Subsidy Advice Unit Report on the Capacity Market Scheme

Referred by the Department for Energy Security and Net Zero

05 April 2024

Subsidy Advice Unit

Part of the Competition and Markets Authority

CONTENTS

1. Introduction

1.1 This report is an evaluation prepared by the Subsidy Advice Unit (SAU), part of the Competition and Markets Authority, under section 59 of the Subsidy Control Act 2022 (the Act).

1.2 The SAU has evaluated the Department for Energy Security and Net Zero (DESNZ)'s assessment of compliance of the Capacity Market scheme (the Capacity Market or the Scheme) with the requirements of Chapters 1 and 2 of Part 2 of the Act (the Assessment).[1]

1.3 This report is based on the information provided to the SAU by DESNZ in its Assessment and evidence submitted relevant to that Assessment.

1.4 This report is provided as non-binding advice to DESNZ. The purpose of the SAU's report is not to make a recommendation on whether the Scheme should be implemented, nor to directly assess whether it complies with the subsidy control requirements. DESNZ is ultimately responsible for making the Scheme, based on its own assessment, having the benefit of the SAU's evaluation. A summary of our observations is set out at section 2 of this report.

The referred scheme[2]

1.5 The Capacity Market was introduced in 2014 as part of Electricity Market Reform,[3] an overarching programme to deliver secure electricity supply and new low carbon generation. The Capacity Market is a key mechanism for securing sufficient electricity supplies in Great Britain (GB) to meet future peak demand. It gives eligible capacity providers a steady payment in exchange for making their capacity available when demand is at risk of outstripping supply. The Capacity Market scheme received State Aid approval from the EU Commission in 2019, covering the period from 16 December 2014 to 15 December 2024.[4]

1.6 Key design features of the Scheme include:

(a) Beneficiaries can be existing and new generators, demand-side response operators[5] and storage operators.

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[1] Chapter 1 of Part 2 of the Act requires a public authority to consider the subsidy control principles and energy and environment principles before deciding to give a subsidy. The public authority must not award the subsidy unless it is of the view that it is consistent with those principles. Chapter 2 of Part 2 of the Act prohibits the giving of certain kinds of subsidies and, in relation to certain other categories of subsidy creates a number of requirements with which public authorities must comply.

[2] Referral of the proposed Capacity Market Scheme by the Department for Energy Security and Net Zero

[3] Electricity Market Reform: policy overview

[4] SA.35980 - GB capacity mechanism-UK. The Capacity Market was originally approved by the EU Commission in 2014, but this decision was annulled in 2018, before the Scheme was re-approved in 2019.

[5] Demand-side response operators are typically commercial energy users who agree to switch off assets or start up on-site generators to provide electricity to the Capacity Market.

(b) Electricity capacity is secured through technology-neutral, descending clock, pay-as-clear auctions[6] held four years ahead of the delivery year[7] (T-4 auctions) and one year ahead of the delivery year (T-1 auctions). The T-1 auction is effectively a top-up auction based on updated information about likely demand and weather forecasts. Bids are made by Capacity Market Units (units of electricity generation capacity or demand-side response capacity) for agreements to make their capacity available when required.

(c) Prospective capacity providers can win agreements of varying lengths, depending on the criteria they meet. Existing capacity providers generally compete for one-year agreements, while new build capacity can win the longest agreements, of up to 15 years (to provide revenue certainty and de-risk the upfront capital investment involved in building new capacity).

(d) Capacity providers receive a monthly payment for the duration of the capacity agreement.

(e) The decision about how much capacity to procure in each auction is informed by a statutory 'Reliability Standard': enough capacity must be procured to meet the standard. The Reliability Standard is set at three hours loss of load[8] expectation (LOLE) per capacity year, meaning that it is statistically expected that supply will not meet demand for three hours per capacity year.

(f) The clearing price at auction is subject to a price cap per kW, based on the net cost of new entry ('Net-CONE'). Net-CONE is the additional revenue that a new generating plant would need to recover its capital investment and fixed costs, given reasonable expectations about the amount of money it would make from energy markets over its lifespan.

1.7 DESNZ plans to introduce two significant changes to the Scheme, following consultation:[9]

(a) Removal of the ten-year time limit for the Scheme. The Capacity Market was originally designed as a temporary mechanism, but DESNZ intends to remove the current time limit to enable its continued operation beyond December 2024, since it still plays an important role in ensuring that there is sufficient electricity capacity on the system in GB.

(b) Amendment of the Extended Years Criteria, ie the criteria that qualify a capacity provider for a 15-year agreement, to not require relevant providers

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[6] A 'descending clock, pay-as-clear' auction means that the auction starts at an announced price, which is reduced until the remaining bids match the available capacity in the auction. The price at this point, known as the 'clearing price', is paid to bidders that remain in the auction.
[7] The 'delivery year' or 'capacity year' means a period of one year starting on 1st October and ending on the following 30th September.
[8] Loss of load is the situation when the available generation capacity is less than the system demand at a given moment.
[9] Capacity Market 2023: Phase 2 proposals and 10 year review

to replace a turbine in order to be eligible for the longest capacity agreements. The change is intended to incentivise a wider range of prospective capacity providers to bid for these agreements, to maximise competition in the auctions.

1.8 DESNZ plans further technical modifications to the Scheme, including notably extending provisions enabling plant that has been out of operation to apply to prequalify for the Scheme, and introducing multi-year agreements for low carbon, low capital expenditure (capex) technologies to incentivise their participation in the Capacity Market.[10] DESNZ submitted that these changes aim to improve delivery assurance in the Capacity Market, improve security of supply and better align the Scheme with Net Zero.

1.9 DESNZ plans to implement all these modifications in time for the July-September 2024 prequalification round, before the next auctions take place in spring 2025.

SAU referral process

1.10 On 15 February 2024, DESNZ requested a report from the SAU in relation to the Scheme.

1.11 DESNZ explained[11] that the Scheme is a Subsidy Scheme of Particular Interest because it allows for the provision of one or more Subsidies of Particular Interest (SOPIs) to be given.[12] In particular, under the Scheme, a single beneficiary may win an agreement with a value above the SOPI threshold of £10 million.

1.12 DESNZ has also determined that the Scheme allows for capacity agreements that are worth over £5 million, or which exceed £1 million and cumulate to more than £5 million with other related subsidies from the previous three financial years, to be awarded to beneficiaries in the 'production of electricity' sector, which is considered a sensitive sector. Subsidies granted in a sensitive sector have a greater potential to be distortive, even at lower monetary values.

1.13 Under Section 81(1) of the Act, the modification of a scheme is to be treated as the making of a new scheme for the purposes of the application of the subsidy control requirements (unless the modification is a permitted modification within the meaning of Section 81(3)). DESNZ explained that some of the planned modifications, in particular the changes referenced in paragraph 1.7, are unlikely

[10] For more information on all planned modifications, see Capacity Market 2023: strengthening security of supply and alignment with net zero (Phase 1) - GOV.UK (www.gov.uk) and Capacity Market 2023: Phase 2 proposals and 10 year review - GOV.UK (www.gov.uk)
[11] In the information provided under section 52(2) of the Act.
[12] Within the meaning of regulation 3 of The Subsidy Control (Subsidies and Schemes of Interest or Particular Interest) Regulations 2022 which sets out the conditions under which a subsidy or scheme is considered to be of particular interest.

to be permitted modifications under section 81(3). It has therefore referred the Scheme as a whole to the SAU.

1.14 The SAU notified DESNZ on 21 February 2024 that it would prepare and publish a report within 30 working days (ie on or before 5 April 2024).[13] The SAU published details of the referral on 22 February 2024.[14]

[13] Sections 53(1) and 53(2) of the Act.
[14] Referral of the proposed Capacity Market Scheme by the Department for Energy Security and Net Zero

2. Summary of the SAU's observations

2.1 The Assessment uses the four-step structure described in the Statutory Guidance for the United Kingdom Subsidy Control Regime (the Statutory Guidance) and as reflected in the SAU's Guidance on the operation of the subsidy control functions of the Subsidy Advice Unit (the SAU Guidance).

2.2 We consider that the Assessment reflects the following positive features:

(a) It clearly articulates the main policy objective and secondary policy objectives, as well as the market failures that the Scheme aims to address (Principle A), usefully referencing these throughout the Assessment.

(b) It references supporting evidence well and clearly, and has made good use of both older and more recent evidence to demonstrate the continued need for the Capacity Market and how the Scheme has operated until now. In particular, it provides an up-to-date counterfactual of what would happen to capacity adequacy absent the Scheme (Principle C); and

(c) In relation to proportionality (Principle B), it usefully identifies various aspects of the Scheme relevant to limiting the subsidy to the amount necessary to secure the required capacity.

2.3 We consider that the Assessment would have been stronger if:

(a) it had better referenced the non-subsidy options that were considered (Principle E); and

(b) it had provided more detailed analysis of competition and investment impacts for the first ten years of operation of the Scheme. This might include, for instance, whether new market entrants have successfully secured capacity market agreements and whether the Scheme has been successful in promoting a greater diversity of technologies (Step 3).

2.4 Our report is advisory only and does not directly assess whether the proposed Scheme complies with the subsidy control requirements. The report does not constitute a recommendation on whether the Scheme should be implemented by DESNZ. We have not considered it necessary to provide any advice about how the proposed Scheme may be modified to ensure compliance with the subsidy control requirements.[15]

[15] Section 59(3)(b) of the Act.

3. The SAU's Evaluation

3.1 This section sets out our evaluation of the Assessment, following the four-step framework structure used by DESNZ.

Step 1: Identifying the policy objective, ensuring it addresses a market failure or equity concern, and determining whether a subsidy is the right tool to use

3.2 The first step involves an evaluation of the Assessment against:

(a) Principle A: Subsidies should pursue a specific policy objective in order to (a) remedy an identified market failure or (b) address an equity rationale (such as local or regional disadvantage, social difficulties or distributional concerns); and

(b) Principle E: Subsidies should be an appropriate policy instrument for achieving their specific policy objective and that objective cannot be achieved through other, less distortive, means.[16]

Policy objectives

3.3 The Assessment sets out that the primary policy objective of the Scheme is to ensure sufficient reliable capacity in the GB electricity market to maintain security of supply.

3.4 DESNZ explained that a reliable electricity system is key for a well-functioning society and economy, as electricity blackouts cause severe social and economic consequences.[17] To reduce the risk of demand outstripping supply at any given moment, an excess capacity margin is required to reach the desired reliability standard.

3.5 DESNZ set out that, due to market failures, wholesale electricity providers do not provide the required surplus because it is not possible to guarantee that the costs of maintaining this excess capacity will be recovered in the wholesale energy market. The Capacity Market remedies this by providing all eligible providers with a steady payment in exchange for making their capacity available when demand outstrips supply, thereby ensuring sufficient investment in the overall level of reliable capacity needed to meet peak demand.

[16] Further information about the Principles A and E can be found in the Statutory Guidance (paragraphs 3.32 to 3.56) and the SAU Guidance (paragraphs 4.7 to 4.11).
[17] In support of its submission, DESNZ referred to a working paper published in 2021 by the UK Energy Research Centre.

3.6 The Assessment further explains that this primary objective is supported by two secondary objectives:

(a) to be cost effective for GB consumers, including through the use of competitive, transparent and technology-neutral auctions.

(b) to avoid unintended consequences, including by minimising design risk and complementing the decarbonisation agenda: a range of measures in the Capacity Market aim to minimise the risk of incentivising fossil fuel-based generation through auctions, such as supporting demand-side response to drive down electricity demand at peak times and limiting eligibility to generation below a certain emissions threshold.

3.7 In our view, the policy objective is focussed, clearly explained and supported with relevant evidence. DESNZ has helpfully set out how the policy objective aims to remedy the identified market failures, and how some secondary objectives support the primary objective and account for certain aspects of scheme design.

Market failure and equity objective

3.8 The Statutory Guidance explains that market failure occurs where market forces alone do not produce an efficient outcome.[18] The most common cases of market failure which are relevant to subsidy control occur when at least one of the following features is present: the existence of externalities; the involvement of public goods; or imperfect or asymmetric information.[19]

3.9 The Assessment identifies the following market failures:

(a) Reliability is a public good and therefore requires intervention. DESNZ states that reliability is non-excludable (ie a person cannot be prevented from consuming it) because customers cannot choose their desired level of reliability. This is because National Grid (as the Electricity System Operator or ESO) cannot selectively disconnect them. Further, consumers do not respond to real-time changes in the wholesale price and do not send signals to generators about the optimal level of reliability. As such, DESNZ argues that capacity providers will not provide a socially optimal level of reliability in the absence of intervention.

(b) The 'missing money' market failure. The Assessment explains that, in an optimal situation, wholesale prices would rise high enough during any disruption to allow generators to recover scarcity rents.[20] In practice,

[18] Statutory Guidance, paragraphs 3.35-3.48.
[19] Statutory Guidance, paragraphs 3.21-3.32
[20] Evidence submitted by the UK Government to the EU Commission (cited in the 2019 State Aid Decision by the Commission), explains that in theory, the inability of consumers to select their desired level of reliability could be

however, DESNZ argues that an energy-only market may fail to send the correct market signals to ensure optimal security of supply and to enable investors to obtain the funding needed for new capacity. This is because:

(i) prices are unable to reflect scarcity rent: electricity demand is generally inelastic to short-term price changes due to the fixed nature of contracts that most electricity consumers are on. The actions of the system operator also contribute to distorted price signals because charges to generators who are out of balance in the balancing mechanism[21] do not, and are not supposed to, reflect the full cost of the balancing actions taken by ESO to balance the system in real time; and

(ii) whether prices would be allowed to rise is uncertain, for instance if government or Ofgem introduces a price cap on wholesale energy market prices.

3.10 The Assessment also mentions a third market failure that interacts with the 'missing money' market failure. The Assessment explains that barriers to entry lead to issues with market liquidity and exercisable market power. Electricity generation is characterised by high barriers to entry associated with economies of scale which in turn exacerbate the 'missing money' challenge. DESNZ argues that the Capacity Market acts to provide certainty to existing market participants (and potential new entrants) and reduces risks associated with uncertain market revenues, which helps to open the market to a wider range of participants.

3.11 According to DESNZ, the importance of reliability will increase for the foreseeable future due to the electrification of several aspects of the economy combined with a greater proportion of intermittent renewables in the energy mix.

3.12 We consider that the Assessment and supporting evidence set out and explain well a range of market failures that have the potential to impact on the security of electricity supply in GB, providing relevant detail and evidence.

Consideration of alternative policy options and why the scheme is the most appropriate and least distortive instrument

3.13 In order to comply with Principle E, public authorities should consider why the decision to give a subsidy is the most appropriate instrument for addressing the

addressed in an energy-only market by allowing prices to rise to a level reflecting the average Value of Lost Load (VoLL). This is the price at which consumers would no longer be willing to pay for energy and reflects a 'scarcity rent' (i.e. excess profit resulting from capacity limits) to electricity generators.

[21] The balancing mechanism is the Electricity System Operator's primary tool for balancing the supply and demand on the GB networks in real time. The balancing mechanism is a continuously open online auction with 30 minute trading periods and the bids submitted by participants are offers to either consume less or generate more electricity.

identified policy objective, and why other means are not appropriate for achieving the identified policy objective.[22]

3.14 The Assessment explains that the subsidy route is the most appropriate instrument for addressing the identified policy objective because the market failures identified in Step 1 show that, without intervention in the form of financial incentives, it is unlikely that sufficient reliable electricity capacity will be available to meet the Reliability Standard. The Assessment cites the EU Commission's 2014 decision which also found that the scheme 'addresses the identified market failures'.[23]

3.15 It sets out that because it is not possible to know in advance exactly when additional capacity will be required, consistent payments are required over the term of an agreement to ensure that there is sufficient surplus capacity at any given time to be able to deal with unplanned and unforeseeable disruptions.

3.16 The Assessment states that non-subsidy options such as direct provision of goods or services would not have been the most appropriate alternative because assets in the market are not owned by government. The Assessment further states that certain types of regulation, such as a price cap or a windfall tax applied to electricity generation, could be introduced to protect individual consumers from prices rising too high. However, these were rejected as they could have unintended consequences, such as disincentivising investment if generators cannot recover fixed costs.

3.17 In outlining the alternative options considered, the Assessment explains that, based on a 2011 White Paper[24] that identified the need for intervention and a series of public consultations, the following alternatives were considered in 2014:

(a) Strategic reserve[25] was discounted on the basis that over the longer term the approach brought significant risk of market distortion and was not felt to be an efficient use of resource or good value for money.

(b) Direct tender[26] was discounted because the approach would allow contracted plants to compete in the electricity market that would have otherwise closed and brought forward many of the same risks as a strategic reserve.

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[22] Statutory Guidance, paragraphs 3.54-3.56.
[23] The EU Commission's 2019 decision on the GB Capacity Market also concluded that the "choice of instrument is appropriate to tackle the underlying market failure hindering long-term investment".
[24] Planning for our electric future: a white Paper for secure, affordable and low-carbon electricity
[25] Under this option, capacity would be held outside of the electricity market and only be released in emergency situations.
[26] Under this option, government would contract directly to either keep existing plants that would otherwise close on the system, or ensure particular new projects come forward and are free to compete in the electricity market.

(c) Capacity payments[27] were discounted due to the inherent challenge of setting the right price to bring forward the desired volume of capacity.

(d) Supplier obligation[28] was discounted because it increased incentives for the creation of large, vertically integrated companies and limited opportunities for independent entrants to the retail and wholesale markets.

3.18 The Assessment explains that the Scheme was considered the most appropriate measure to achieve the identified policy objectives because its auctions are technology neutral and bring forth the most reliable and cost-effective capacity, ensuring security of supply by securing the required capacity sufficiently in advance of the delivery year.

3.19 Since the Scheme's introduction in 2014, a series of reforms to the Capacity Market have been planned for implementation in 2024. As part of this planned reform, the UK government consulted[29] on a range of options including the strategic reserve, targeted tender for new capacity,[30] and a couple of variations on the existing auction-based Capacity Market.[31]

3.20 Overall, we consider that DESNZ has helpfully set out other subsidy options considered both when originally designing the Capacity Market and more recently, and has explained clearly why these were discounted. Whilst it sets out at a high level that non-subsidy options were considered (see paragraph 3.16 above), it could have provided a better explanation as to why they were discounted. It could also have provided more information about these, for instance by better referencing some of the (complementary) non-subsidy options that were discussed in the EU Commission's 2014 and 2019 decisions, such as the development of an active demand-side response or the reform of the cash-out prices[32] to better signal scarcity.[33]

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[27] Under this option, the price needed to bring forward the required level of capacity to ensure security of supply is determined centrally by government. This determination would involve estimating the price that reflects the best value for money to consumers, and then paying all providers this price.
[28] This option is based on supplier obligations stemming from bilateral contracts which place an obligation on suppliers to purchase sufficient capacity agreements to cover their share in the market from certified providers through bilateral trading. At times of scarcity, suppliers must limit their consumption to the level of capacity agreements they have purchased or face penalties.
[29] The Review of Electricity Market Arrangements (REMA) consultations: the 2022 REMA consultation and the second REMA consultation published in 2024
[30] A targeted tender would secure the construction of a specified quantity of new capacity, with tenders tailored to meet specific requirements.
[31] These are: revenue cap and floor, where projects compete at auction for a minimum revenue floor from government for each period; and centralised reliability options, where participants are contracted to provide guaranteed capacity and receive an auctioned strike price with a reliability premium for ongoing generation.
[32] The 'cash-out price' is the price paid in the balancing market (see footnote 21) to market participants (electricity generators and suppliers) whose output or consumption does not match the amount of electricity they were contracted to deliver or buy. The price is relatively disadvantageous to incentivise participants to align the volumes of electricity sold or consumed with contracted volumes. Paragraph 113 of the EU Commission's 2019 decision on the GB Capacity Market describes cash-out price reforms implemented to date.
[33] See for example State Aid SA.35980 2014 (S2.8) and 2019 (S2.8 and S4.2) – UK Electricity market reform – Capacity Market

Step 2: Ensuring that the subsidy is designed to create the right incentives for the beneficiary and bring about a change

3.21 The second step involves an evaluation of the assessment against:

(a) Principle C: First, subsidies should be designed to bring about a change of economic behaviour of the beneficiary. Second, that change, in relation to a subsidy, should be conducive to achieving its specific policy objective, and something that would not happen without the subsidy; and

(b) Principle D: Subsidies should not normally compensate for the costs the beneficiary would have funded in the absence of any subsidy.[34]

Counterfactual assessment

3.22 In assessing the counterfactual, the Statutory Guidance explains that public authorities should assess any change against a baseline of what would happen in the absence of the subsidy (the 'do nothing' scenario').[35] This baseline would not necessarily be the current 'as is' situation (the 'status quo') but what would likely happen in the future – over both the long and short term – if no subsidy were awarded.

3.23 The chosen counterfactual is no Capacity Market after the existing scheme expires in December 2024. The Assessment states that this was decided based on the analysis by National Grid ESO's subject matter experts and on the REMA consultations. The Assessment sets out that other counterfactual scenarios were considered but rejected.[36]

3.24 The Assessment summarises ESO modelling undertaken in late 2023, which demonstrates that the Reliability Standard would not be met (the LOLE would exceed three hours) in the counterfactual. The Assessment also explains the key assumptions underlying the modelling for the chosen counterfactual of no Capacity Market.

3.25 The Assessment notes that with a Capacity Market, where existing capacity is not enough to meet the Reliability Standard, the auction clearing price will rise high enough to award capacity agreements to facilitate the deployment of new generation up to the auction price cap. However, in a no Capacity Market

[34] Further information about the Principles C and D can be found in the Statutory Guidance (paragraphs 3.57 to 3.71) and the SAU Guidance (paragraphs 4.12 to 4.14).
[35] Statutory Guidance, paragraphs 3.60-3.62.
[36] Other counterfactual scenarios considered were enabling the Capacity Market to continue beyond its intended expiry date of December 2024 without reform, and implementation of other potential capacity adequacy mechanisms, but they were discounted during the REMA.

scenario, the capacity shortfall that would arise could not be addressed in the short term given the lead-in times of 4 to 5 years required for building new plant.

3.26 In our view, the Assessment clearly references the counterfactual scenarios that were considered and explains why DESNZ considers it to be the most likely counterfactual, using up-to-date modelling to demonstrate that there would not be enough capacity in the market and the Reliability Standard would not be achieved absent the subsidy.

Changes in economic behaviour of the beneficiary

3.27 The Statutory Guidance sets out that subsidies must bring about something that would not have occurred without the subsidy.[37] In demonstrating this, public authorities should consider the likely change or additional net benefit.

3.28 The Assessment states that the Capacity Market seeks to change the behaviour of beneficiaries by:

(a) assigning an appropriate value to system reliability and providing them with steady revenues to reflect this, calculated through the auction parameter setting process;

(b) applying 'non-delivery penalties' if the agreed capacity is not available when required; and

(c) incorporating a robust testing regime to ensure operators uphold their legal obligations.

3.29 The Assessment references an independent report on investment incentives for beneficiaries. It notes that Capacity Market payments do not change the economic behaviour of beneficiaries in isolation but diversify the income stream earned from projects and provide them with guaranteed revenue that is independent, stable and with minimal credit risk. As a result, they are expected to improve beneficiaries' credit rating, which reduces the cost of financing and improves the business case for their investment in plant and new technologies. The Assessment submits that Capacity Market payments are important but not the main income stream of beneficiaries. Modelling by DESNZ shows that, for about two thirds of the capacity that receives Capacity Market payments, these payments reflect less than 10% of total income between 2020-2025.[38]

3.30 The Assessment further notes that Capacity Market beneficiaries must demonstrate to ESO that their capacity is equal to, or greater than their capacity

[37] Statutory Guidance, paragraph 3.64.
[38] However, they provide a guaranteed revenue stream that is independent, stable and carries minimal credit risk. Beneficiaries then can, through an improved credit rating, obtain funding on better terms.

obligation, three times within the delivery year, and that they are subject to performance testing. Failure to provide this data will result in the beneficiary having to repay the capacity payments it has received.

3.31 We consider that the Assessment satisfactorily explains how the subsidy influences beneficiaries' change of economic behaviour to encourage them to invest and provide capacity when required. They are provided with revenue certainty from capacity payments but must comply with the Capacity Market's legal obligations and are subject to non-delivery penalties that can be enforced.

Additionality assessment

3.32 According to the Statutory Guidance, 'additionality' means that subsidies should not be used to finance a project or activity that the beneficiary would have undertaken in a similar form, manner, and timeframe without the subsidy.[39] For schemes, public authorities should also, where possible and reasonable, ensure the scheme's design can identify in advance and exclude those beneficiaries for which it can be reasonably determined that the project or activity would likely proceed without the subsidy.[40]

3.33 The Assessment states that the Capacity Market procures as much capacity as possible, subject to what is reasonable and cost-effective, to meet the Reliability Standard; and that the Scheme allows participation of both existing and new-build capacity, since both make contributions to capacity adequacy and require revenue support to ensure continued operation.

3.34 It further states that the Capacity Market auction bidding process encourages operators to bid at a value approximately equal to the additional revenue needed to reach breakeven value for the project, annuitised for the length of the agreement, with provisions to prevent bidders receiving other subsidies (eg Contracts for Difference) from also bidding for the Capacity Market. The Assessment explains that the costs of the Capacity Market are the additional costs required to incentivise investment in existing and new-build capacity to meet the Reliability Standard.

3.35 The Assessment notes that the maintenance of existing plants can usually be expected to cost less than building new capacity, so an additional control is built into the Scheme design to ensure additionality around capacity payments, by giving differentiated support to new-build and to existing plants. Generally, existing plants can only bid for one year Capacity Market agreements and cannot recover capex costs unless they are undertaking refurbishing; and new-build plants must

[39] Statutory Guidance, paragraphs 3.63-3.67.
[40] Statutory Guidance, paragraph 3.66

demonstrate how the additional revenue earned through the Capacity Market will make their projects viable.

3.36 The Assessment concludes that, ultimately, the Scheme brings about additionality by (i) incentivising investment to increase the amount of capacity on the system; and (ii) ensuring that sufficient capacity is guaranteed to be available at times of scarcity and that alongside revenue certainty, the Capacity Market achieves the policy objectives by covering the additional costs of maintaining system reliability.

3.37 We consider that the Assessment has satisfactorily explained how the subsidy achieves additionality. It notes that the subsidy only funds additional capacity from existing plants and from new-build plants to maintain the Reliability Standard and that there are controls built into the Scheme design to ensure additionality around capacity payments.

Step 3: Considering the distortive impacts that the subsidy may have and keeping them as low as possible

3.38 The third step involves an evaluation of the assessment against:

(a) Principle B: Subsidies should be proportionate to their specific policy objective and limited to what is necessary to achieve it; and

(b) Principle F: Subsidies should be designed to achieve their specific policy objective while minimising any negative effects on competition or investment within the United Kingdom.[41]

Proportionality

3.39 The Assessment explains that the Capacity Market is proportionate and minimises the impact on the wholesale electricity market. It details a number of aspects of the scheme that are relevant to proportionality:

(a) Agreements are awarded following competitive, market-wide, technology-neutral auctions based on clear, transparent, and non-discriminatory criteria. The Assessment explains that several alternative auction formats were considered at the onset of the Capacity Market, and that the chosen option, a pay-as-clear auction with multiple rounds, was the most cost-effective and least distortive. The Assessment explains, with supporting evidence, how this auction format encourages bidders to submit bids that reflect the true economic cost of providing their capacity.

[41] Further information about the Principles B and F can be found in the Statutory Guidance (paragraphs 3.72 to 3.108) and the SAU Guidance (paragraphs 4.15 to 4.19).

(b) The scheme is designed around key parameters to ensure that the right level of capacity is procured. The Reliability Standard is the key parameter, balancing the cost of power outages against the cost of maintaining or building new capacity. Other parameters such as the Net-CONE, the price cap and the capacity target (see paragraph 1.6(f) above) complement the Reliability Standard in ensuring that the right level of capacity is procured.[42]

(c) Features of the scheme aimed at promoting sufficient participation in the auctions for them to be competitive include the availability of longer-term agreements for certain categories of beneficiaries (where they rely on higher upfront capital expenditure) and secondary trading of capacity agreements.[43] While the Assessment acknowledges that the amount of surplus capacity entering Capacity Market auctions has been declining,[44] it explains that, to date, auctions have resulted in sufficient capacity to ensure security of supply being procured at below the price cap in all bar one case,[45] and proposed changes to eligibility criteria are intended to increase participation in future auctions.

3.40 The Assessment shows that the Reliability Standard has been comfortably met over the past years, raising the question of over-procurement. However, the Assessment outlines that the target procurement volume is determined not only by the Reliability Standard, but also through other modelling looking at minimising the worst outcome across all possible scenarios. Moreover, the Assessment explains that an ancillary metric, loss of load probability,[46] shows that there has not been over-procurement, with several capacity market notices being issued to beneficiaries over the past few years to warn them that capacity might be called upon because the risk of a stress event in the system is higher than usual.

3.41 Under the proposed changes to the Capacity Market, DESNZ intends to remove the time limit on the overall Capacity Market scheme. After considering various alternative scheme durations, DESNZ decided that not setting an end date is the most appropriate policy choice in line with the evidenced continued need for the Capacity Market and with the subsidy control principles.[47] The Assessment outlines that the Capacity Market will remain compliant with Principle B as it

[42] The capacity target is set annually and is driven by the volume needed to meet the Reliability Standard.
[43] Capacity providers can exit Capacity Market agreements by selling them (in secondary trading), hence promoting participation by reducing risk.
[44] Stated reasons for this are the retirement of certain assets (eg nuclear) and a worsening investment environment for gas generation.
[45] In the 2021 T-1 auction, capacity was procured at the Price Cap as a decision was made to secure the entirety of the available capacity due to the war in Ukraine.
[46] Loss of load probability (LOLP) is the likelihood that generation will not meet peak demand within 30 minutes. The Assessment states that if there had been over-procurement in the Capacity Market, LOLP would be around zero. The Assessment also states that the number of hours in a year during which LOLP is not zero have increased in recent years.
[47] The Statutory Guidance outlines that a scheme without an end date is not likely to be proportionate and limited to what is necessary to achieve its policy objective. Statutory Guidance, paragraph 3.96

includes ‘multiple robust controls’ in its design and framework.[48] The Assessment further states that a time limit would be arbitrary and contrary to findings of the REMA consultation that demonstrate a longer term need for the Capacity Market. DESNZ explains elsewhere in the Assessment that a time limit would impact the government’s long-term ability to meet the Reliability Standard, and would go against the proposal of the Capacity Market being the enduring mechanism to deliver security of supply. Furthermore, the Assessment states that a time limit would create uncertainty for businesses and represent an administrative burden for government.

3.42 In our view, the Assessment appropriately demonstrates how aspects of the Capacity Market contribute to ensuring it is proportionate and limited to the minimum necessary in line with the Statutory Guidance. We specifically note that DESNZ has considered how the design of the Scheme promotes sufficient levels of participation in auctions for effective competition and that, to date, the outcomes of auctions have been proportionate to the objectives of the scheme.

3.43 Nevertheless, the Assessment could be improved by including some of the further explanation provided to the SAU on request to explain why several key figures driving the Capacity Market auction (eg Net-CONE) that were set at the onset of the Capacity Market are still relevant. DESNZ confirmed upon request why these figures are still considered appropriate and that they may be subject to future review. Moreover, the Assessment could make better use of helpful materials in the underlying evidence (eg the third-party report by an economics consultancy) by referencing them more consistently.

Design of subsidy to minimise negative effects on competition and investment

3.44 The Assessment systematically and in turn discusses several aspects of subsidy design mentioned in the Statutory Guidance. These are (i) the breadth of beneficiaries and the selection process, (ii) the timespan over which the subsidy is given, (iii) the performance criteria, and (iv) monitoring and evaluation. In particular, the Assessment and supporting materials consider in some detail how these features of the scheme contribute to minimising negative effects on competition and investment within the Capacity Market and, briefly, in the wholesale and balancing markets.

3.45 Several subsidy design aspects of the Statutory Guidance are covered by a wider reading of the Assessment. These are (i) the nature of the instrument, (ii) the size of the subsidy, (iii) the nature of the costs covered, and (iv) ringfencing.

[48] These include (i) the annual discretion of the Secretary of State to not hold auctions for a given year, (ii) controls on costs and distortive impacts included in the annual auction parameter setting, (iii) the statutory requirement to review the Capacity Market every five years, and (iv) wider government reviews continue to assess the need for the Capacity Market (eg REMA).

3.46 Overall, the Assessment adequately demonstrates how subsidy design features contribute to minimising any negative effects of the Scheme on competition and investment.

Assessment of effects on competition or investment

3.47 As outlined in paragraph 1.5 the Capacity Market is a key mechanism for securing sufficient electricity supply in GB to meet future peak demand, and it operates alongside the wholesale and balancing markets.

3.48 The Assessment submits that the 'competitive, non-discriminatory' auctions of the Capacity Market are designed to enable a wide range of participation from across the market, in turn minimising distortions. It further outlines that the pay-as-clear format also encourages smaller players to compete for agreements by taking away advantages that larger, vertically integrated companies would have in a pay-as-bid auction model resulting from increased access to market information.[49]

3.49 In terms of competitive impacts, DESNZ stated that:

(a) There are no regional limitations on entry into the Capacity Market and no additional locational signals were introduced by the scheme. The Assessment further states that the Capacity Market was designed to be consistent with the European Union internal energy market rules, minimising impacts on trade and competition. It outlines that there are neither export nor import restrictions on capacity providers.

(b) The Assessment outlines that, by design, the Capacity Market will have a dampening effect on wholesale market electricity price volatility. This is a result of the Capacity Market leading to more capacity in the system, which can earn revenue both in the Capacity Market and the wholesale market. The Assessment also states that a 2014 impact assessment showed that the Capacity Market decreases the wholesale price due to increased capacity margins available as a result of capacity brought forward by the Capacity Market.

(c) The Assessment outlines that the Capacity Market has negative effects on competitiveness and investment in Great Britain in terms of costs to users. This is because funding the Capacity Market adds costs to user bills, including industrial and commercial users who in some cases already pay more for electricity than users in other European jurisdictions. However, the Assessment also notes that security of supply has a positive impact on competitiveness overall.

[49] In pay-as-bid auctions all successful participants pay the price that they bid in the auction.

(d) Upon the SAU's request, DESNZ clarified that, whilst many beneficiaries participate in the electricity balancing market, the mechanics of the Capacity Market do not have an impact on the operation of the balancing market. DESNZ explained, however, that where obligation to contribute to the balancing market had been a factor in failure to deliver on capacity agreements, this would be taken into account in determining penalties.

3.50 Whilst not discussed under Step 3, the Assessment outlines how several features of the Capacity Market's design aim to promote investment and encourage wider participation. The Assessment also submits that proposed changes could remove participation barriers for low carbon capacity and facilitate decarbonisation measures in both the Capacity Market and the wider GB electricity market, and that increasing the diversity of low carbon technologies within the Capacity Market will help to limit the power sector's exposure to volatility in the international fossil fuel market.

3.51 The Assessment discusses the concentration of beneficiaries in the last T-4 and T-1 auctions. The Assessment argues that diversity of successful auction participants in the T-4 auction suggests a reasonable level of competition for the capacity agreements but that the relatively high concentration in the T-1 auction carries some risks. However, the Assessment goes on to explain that changes to the scheme design are aimed at increasing participation and that, in this context, removing barriers for low carbon technology to participate in the Capacity Market will provide additional capacity, improve competition, reduce prices and strengthen security of supply.

3.52 We consider that the Assessment covers several aspects relevant to evaluating the effects of the Capacity Market on competition, trade and investment including looking at various measures of level of competition. However, the Assessment could be improved by drawing more from the underlying evidence base (eg on interaction with the balancing market) and by drawing together relevant analysis set out in other sections of the Assessment (including analysis that is relevant to the impacts of the capacity market on the wholesale market and interaction with the European energy markets). The Assessment could also be improved by providing a more detailed analysis of competition outcomes of the Capacity Market over the past ten years to help inform likely impacts on competition and investment going forward. For example, the Assessment could have evaluated the extent to which (1) new market entrants have been successful in obtaining Capacity Market agreements over time and (2) the scheme has been successful in promoting diversification in participating technologies.

Step 4: Carrying out the balancing exercise

3.53 The fourth step involves an evaluation of the assessment against subsidy control Principle G: subsidies' beneficial effects (in terms of achieving their specific policy objective) should outweigh any negative effects, including in particular negative effects on: (a) competition or investment within the United Kingdom; (b) international trade or investment.[50]

3.54 The Assessment lists the following benefits of the Scheme:

(a) It has successfully fulfilled its main objective of ensuring security of supply;

(b) It has successfully provided technology neutral support to a range of new projects;

(c) It has run at an acceptable cost to consumers. Auctions have been competitive, securing enough capacity at the lowest possible cost. Evidence suggests the Scheme has avoided over-procuring.

(d) It does not have a distortive impact on international trade in electricity. Interconnectors to several countries currently have capacity agreements in the GB capacity market.

3.55 The Assessment also identifies some negative effects of the Scheme, namely:

(a) The Capacity Market's technology neutral design has supported maintenance and deployment of fossil-fuel based generation, with negative impacts in terms of greenhouse gas emissions. The Assessment identifies some mitigations, including emissions limits placed on capacity market units, which have effectively resulted in coal-based generation being phased out.

(b) The Scheme carries a financial cost to consumers and businesses. This has ranged from £7 to £15 per year in auctions to date, but recent clearing prices suggest household impacts will 'significantly increase' from the original expected impact.

(c) The Scheme's costs are spread across industrial and commercial users, with a negative effect on competitiveness and investment in Great Britain. For example, electricity has cost considerably more for UK steelmakers since 2021 than their German and French equivalents.

3.56 The Assessment concludes that the cost impact on the wider system and consumers is outweighed by the benefits of the Scheme. This is supported by calculations in the original 2014 Capacity Market Impact Assessment,[51] which

[50] See Statutory Guidance (paragraphs 3.109 to 3.117) and SAU Guidance (paragraphs 4.20 to 4.22) for further detail.
[51] 2014 Capacity Market Impact Assessment

DESNZ assesses are still applicable today. In particular, the Assessment notes that the Scheme has successfully incentivised deployment of new build capacity and has secured the reliability of the GB electricity system at costs consistent with the initial estimates from the Impact Assessment. DESNZ added that there are several reasons to believe the Scheme remains necessary, including an ageing nuclear and gas fleet, and increasing electricity demand due to the decarbonisation of the economy.

3.57 In our view, the Assessment clearly sets out the positive effects of the scheme in relation to the policy objectives as well as potential negative impacts, and conducts a high-level balancing exercise between them, in line with the Statutory Guidance.

3.58 As noted in paragraph 3.52, the Assessment could have provided a more detailed analysis of competition outcomes of the Capacity Market over the past ten years to help inform likely impacts on competition going forward. Such analysis could usefully have fed through to inform the balancing exercise, providing evidence of potential impacts on competition and investment within Great Britain and trade and investment internationally.

Energy and Environment Principles

3.59 This step involves an evaluation of the Assessment with regard to compliance with the energy and environment principles, where these are applicable to the subsidy/scheme.[52]

3.60 The Statutory Guidance summarises the scope of the different energy and environment principles that apply to different types of subsidies.[53] DESNZ has assessed the Scheme against Principles A, B, C, and D. We are satisfied that the other energy and environment principles are not applicable to this scheme.

Principle A: Aim of subsidies in relation to energy and environment

3.61 The assessment against Principle A should show how the subsidy is aimed at and incentivises the beneficiary in delivering a secure, affordable and sustainable energy system and a well-functioning and competitive energy market, or increasing the level of environmental protection compared to the level that would

[52] See Schedule 2 to the Act.
[53] Principles A and B apply to all subsidies in relation to energy and environment. Principle C applies for subsidies for electricity generation adequacy, renewable energy or cogeneration. Principle D applies to subsidies for electricity generation only. Principle E applies to subsidies for renewable energy or cogeneration. Principle F applies to subsidies in the form of partial exemptions from energy related taxes and levies. Principle G applies to subsidies that compensate electricity intensive users for increases in electricity costs, Principle H relates to subsidies for decarbonisation of industrial emissions. Principle I relates to subsidies for improving energy efficiency of industrial activities.

be achieved in the absence of the subsidy. If a subsidy is in relation to both energy and environment, it should meet both of these limbs.[54]

3.62 DESNZ submitted that the Scheme complies with the first limb of Principle A, because it achieves these objectives while operating alongside the main energy market. The Assessment explains that the Electricity Capacity Regulations 2015 explicitly references the objective of promoting investment in capacity to ensure security of supply. It provides examples of scheme design aimed to achieve security of supply whilst balancing it with the need to ensure good value for money for consumers.

3.63 It adds that the Scheme also fulfils the objective of delivering a well-functioning and competitive energy market by allowing all technology types to compete in centrally held and transparent auctions.

3.64 In relation to changes planned for implementation in 2024, the Assessment sets out that these changes do not impact the scheme's overall consistency with the first limb of Principle A, since the effect of these changes is to improve delivery assurance, competition and auction liquidity and diversity of supply. These changes also increase sustainability by aligning with wider government policy to decarbonise the carbon system.

3.65 DESNZ set out that the second limb of Principle A is not applicable because the scheme is not intended to increase the level of environmental protection.

3.66 In our view, the Assessment clearly explains why the first limb of Principle A is met and why the second limb is not applicable.

Principle B: Subsidies not to relieve beneficiaries from liabilities as a polluter

3.67 The assessment against Principle B should explain clearly how the proposed subsidy or scheme does not relieve a polluter from having to bear the full costs of the pollution caused.[55]

3.68 The Assessment sets out that the capacity agreements do not relieve beneficiaries from their duties as polluters 'in law'. DESNZ explained that the placement of emissions limits mitigate the impact of burning fossil fuels.

3.69 In our view, the Assessment would be improved by providing further details of any mechanisms that are in place to ensure that the scheme does not relieve beneficiaries from having to bear the full costs of the pollution caused, for instance

[54] Statutory Guidance, paragraphs 4.19-4.28.
[55] Statutory Guidance, paragraphs 4.29-4.35.

any conditions that prevent the subsidy from being used for the purpose of covering costs of the pollution being caused.

Principle C: Subsidies for electricity generation adequacy, renewable energy, or cogeneration

3.70 Subsidies or schemes for electricity generation adequacy, renewable energy, or cogeneration, should be assessed against Principle C. The assessment should show clearly that the subsidy or scheme does not undermine the UK's ability to meet its obligations under Article 304 of the TCA, that requires the UK to ensure that wholesale electricity and natural gas prices reflect actual supply and demand, and that, to this end the government shall ensure that the wholesale electricity and natural gas market rules will, in general terms, be transparent, encourage free price formation, and operate in an efficient and secure manner. Principle C also requires that the subsidy or scheme does not unnecessarily affect the efficient use of electricity interconnectors as provided for under Article 311 of the TCA. This article provides for the efficient use of, and non-discriminatory approach to capacity on, interconnectors between the UK and the European Union. The assessment should also show how the subsidy or scheme has been determined by means of a transparent, non-discriminatory and effective competitive process, or, alternatively, an explanation should be provided for why a non-competitive process was not required.[56]

3.71 The Assessment sets out that all criteria under Principle C are met because the Scheme:

(a) does not undermine the ability of the UK to meet its obligations under Article 304 of the Trade and Cooperation Agreement, including provisions on proportionality, transparency and non-discrimination. The Assessment explains that participants to the Scheme are able to operate as normal within the wholesale energy market as the Scheme exists alongside it and that the criteria of proportionality, transparency and non-discrimination are met.

(b) does not unnecessarily affect the efficient use of electricity interconnectors provided for under Article 311 of the Trade and Cooperation Agreement. The Assessment explains that interconnectors are able to participate in the Scheme and the UK have since committed to support greater level of interconnection.

(c) was developed through a transparent, non-discriminatory and effective competitive process. The Scheme was developed through a process which involved close collaboration with industry and market regulators as well as public consultations. There is a regular review cycle and information on the

[56] Statutory Guidance, paragraphs 4.36-4.45.

Capacity Market rules and regulations are publicly available online. Existing and new build capacity of all technologies are able to compete in the auctions.

3.72 In our view, the Assessment provides a reasonable explanation as to how the Scheme meets Principle C.

Principle D: Subsidies for electricity generation adequacy may be limited to installations not exceeding specified CO2 emission limits

3.73 Under Principle D, subsidies for electricity generation adequacy may be limited to installations not exceeding specified CO2 emission limits. The assessment should demonstrate that such limits are clearly set out in the terms of the subsidy or scheme (or clearly signposted if published elsewhere).

3.74 The Assessment sets out the CO2 emission limits that apply to the Scheme, which were introduced through the Capacity Market (Amendment) Rules 2020 and came into force ahead of T4 round.

3.75 In our view, the Assessment clearly explains how Principle D is met.

Other Requirements of the Act

3.76 This step in the evaluation relates to the requirements and prohibitions set out in Chapter 2 of Part 2 of the Act, where these are applicable.[57]

3.77 DESNZ confirmed that none of these prohibitions or other requirements applied to the Scheme.

5 April 2024

[57] Statutory Guidance, chapter 5.