

Draft Determination Supporting Document An.nn – [Document title]

As a part of the NGET Draft Determination Response

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The Consumer Impact of Ofgem's Draft Determination (DD) Proposals

1. Executive Summary

*Ofgem proposes cuts to NGET's Totex due to volume reductions under RIIO-2, which amount to a consumer bill saving of some **£1.50**¹ per year relative to NGET's business plan.*

Ofgem also proposes features which will result in delays to Load-related investment, and an incentive package which is negatively skewed.

*These proposals will result in a significant consumer detriment, which Ofgem appears to have not considered. At this stage, it can be estimated that such detriment could lead to countervailing consumer bill increases of up to **£2.90** per year over T2 and further **£2.20** per year over T3, and wider longer-term and societal costs beyond that.*

As these figures have been cautiously estimated, NG may develop this work further to provide a more detailed view of the consumer impacts of Ofgem's proposals, given that NG has had much less time to prepare this compared to Ofgem in preparing its Impact Assessment.

2. Ofgem's proposals represent a substantial variance to NG's business plan, and Ofgem appears to have not properly considered their full consumer impact

NG has engaged extensively with its stakeholders and challenge groups over the past two years to develop its business plan. NG has listened carefully through this engagement and is fully satisfied that the business plan meets consumer priorities to:

- provide a **reliable, resilient and secure** network;
- provide a strong and flexible platform for the energy transition that must proceed from now, and at pace, to meet the **2050 Net Zero target**; and
- deliver **value for money** and a fair **intergenerational distribution** of consumer bills.

In response to NG's business plan, a key element in Ofgem's proposals is a significant reduction in baseline Totex for both Electricity and Gas Transmission. This is **not a 'free cut'** and will lead to significant consumer detriment, which will more than offset the short-term consumer bill saving.

At this stage, our consumer impact analysis is focused on NGET's business, for which we provide an initial high-level view. However, NG may develop this work further in the coming weeks to provide a more detailed assessment, given that NG has had limited time to prepare this analysis.

¹ The three major components of this are: Reduction in Non load volume (£1.20), reduction in Load related volume (£0.10) and non-operational capex/other (£0.20). Note that all of the £ figures in this document are rounded to the nearest 10 pence.

Ofgem proposes three very significant changes (leaving aside 'company returns' which is a separate issue, and not included with this analysis):

- **Reduction in Non-Load Related Totex.** This reduction in expenditure is **unprecedented** in the recent history of UK economic regulation (c. 70% cut compared to NGET's business plan), will **increase risks to reliability/resilience**, and require 'catch-up' work² in future periods which will create a **barrier to Net Zero delivery** and result in **higher consumer costs in future**.
- **Reduction in Load Related Totex**, to a level even more **incompatible with the 2050 Net Zero target**.³ For example, Ofgem does not propose to include in the baseline those projects with a recent "Network Option Assessment" (NOA) 'proceed signal'. More significantly, the Uncertainty Mechanisms proposed by Ofgem, (the mechanism for allowing further Load Related Totex), will create **sequencing and risk issues**. These issues mean expenditure will be, at best **significantly delayed**, or, at worst, **not occur at all** (since it may not be viable for NGET to invest at risk).
- **Dampening of incentives, overall downside risk and ex-post cost assessments.** Collectively, the overall incentive package is heavily negatively skewed. This reduces NGET's flexibility to innovate and find more efficient ways to operate, and also means NGET will become more risk averse as it is forced to constantly seek approval from Ofgem that the costs it incurs will not be disallowed in future. This goes against the agreed aim of the RIIO framework which is to incentivise companies to stretch their performance and share the gains with (current and future) consumers.

Given the future challenges of the UK energy system, and the huge variance between Ofgem's proposals and NGET's business plan (which reflected stakeholder priorities), Ofgem **should have considered what its proposals really mean for consumers**, in particular regarding **energy security, the path to Net Zero, and energy system costs now and in the future**. Instead:

- Ofgem's DD is lacking a full description and quantification of consumer impact.
- Ofgem's separate Impact Assessment (published after the DD) is narrow in scope and avoids the question of the impacts of Ofgem's proposals for lower baseline Totex expenditure as well as greater use of Uncertainty Mechanisms.

NG, therefore, seeks to **address this gap by exploring the impact of Ofgem's proposals on asset health, Net Zero delivery and the consequential impact on consumers and society**.

2.1 Ofgem's proposals lead to a net consumer detriment

We estimate the consumer bill savings resulting from Ofgem's cuts to NGET's Totex volumes (vs. NGET's business plan) to be some c. **£1.50** per household per year over T2.

² Ofgem's proposed allowance allows about one percent of the network assets to be replaced each year. At this rate it would take 100 years to replace all the equipment on the network, which is 2.5 times greater than the average design life of 40 years. Equipment installed now, even though in practice it might last longer than the design life of 40 years, would therefore fail from old age before current, older, assets had all been replaced.

³ NGET's proposed Load related plan was, following an Ofgem instruction, based on a 'minimum common scenario' which does not deliver Net Zero.

Given the complex and interlinked nature of NGET's assets (and their interactions with the wider power system), it is of course challenging to quantify other consumer impacts. However, NGET's initial high-level estimate is that the actual quantifiable countervailing bill impact will already be up to **£2.90 per year over T2 and up to £2.20 per year over T3**, with many other consumer detriments yet to be quantified and included.

The estimates above are based upon the following key areas of consumer detriment:

- The significant reduction in baseline Totex allowance will likely lead to increases in equipment failure rates, system operation costs and the probability of loss of supply under extreme weather conditions. We estimate that the increase in system operation / constraints cost will increase the consumer bill by **up to £0.60 per year over T2 and up to £1.80 per year over T3**.
- Ofgem's proposals for Uncertainty Mechanisms will likely introduce delays to Load related investment (which Ofgem does not consider in its Impact Assessment). We estimate this will increase the consumer bill by up to **£2.00 per year over T2**.
- The dampening of the incentive regime and overall downside risk could reduce the performance gains that can be shared with consumers now and in the future. We estimate this will increase the consumer bill by up to **£0.30 per year over T2 and up to £0.40 per year over T3**.

Beyond these, there are also wider societal costs (not quantified at this stage) that consumers will bear. For example:

- Ofgem's proposals risk moving the transmission network from an 'enabler' to a '**blocker of progression towards Net Zero**'. This could happen, for example, through lower confidence in the reliability and security of the transmission network, or the deterioration in asset health putting some routes to Net Zero in 'jeopardy'.
- The significant reduction in maintenance⁴ and Non-Load spend⁵ proposed by Ofgem is likely to have negative impacts on a significant proportion of the c. 13,000 people employed within NG and its supply chain⁶, with consequent impacts on wider society and the economy.

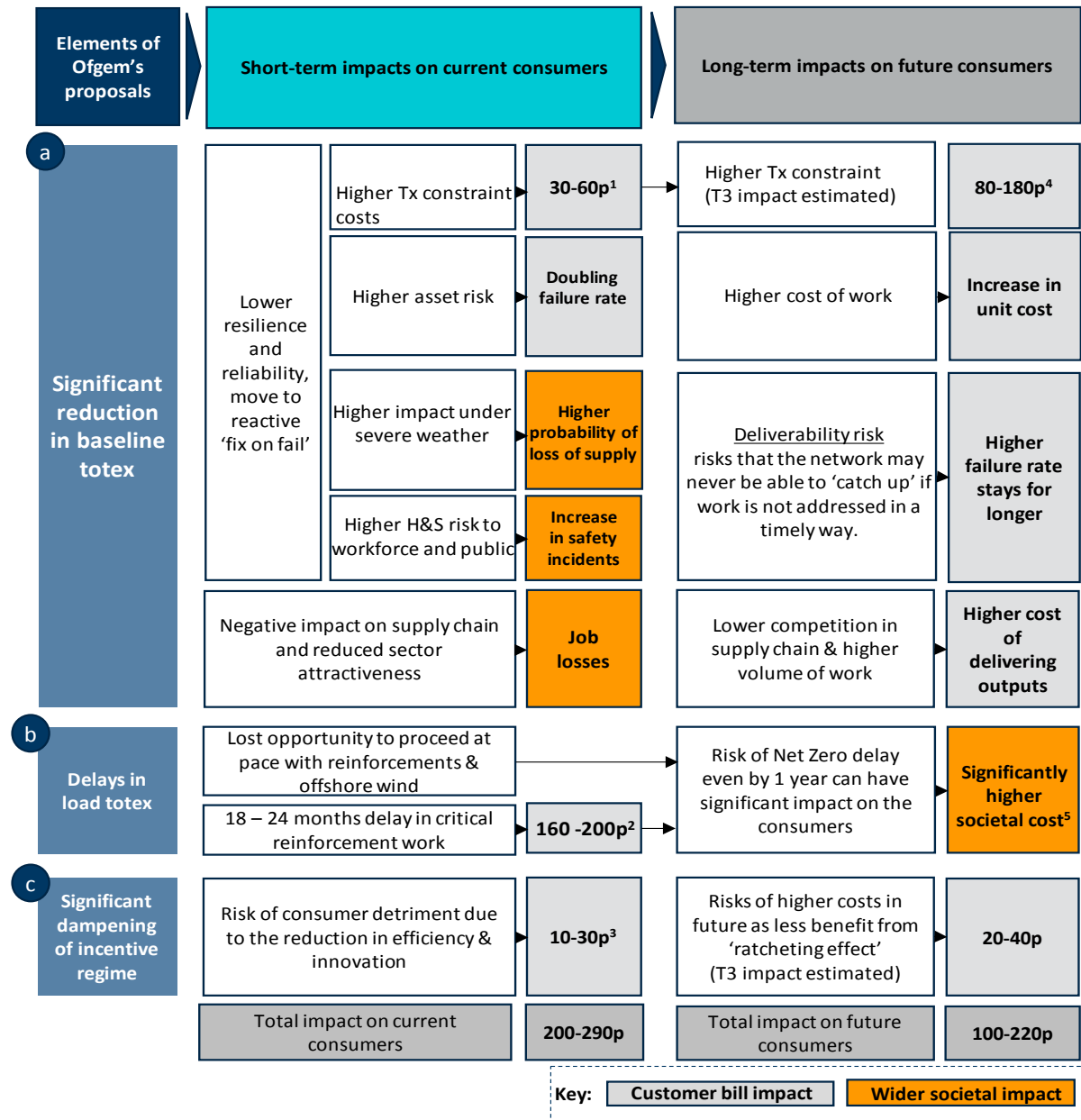
The key areas of consumer detriment are summarised in Figure 1-1 below.

⁴ Ofgem proposes a 50% reduction in Repairs and Maintenance allowance.

⁵ Ofgem proposes a 70% reduction in Non-Load Related Capex.

⁶ Based on number of NG employees (Figure 2 in NGET_A16.02) and information that supply chain employs 3x number of employees in TO (Energy and Utilities Workforce Renewal and Skills Strategy:2020).

Figure 1-1: Summary of estimates of annual consumer detriment from Ofgem’s NGET proposals



Notes:

- (1) Based on the 2019 outturn of transmission constraint costs and following assumptions: Network unavailability caused by system maintenance outage will drop by 50% (reduction in maintenance allowance) and unplanned availability to double driven by an increase in conductor/fittings failure compounding with other factors such as rapidly increasing intermittent generation and changing interconnector flows
- (2) Based on Least Worst Regret analysis conducted by ESO as a part of the NOA process
- (3) Based on innovation /efficiencies included in NGET RII02 submission (low end of range) and also including net CVP value (high end of range)
- (4) Based on the 2019 outturn of transmission constraint costs and following assumptions: Network unavailability caused by System construction to increase by 30% (Bow wave analysis), system maintenance outage same as in RII01 and unplanned unavailability to double from RII01 driven by an increase in conductor and fittings failure compounding with other factors such as rapidly increasing intermittent generation and changing interconnector flows

(5) Wider effect of delay in Net Zero not including the higher constraint cost in element (a)

There are also interactions and compounding effects between the different elements of NGET's business plan that further increase the overall **detrimental effects on consumers**. These have not been quantified at this stage. To take just two examples:

- Ofgem proposes to significantly reduce **both** the baseline Non-Load Totex allowance **and** the maintenance allowance – which means the risk across the asset base will increase during T2 (against stakeholders' preferences), and NGET will have less ability to perform the necessary maintenance, exacerbating the asset risk issues.
- The 'system access' required to undertake the anticipated 'bow-wave' of Non-Load intervention activity in T3 cannot be accommodated across all geographic regions⁷ - for example, the most constrained region may require nearly 50% more work in T3 than system access will permit. Constrained system access will lead to either delay, an increase in the cost performing the work,⁸ or further deterioration in asset reliability/resilience.

3. Explanation of the consumer detriment of Ofgem's proposals

As noted above, NGET would agree with Ofgem and wider stakeholders that the three main consumer priorities are:

- Energy security
- Net Zero delivery
- Overall costs of the energy system

Below, we explain the key impacts that Ofgem's proposals will have on each (and where possible, include a high-level quantification).

3.1 Energy security

Lowering spend in baseline Totex (largely impacting reliability and resilience of assets) is **not a 'free cut'** – it increases the risk of low probability (but high impact) system events such as supply failures. This is contrary to the express requirements of stakeholders for **increased asset performance**, especially in light of the wider network challenges.

Ofgem's proposals would mean, in practice, NGET moving substantially to a 'fix on fail' regime – a very different mode of operating, leading to **higher levels of unplanned work** and therefore higher **systemic risk** on the network.

3.2 Net Zero

Reliability and resilience are critical prerequisites for a **power system fit for the energy transition**, ensuring the network has the capability to meet ever more dynamic flow patterns. Reliability and resilience are often assumed to be a 'given' by regulators as they consider network priorities for Net Zero.

⁷ Our analysis indicates that most network regions would be over-subscribed with interventions for their respective system access capacity. Those not over-subscribed in T3 are close to capacity, leaving little flexibility for either increased Load or Non-Load investment to increase from these forecasts.

⁸ Increased volume of offline replacement which is more expensive but requires reduced system access.

Rather than allowing ‘optionality’ to accommodate different routes to Net Zero, a degraded core transmission network may **place some routes to Net Zero in jeopardy** and therefore **reduce optionality**. Therefore, Ofgem’s baseline Totex proposals risk moving NGET from an ‘enabler’ to a **blocker’ of progression required to meeting Net Zero**.

Ofgem’s proposals for Load Related expenditure will lead to considerable uncertainty for NGET as it considers network reinforcements/connections to enable, for example, offshore wind. Our analysis already suggests that these changes may **delay the delivery of approximately 8GW of offshore wind by 2-5 years**. These investments are critical to delivering short-term Government targets which are critical for achieving Net Zero by 2050.

It is necessarily challenging to estimate the cost of even a single years’ delay to Net Zero. However, there is consensus that missing delivery opportunities now risks higher mitigation costs in the future – e.g. Ofgem’s CEO said⁹ that “*next five years are crucial to putting the UK on the path to Net Zero*”, and that putting off the actions necessary to achieve Net Zero may result in “*much higher costs for future generations to bear*”. For illustration (and not included in the overall consumer bill impact cited above), a conservative set of assumptions for a Net Zero delay of just one year leads to a consumer impact in the region of **£45¹⁰ per year**, an order of magnitude greater than the direct consumer bill savings arising from Ofgem’s proposals.

3.3 Overall costs of the energy system

As noted above, the way in which Ofgem’s proposals impact the overall costs of the wider energy system are complex. There are different impact mechanisms, flowing from each of the key elements of Ofgem’s proposals in the scope of this Annex:

- Reduction in Non-Load Related Totex allowance
- Reduction in Load Related Totex allowance
- Dampening of incentives

3.3.1 Reduced allowances in Non-Load Related expenditure

In the short term, reduced allowances in Non-Load Related expenditure will lead to an increase in network unavailability, introducing additional network constraints (e.g. through the de-rating of ageing circuits) which **increase the Electricity System Operator’s congestion management costs**. There is likely to be an overall increase in costs of up to **£0.60 in T2**, directly borne by consumers within-year.

In the long term, a key implication of Ofgem’s proposals on Non-Load Related expenditure is that **more work on Non-Load assets will have to be deferred** to future price control periods. Deferring work in this way has some ‘option value’, but overall, the future costs are likely to be materially higher, resulting in a net loss to consumers. This is because:

- The consequences of the reduction in the T2 baseline Totex allowance (and in particular, lower reliability of Overhead Lines) will continue to be experienced even after T2 as it will take some time to ‘catch up’ with deteriorating asset performance. This is likely to continue to impact **congestion management costs** leading to an overall increase in consumer costs of up to **£1.80 per year in T3**.

⁹ <https://www.ft.com/content/befd5f94-4375-11ea-9a2a-98980971c1ff>

¹⁰ Analysis based on overall societal cost of £1tn, 4% increase in overall cost due to the 1 year delay apportioned by the total number of consumers.

- Ofgem’s proposals will result in a ‘bow wave’ of Non-Load work in T3, clashing with future work on reinforcements and connections for Net Zero assets, both of which require ‘system access’ in parallel to the electricity network, which is finite and strictly limited by the Electricity System Operator. When considering a Load related investment plan of similar scale to that expected in early T2, the most constrained region may require nearly 50% more work in T3 than system access can permit. This implies significant operational challenges, higher constraint costs (from shutdowns), and more costly individual repairs/replacements (resulting from offsite rather than in situ works being required).
- This will be exacerbated by the fact that, over T2, the reduction in allowance will reduce NGET’s own internal delivery capability and have potentially severe negative impacts on the supply chain which supports it. This has wider social and economic costs. It also means that over T3, there may be a skills shortage and reduced competition in the supply chain, which may in turn increase unit prices for work that is required. These effects are still to be quantified but would add to the overall consumer bill increase and wider consumer cost.

Looking at the quantified short term and long term impacts described above together, the impact of Ofgem’s proposals will cause significant consumer detriment which could lead to increases in the consumer bill of **up to £0.60 per year** over T2 and **up to £1.80 per year** over T3, and wider longer-term and societal costs. This is larger than the consumer bill saving arising from cuts to NGET’s Non Load-related volume of work, which amount to a consumer bill saving of some **£1.20¹¹** per year relative to NGET’s business plan.

3.3.2 Reduction in Load Related Totex

Ofgem’s proposals for Load Related expenditure mean that some critical network reinforcements and linkages that are needed to resolve congestion constraints could be delayed by up to 18 – 24 months. A delay to the c. 10 major transmission boundary reinforcements that would be impacted by this results in additional congestion management costs of up to **£2.00** per consumer per year over T2.

3.3.3 Dampening of incentives

While network companies will always strive to work as efficiently as possible and in the interests of consumers, a financial incentive induces additional management focus (vs. competing priorities) and justifies to investors the flexibility to innovate, manage trade-offs, take appropriate risks, and target resources towards the areas of most value.

However, Ofgem proposes an incentive package that is heavily skewed to the downside. This may result in NGET becoming more risk averse and adopting fewer new innovative solutions. To take one example, over T1, NGET adopted Power Flow Control systems (‘Smart Wires’) which increases transmission system capability in the short term, until either enduring solutions are built or short-term supply constraints are removed (e.g. long-term generation outages). The estimated savings (in the T2 period, and beyond) are estimated at c. **£100m per year** via reduced constraint costs. Without robust upside incentives in place, future innovations such as this are at risk.

¹¹ This is a portion of the £1.50 per year consumer bill reduction associated with proposed volume reductions under RII0-2 DD.

- NGET's business plan already embeds efficiencies from T1 amounting to some **£700m** – such a stretch in efficiency performance is less likely to be repeated in circumstances where NGET's incentive package is heavily skewed to the downside. If it is assumed that similar levels of efficiency gain achieved during T1 are not achieved over T2, then the consumer impact could be c. **£0.10** per year over T2 (included in element C estimate in Fig. 1-1).
- Ofgem's proposals reject the majority of our Consumer Value Propositions (including from new proposed incentives) which were developed with significant contribution from stakeholders and which would have led to sizable additional benefits for consumers (and often without any upfront 'investment' from the consumer). To take *SO:TO optimisation* as an example, the estimated consumer saving amounts to £85m over T2 via lower constraint costs. Absent a flexible and well-balanced risk-reward framework, the ability of industry participants to support the efficient transition to a decarbonised energy system will be constrained. Assuming that the CVP benefits identified by NGET in its business plan submission can no longer be achieved over T2, the consumer impact would be c. **£0.20** per year over T2 and T3 (included in element C estimate in Fig. 1-1).
- Reducing the scope of the incentives and introducing asymmetry towards the downside could put at risk the required risk-taking investments and innovation to create more sustained consumer benefits in the longer term. If it is assumed that a similar level of efficiency gains was foregone over T2, then the T3 consumer impact could be c. **£0.20** per year (included in element C estimate in Fig. 1-1).

4. A way forward

As discussed above, this Annex represents an initial high-level view of the full consumer impact of Ofgem's proposals, and clearly, there is scope for a more detailed investigation.

However, according to our initial modelling work, the costs of 'remedying' the deficiencies identified in this Annex are not onerous. For example:

- **Non-Load Related Totex:** Adding back Totex equivalent to just **£1.4**¹² per consumer per year would provide the asset health expenditure to maintain the network and ensure reliability is not a barrier to the 2050 Net Zero ambition.
- **Load Related Totex:** All projects with a NOA 'proceed' signal are expected to be built in any case, and on this basis, it seems reasonable to include the associated Totex into the T2 baseline plan so NGET can proceed at pace. This has no direct consumer bill impact, but provides NGET with the confidence and certainty to invest and proceed at pace, avoiding critical delays to Net Zero.
- **Incentives:** An incentive package that is more symmetrical and 'fair' provides NGET with the tools to innovate in ways that lead to greater efficiency (e.g. allowing more to be delivered for less). These efficiency gains would be shared with consumers over T2 and fully passed on to consumers in future periods. The absence of such incentives in T2 risks missing opportunities for such innovation, to unlock significant additional consumer value.

¹² Including a reinstating the clawback of non-load allowance for T1/T2 crossover work