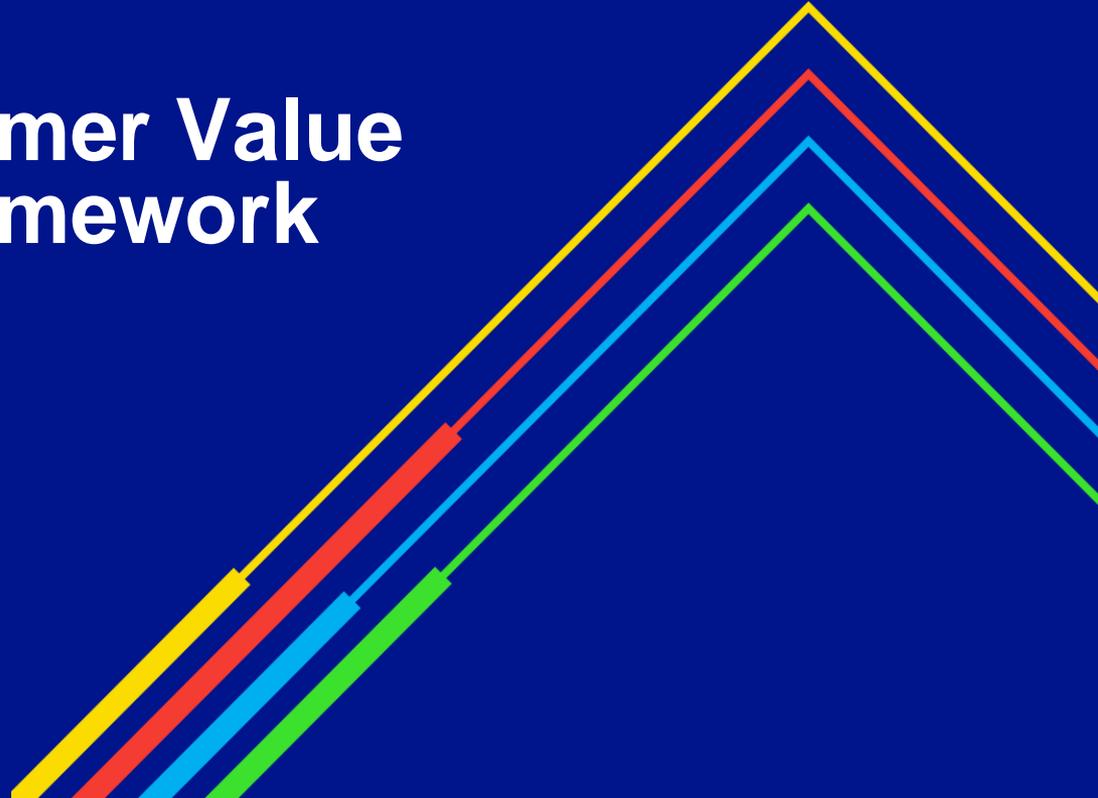


Annex 2

Embedding Consumer Value in the RIIO-ED3 framework



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Context and scope

This paper outlines the case for, and a proposed approach to, developing the RIIO-ED3 framework with consumer value at its core.

Context

- The RIIO-ED3 price control (2028-2033) will govern a pivotal phase in the UK's energy transition. Achieving key milestones – such as Government's Clean Power 2030 – will require wholesale transformation of electricity networks.
- RIIO-ED3 will also be the first distribution price control where Ofgem must exercise its new statutory duties related to Net Zero and Economic Growth, alongside its core obligation to protect the interests of current and future consumers. In addition, new institutional governance arrangements such as National energy system operator (NESO) and regional energy strategic plans (RESPs) will be in place and will shape the RIIO-ED3 business plans.
- Electricity distribution networks will need to continue to provide safe, reliable and affordable network services as well as excellent customer service. They will need to support the UK's decarbonisation goals, working alongside new institutional arrangements to shape and deliver net zero in their communities. Distribution Network Operators (DNOs) will need to harness data and technology to operate smarter, more dynamic and cost-effective networks.
- In this context, it is crucial that the RIIO-ED3 framework identifies and measures what consumers value, and that mechanisms enable the right trade-offs so that DNOs deliver what matters most to consumers.

This paper is split into sections which:

1

Outline case for a Consumer Value Framework, including how the CVF proposal seeks to address the Ofgem challenge of alternative and complementary forms of value measurement.

2

Explore methods for conceptualising and measuring value, drawing examples from regulated utilities and the public sector. **Consider benefits, risks and broader applicability for RIIO-ED3.**

3

Identify key opportunities and priority areas for embedding a Consumer Value Framework in RIIO-ED3.

4

Illustrates the roadmap for the application of the CVF, including how the CVF can help structure optimum consumer outcomes and **provide clarity** on delivery of long-term goals **using common evaluative currency** to assess trade-offs.

5

Conclusion & Next Steps

1. The case for a Consumer Value Framework

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A CVF proposal in response to Ofgem's ED3 Framework Consultation

In response to Ofgem's RIIO-ED3 Consultation framework, NGED presents a framework to facilitate the identification, quantification and measurement of consumer value and answer Ofgem's challenge of measuring value in an alternative and complementary form to the traditional approach to cost benefit analysis (CBA).

Ofgem has said ED3 should:

- Align consumer value and shareholder value.
- Ensure value for money for consumers.
- Deliver a high-quality service, focusing on social, environmental and economic outcomes
- Explore evolved, alternative, complementary approach to cost benefit analysis (CBA)
- Consider alternative regulatory models needed in ED3 to ensure the DNOs deliver consumer outcomes.
- Adaptations needed to the cost assessment approach to better manage trade-offs between consumer protection, efficiency and investment in the distribution network
- A framework that drives best value for consumers and continuous and sustainable improvement.
- Understand alternative or additional approaches to deliver further improvements for consumers, including addressing wider social and environmental challenges, where outcomes are less easily measured, compared or valued.
- Undertake a review of VoLL to more accurately reflect the value that consumers place on it
- Ensure network regulation delivers value for consumers by considering the whole energy system.
- Develop CBAs which take account of the value of climate resilience to assess investment options.

Our CVF proposal:

- Aids Ofgem to better understand the full range of consumer interests in the transition to net zero and help deliver a fair and cost-effective transition.
- Leverages ED3 consumer outcomes, which are closely aligned with Ofgem's CIF, and maps these to our identified key drivers of change: regional decarbonisation, evolving consumer behaviour, social policy imperatives, increased reliance on electricity, and the criticality of resilience. It also explores potential solutions for measuring the impact of these drivers.
- Allows for the identification and calibration of outputs and incentives which help to demonstrate and align consumer value and shareholder value.
- Recognises Ofgem's new duties of net zero and growth and its need to make decisions that go beyond the traditional remit of the Price Control.
- Acknowledges that the lowest cost today will not be the sole, or even the most important, consideration in ED3. This is due to ED3's critical role in governing a pivotal phase of the UK's energy transition. The value gained or lost at this crucial juncture will have a significant impact on this and future Price Controls.
- Recognises the social imperative of this Price Control: ensuring all consumers have the opportunity to participate in the energy transition. This necessitates a significant expansion of Ofgem's value measurement framework. The CVF provides an opportunity to enhance Ofgem's assessment toolkit and establish an evidence-based framework for holding DNOs accountable for delivering on this social imperative.

The case for a Consumer Value Framework

Context:

- The current RIIO-ED2 framework takes a relatively **narrow approach to identifying and quantifying consumer value**, which risks failing to balance the competing objectives of various stakeholders. There is also **insufficient evidence to show that decision-making prioritises consumer interests**, limiting opportunities for engagement and review.
- **As government policy and societal values evolve**, so too must our methods for defining and assessing value. With **increasing reliance on electricity and shifting consumer behaviors, values associated with key measures will also change**.
- Ofgem's Consumer Interest Framework (CIF) offers a more robust foundation for RIIO-3, and a **Consumer Value Framework (CVF) could play a key role in simplifying and refocusing decision-making to ensure consumers remain at the heart of the price control process**.

Components of a CVF

- **Value constructs:** Ways to identify and measure value associated with network outputs, incentives and investments, that align to Ofgem's duties and CIF.
- **Success criteria:** Key criteria to ensure that proposed interventions (incentives, investments etc.) are targeted, aligned to Ofgem's own regulatory objectives and design principles, address value gaps for consumers, and that networks are well placed to deliver.
- **Quantitative and qualitative value measurement:** Methods of measurement that enable comparative assessment of options and trade-offs through a 'common currency'. Where possible, metricising consumer value, but complementing with evaluative approaches endorsed by HMT Green Book Guidance of Options Appraisal.
- **Post-implementation review:** Thorough assessments of the effectiveness of decisions after implementation, allowing for reflection and learning to inform future actions and adjustments.

Key benefits

- **In-depth assessment of trade-offs:** The CVF's focus on long-term value and a common evaluative currency strengthens the ability to assess trade-offs effectively. This leads to targeted investments and outputs, ensuring resources are allocated efficiently and align with broader strategic goals.
- **Transparency and accountability:** The CVF connects individual decisions to broader impacts, providing clarity on how outputs or investments contribute to goals. It ensures well-documented metrics that quantify value, supporting accountability.
- **Holistic calibration centered on value:** By adopting a value-centric approach to initiative and investment calibration, the CVF ensures a comprehensive view of outcomes, avoiding narrow focus on isolated results. This holistic perspective promotes balanced decision-making across multiple priorities.
- **Evidence trail:** Framework allows for clear evidence trail of how various consumer objectives have been balanced in the decision-making process, fostering stakeholder trust and alignment.
- **Comprehensive assessment of success:** Enhanced ability to measure success of framework in post-implementation review

Evolution of Green Book to enhance decision-making

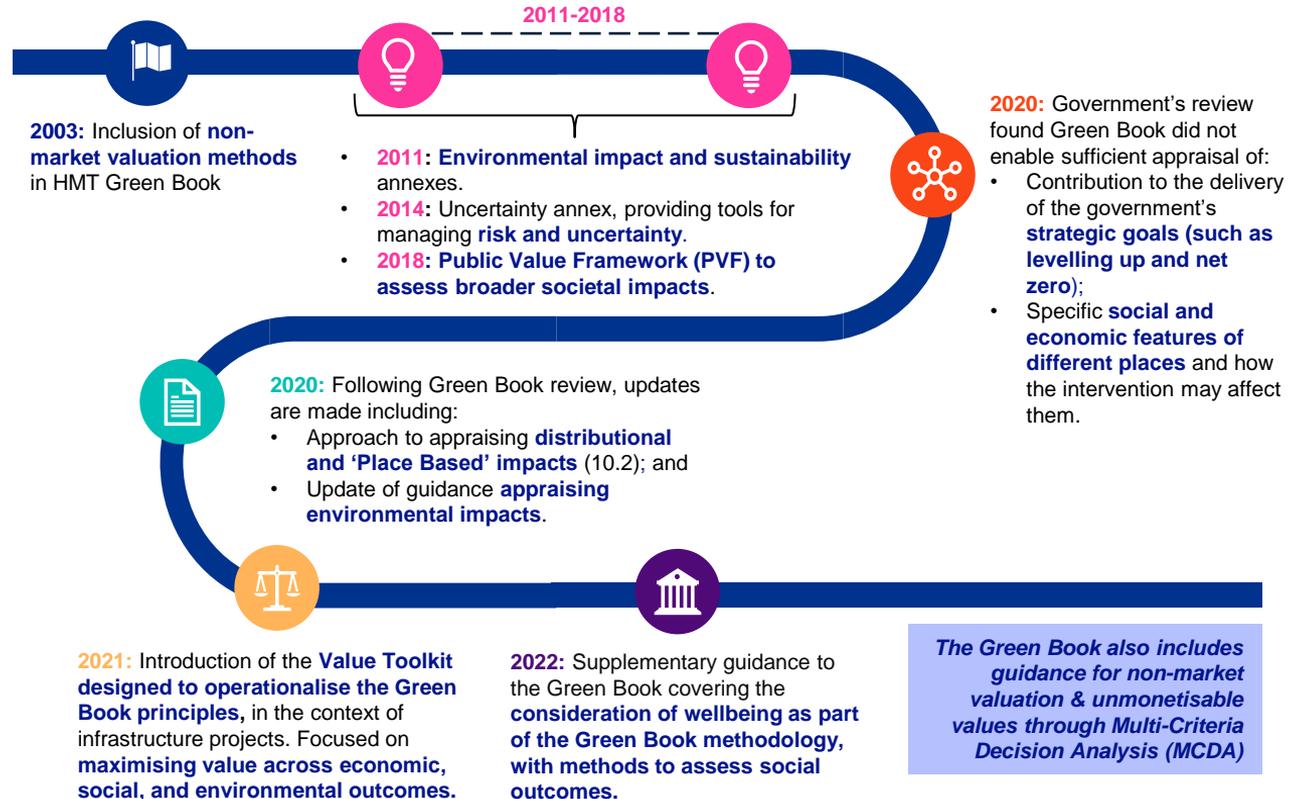
Since the publication of key framework and methodology documents by Ofgem in 2019-2021 to establish RIIO-ED2, the Government has introduced **significant updates to the HMT Green Book aimed at enhancing options appraisal and decision-making.**

These changes place **greater emphasis on evaluating difficult to quantify values such as social and environmental outcomes**, reflecting the growing importance of sustainability and public welfare in policy development.

In the light of these updates, **Ofgem should reassess its current approaches to ensure they align with these new standards.** This should enable the regulator to consider broader societal and environmental impacts in setting the RIIO-ED3 framework, fostering a more holistic and forward-looking regulatory framework.

There is new guidance on the MCDA and climate change that suggests **Ofgem needs to continue to adapt its own review standards**

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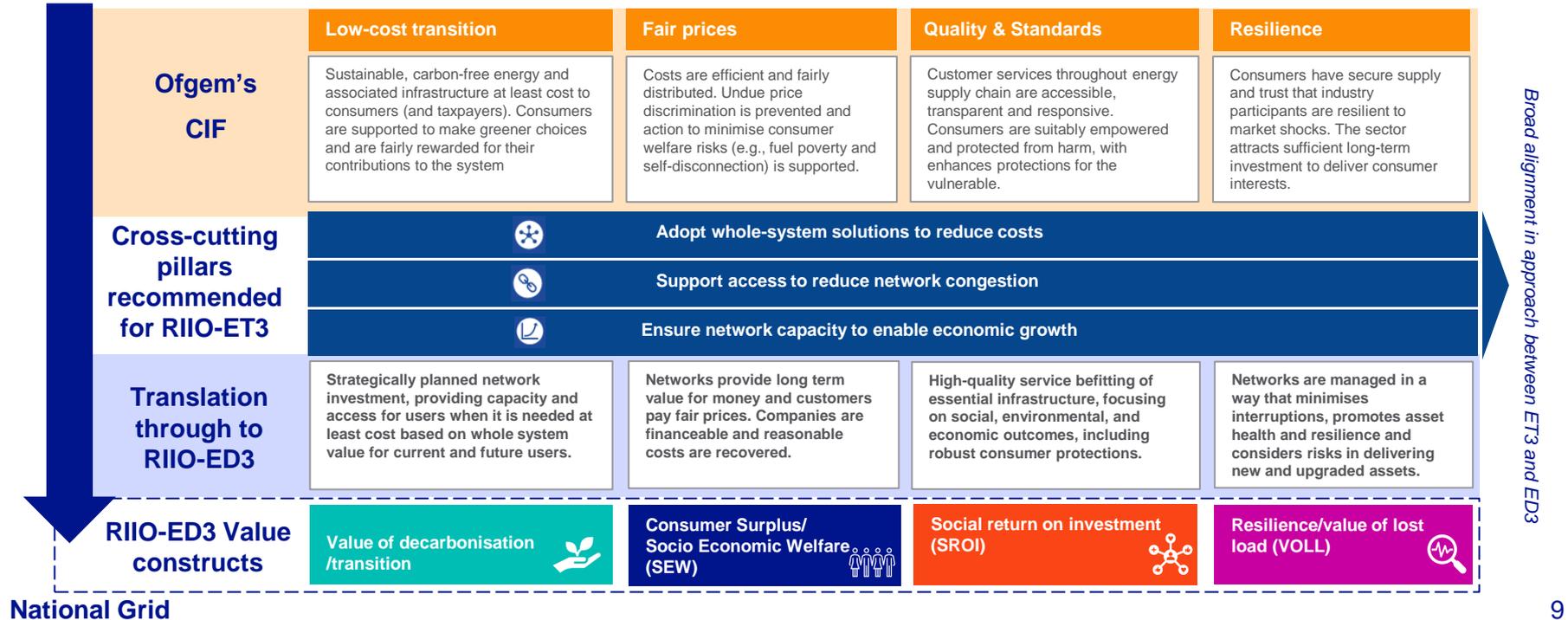
2. Value Constructs and Measurement of Consumer Value

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Introducing RIIO-ED3 value constructs

Ofgem uses the Consumer Interest Framework (CIF) to support regulatory decision making and help identify trade-offs between different consumer interests. The CIF covers all areas of Ofgem's remit through from regulation of generation through to retail oversight. In the context of ED3, we have refined Ofgem's CIF to focus on specific consumer interests. From this, we have identified value constructs that will allow us to better conceptualise and measure consumer value within RIIO-ED3.





Social value measurement and SROI

Measuring the broader social value of infrastructure projects is key to supporting informed decision-making of investments and activities. SROI is a well established tool for measuring social impact that is used across regulated and public sector infrastructure initiatives.

Application in RIIO

Description

SROI measures the social, economic, and environmental value generated by an investment relative to its cost. It builds on traditional cost benefit analysis (CBA) accounting for qualitative social impact of the project.

Types of benefits electricity networks can deliver

Environmental reductions in CO₂ emissions, financial benefits in reduced bills, initiatives to improve the management of vulnerable customers, optimising of electric vehicle (EV) charging placements, increasing the natural capital of non-operational land

Measurement

Uses financial proxies to account for qualitative social values combined with traditional CBA to give an overall SROI. Metrics include: **Net Present Value (NPV)** of social benefits minus costs. **Social Impact Score:** Quantifies social impacts relative to investment.

Calculation of Consumer Value Proposition (CVP): SROI was one of the main methods used to calculate the CVPs under Business Plan Incentive in RIIO-T2, GD2 and ED2. Example CVP proposals that used SROI:

- NGED (WPD) used SROI to measure the benefits generated from its initiative to establish Community Energy Engineers to support the development and delivery of community-based energy schemes to drive the UK's achievement of net zero. This was expected to deliver £2.92 per £ spent (over 5 and 10 years)
- ENWL used SROI in its CVP for the provision of customer load active system service (CLASS) into the Balancing services markets, which would deliver an SROI of £14.78 benefit per £ spent (over 5 years)

Examples of cross sectoral application

Water

- **Water Resource Management Plans (WRMPs):** Water companies have moved away from cost minimisation decision-making to best value decision-making in WRMPs and other plans. This includes use of multi criteria decision analysis (MCDA) to include non-monetisable values, running optimisation models to arrive at best value plans.

Transport

- **HS2 project focused on measuring project outcomes rather than its outputs to ensure SROI captures the full range of benefits** over the long-term and considers the impacts on a wide range of stakeholders, including businesses, individuals, and communities.



MCDA is being increasingly used to complement social value measurement to appraise options when there is a mix of qualitative and quantitative criteria not directly comparable against each other and when perspectives of multiple stakeholders may need to be considered. Including water companies' WRMPs (see examples of cross-sectoral application).



Key takeaways for consideration in RIIO-ED3

Key takeaways include consideration of how to ensure the right focus from both regulator and regulated perspective on social value delivery as well as how to effectively integrate non-monetisable values in options appraisal.

Key takeaways from Ofgem's assessment of CVPs at RIIO-2:

- Clarifying the boundaries within which the CVP reward could operate at RIIO-ED2 (10 per company, £3m of value, aligned to Govt priorities), was an improvement from GD2 and T2, but **using a financial measurement likely discouraged some potentially valuable projects** as there are challenges associated with using a monetised social value assessment.
- Ofgem should consider approaches to **incorporating the qualitative values that come from social and environmental outcomes but also to recognise that there will be difficulties if trying to use monetised qualitative values for benchmarking purposes.**
- The **decision to remove CVPs for RIIO-T3 and GD3 might simplify assessments but risks undermining the development of a culture focused on social value.** This change appears reactionary rather than strategic, potentially undermining long-term consumer value delivery.

Considerations for future assessment of social value:

- The use of **MCDA techniques, as seen in water companies' WRMPs could be beneficial. It would allow for the demonstration of non-monetisable values**, although this would differ from the Ofgem's RIIO-2 approach.
- **Ofwat's Public Value Principles (See right), which aim to foster a culture of public value in water services, could serve as a model for Ofgem.** Adopting similar governance and value principles may enhance the focus on delivering social value in the energy sector.
- Ofgem has indicated in its ED3 Framework Consultation a desire to look at wider measures of value, including social, economic and environmental factors.

Ofwat's Public Value Principles

Ofwat published its paper on Public Value Principles in response to barriers identified to companies prioritising initiatives that deliver broader value. Ofwat found that both an *enabling culture and targeted approach were considered to be important to have the 'best' impact.* It was noted that an *'enabling culture' – on the part of both the regulators and the regulated companies – can help more creative and innovative methods of public value delivery to be explored.*

1. **Principle 1:** Companies should seek to create further social and environmental value in the course of delivering their core services, beyond the minimum required to meet statutory obligations.
2. **Principle 2:** The mechanisms used to guide activity and drive decision-making should facilitate the delivery of social and environmental benefits that are measurable, lasting and important to customers and communities.
3. **Principle 3:** Companies should be open with information and insights on operations and performance.
4. **Principle 4:** Delivery of public value outcomes should not come at greater cost to customers without customer support.
5. **Principle 5:** Companies should consider where and how they can collaborate with others to optimise solutions and maximise benefits, seeking to align stakeholder interests where possible, and leveraging a fair share of third-party contributions where needed.
6. **Principle 6:** Companies' public value activities should not displace other organisations who are better placed to act.
7. **Principle 7:** A company should take account of its capability and circumstances in scoping the delivery of greater public value.



Resilience and Value of Lost Load (VoLL)

The reliability and security of supply quantified by monetising the value that consumers place on having reliable access to electricity.

Description	VoLL attempts to capture the financial and social cost of power interruptions or outages to electricity users – i.e., the value users place on security of supply and is effectively the price placed on outages.	<p>Application in RIIO</p> <p>Within the RIIO framework, VoLL is used in a number of areas:</p> <ul style="list-style-type: none"> • Incentive on Interruption Scheme (IIS): VoLL is utilised to calculate the IIS rate, incorporating the most recent data on average consumption and GB CMLs. • Network Asset Risk Management (NARM): VoLL informs the NARM calculations regarding the economic impact of interruptions to supply. • Cost-Benefit Analysis (CBA): VoLL serves as a calibration tool for CBA models, aiding in the evaluation of investment decisions aimed at enhancing network reliability and performance. <p>Current developments related to the VoLL and resilience</p> <ol style="list-style-type: none"> 1. The National Infrastructure Commission's study on resilience: Developing resilience standards in UK infrastructure 2. Ofgem has stated it will undertake a review of the VoLL in advance of ED3, and is currently engaging with industry stakeholders on: <ul style="list-style-type: none"> • Identifying how the VoLL may have changed post COVID, a uniform vs regional VoLLs, and how to update the VoLL on a regular basis. 3. There are also important considerations around the fact that VoLL may be non - linear, and time-specific. 4. VoLL is a purely economic measure but with changing role of power in society it increasingly concerns social norms and societal cohesion.
Types of benefits electricity networks can deliver	VoLL plays a key role in incentivising network reliability by aiming to reduce Customer Interruptions (CIs) and Customer Minutes Lost (CMLs). This metric supports DNOs in making informed, targeted investment decisions to enhance performance and reliability.	
Measurement	It is measured primarily through choice experiments (CEs) run on surveyed users (domestic and SMEs), which are used to estimate users' WTP and WTA. The outputs are statistically converted to £/MWh.	



Ofgem has acknowledged in its recent RIIO3 SSMD that VoLL needs to be updated (2025) due to the anticipated uplift in value that consumers place on electricity since its original calculation. It is currently unclear if Ofgem's review will extend to consumer disaggregation.



Key takeaways for consideration in RIIO-ED3

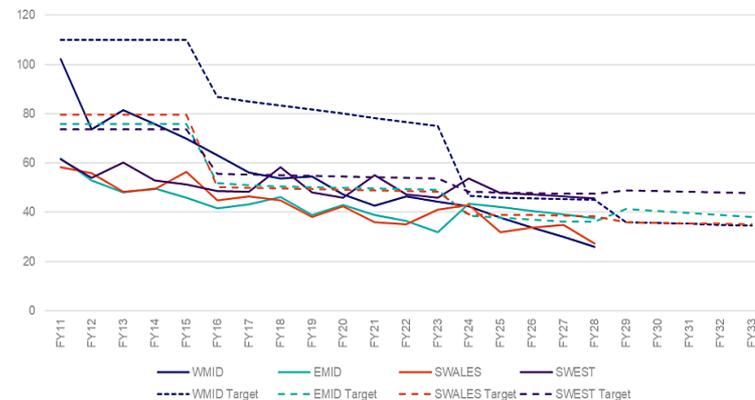
Without review and update of value of lost load (VoLL), and the mechanisms it feeds into, there may be value left on the table in RIIO-ED3.

Key considerations for VoLL and IIS evolution:

- Consideration to be given to what VoLL is seeking to achieve – a “premium” for world class reliability/service or the true economic cost of service disruption.
- VoLL needs updated to reflect expected changes in electricity usage; the macroeconomic landscape (e.g., inflation, cost-of-living etc.) and increased reliance on electricity.
- A differentiated VoLL should be considered for ED3 to reflect customer value and improve DNO investment decisions.
- VoLL **assumes a linear value of interruptions across all levels of reliability**, however it is expected that users' willingness to pay (WTP) will vary for different levels of reliability e.g., bad to good vs good to excellent.
- Network resilience to climate change is an important part of future proofing the networks. **There is limited evidence that the VoLL reflects the value that society places on a network resilient to climate change shocks, cyber attacks etc.** Ofgem should consider how IIS methodology could evolve to include e.g. climatic weighting factors which go beyond 'Exceptional Events'.

Other resilience considerations

- Whilst NARM is intended as a measure to inform asset replacement and not appropriate to become an all-encompassing network/climate resilience output, there may be a need for small changes to NARM methodology to take into account the potential impact on asset life (e.g. thermal aging of assets).
- A climate resilience incentive or funding could be considered to ensure an appropriate set of metrics to measure resilience, taking account of potential impact of climate change, enabling the industry to manage the risk to network assets efficiently whilst helping the country meet the government's Net Zero ambitions.



NGED's Customer Interruptions historic performance, forecast and targets



Recent analysis by NGED projects a plateau in the IIS incentive performance metrics over ED3. DNOs will begin to reach a point where further leaps in performance are only possible with new innovation or disproportional investment. Without review and update, there is likely to be value 'left on the table' in particular for specific consumer groups who are worst served, who would benefit from investments to improve reliability.



Value of the transition / decarbonisation

Measured as the environmental, economic, social, and technological benefits derived from delivering the energy transition and the decarbonisation of the energy sector

Cross sectoral application

<p>Description</p>	<p>The transition to a decarbonised energy system, and society, is pivotal for achieving net-zero emissions and mitigating the impact of climate change. This transition contributes not only to environmental sustainability but also to economic efficiency and social welfare.</p>	<p>ESO:</p> <ul style="list-style-type: none"> The ESO's early competition CBA incorporates within its traditional CBA, the qualitative assessment of carbon emissions to provide a more comprehensive view of value of early competition. <p>Water:</p> <ul style="list-style-type: none"> The Water Industry (Specified Infrastructure Projects) regulations 2013 (SPIR) give Ofwat the power, in certain circumstances, to specify an infrastructure project in the water or sewerage sector in England as a project that <u>must be delivered under the Regulations</u>. This is a crucial regulation for building a water system fit for the future and provides a platform for further infrastructure development enabling the transition to a decarbonised water/sewage sector. E.g., The Thames Tideway Tunnel (TTT) was the first large project delivered via the Regulations. Crucially, the TTT economic case noted approaches for measuring the impacts of quantifiable and hard-to-quantify value. E.g., reductions in fish deaths, adverse health impact for the former, and the protection of habitats and species for the latter. Such applications as shown in TTT will better capture the value of water/sewage sector value. <p>Nuclear:</p> <ul style="list-style-type: none"> Transition away from Levelised Cost of Energy (LCOE) to VALCOE, or Value Adjusted Levelised Cost of Energy. Whilst LCOE considers the cost of different electricity generation technologies over the asset lifetime, it does not capture other systemic costs or externalities beyond plant-level CO₂ emissions such as, for instance, methane leakage during the extraction and transport of natural gas. It also doesn't capture systemic considerations like the intermittency of renewable generation. VALCOE captures these broader costs and benefits to provide more comprehensive view of the value.
<p>Types of benefits electricity networks can deliver</p>	<p>Aiding transition to net zero (facilitating integration of low carbon technologies including DERs, enhanced data and data access for stakeholders), transition at least cost (optimised network operation, constraint reduction), as well as broader environmental and social benefits.</p>	
<p>Measurement</p>	<p>Carbon emission reductions: Metrics such as total CO₂ savings and the cost of carbon abatement. Removal barriers to efficient operation: Metrics focused on minimising constraints and improving system synchronicity to support a net-zero energy system.</p>	
<p>Application in RIIO</p>		
<p>RIIO-ED2 DSO incentive: ED2 included the DSO incentive, encouraging DNOs to transition towards a smarter, flexible, and low-carbon energy system. This incentive prioritises flexible and smart alternatives over traditional network reinforcement, ultimately leading to reduced costs for consumers.</p> <p>ASTI: Ofgem recognised the value of the energy transition in its ASTI incentive regime, albeit without monetising carbon reduction, incentivising accelerated outcome delivery.</p>		

Terms: distributed energy resources (DERs); low carbon (LC); distribution system operator (DSO); accelerated Strategic Transmission Investment (ASTI)

Energy sector example: https://cadentgas.com/getmedia/44f5e7d6-72fa-4228-acd0-b64138c33ef3/APP_CAD_07-01-00-Consumer-Value-Proposition-Calculation.pdf

Water sector example: <https://www.aurigaservices.co.uk/wp-content/uploads/2020/07/SROI-Report-FINAL-Water-Companies-For-Publication.pdf>



Key takeaways for consideration in RIIO-ED3

The scope and extent of the value of the energy transition should be expanded within the Price Control framework to recognise and incentivise the broader societal benefits it derives

Key takeaways from Ofgem's CBA on accelerated transmission investment:

- Historically, there has been a trend of failing to fully capture the benefits associated with the transition to a low-carbon economy. This is likely due to the challenges in quantifying these values effectively, however use of well established tools and methodologies are necessary to ensure that all potential costs and benefits are considered in investment decisions.
- The HM Treasury (HMT) Green Book provides clear guidance on appraising options that include non-market valuations, such as carbon emissions.

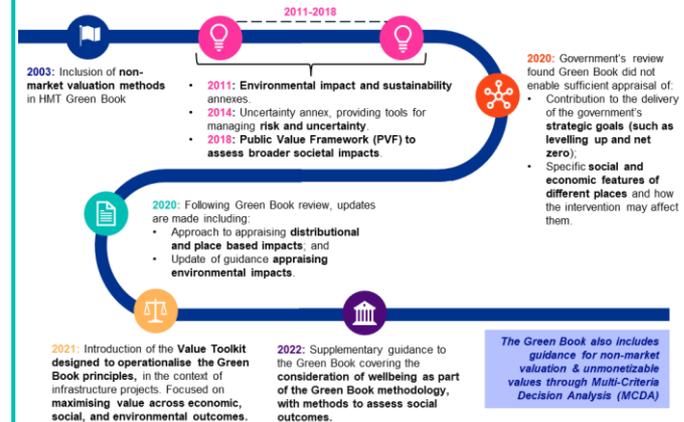
Other key takeaways:

- Consideration of adoption of Outcome-Based Incentives (OBIs) to drive DNOs to deliver specific outcomes that support the transition to a low-carbon economy, including related to reducing carbon emissions, improving energy efficiency, and increasing the adoption of low-carbon technologies.
- Need for consideration of the distribution system operator (DSO) incentive going forward, and whether the performance metrics and incentive strength are calibrated to drive the broader benefits that DSO can deliver (e.g. around enhanced data provision and stakeholder access).
- Facilitate the acceleration of net zero and target finite resources to areas that achieve the highest rates of decarbonisation at distribution level.
- Synchronise with the Transmission programme to make best use of the uptake in renewable generation and the additional capacity being built at 132kV and above.
- Increase investment in Innovation to provide greater financial incentives to invest in innovative technologies that support the transition to net zero, including funding for R&D and pilot projects.

Relevant HMT Green Book Sections



- Section 6.15: Focuses on the valuation of costs and benefits, emphasising the importance of incorporating non-market values.
- Supplementary Guidance: Offers additional insights into the appraisal of energy use and greenhouse gas emissions, further supporting the need for comprehensive evaluations.





Consumer surplus / socio-economic welfare

Societal well-being including economic prosperity, social justice, environmental sustainability and the economic benefit consumers receive from a good or service provided at a lower cost than their willingness to pay

Application in RIIO

<p>Description</p>	<p>Consumer surplus is an economic concept that helps capture the benefit consumers gain from using a service, and also helps capture the impacts or losses to society of a regulated monopoly.</p>	<ul style="list-style-type: none"> The RIIO ex ante price cap regulation coupled with a wider portfolio of incentives designed to minimise producer surplus and to maximise SEW. E.g., of incentives include: <ul style="list-style-type: none"> Totex Incentive Mechanism (TIM): setting the cost sharing factor in TIM under ED2 is used to ensure an appropriate proportion of the value gains realised by companies is shared with consumers. Business Plan Incentive (BPI): is a four-stage incentive used to encourage companies to reveal their true costs which helps Ofgem maximise the value delivered to consumers through the price control. Return Adjustment Mechanism (RAM)s: was introduced in ED2 as a last resort mechanism to provide guiderails on the consumer value-add / company returns to preserve consumer legitimacy and the consumer costs of the value-add / application of caps and collars and deadbands. <div data-bbox="1064 740 1789 896" style="background-color: #e6f2ff; padding: 10px; text-align: center;"> <p>The starting premise should be to seek to maximise Socio Economic Welfare. Tramlines such as RAMs and sharing factors such as TIM can then be deployed to consider the appropriate allocation to regulated networks and consumers in line with incentive regulation properties.</p> </div>
<p>Types of benefits electricity networks can deliver</p>	<p>Networks are able to deliver cost efficiency benefits through the provision of services and outputs at a cost below the value of the service/output delivered or reductions in consumer bills.</p>	
<p>Measurement</p>	<p>The level of efficiency achieved by networks in delivering infrastructure investments and/or services. The broader societal benefits (e.g. improved environmental outcomes; social inclusion and equity) achieved by networks in delivering the Price Control.</p>	
<div data-bbox="88 782 994 910" style="background-color: #003366; color: white; padding: 10px;">  <p>Ofgem acknowledges in its ED3 framework consultation that the concept of value should be broadened beyond cost efficiency and is open to views on how it should consider wider social value beyond the simple economic lens.</p> </div>		



Key takeaways for consideration in RIIO-ED3

Careful consideration needs to be given to how Ofgem develops the incentive regime for connections at Distribution level to properly reflect ownership and responsibility of the customer journey.

Key Takeaways from Ofgem's Connections Regime Reforms in ED3

- Future regulation will need to adequately consider and balance the competing objectives of both the timeliness and quality of the connections process.
- Recognition and incentivisation of both the interim outputs and the final connection itself will be a contributory factor in delivering an improved connections process that meets customer needs and facilitates the net zero transition.
- Appropriate segmentation of customers and their differing requirements and priorities will better serve individual customers and facilitate the need to accelerate the provision of connections across the customer base.
- The role of data and digitalisation of the connections process will be a key enabler for improving the connections experience, it will be important that time and funding is sufficient for this to be successful.
- Future obligations on connections delivery will need to be cognisant of the role of different parties involved and the limitations on information availability at the various connection stages.

Other Key Takeaways

- Careful consideration of framework calibration is required to ensure consumer welfare is being maximised and avoid unintended consequences (e.g. interaction of individual caps and collars vs aggregate caps and collars (e.g. RAMs).
- TIM rate is applied across incentives ensuring the right trade-offs but clarity and impact of late changes to individual parameters are not clearly aligned with consumer value.
- Do penalty only incentives drive the right behaviours or add value? Consideration of proportionate incentivisation to promote investments required beyond "the stick" approach.
- Networks need to demonstrate and evidence they are maximising consumer value across their propositions "challenge-ready", to ensure the burden of evidence sits with Ofgem to demonstrate their counterfactual.

Ofgem's recent consultation on Connections end-to-end review of the regulatory framework should shape and influence a number of key factors in Ofgem's thinking for RIIO-ED3. It will be of paramount importance that the role that DNOs play is properly accounted for and consideration is given to the differing requirements of the customer base across Transmission and Distribution, as well as the segmentation of each, the various stages and outputs for customers in their connections journey and who is best placed to have ownership and accountability of the various stages and deliverables.

3. Key areas of focus for RIIO-ED3

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Ofgem's objectives for RIIO-ED3 and key drivers of change

Combining Ofgem's desired consumer outcomes for RIIO-ED3 with key drivers changing the energy system provides a useful foundation for identifying areas of opportunity and priority for DNOs, to ensure networks deliver value to current and future consumers.

Ofgem's consumer outcomes

Networks for net zero: Strategically planned network investment, providing capacity and access for users when it is needed at least cost based on whole system value for current and future users.

Responsible businesses: High-quality service focusing on social, environmental, and economic outcomes, incl. robust consumer protections, stakeholder engagement, long-term Value for money, financeability and financial resilience

Resilient and sustainable networks: Minimise supply interruptions, promote longer term asset health and resilience and consider risks in the delivery of new and upgraded assets

Smarter networks: Leverage data, digitalisation and innovation, increasing transparency and value of data to stakeholders and protecting against cyber threats

Drivers of change:

Regional decarbonisation

- **Regional decarbonisation goals and timelines vary**, requiring tailored network planning.
- **Networks must be designed to meet local energy needs**, incorporating renewable generation and low-carbon technologies.
- **Capacity will need to be targeted to areas where it's most needed** to facilitate the transition.

Changing consumer behaviour

- The rise in electric vehicles (EVs), heat pumps, and distributed energy resources (DER)s will **shift load profiles and energy usage patterns**.
- **Networks need to develop forecasting capabilities and be able to accommodate changes in how consumers interact** with the grid.
- **Demand-side management and flexibility products** will be crucial to ensure grid stability.

Social policy imperative

- The transition risks **leaving behind certain groups**, e.g. those **slower to adopt new technologies or who face unique challenges based on geography, income, or access to resources**.
- An inclusive transition must ensure vulnerable and disadvantaged groups are not left behind but have **equitable access to opportunities provided by the transition**.

Increasing reliance on electricity and criticality of resilience

- **Rising demand for electricity** across transport heat and industry require networks to scale & adapt.
- **Greater reliance on electricity for critical services means resilience will be key**.
- DNOs must upgrade infrastructure and implement risk management strategies that **address climate impacts, like flooding and extreme weather**.

Potential areas of focus for RIIO-ED3 from a value perspective

The table below utilises Ofgem’s consumer outcomes and the drivers of change to identify potential areas of focus for RIIO-ED3 from a value perspective. The table allocates relevant value constructs that can support an assessment of the value to be delivered.

		Regional decarbonisation	Changing consumer behaviour	Social policy imperative	Increasing reliance on electricity and criticality of resilience
Ofgem's Open Letter Consumer Outcomes	Key drivers of change <i>Strategically planned network investment, providing capacity and access for users when needed at least cost based on whole system value for current and future users.</i>	Does the Totex modelling approach value optionality to support strategic investment & enable regional decarbonisation?  	Is enough being done to address connections delays and accelerate EV and motorway services infrastructure?  		
	Responsible businesses <i>High-quality service focusing on social, environmental, and economic outcomes, incl. robust consumer protections, stakeholder engagement, long-term VFM, and financial resilience.</i>			Can targeted interventions to enable take up of EVs, heat pumps etc. in areas with disproportionately low take up ensure transition for all - “no one left behind”?  	Does value of lost load (VoLL) recognise the true value of reliability and would consumer segmentation and differentiated VOLL deliver more value?  
	Resilient and sustainable networks <i>Minimise supply interruptions, promote longer term asset health and resilience and consider risks in the delivery of new and upgraded assets</i>			What resilience investments (e.g. on poor performing circuits with high levels of vulnerable customers) can deliver most value?   	What investments to mitigate the impact of climate change and their impact on consumers maximise value? 
	Smarter networks <i>Leverage data, digitalisation and innovation, increasing transparency and value of data to stakeholders and protecting against cyber threats.</i>	What targeted digital investments better facilitate the integration of renewable energy sources into the grid, enabling a more sustainable energy mix?  	Can enhanced quantification and calibration of DSO incentive better reflect the value of flexibility? 		What cyber resilience enhancements ensure the reliable and secure delivery of electricity and maintain public confidence in critical infrastructure?  

Note that the areas presented in this table are non-exhaustive

Potential areas of focus for RIIO-ED3 from a value perspective

Areas of focus are identified and an initial set of options for consideration are outlined below. These are not the only likely focus areas and options for consideration are not exhaustive, or mutually exclusive.

1

Reviewing totex modelling to support strategic investment & enable regional decarbonisation

What's the potential value gap?

- Anticipatory investment has not historically been incentivised or undertaken by DNOs, with key focus on maximising asset utilisation through flexibility.
- Totex regression models do not adequately account for these investments meaning the costs of building in anticipation is likely to be perceived as inefficient.
- Failure to build capacity ahead of demand will slow progress, making it more difficult to integrate renewable energy, EVs, and other low carbon technologies.

What would be the objective of intervention?

- Develop a mechanism(s) that values, measures and potentially rewards 'desirable' levels of headroom. Thus enabling DNOs to make anticipatory investment that aligns with regional and national targets.

What are potential options for consideration?

- Amend the DNO totex modelling to better capture the value of optionality provided by headroom, i.e., potential capacity to support the setting of allowances.
- Undertake bespoke technical/cost assessment of load and/or anticipatory investments (similar to that undertaken at transmission level).
- Develop mechanisms to drive and measure desirable (bounded) levels of headroom as an output throughout the control (and across controls)

2

Addressing connections delays and accelerating EV services infrastructure

What's the potential value gap?

- Connection queues are long and growing, resulting in customer delays and impacting delivery of net zero.
- It is not clear that ED2 mechanisms reflect the varied requirements and pathways of different customers or the value of optionality. Therefore, not clear that mechanisms drive the right behaviours, nor enable trade-offs to be made for efficient connections delivery.

What would be the objective of intervention?

- Ensure mechanisms are designed to deliver connections efficiently in ED3, without significant delay or new investment. Ensure optionality is there for customers to participate in new technologies and the Transition.

What are potential options for consideration?

- Segment customers to better understand needs and WTA; Identify options for connections queue prioritisation; incorporate segmentation within new or existing mechanisms to drive enhanced outcomes.
- Incentivise broader enabling outcomes including improving network visibility of capacity of local substations and connection times.
- Incentivise, or provide funding tied to outputs measuring, capacity released through technical limits and other innovative approaches to speeding up connections delivery.

3

Targeted resilience investments for worst served and vulnerable groups

What's the potential value gap?

- Vulnerable consumers face much greater impacts from poor network performance than other customers, e.g., higher customer interruptions (Cis) and customer minutes lost (CMLs) affecting vulnerable consumers more and limiting their participation in the transition.
- Consumers sitting on poorly performing circuits of the network who regularly experience poor performance below that of the average consumer.

What would be the objective of intervention?

- Prioritise network performance for customers, including vulnerable customers, on poorly performing circuits not prioritised in the NARM programme

What are potential options for consideration?

- Identify and prioritise WSC, including vulnerable, consumers connected to poorly performing circuits to ensure they are not disproportionately impacted in the event of interruptions
- Consider mechanism and performance metrics that demonstrate customer impact and value of intervention
- Consideration of interruptions incentive scheme (IIS) segmentation to recognise "network resilient poor" and the value of universality of service.
- Consider allowances for targeted interventions to improve worst served customers (WSC) outcomes.

Potential areas of focus for RII0-ED3 from a value perspective

4 Targeted investments to mitigate the impact of climate change and their impact on consumers

What's the potential value gap?

ED2 fails to adequately capture the forward-looking risks associated with climate change, which may negatively impact network performance and reliability.

- As climate change intensifies, DNOs may struggle to meet current performance standards, leading to worse service (higher CI and CML) and reduced reliability.
- The benefits of investing in future-proof (climate-resilient) substation designs are not fully recognised, with the current framework primarily focused on short-term IIS targets rather than long-term resilience.
- Climate-related disruptions are only considered as 'exceptional events', even though they are likely to become more frequent. This increases consumer risk and exposure to unreliable service.

What would be the objective of intervention?

- To develop an appropriate set of metrics to measure network resilience, taking into account the potential impact of climate change – with the aim of ensuring networks are sufficiently incentivised to make investments towards reliable and climate resilient networks

What are potential options for consideration?

- Adjust the asset risk assessment inputs to the NARM to reflect a higher-probability-higher-risk world, driven by climate change impacts. This could include the geography of the asset. E.g., proximity to likely flooding events
- Model IIS performance targets utilising various climate scenarios to better reflect future network performance, removing reliance purely on historical precedent.
- Consider security and quality of supply standard (SQSS) planning standards for security of supply (SoS) and asset resilience when measuring network resilience.

5 Identify areas on network which have disproportionately low take up of LCTs to establish interventions to ensure transition for all

What's the potential value gap?

- Some customers that have the economic means and want to adopt low carbon technologies (e.g. EVs, heat pumps) but are not able to, due to current network configuration limitations.
- Domestic customer connections delayed due to uncertainty of local network capability.
- Worst performing circuits with low network criticality may not have the necessary investments prioritised

What would be the objective of intervention?

- Identify and invest in any areas of the network that are currently incapable of facilitating net zero transition due to network configuration limitations.
- Accelerate domestic customer connection requests & improve uptake rates in affected areas
- Increase circuit headroom to facilitate future uptake of low carbon technologies.

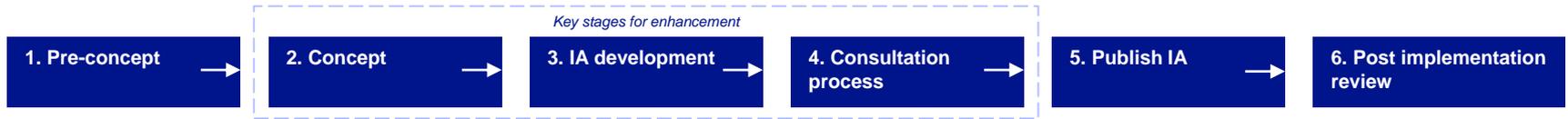
What are potential options for consideration?

- Find areas of the network not facilitating the transition, identify the source of the restriction, propose viable economic solutions.
- Consider allowances for targeted interventions to improve WSC outcomes
- Consider penalty/reward mechanisms for worst performing circuit performance (similar to IIS model) against average circuit performance to incentivise targeted investment.
- Consider developing value metric that measures headroom on network or at circuit level that can be incorporated into CBA

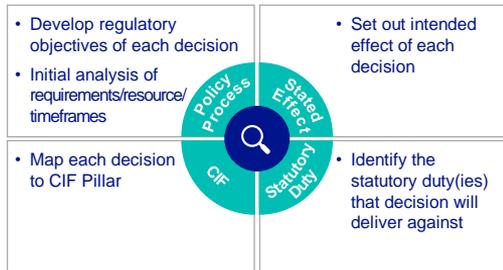
Linking the IA and the consumer value framework

The use of an augmented Impact Assessment (IA) framework (see also separate annex to NGED's ED3 Framework response) complements the proposed consumer value framework (CVF) approach. These two elements can be used in conjunction to ensure policy decisions are consumer centric and an evidenced based approach is utilised to measure value.

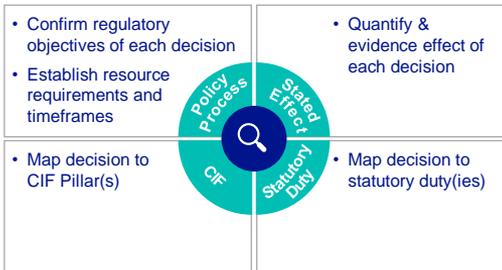
- Each policy decision is required to set out the regulatory objective and its stated effect which can be mapped against the relevant value construct(s)
- Sets out a documented approach which considers what and how relevant evidence is analysed.
- Provides the evidential trail for the decision arrived at and what analysis has informed this position
- Sets out the requirements for stress testing the decision outcomes using scenario analysis and expert review
- Documents how stakeholder feedback has been considered and ultimately influenced the final decision



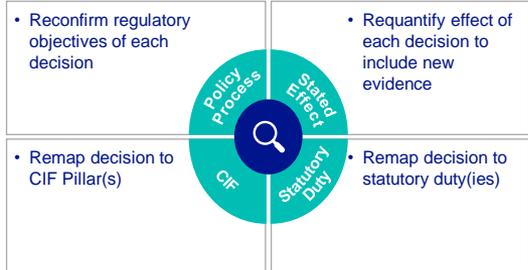
2. Additional considerations at Concept stage



3. Additional considerations at IA development stage



4. Additional considerations at consultation stage



Terms: Consumer Interest Framework (CIF)

4. CVF Roadmap

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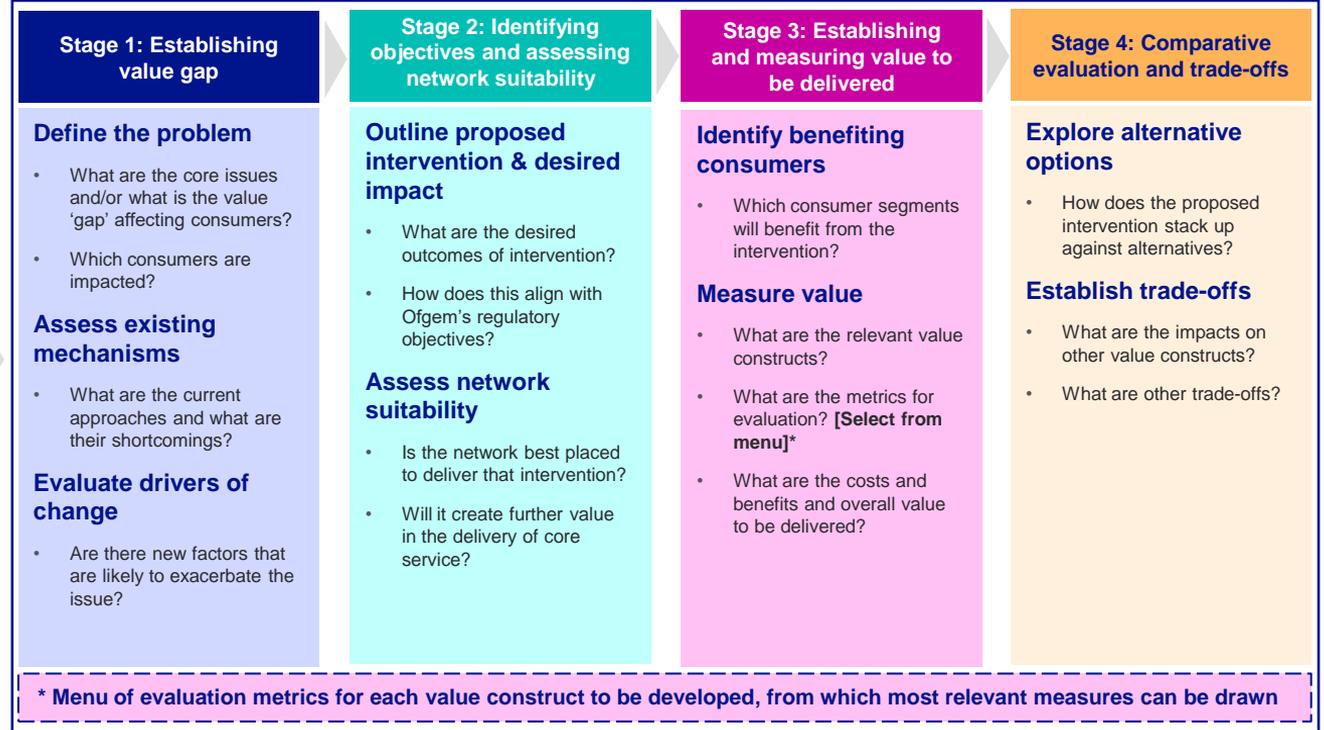


How can the CVF help to answer those questions?

This slide presents how a CVF helps structure responses to develop optimum consumer outcomes

Recapping initial areas of focus:

1. *Does the Totex modelling approach value optionality to support strategic investment & enable regional decarbonisation?*
2. *Is enough being done to address connections delays and accelerate EV and motorway services infrastructure?*
3. *Does Identifying areas on network which have disproportionately low take up of EV/Heat Pump etc to establish network interventions alleviate issues to ensure transition for all - "no one left behind"*
4. *What Resilience investments on Worst Performing Circuits with high levels of vulnerable customers (not prioritised in network asset risk metric (NARM)) can deliver most consumer value?*
5. *What investments to mitigate the impact of climate change and their impact on consumers maximise value?*

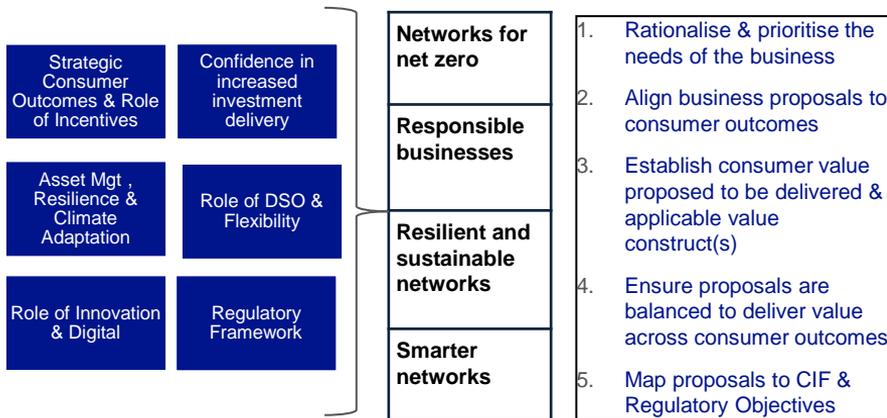


Roadmap for development of the Consumer Value Framework (1/3)

Connecting individual decisions to broader impacts to provide clarity on how outputs or investments contribute to goals over the longer term using common evaluative currency strengthens the ability to effectively assess trade-offs and provide comparability across the sector.



Step 1: Identify & align ED3 business imperatives to Ofgem Consumer Outcome Objectives



Step 2: Develop portfolio and align to Ofgem Framework

	Key drivers of change	Regional decarbonisation	Changing consumer behaviour	Social policy imperative	Increasing reliance on electricity and criticality of resilience
Networks for net zero	Strategically planned network investment, providing capacity and access for users when needed at least cost based on whole system value for current and future users.	Does the Toxex modelling approach value optionality to support strategic investment & enable regional decarbonisation?	Is enough being done to address connections delays and accelerate EV and motorway services infrastructure?		
Responsible businesses	High-quality service focusing on social, environmental, and economic outcomes, incl. robust consumer protections, stakeholder engagement, long-term VBM, and financial resilience.			Can targeted interventions to enable take up of EVs, heat pumps etc. in areas with disproportionately low take up ensure transition for all - "no one left behind"?	Does value of lost load (VoLL) recognise the true value of reliability and would consumer segmentation and differentiated VoLL deliver more value?
Resilient and sustainable networks	Minimise supply interruptions, promote longer term asset health and resilience and consider risks in the delivery of new and upgraded assets			What resilience investments (eg on poor performing circuits with high levels of vulnerable customers) can deliver most value?	What investments to mitigate the impact of climate change and their impact on consumers maximise value?
Smarter networks	Leverage data, digitalisation and innovation, increasing transparency and value of data to stakeholders and protecting against cyber threats	What targeted digital investments better facilitate the integration of renewable energy sources into the grid, enabling a more sustainable energy mix?	Can enhanced quantification and calibration of DSO incentive better reflect the value of flexibility?		What cyber resilience enhancements ensure the reliable and secure delivery of electricity and maintain public confidence in critical infrastructure?

Value constructs: SEW, VoLL, Value of transition, SROI

Focus areas developed further in this pack: VoLL, SROI

Focus areas for further consideration: SEW, Value of transition

- Finalise portfolio of propositions and their alignment to Consumer outcomes
- Establish the applicable value constructs used to measure consumer value

Roadmap for development of the Consumer Value Framework (2/3)

Each proposal would be evaluated against the consumer value criteria and an overall assessment carried out under a multi-criteria decision making framework. It would be important to link the proposition to the criteria under the CIF and the alignment with Ofgem's duties under the Impact Assessment framework



Step 3: Develop proposals & undertake assessment for each proposition & wider portfolio

Establish value gap

Identify objectives and assess network

Establish and measure value delivered

Comparative evaluation

Name: **Totex Modelling**

Regulatory Objective: Improve cost assessment methodology to ensure broader concepts of value are identified and measured to ensure commensurate funding provided.

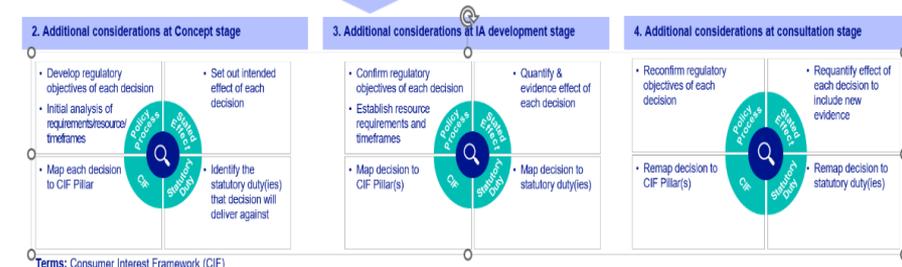
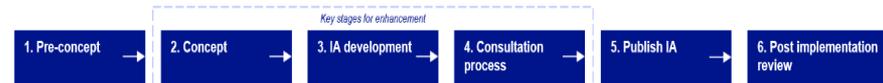
Stated Effect: Improve robustness and veracity of cost assessment approach and modelling suite to ensure funding outcomes are commensurate with value delivered for consumers.

Ratings: 5 — 4 — 3 — 2 — 1

Criteria	Weight	Current solution		Option A		Option B	
		Rating	Weighted score	Rating	Weighted score	Rating	Weighted score
	5	1	5	6	25	4	20
	2	3	6	3	6	5	10
Total score			11		31		30

Assign weighting & ranking to each proposition using the chosen value construct success criteria to determine the relative scoring for each proposition and the overall portfolio.

Step 4: Utilise Impact Assessment to cross check portfolio aligns to Consumer Interest Framework & Ofgem duties



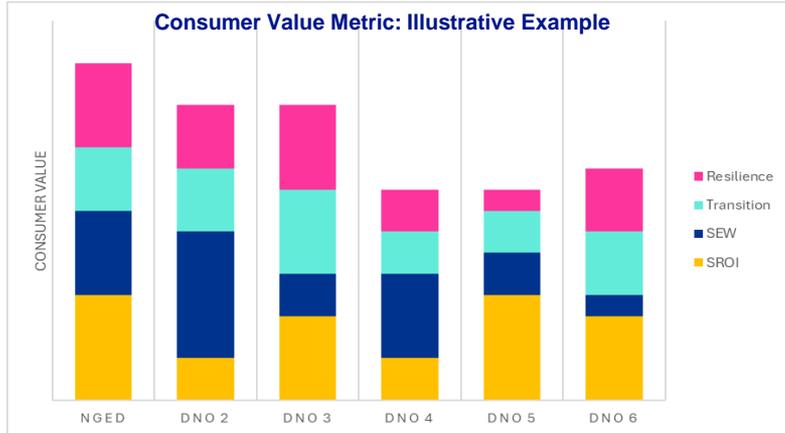
Cross reference proposition portfolio with CIF and Ofgem duties consistent with augmented Impact Assessment framework approach.

Roadmap for development of the Consumer Value Framework (3/3)

There is value in bringing together the various propositions and delivered performance as part of an overall Consumer Value Metric. The Consumer Value Metric can be used as a measure alongside RoRE to demonstrate the comparative measure of value beyond shareholder return.

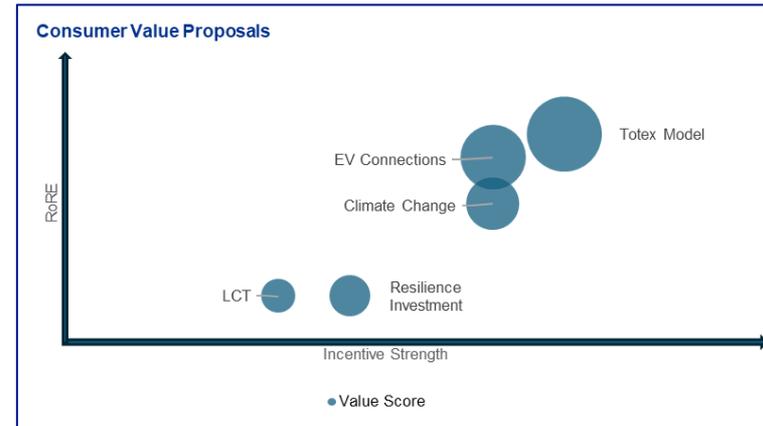


Step 5: Plan Ambition & Performance



Consideration of the relative weighting of the differing forms of value delivered and their impact on affordability, reliability and sustainability.

Step 5: Comparative Analysis



Comparative measurement of consumer value and RoRE will assist in developing a broader view of performance within the RIIO framework architecture.

Conclusion and Next Steps

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Conclusion and Next Steps

Consumer values and outcomes must be central to ED3 and future price controls, ensuring the energy transition benefits all consumers. This annex to NGED's ED3 Framework Response outlines a proposed Consumer Value Framework (CVF) and Metric (CVM). NGED wishes to collaborate with Ofgem and industry participants to develop these concepts and shape the approach for the upcoming Sector Specific Methodology Consultation (SSMC).

Conclusion

- Ofgem has raised the issue of measurement of value and broader consideration of consumer outcomes as part of RIIO-ED3.
- ED3 provides the ideal opportunity to put consumer value at the heart of decision making with clear linkage to Ofgem's principal duty to protect current and future customers.
- A Consumer Value Framework (CVF) assists in focusing and where appropriate refocussing decision-making to ensure consumers remain at the heart of the price control process.
- The proposed CVF value constructs allow us to better conceptualise and measure consumer value within RIIO-ED3 to support regulatory decision making, helping to identify trade-offs between different consumer interests
- Connecting individual decisions to broader impacts provides better clarity on how outputs or investments contribute to goals over the longer term
- There is merit in developing an overall Consumer Value Metric and using this as a complementary measure alongside RoRE to demonstrate value delivered to consumers in Ofgem's Price Control.

Next Steps

NGED wishes to work collaboratively with Ofgem and other industry participants to further develop the CVF concept and its utilisation as part of Ofgem's assessment tool-kit.

NGED has begun developing case studies that seek to demonstrate the application of a CVF process to demonstrate its effectiveness and relative value and would be keen to share and discuss these with Ofgem when suitably matured.

NGED will continue development of the value constructs (SROI, SEW, Transition, Resilience) to support identification and value measurement of network outputs, incentives and investments.

NGED will develop success criteria for each individual value construct to ensure that policy and investment proposals are evidence based and can be critically assessed, ensuring that proposed interventions are targeted and aligned to Ofgem's regulatory objectives and address value gaps for consumers.

In response to this, and other stakeholder feedback, we would like to see Ofgem develop and support a Consumer Value Framework approach, mapped back to its Consumer Interest Framework, in the forthcoming Sector Specific Methodology Consultation.

Annex
Slides presented by
NGED at Ofgem WG1

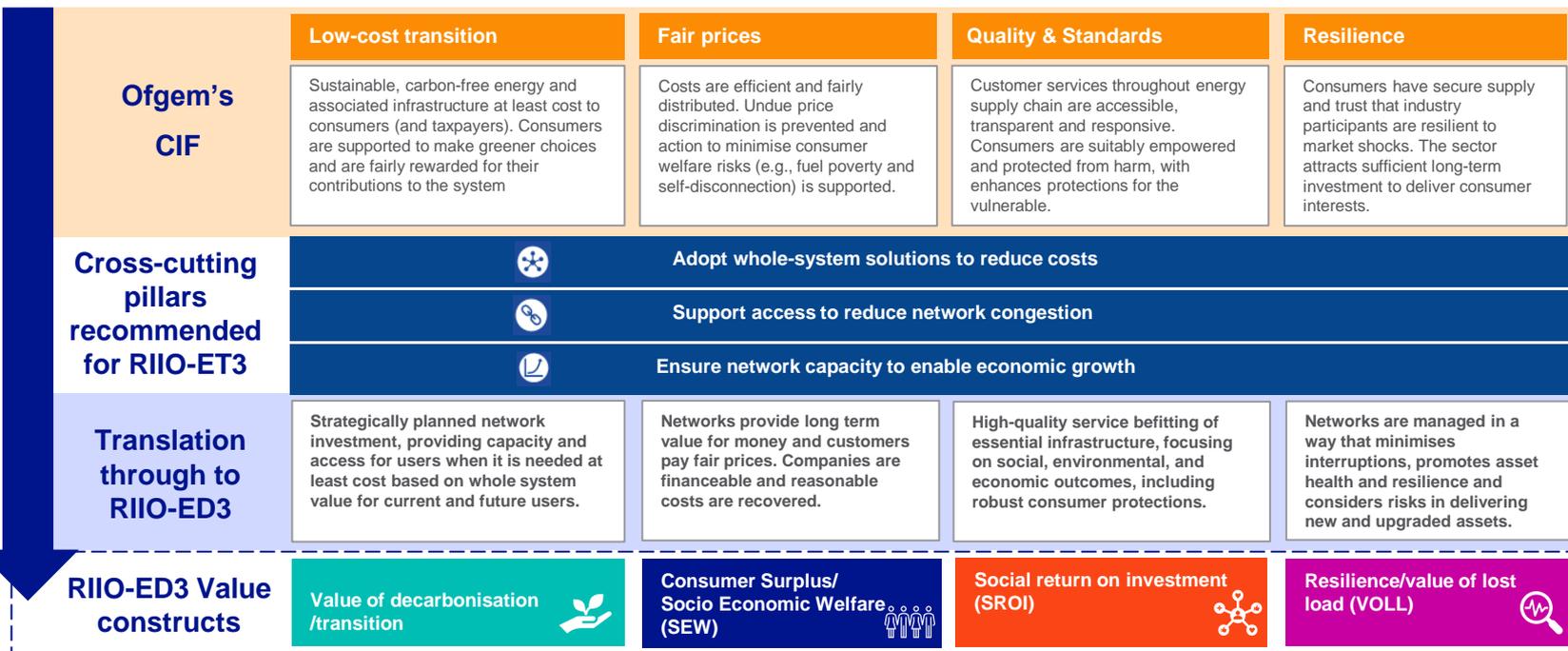
22nd Nov 2024

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Introducing RIIO-ED3 value constructs

Ofgem uses the Consumer Interest Framework (CIF) to support regulatory decision making and help identify trade-offs between different consumer interests. The CIF covers all areas of Ofgem's remit through from regulation of generation through to retail oversight. In the context of ED3, NGED have refined Ofgem's CIF to focus on specific consumer interests. From this, we have identified value constructs that will allow us to better conceptualise and measure consumer value within RIIO-ED3.



Broad alignment in approach between ET3 and ED3

Ofgem's objectives for RIIO-ED3 and key drivers of change

Combining Ofgem's desired consumer outcomes for RIIO-ED3 with the key drivers changing the energy system provides a useful foundation for identifying areas of opportunity and priority for DNOs, ensuring networks deliver value to current and future consumers.

Ofgem's consumer outcomes

Networks for net zero: Strategically planned network investment, providing capacity and access for users when it is needed at least cost based on whole system value for current and future users.

Responsible businesses: High-quality service focusing on social, environmental, and economic outcomes, incl. robust consumer protections, stakeholder engagement, long-term Value for money, financeability and financial resilience

Resilient and sustainable networks: Minimise supply interruptions, promote longer term asset health and resilience and consider risks in the delivery of new and upgraded assets

Smarter networks: Leverage data, digitalisation and innovation, increasing transparency and value of data to stakeholders and protecting against cyber threats

Drivers of change:

Regional decarbonisation

- **Regional decarbonisation goals and timelines vary**, requiring tailored network planning.
- **Networks must be designed to meet local energy needs**, incorporating renewable generation and low-carbon technologies.
- **Capacity will need to be targeted to areas where it's most needed** to facilitate the transition.

Changing consumer behaviour

- The rise in electric vehicles (Evs), heat pumps, and distributed energy resources (DER)s will **shift load profiles and energy usage patterns**.
- **Networks need to develop forecasting capabilities and be able to accommodate changes in how consumers interact** with the grid.
- **Demand-side management and flexibility products** will be crucial to ensure grid stability.

Social policy imperative

- The transition risks leaving behind **certain groups**, e.g. those **slower to adopt new technologies or who face unique challenges based on geography, income, or access to resources**.
- An inclusive transition must ensure vulnerable and disadvantaged groups are not left behind, but have **equitable access to opportunities provided by the transition**.

Increasing reliance on electricity and criticality of resilience

- **Rising demand for electricity** across transport heat and industry require networks to scale & adapt.
- Greater **reliance on electricity for critical services means resilience will be key**.
- DNOs must upgrade infrastructure and implement risk management strategies that **address climate impacts, like flooding and extreme weather**.

Potential areas of focus for RIIO-ED3 from a value perspective

The table below uses Ofgem's consumer outcomes and the drivers of change to identify potential areas of focus for RIIO-ED3 from a value perspective. The table introduces and allocates the relevant value constructs that can support an assessment of the value to be delivered.

		Regional decarbonisation	Changing consumer behaviour	Social policy imperative	Increasing reliance on electricity and criticality of resilience
Ofgem's Open Letter Consumer Outcomes	Key drivers of change				
	Networks for net zero	Strategically planned network investment, providing capacity and access for users when needed at least cost based on whole system value for current and future users.	Anticipatory Investments	Accelerating Connections	
	Responsible businesses	High-quality service focusing on social, environmental, and economic outcomes, incl. robust consumer protections, stakeholder engagement, long-term VFM, and financial resilience.			Worst Served Customers
	Resilient and sustainable networks	Minimise supply interruptions, promote longer term asset health and resilience and consider risks in the delivery of new and upgraded assets			Targeted Investment for Vulnerable Customers
	Smarter networks	Leverage data, digitalisation and innovation, increasing transparency and value of data to stakeholders and protecting against cyber threats.	Digitalisation	DSO & Flexibility	
					Update VoLL & customer segmentation
					Climate Adaptation
					Cyber Resilience

Note that the areas presented in this table are non-exhaustive

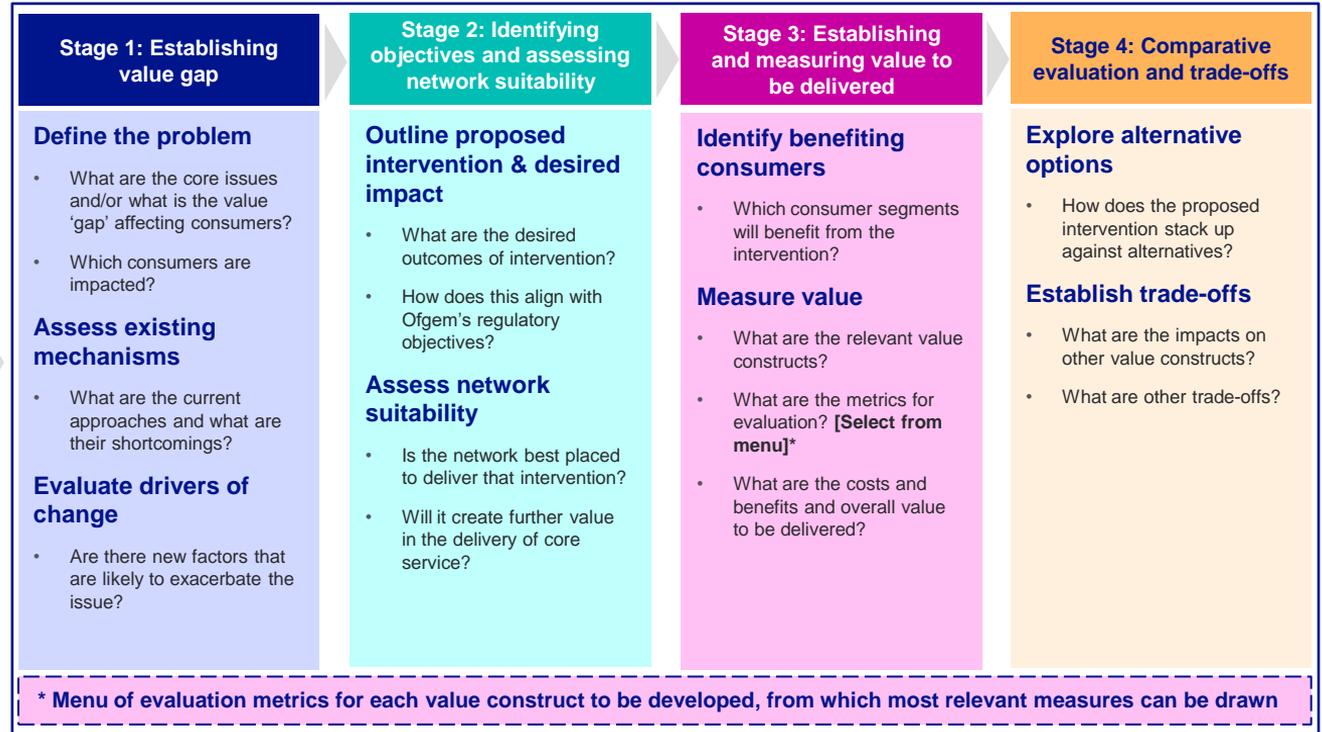
Value constructs: **SEW** **Value of transition** **VOLL** **SROI** **Focus areas for further consideration & development**

How can the CVF help to answer those questions?

A CVF can help build out the evidence base and proposal structure to develop optimum consumer outcomes

Potential areas of priority:

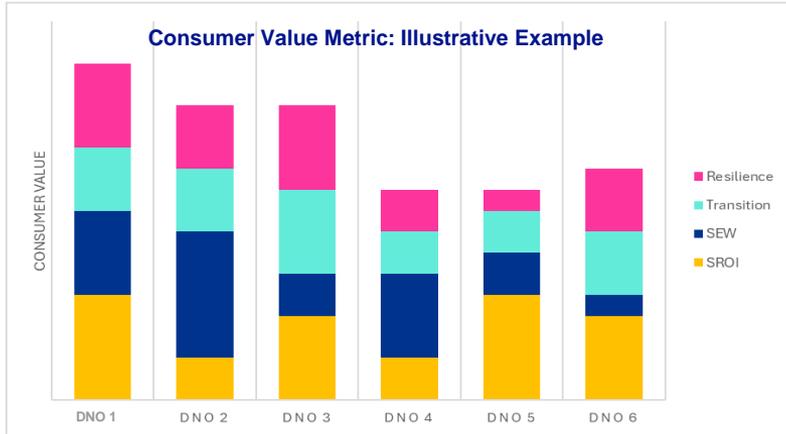
1. **Strategic Consumer Outcomes & Role of Incentives**
2. **Confidence in increased investment delivery**
3. **Asset Management**
4. **Resilience & Climate Adaptation**
5. **Role of DSO & Flexibility**
6. **Role of Innovation & Digital**
7. **Regulatory Framework**



Consumer Value Comparative Analysis

Connecting individual decisions to broader impacts to provide clarity on how outputs or investments contribute to goals over the longer term using common evaluative currency strengthens the ability to effectively assess trade-offs and provide comparability across the sector.

Consumer Value Comparability



Consideration of the relative weighting of the differing forms of value delivered and their impact on affordability, reliability and sustainability.



Upon finalising a portfolio of propositions and aligning these to Consumer outcomes, establish the applicable value constructs used to measure consumer value.



Utilise MCDA to assign weighting & ranking to each proposition to determine the relative scoring for each proposition and the overall portfolio.



Cross reference proposition portfolio with CIF and Ofgem duties consistent with the Impact Assessment framework.



Undertake comparative analysis across the portfolio to ensure a balanced approach across the range of proposed consumer outcomes for each DNO and across the sector.

There is value in bringing together the various propositions and delivered performance as part of an overall Consumer Value Metric. The Consumer Value Metric can be used as a measure alongside RoRE to demonstrate the comparative measure of value beyond shareholder return.

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