✓ Significant work to develop and agree common scenarios
- ✗ DNOs would continue to develop DFES separately, increasing effort

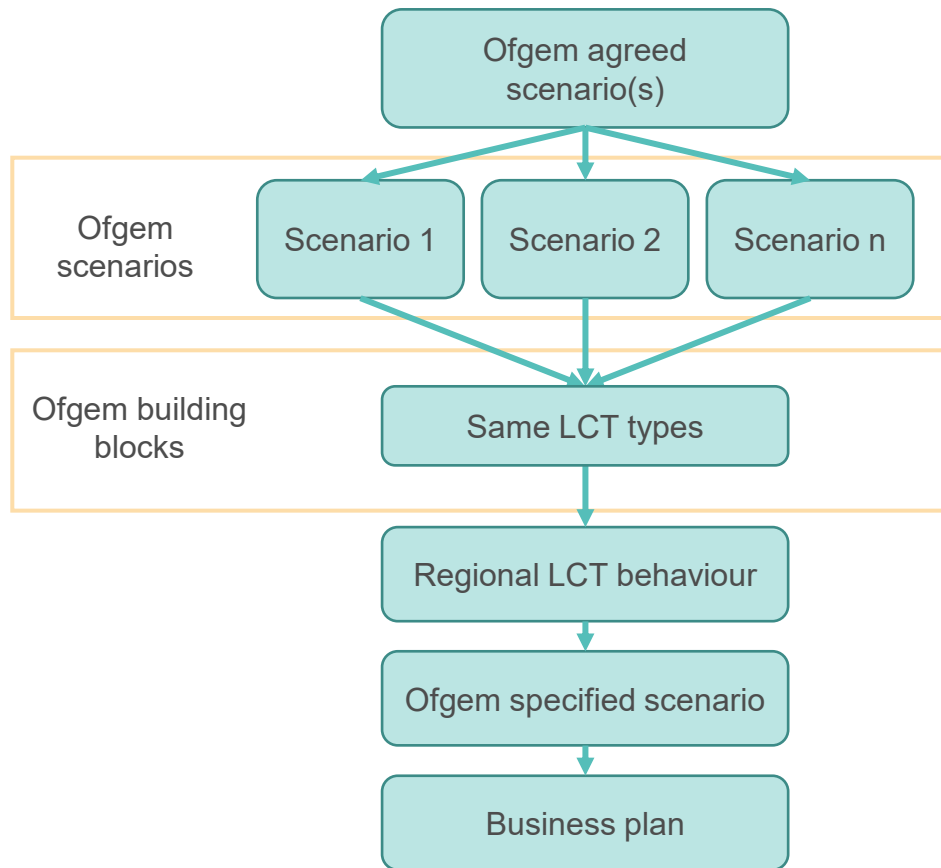
Plan development

Mixed

- ✓ Common scenarios can align to GB FES, making national whole systems easier
- ✗ Common scenarios miss the link to regional trends and needs for coordination

Pros and cons: option 4 (common scenario/s)

- One or more scenarios consistently applied across all companies
- Ofgem selects the best view



Regionality

Poor

- ✗ Difficult to reflect regional trends and needs in common scenarios

Benchmarking

Fair

- ✓ Working to the same set of trends would allow Ofgem to more easily compare costs across companies
- ✓ Ofgem could set a development timeline that allows an early view of cost benchmarking

Risk & uncertainty

Poor

- ✗ Risk that GB level trends do not align with local trends, so scenarios don't translate well at a regional level
- ✗ Reliance on uncertainty mechanisms to bring forecasts into line with reality on the ground

Effort

Mixed

- ✓ Reduced effort later in the process to review plans
- ✗ High burden on whichever parties develop and agree scenarios

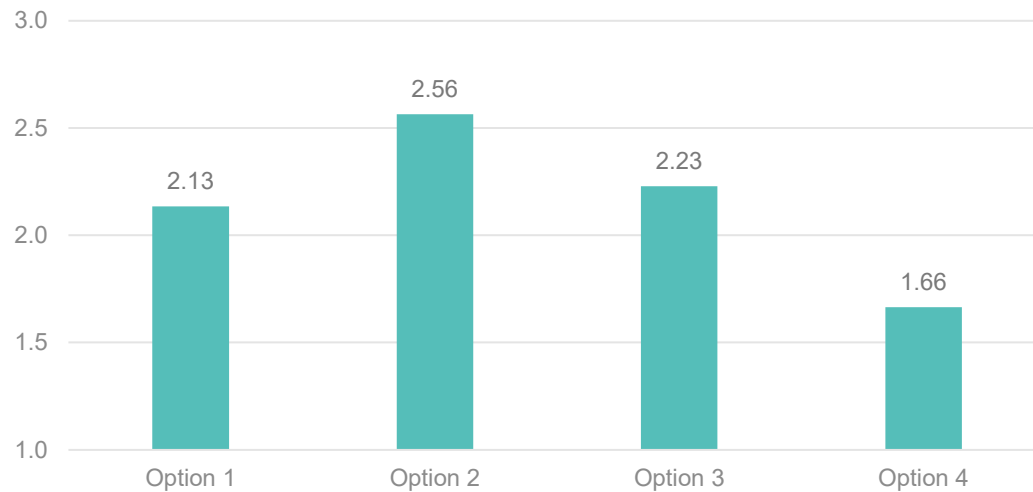
Plan development

Poor

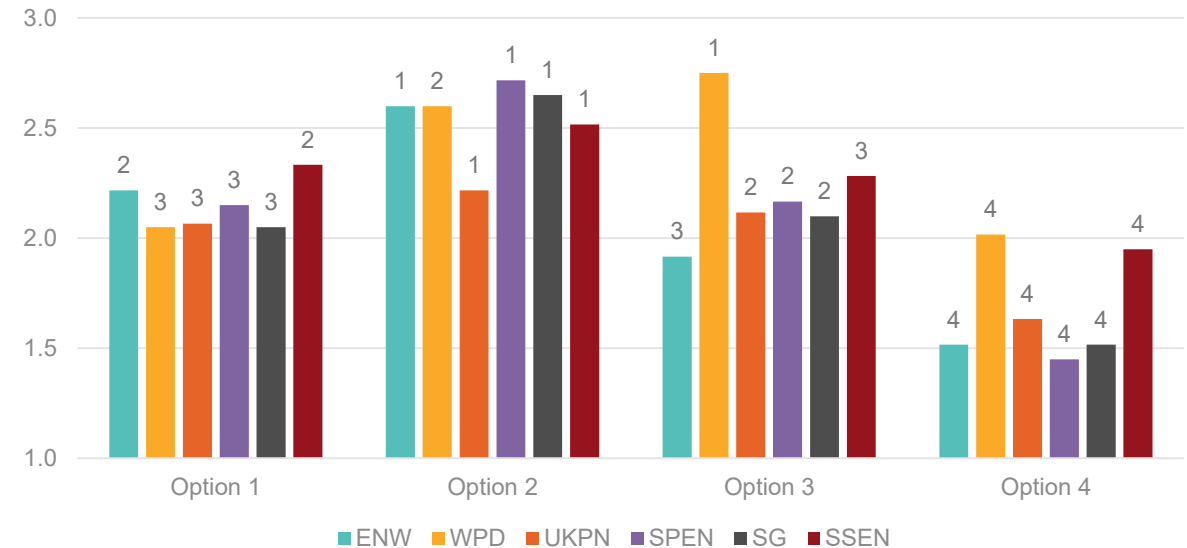
- ✗ Harder to deliver local whole systems initiatives given top down nature

Overall, working group members rated option 2 highest, but this should be tested with stakeholders as part of the SSMC

Average weighted score



Weighted score by company (label = ranking)



Members of the sub-group scored each option against the criteria, and provided a weighting on how important each criteria was:

- On average, option 2 (regional scenarios, common approach) is the most popular
- Option 3 is second (common set with best view scenario), with Option 1 (regional scenarios) close behind
- Option 4 (common scenario) is the least favourite by a significant margin.

- Option 2 was also the most popular for all companies that responded, except WPD, for whom it was a highly scored second place
- One stakeholder organisation (the Scottish Government, shown above as SG) also provided scoring, so **more extensive engagement with customers and stakeholders** as part of the SSMC would be a valuable addition.

The process of evaluating scenarios taught us valuable lessons, that could be applied in development of the SSMC

Detailed options

The detail of each option for consultation should be carefully described. Even after several discussions we found that the nuance of the options could be interpreted differently by members of our group, affecting their preferences and comments.

Include specifics

The stakeholders involved in the working group (specifically, GLA and the Scottish Government) fed back that specific details around the timeline for developing scenarios, and any reopeners needed as a result would have an impact on their comments.

Clear questions

Any consultation questions should be very carefully worded to make it clear what stakeholders are being asked to comment on. For example, in our discussion some interpreted questions as being about comparing one DNO's different scenarios, whereas others thought they were about comparing the same scenario across different DNOs.

Whole packages

Scenarios are complex and linked to other parts of the framework. It could make sense to consult on 'packages' including for example scenarios and associated approach to uncertainty mechanisms, rather than scenarios in isolation, to allow comments that are not over-caveated or conditional.

Next steps

- Inclusion of some (or all) of the identified scenario options in the Sector Specific Methodology Consultation
- Assessment of customer and stakeholder feedback
- Agreement on which option(s) to proceed with into detailed design phase
- Agreement on process, governance, timeline and key milestones for undertaking detailed design phase
- Review and final amendments
- Ofgem decision on scenario arrangements for RIIO-ED2 Business Plan submissions

Appendix

Further detail on pros and cons of each option

Pros and cons: option 1 (fully regional scenarios)

Regionality – provides the flexibility to cater for local needs, but poorly in terms of providing a consistent framework for companies to incorporate these local needs into their scenarios (which could be mitigated if appropriate guidance was published). Fair

Benchmarking – Providing multiple scenarios per company would make it possible to benchmark costs ‘within’ the company i.e. what company costs would look like in their different credible views of the future. However, lack of commonality makes it difficult to benchmark across different companies. Poor

Risk and uncertainty – allowing plan scenarios to be as close as possible to companies’ own best views of the future minimises risks around asset standing and strategic investment. However, at the same time companies each choosing their own bespoke approaches could lead to a risk that some are poorly calibrated, or it being more difficult for Ofgem to assess more uncertain investment proposals, since there is no consistent framework (which could lead to fewer approvals). More collaboration in the other options reduces these risks. Mixed

Effort – this option means lower effort to coordinate between companies and set a framework, and could build on existing DFES work companies are already doing. However, there is effort for companies to develop scenarios, and for Ofgem to compare different methodologies later. Mixed

Plan development – the bespoke nature of scenarios makes it easier to set ex-ante allowances that take into account local needs and stakeholders’ plans, making local whole systems initiatives easier. However, lack of an explicit link to GD FES could make this harder at a national level, at least until the Open Networks project feedback loop is fully established. Mixed

Pros and cons: option 2 (regional scenarios with common approach)

Regionality – a bottom-up approach to developing scenarios bottom-up approach allowed regional situations to be brought in (although this is predicated on companies performing high quality analysis). There is also a common approach to incorporating local stakeholder input, although the framework could put some limits on how this can be incorporated. Good

Benchmarking – a common framework allows easier comparisons across different companies, although the actual scenarios don't match each other. Early benchmarking could be difficult unless this took place in line with the processes for GB FES and DFES development. Mixed

Risk and uncertainty – the bottom up approach still allows flexibility to include local trends and stakeholder views, and that 'ownership' of the scenarios would sit with DNOs. However, the choice of scenario (as opposed to the approach to developing them) could still lead to some risk. Good

Effort – this option builds on already ongoing work on DFES and in Open Networks, this kind of scenario development is now BAU for DNOs. However, there would be significant early in the process to develop a framework, and Ofgem would still need to evaluate regional adjustments and parameters each company used. Mixed

Plan development – an accurate regional picture will make whole systems coordination with other local stakeholders easier. However, since individual company scenarios will not exactly match GB DFES could make this harder at a national level (although this would also be driven by other parts of the framework, not just scenarios). Additionally, the feedback loop from DFES to GB FES will reduce this issue. Good

Pros and cons: option 3 (common set with best view)

Regionality – the best view allows for companies to align with stakeholder input in their regions, provided it was informed by a high quality engagement programme. However, the need to align with common scenarios could put some limits on this. Mixed

Benchmarking – the common scenarios provide a way for Ofgem to compare costs across DNOs, and if agreed early on could provide an early view of how costs benchmark. However, since there is only one best view, it would be difficult to consider each company's costs in light of their own different credible futures, which may not align to the common scenarios. Fair

Risk and uncertainty – the best view allows companies to put forward a scenario close to their expectation for the future, reducing the risk of asset stranding and facilitating strategic investment. Additionally, the common scenarios make it easier to spot if one best view is an outlier. Fair

Effort – There is significant work to develop and agree the common scenarios, which could also end up based on out of date information once business plans were submitted (although the best view could change closer to submission). Additionally, DNOs would probably still carry on activity to develop DFES, increasing effort. However, this would make it easier for Ofgem to compare company business plans using the common scenarios. Mixed

Plan development – common scenarios can align with GB FES, to make it easier to plan for a nation wide whole systems approach, however they could miss the link to regional trends that would make whole systems at a regional level harder. At the same time, one best view doesn't allow a range of credible local scenarios to plan against. Mixed

Pros and cons: option 4 (common scenario/s)

Regionality – while engagement around a common set of scenarios could try to incorporate local and regional trends and needs, it would be much more difficult to reflect these in a common set of scenarios. **Poor**

Benchmarking – working to the same set of trends will make cost comparison across companies easier. This would also allow Ofgem to set a development timeline that made it easier to give an early view of costs. **Fair**

Risk and uncertainty – the risk that GB level trends are not aligned with individual regional trends means that scenarios don't translate well at a regional level, risking asset stranding or difficulty justifying strategic investments. There may be a high reliance on uncertainty mechanisms to bring forecasts into line with reality on the ground. **Poor**

Effort – the distribution of effort depends on who is responsible for developing the common scenario(s), with a high burden on whichever party(ies) develop and agree them. However, there is reduced effort for Ofgem later to review plans, as scenarios are a given (on top of the easier cost benchmarking described above). **Mixed**

Plan development – regional whole systems initiatives would be harder under this model, since regional adjustments to match other parties' views of the future aren't possible. This could be to some extent mitigated by a very thorough programme of engagement to develop the scenarios. **Poor**

Update from Net Zero and Strategic investment sub group



ED2 OAWG sub group on Net zero and strategic investment – update 29 May 2020

- This group has continued to meet and work on the issues highlighted by Ofgem;
- Ofgem asked to group to look further at utilisation metrics. The group sees potential value in utilisation metrics, though has highlighted some challenges and risks around how these are developed;
- Further exploration of developments to LI's (Load Indices) has been discussed as a potential way forward, though this and other potential approaches remain a work in progress;

LI ranking	Loading percentage	Duration factor
LI1	>=0 and <80	n/a
LI2	>=80 and <95	n/a
LI3	>=95 and <99	n/a
LI4	>=99	<9 hours
LI5	>=99	>=9 hours

- We were challenged to share examples where DNO's under forecasted. The group thought outturn compared to forecast could be driven by many factors and that the emphasis needs to be more on making a reasonable decision at a point in time, based on the information available including taking due account of uncertainty supported by decision making guidance (e.g. clarity on scenarios) and a robust CBA approach. A capacity mechanism volume driver also supports customers and companies in being able to adjust to new information.
- However, it's clear there are examples such as the underestimation of the uptake in solar PV that did mean some networks under forecast capacity needs, some cases where Active Network Management is deployed where capacity provision is lagging capacity need (as well as ANM being consumer choice) and more widely, within the price control Fault Costs were noted as being overspent against allowances.

The group particularly considered a summing up by Ofgem of the outputs from the OAWG and other groups where relevant (e.g. CAWG CBA work) would be welcomed. This is especially relevant for net zero and strategic investment as achieving net zero in a value for money way for customers will rely upon the right package of policy developments in ED2 overall.

SSE perspective on ED2 mechanisms overview



Multiple mechanisms ensure consumer’s key outcomes are met when facilitating LCT growth

		Outcomes								
		Existing	Enhanced	New	Ensure optimal asset utilisation & min. stranding risk	Minimise windfall profits/ losses to DNOs	Timeliness & quality of service delivery	Ensure affordability for consumers	Ensure security of supply on the system	
Mechanisms	Need case identification processes	Stakeholders								
		Scenarios								
		CBA & regret analysis								
		CEG & challenge group								
	Metrics	Load indices								
		PCD								
	Incentives	TIM								
		BPI								
		BMCS & complaints								
		ICE								
		CI/CML								
	Revenue adjusting mechanisms	UM								
		Close out								
		RAM								
	Licence conditions	Guaranteed standards								
		Standard conditions								

Our core purpose is to ensure that all consumers can get good value and service from the energy market. In support of this we favour market solutions where practical, incentive regulation for monopolies and an approach that seeks to enable innovation and beneficial change whilst protecting consumers.

We will ensure that Ofgem will operate as an efficient organisation, driven by skilled and empowered staff, that will act quickly, predictably and effectively in the consumer interest, based on independent and transparent insight into consumers' experiences and the operation of energy systems and markets.