Interim Contracts and Firmness Guidelines

Retailer Reliability Obligation

Draft for consultation

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3		87

Contents

1 Overview

This document is an interim guideline produced in accordance with National Electricity Rules (Rules) ~~Rule~~ clause 11.116.6(a) regarding contracts and firmness. A final guideline will ~~is required to~~ be developed following the *Rules Consultation Procedures* ~~by 31 December 2020~~.

As part of the Retailer Reliability Obligation (RRO), *liable entities* are required to enter into sufficient *qualifying contracts* by T-1 to meet their share of AEMO's *one-in-two year peak demand* forecast during a *forecast reliability gap period*. *Liable entities* are required to provide their *net contract position*, assessed one year before the *forecast reliability gap period (*at the *contract position day),* to the AER by *reporting day*. When reporting to the AER, *liable entities* must adjust their contract position to reflect how effective they are at limiting exposure to volatility in the wholesale electricity spot price (firmness adjustment). This firmness adjustment must be carried out in accordance with the *firmness principles* and *firmness methodology* outlined in this guideline.

The guidelines are intended to assist *liable entities* to understand how the AER will exercise its functions in relation to *qualifying contracts* and the *net contract position* report (*NCP report*). This guideline sets out the general requirements under the Rules and does not constitute legal advice. Where a *liable entity* is unsure about specific aspects of the Rules and how they apply to certain situations they should obtain their own legal advice.

1.1 Purpose of this guideline

The AER aims to work with National Electricity Market (NEM) participants to maximise their compliance with their obligations under the national energy framework. The purpose of this guideline is to inform relevant participants of the *firmness methodologies* that are to be applied when assessing contracts for the *NCP report*.

The AER has developed *default firmness methodologies* for *standard qualifying contracts*. *Liable entities* may also manage their risk using *non-standard qualifying contracts*, for which specific *firmness methodologies* are difficult to define. A *bespoke firmness methodology* will be developed by *liable entities*, using broad principles set out in this guideline. *Bespoke firmness methodologies* developed by *liable entities* must be approved by an *Independent Auditor*, from an *Auditors Panel* approved by the AER.

If the RRO is confirmed at T-1, the Rules require all *liable entities* in the relevant *region* to submit their *NCP reports* to the AER by the *reporting day (at least 2 months after T-1)*.

1.2 Roles and functions of the AER

The AER has a range of roles in the RRO process which are outlined in Part 2A of the NEL and 4A of the Rules.

Our roles and functions for the RRO include:

- Creation of six guidelines including[1]:

  - *Reliability Instrument Guidelines*

  - *Market Liquidity Obligation Guidelines*

  - *Contracts and Firmness Guidelines*

  - *Forecasting Best Practice Guidelines*

  - *Opt-in Guidelines*

  - *Reliability Compliance Procedures and Guidelines*

- Decision to make or not make a *reliability instrument*

- Monitoring of the Market Liquidity Obligation

- Establishing and maintaining an *Auditors Panel*

- Decision to approve or reject an application to adjust a *net contract position*

- Large customer opt-in process and approval

- Compliance

1.3 AER compliance audits

The AER must monitor compliance with the RRO.[2] Our Reliability Compliance Procedures and Guidelines, published on 9 June 2023, , to be published on 31 December 2020, will outline how we propose to undertake our compliance activities for the RRO.

The AER intends to undertake spot audits of *NCP reports*, as permitted by section 18ZE of the NEL. This may include the following:

- We may request that *liable entity* provide information that demonstrates that contracts reported in the *NCP report* were actually held by the *liable entity* on *reporting day*. This may include providing *qualifying contracts* to the AER.

- We may seek information on how the firmness factor was determined for *standard qualifying contracts*. We may adjust the firmness factor where we consider the *liable entity* did not apply the *default firmness methodology* correctly.

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[1]   Due to timing constraints the *Reliability Instrument Guidelines, MLO Guidelines, Contracts and Firmness Guidelines* and *Forecasting Best Practice Guidelines* will bweree developed as Interim Guidelines for operation in 2019 and 2020.

[2]   Section 18ZA of the NEL

- We may also seek additional information on how the *NCP report* was adjusted for the impact of *non-qualifying contracts* where we consider an adjustment may not have been appropriately applied.

We will endeavour to undertake our audit of *NCP reports* prior to giving AEMO a notification of *uncontracted MW positions* for procurer of last resort (PoLR) debt calculations under ~~rule~~ clause 4A.F.8. If we determine that the actual *net contract position* of a *liable entity* is different from the *NCP report*, we may adjust the *net contract position* for the purposes of ~~rule~~ clause 4A.F.7. This revised *net contract position* would form the basis of our assessment of compliance for the purposes of section 14R(2) of the NEL.

The outcome of any audit may also form the basis of enforcement action for breach of the Rules or NEL.

1.4 Definitions and interpretation

In this guideline the words and phrases presented in *italics* have the meaning given to them in the Rules.

2 Introduction of key concepts

The RRO builds on existing spot and financial market arrangements to facilitate investment in dispatchable capacity and demand response. The RRO achieves this by requiring that, if a *reliability instrument* is issued, *liable entities* enter into sufficient *qualifying contracts* to cover their share of the *one-in-two year peak demand* forecast for the *region* and *forecast reliability gap period*. A *liable entity* must submit their firmness adjusted *net contract position* as of one year before the commencement of the *forecast reliability gap period* (T-1) to the AER.

This is one of a number of guidelines being prepared by the AER and AEMO. AEMO's process for identifying a *forecast reliability gap period* will be defined in its Reliability Forecast Guidelines. The process for the AER making a *reliability instrument* is set out in our *Reliability Instrument Guidelines*.[3]

2.1 Liable entities

A *liable entity* is defined by clause 4A.D.2 of the Rules, which states that:

A person is a *liable entity* for a *region* if:

- the person is a *Market Customer* or *Integrated Resource Provider* and is *financially responsible* for a *connection point* in that *region* at the end of the *contract position day* but only to the extent there is no *opt-in customer* for that *connection point* at the end of the *contract position day*;

- the person is registered as a *large opt-in customer* for a connection point in that *region* at the end of the *contract position day*;

- the person is registered as a *prescribed opt-in customer* for a connection point in that *region* at the end of the *contract position day*; or

- the person is a *new entrant* in that *region* under ~~rule~~ clause 4A.D.3.

A person who is a *Market Customer* or *Integrated Resource Provider* is not a *liable entity* for a *region* if:

- it is not *financially responsible* for a connection point in that *region* at the end of the *contract position day*, or

- the aggregate consumption of electricity of all connection points in that *region* for which it is *financially responsible* at the end of the *contract position day* (excluding any *exempt* market connection point~~s for a market generating unit or small generating unit~~) is equal to or less than 10 GWh per annum as determined in accordance with the Contracts and Firmness Guidelines.

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[3]   ~~https://www.aer.gov.au/retail-markets/retailer-reliability-obligation~~ https://www.aer.gov.au/industry/retail/reliability-obligation

2.1.1 Corporate structure of liable entities

For clarity, the term Market Customer refers to a corporate entity that is a *Registered Participant* with AEMO in the Market Customer category. A Market Customer purchases electricity directly from the wholesale electricity market. The term Integrated Resource Provider refers to a person who is registered by AEMO as an Integrated Resource Provider. The current list of *Registered Participants*, including the categories in which they are registered, is publicly available on AEMO's website.[4]

A corporate entity that is registered as a Market Customer, and is therefore a *liable entity*, may also be registered in other NEM participant categories, including as generators.[5] Alternatively corporate entities who were previously registered as a Market Customer and generator may now be registered as an Integrated Resource Provider. It is important to note that this does not change the corporate entity's standing as a *liable entity*. Provided a corporate entity is registered as a Market Customer or Integrated Resource Provider, and it meets the 10 GWh per year consumption threshold, the corporate entity as a whole is a *liable entity* and must meet its requirements under the RRO.

A Market Customer or Integrated Resource Provider is a *liable entity* irrespective of its relationship with other Market Customers or Integrated Resource Providers, such as those held in the same corporate group. If an overarching corporate group holds a number of separate corporate entities, and each is a separately registered Market Customer or Integrated Resource Provider that meets the 10 GWh per year consumption threshold, each is still considered a separate *liable entity* and is therefore individually liable.

If an overarching corporate group owns a number of corporate entities that are each *Registered Participants*, some with Market Customer or Integrated Resource Provider registration and some without, it is only those entities registered as Market Customers or Integrated Resource Providers that are potentially *liable entities.*

A Market Customer's or Integrated Resource Provider's standing as a *liable entity* under the RRO is also unaffected by its internal operations and structure. For example, a single corporate entity may, once registered as a Market Customer, run a number of retail operations or large industrial premises. As long as they are all under the ownership of the one corporate entity, the operations all form part of its load as a *liable entity* and cannot be separated out.

Details about *large opt-in customer* eligibility and *prescribed opt-in customer* eligibility can be found in the Rules and AER Opt-in Guidelines.

2.1.2 Aggregate consumption

As per clause 4A.D.2(b)(2), *Market Customers* and *Integrated Resource Providers* may not be liable entities if their aggregate consumption is equal to or less than 10 GWh per annum.

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[4] AEMO's Current Registration and Exemptions Lists can be accessed online: https://www.aemo.com.au/Electricity/National-Electricity-Market-NEM/Participant-information/Current-participants/Current-registration-and-exemption-lists

[5] *Registered Participants* can be registered with AEMO in a number of categories, which are listed at: https://www.aemo.com.au/Electricity/National-Electricity-Market-NEM/Participant-information.

The AER provides the following guidance in relation to calculating consumption. A *Market Customer* or *Integrated Resource Provider* should determine net consumption (consumption less generation/exports) at all *connection points* for which it is financially responsible during the 12 months prior to the end of the *contract position day*. However, this calculation should not include any net consumption at *exempt market connection points*.

2.1.3 Exempt market connection points

Load from *exempt market connection points* does not contribute to a Market Customer's or Integrated Resources Provider's calculation of liability for the purpose of the RRO.

Consumption from certain types of *connection points* (and their associated storage assets) is not included when calculating whether an entity is a *liable entity* under the RRO. These are called e*xempt market connection points.* A *connection point* can be an *exempt market connection point* if it meets the criteria set out in clause 4A.D.1A.

A *connection point* is considered an *exempt market connection point* if it is:

- for a *generating system* that comprises one or more *market generating units*; or

- in a regulated Stand-Alone Power System (SAPS).

For an *integrated resource system*, a *connection point* is considered an *exempt market connection point* if it comprises:

- one or more *market generating units* (and may comprise other *plant*) where the only consumption of electricity on the *integrated resource system* side of the *connection point* is by a *non-market bidirectional unit* or is *auxiliary load* of a *bidirectional unit* or *generating unit*

- one or more *bidirectional units* that have been classified as a *scheduled generating unit* under clause 2.2.2(b2) and as a *scheduled load* under clause 2.3.4A(b) (and may comprise other *plant*); or

- one or more *market bidirectional units* (and may comprise other *plant*) where either:

  o the only consumption of electricity on the *integrated resource system* side of the *connection point* is by a *market bidirectional unit* or is *auxiliary load* of a *bidirectional unit* or *generating unit*; or

  o the aggregate consumption of electricity on the *integrated resource system* side of the *connection point*, including the consumption of any *bidirectional unit* and *auxiliary load* of a *bidirectional unit* or *generating unit*, is less than 10 GWh per annum as determined in accordance with the Contracts and Firmness Guidelines.

In determining whether a *Market Customer* or *Integrated Resource Provider* is a *liable entity* under the RRO, an entity should exclude the consumption of electricity from *exempt market connection points* from its calculations (clause 4A.D.2(b)(2)). Should a *Market Customer* or *Integrated Resource Provider* determine that the aggregate consumption for all *connection points* in a relevant region for which it is financially responsible at the end of the *contract*

position day, excluding consumption from *exempt market connection points* is equal to or less than 10 GWh per annum, then it is not a *liable entity* under the RRO.

However, the existence of an *exempt market connection point* or storage asset does not itself exempt an entity from liability under the RRO. Entities continue to be liable under the RRO for all *connection points* that are not *exempt market connection points*. For example:

- if an entity has 2 *connection points*, one of which is an *exempt market connection point* comprised of Pumped Hydro Energy Storage, and the other is a *connection point* which has net aggregated consumption of 25 GWh per annum, the entity is still liable under the RRO for the second *connection point*.

- if an entity has a *connection point* which has a battery, that is classified as a *market bidirectional unit*, that provides power to a large load which shares the *connection point* with the battery (as part of an *integrated resource system)*, it is not exempt from liability under the RRO if the net aggregated electricity consumption at that *connection point* exceeds 10 GWh per annum.

- if a vertically integrated retailer that is a *liable entity* under the RRO adds *exempt market connection points* to its portfolio, the retail arm of the business remains liable under the RRO for end-user loads.

The AER provides the following guidance in relation to identifying exempt market connection points. A *connection point* may be considered an *exempt market connection point* if it meets the criteria in clause 4A.D.1A at the relevant point of time. A *connection point* may not meet the criteria for an *exempt market connection point* at one time, but circumstances may change that may mean it becomes an *exempt market connection point* by *contract position day*, and vice versa.

For example, if a *connection point* is a hybrid arrangement in an *integrated resource system* where a *market bidirectional unit* is co-located with an end-user load, and net aggregated consumption exceeds 10GWh per annum, the *connection point* is not considered an *exempt market connection point* (it does not meet the requirements in clause 4A.D.1A(d)(2)).

However, if the consumption at this *connection point* decreases such that it does not exceed 10 GWh per annum, then it may be considered and *exempt market connection point* (if it otherwise meets the requirements in clause 4A.D.1A(d)(2)).

2.2 Qualifying contracts

A *qualifying contract* is a contract or arrangement between a *liable entity* and another party that meets the criteria described in section 14O(1) of the NEL.[6]

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[6] Section 14O(1) of the National Electricity Law defines a *qualifying contract* of a *liable entity* as a contract or other arrangement to which the *liable entity* is a party –

  (a) that -

   (i) is directly related to the purchase or sale, or price for the purchase or sale, of electricity from the wholesale exchange during a stated period; and

   (ii) the *liable entity* entered into to manage its exposure in relation to the volatility of the spot price; or

A *qualifying contract* can refer to a financial agreement, a contract or agreement for the generation of electricity, or a contract or agreement for the reduction in consumption of electricity.[7] A *qualifying contract* must reference the wholesale spot price for electricity (including reference to the purchase or sale of electricity) and be entered into to manage the *liable entity's* exposure to the volatility of the spot price. A registered demand response contract/arrangement can also be a *qualifying contract*. For a contract or arrangement to be qualifying it must cover all or part of the *forecast reliability gap period*.

2.3 Firmness adjustment and net contract position

When a *T-1 reliability instrument* is issued, *liable entities* are required to record their *net contract* position for the *forecast reliability gap period*, as it is on the *contract position day* (usually one year ahead of the *forecast reliability gap period* commencing). This must then be provided to the AER by *reporting day* or by *new entrant reporting day* where applicable. The *net contract position* is determined by taking the firmness adjusted megawatts (MWs) of *qualifying contracts* that reduce a *liable entity's* exposure to the spot price and subtracting the firmness adjusted MWs of *qualifying contracts* that increase exposure. The *net contract position* must then be adjusted to account for any *non-qualifying contracts* which increase the *liable entities* exposure to spot price volatility.

Firmness is the extent to which the contract will reduce the buyer's exposure to spot price volatility during the *forecast reliability gap period*. A firmness factor is calculated and assigned to each *qualifying contract*. *Firmness methodologies* are set out in sections 3, 4 and 5 of this guideline, and the *net contract position* reporting requirements are set out in section 9.

Consumption at *exempt market connection points* does not contribute to an entity's *liable share* under the RRO for its *net contract position* at the end of the *contract position day* (or *new entrant contract position day* for new entrants). As a result, a *liable entity* does not need to cover the estimated consumption (load) at *exempt market connection points* when it is entering *qualifying contracts*.

(b) of another type prescribed by the Rules to be a *qualifying contract*.

[7]   Rule Clause 4A.E.3(b)

2.4 Default and bespoke firmness methodologies

The Rules specify two types of *qualifying contract*:

- *standard qualifying contracts* and

- *non-standard qualifying contracts*.

Standard qualifying contracts are contracts or arrangements that feature straight-forward terms and conditions. The firmness methodology for these qualifying contracts can be expressed as a simple formula, or a firmness factor of one can be applied.

A list of *standard qualifying contracts* is included in section 4.1.6 of this guideline.[8] These contracts must be assessed using the relevant *default firmness methodology* described in section 4 of this guideline. There is no scope for *standard qualifying contracts* to be considered using a *bespoke firmness methodology*. The Rules do not afford the AER the discretion to treat *standard qualifying contracts* as *non-standard qualifying contracts*. *Liable entities* must use the relevant *default firmness methodology* for *standard qualifying contracts*.

Other *qualifying contracts* are considered to be *non-standard qualifying contracts*. While these contracts may be commonly used, a simple *firmness methodology* cannot be applied, due to the complexity of their terms and conditions. For such contracts, *liable entities* must develop a *bespoke firmness methodology* based on guidance given in sections 3 and 5 of this guideline. *Liable entities* must have *bespoke firmness methodologies* approved by an *Independent Auditor*. The auditor approval process is set out in section 6 of this guideline.

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8   ~~Rule~~ Clause 4A.E.8(b)(2)

Figure 2.1 NCP report process
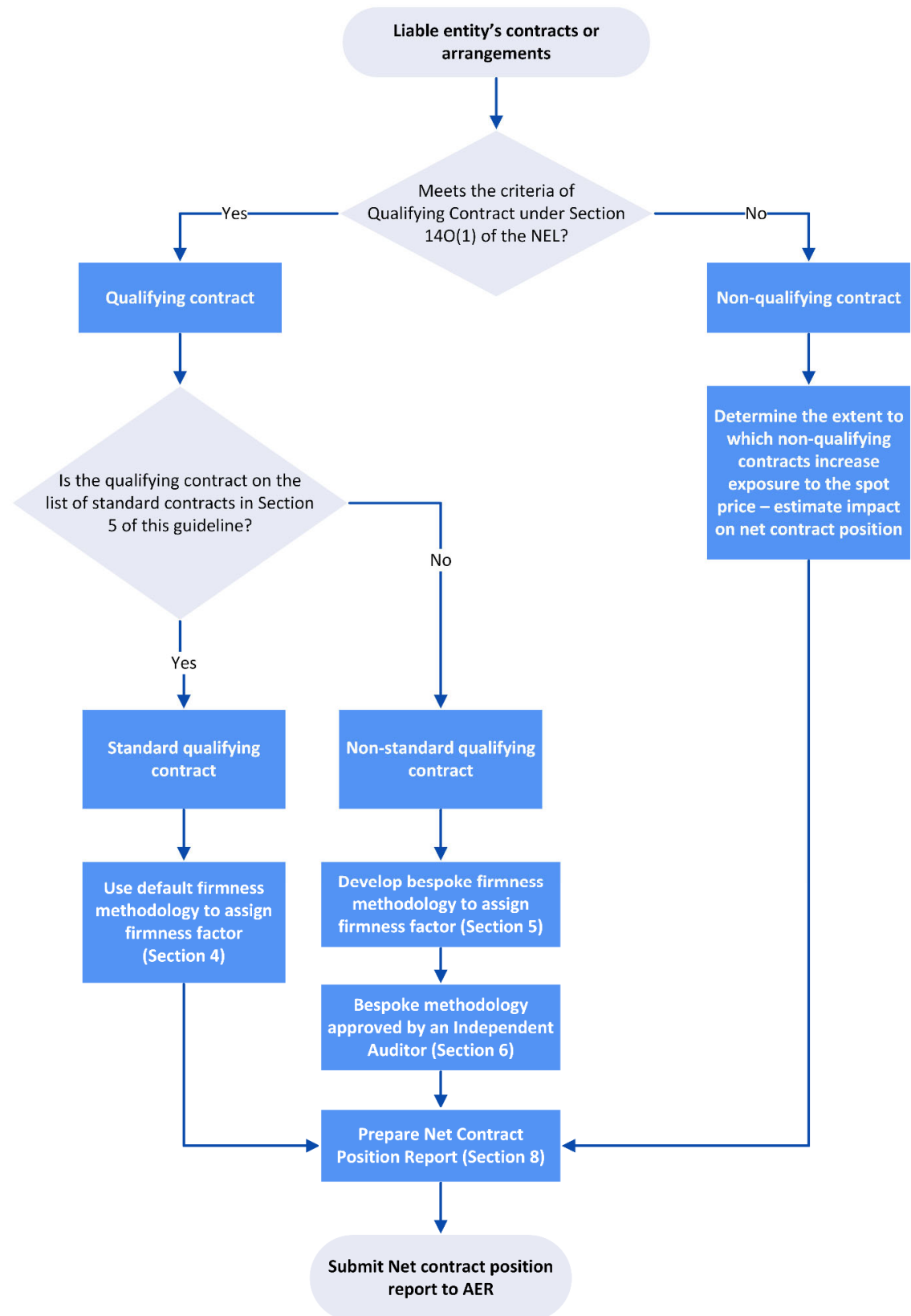
3 Firmness methodology

To comply with the RRO all *liable entities* must assess all *qualifying contracts* for firmness. These must be submitted as part of an *NCP report* by the appropriate *reporting day* (see section 9).

The principles for firmness adjustment are detailed in this section of the guideline. The AER has used these principles when determining the *default firmness methodologies* for *standard qualifying contracts* outlined in section 4 and when giving guidance on *bespoke firmness methodologies* in section 5.

3.1 Principles for firmness adjustment

The *firmness methodology* determines the extent to which a *liable entity*'s *qualifying contracts* reduce or increase that *liable entity*'s exposure to the volatility of the spot price in a *region* during the *gap trading intervals*.

All *qualifying contracts* must be allocated a firmness factor between zero and one for each trading interval within the *forecast reliability gap period*. The lower the exposure for the buyer to the volatility of the spot price in a *region*, the higher the firmness factor. This is because the likelihood that the seller will 'defend' the contract by dispatching resources increases with greater exposure to spot market prices.

A *liable entity* must include both 'bought' and 'sold' contracts in their *net contract position*. A bought swap for example, would reduce the *liable entity's* exposure to spot price volatility (increase their *net contract position*) while a sold swap would increase their exposure to spot price volatility (decrease their *net contract position*).

The *default firmness methodologies* developed by the AER are based on the following *firmness principles*, as defined in ~~rule~~ clause 4A.E.3:

- the degree to which the price terms of the *qualifying contract* reduces the *liable entity*'s exposure to the volatility of spot prices during the *gap trading intervals*;

- the variability and profile of the volume settled or supplied under the *qualifying contract*;

- the likelihood of the *qualifying contract* providing cover to the *liable entity* during the *gap trading intervals* (including the extent to which that contract endures for the *forecast reliability gap period*);

- any other contractual terms which limit the cover under the contract or otherwise reduce or increase the incentive for the counterparty to the *qualifying contract* to cover the contract position during the *gap trading intervals*;

Section 4 sets out a range of *default firmness methodologies* for determining the firmness factor of *standard qualifying contracts*. Contracts that don't meet the requirements of a *standard qualifying contract* need to be adjusted using a *bespoke firmness methodology.* This process is outlined in section 5.

3.2 Firmness approach taken by the AER

The firmness factor applied to a contract indicates the likelihood that the contract will provide cover to the buyer during the *forecast reliability gap period*. The firmness factor must be developed with consideration of the risk that the contract will not provide this cover during the *forecast reliability gap period*. The AER considers the *firmness principles* described in the Rules[9] reflect three types of risk:

- Price risk – whether the contract limits a *liable entity*'s exposure to high spot prices during the *forecast reliability gap period*
- Volume/shape risk – whether the contract sets a fixed volume of electricity, is variable (such as being tied to the output of a generator or the performance of an interconnector), or varies based on the time of day
- Contract limitations – whether the *qualifying contract* contains other terms that limit the coverage from spot price volatility (such as a contract that has a maximum payout limit or a contract that only triggers when certain weather conditions occur).

The firmness factor that a *liable entity* applies to a *qualifying contract* must represent the entity's best estimate of the reduction to spot market volatility provided by that contract.

Figure 3.1 outlines the AER's overall approach to developing a *firmness methodology,* based on the *firmness principles*. A contract must be assessed for all three risk types listed above and a firmness factor given to each of the three risk types. If the risk is not present (i.e. there is no risk), the firmness factor is one. The overall firmness factor for the contract is the product of these three firmness factors. The AER has used this methodology to develop the *default firmness methodologies* that must be used for *standard qualifying contracts*.

Liable entities must reflect this methodology when developing *bespoke firmness methodologies* for use with *non-standard qualifying contracts*, and have these approved by an *Independent Auditor*. For the avoidance of doubt, we consider following the guidance to *Independent Auditors* in section 5 of this guideline reflects the *firmness methodology* outlined in this section.

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[9]   ~~Rule~~ Clause 4A.E.3

Figure 3.1 Firmness Factor process

Calculating a firmness factor for a qualifying contract

Is the contract grandfathered or an MLO contract?
— Yes → **Firmness factor = 1**
— No ↓

Is the contract a:
- Swap
- Cap with strike <5% of MCP
- Bought load following contract for 100% of load

— Yes → Does the contract have other contractual limitations that reduce the buyer's protection?
— No (→ Firmness factor = 1)
— Yes ↓

— No ↓

Does the contract have any price risk?
— No → **Firmness Factor Price (FFp) = 1**
— Yes ↓

Assess the price risk on the firmness of the contract. Assign a firmness factor to the price risk component.
Firmness Factor Price (FFp) = 0 to 1

Does the contract have any volume risk?
— No → **Firmness Factor Volume (FFv) = 1**
— Yes ↓

Assess the volume risk. Assign a firmness factor to the volume risk component.
Firmness Factor Volume (FFv) = 0 to 1

Does the contract have any other contract limitation risk?
— No → **Firmness Factor Other (FFo) = 1**
— Yes ↓

Assess the other contract risk. Assign a firmness factor to the other contract risk component.
Firmness Factor Other (FFo) = 0 to 1

Firmness factor = FFp x FFv x FFo

Assessing price risk

In assessing the price risk of a *qualifying contract*, a *liable entity* must have regard to whether, and to what extent, the contract reduces the buyer's exposure to spot market volatility or increases the seller's exposure to spot market volatility.

If a *qualifying contract* fixes or caps a price, then it reduces the buyer's price risk. For example, a contract that caps the price at $300/MWh would offer significant price cover if the spot price approached the market price cap (MPC). The price risk of such a contract would be low, and the price risk firmness factor (FF_P) high.

If the price is capped, but the cap strike price is high, the firmness is low. For example, a cap with a strike price of $14,000/MWh would offer little cover to the buyer from spot price volatility. The price risk firmness factor (FF_P) is low.

Assessing volume/shape risk

A contract that fixes a volume during the *forecast reliability gap period* or sets the volume to match a *liable entity*'s actual load (load following contract) has no volume risk. These contracts will have a volume firmness factor (FF_V) of one.

A volume firmness factor (FF_V) lower than one is appropriate where there are terms that create uncertainty over the volume of coverage provided during the *forecast reliability gap period*. Volume uncertainty includes the following examples:

- uncertainty may occur because the contract is "run of plant" and therefore the volume is tied to actual generation output.

- uncertainty may occur because the contract originates in a different NEM *region*, and coverage relies in part on the performance of the relevant interconnector.

- contract volume may vary for different times of the time of day, and may only cover some of the *forecast reliability gap period*. For example, a *forecast reliability gap period* exists from December to February. A Q1 contract would only cover the buyer in January and February. It would have a firmness factor of zero for December.

Liable entities must adjust the firmness of these contracts based on a reasonable expectation of the volume of coverage they will give during the *forecast reliability gap period*. Relevant factors include the historical performance of the "run of plant" generator, whether there are planned outages during the *forecast reliability gap period*, flows on the relevant interconnector, and analysis of whether the contract is likely to provide coverage for all or some of the *forecast reliability gap period*.

Assessing other contract limitation risks

A contract limitation is any contract term or condition that limits the contracts coverage during the *forecast reliability gap period*. *Liable entities* must take contract limitations into account when firmness adjusting their contracts. Contract limitations may result in a contract limitation firmness factor (FF_O) lower than one. In assessing ~~the contract limitation firmness factor (~~FF_O~~)~~ the *liable entity* must use a reasonable expectation of the coverage the contract will provide.

If there are no contract limitations, or the contract limitations are irrelevant to the *qualifying contract*'s coverage during the *forecast reliability gap period*, then the FF_O is one. If there are relevant contract limitations, the FF_O is less than one.

Examples of contract limitations include:

- A *qualifying contract* may have a maximum payout limit, where the payout is capped at a given limit, after which the *liable entity* must pay the spot price. The *liable entity* should assess the likelihood that this threshold would be breached, and what proportion of its MWs would be covered from spot price volatility during the *forecast reliability gap period*.

- A cap that is only triggered once a pre-defined weather event has occurred. A *liable entity* should consider the likelihood that the event will occur during the *forecast reliability gap period*, and adjust firmness accordingly.

Contract limitations should be considered either by reference to historical performance, likelihood of occurrence or another reasonable forecast of the likely impact of the contract limitation.

4 Default firmness methodologies for standard qualifying contracts

The Rules specify two types of *qualifying contract*, *standard qualifying contracts* and *non-standard qualifying contracts.*[10] The AER must identify which contracts and arrangements are *standard qualifying contracts*. This section sets out the *default firmness methodologies* that *liable entities* must use to adjust the firmness of *standard qualifying contracts*.

We consider *standard qualifying contracts* to be commonly used by *liable entities*, and contain relatively straightforward terms and conditions for price, purchase, timing and volume. This allows the use of a simple *firmness methodology* based on either a formula or the assignment of a firmness factor. All other *qualifying contracts* are *non-standard qualifying contracts*, which must be assessed using a *bespoke firmness methodology* (section 5).

As noted earlier, the Rules do not afford the AER the discretion to treat *standard qualifying contracts* as *non-standard qualifying contracts*. *Liable entities* must use the relevant *default firmness methodology* for *standard qualifying contracts.*

These are interim guidelines. The methodologies described here may change when the final guidelines are published ~~in 2020~~. To give *liable entities* the confidence to enter into contracts under the interim guidelines, the Rules allow *liable entities* to continue to use the methodology specified in the interim guidelines for contracts entered while the interim guidelines are in effect.[11]

4.1 Treatment of standard qualifying contracts

We have listed those contracts we have determined are *standard qualifying contracts*, and their *default firmness methodologies* below. Contracts that do not fall into any of these categories are to be assessed for firmness using a *bespoke firmness methodology.*

4.1.1 Standard electricity swaps and futures

Definition

Standard electricity swaps and futures are *standard qualifying contracts*. These are contracts traded on an exchange, bilaterally or through a licenced broker. Swaps and futures are an agreement to buy a set volume of electricity at a set price. The volume of the swap or futures

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[10] ~~Rule~~ Clause 4A.A.1

[11] ~~Rule~~ Clause 11.116.7 states that *Qualifying contracts* entered into by a *liable entity* after the publication of the interim RRO Guidelines published under ~~rule~~ clause 11.116.6(a) and before the RRO Guidelines are made under ~~rule~~ clause 11.116.6(c) will continue to be treated in accordance with such Interim Guidelines for the purposes of assessing firmness factor of contracts.

The AER's approach to ~~rule~~ clause 11.116.7 is that contracts entered in to between the Interim Guideline being published and the final Guideline being published may continue to be assessed using the *default firmness methodology* in the interim Guideline. If the *default firmness methodology* in the final Guideline has changed in a manner that would result in a higher firmness factor for a contract, the *liable entity* may choose to use the *default firmness methodology* outlined in the Final Contracts and Firmness Guidelines.

contract may be uniform across the term of the contract or may be shaped where the volume varies across trading intervals.

Swaps or futures, which fix the price and quantity of electricity purchased, are firm and have a firmness factor of one. These contracts are expected to cover a *liable entity* from volatility in the spot market, and do not include price, volume or contract limitation risks. If there are any additional contract terms which may limit the protection the contract offers the buyer, the contract is a *non-standard qualifying contract* and a *bespoke firmness methodology* must be developed by the *liable entity*.

Default firmness methodology for standard electricity swaps

Swaps, which fix the price and quantity of electricity purchased, are considered firm and have a firmness factor of one.

A swap with a fixed price and shaped volume has a firmness factor of one. The volume of the contract will vary across trading intervals but the firmness factor is one in all trading intervals.

Example: Swap with a variable volume

A solar farm owner sells a swap that mirrors the shape of their generation. The swap provides the buyer with a volume of electricity during daylight hours but reduces to a volume of 0 as night falls. The volumes are specified in the contract and are not tied to the actual generation of the solar farm. The buyer of the swap records it in their NCP report as below (30-minute settlement is used to simplify the example).

Table 4.1 Swap with variable volume example

Contract ID	Contract Category	Trading Interval	Unadjusted Contract Volume (MW)	Firmness Factor	Adjusted Contract Volume (MW)	Methodology
0002A	SWAP	03/01/23 16.30	20	1	20	SFSWAP
0002A	SWAP	03/01/23 17.00	20	1	20	SFSWAP
0002A	SWAP	03/01/23 17.30	16	1	16	SFSWAP
0002A	SWAP	03/01/23 18.00	12	1	12	SFSWAP
0002A	SWAP	03/01/23 18.30	6.5	1	6.5	SFSWAP
0002A	SWAP	03/01/23 19.00	4	1	4	SFSWAP
0002A	SWAP	03/01/23 19.30	0	1	0	SFSWAP
0002A	SWAP	03/01/23 20.00	0	1	0	SFSWAP

Note: The firmness factors have been chosen to illustrate how a swap with a variable volume shape is reported and is not reflective of any analysis of the volumes likely to be seen in a contract like this.

4.1.2 Standard electricity caps

Definition

Standard electricity caps are *standard qualifying contracts*. These are contracts traded on an exchange, over the counter or by a licenced broker. Caps are an agreement to buy a set volume of electricity for a maximum price once the spot price exceeds the strike price.[12]

Caps set a price ceiling for *liable entities* for a set volume. At the time of publication, the standard strike price of commonly traded caps is $300/MWh. A buyer of a $300/MWh cap is only liable to pay the strike price if the spot price is higher than $300/MWh. While caps limit the buyer's exposure to volatility in the spot price, the higher the strike price of a cap, the less financial cover they provide the buyer. Consequently, caps become less firm as their strike price increases.

Standard caps have a strike price and a volume – other conditions do not have to be met for these caps to be exercised. These contracts do not have volume or contract limitation risk. Caps with extra conditions which limit the cover of the contract are *non-standard qualifying contracts*, and need to be assessed for firmness under a *bespoke firmness methodology*.[13]

We consider standard cap contracts with strike prices below five per cent of the market price cap (MPC) align with the intention of the RRO and have a firmness factor of one. Caps with a strike price above this would gradually become less firm, as the *qualifying contract* would offer the buyer less cover from spot price volatility. Our proposed approach reduces the firmness of a cap until the strike price equals the MPC. At this point, the cap would offer no protection from spot price volatility, and the firmness factor is zero.

The decision to set the cap threshold at five per cent of MPC instead of at $300 to mimic the current standard cap strike price was made in consultation with market participants. Using the five per cent threshold allows the methodology to move in relation to movements in MPC and allows room for innovation within the contracting space as new firming technologies emerge. The electricity market is undergoing numerous changes including increased generation from renewable sources and, the introduction of new technologies such as batteries and an upcoming change to five-minute settlement. Developments in the market may have an impact on the future/forward markets and how cap contracts are traded and used by participants.

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[12] More precisely, caps are a contract for difference (cfd). If the wholesale spot price is higher than the strike price, the seller pays the difference to the buyer. If the wholesale spot price is lower than the strike price, the buyer pays the difference to the seller.

[13] For example, an extra condition might be linked to the weather conditions on the day, where the cap would only come into effect where the temperature exceeded a certain pre-determined number.

Default firmness methodology for standard electricity caps

The following formulas are used to determine the firmness of a cap.

- Strike price less than or equal to 5 per cent of the MPC

   Firmness factor = 1

- Strike price greater than 5 per cent of the MPC

   Firmness factor = $(1/0.95^2) \times (1 - strike\ price/MPC)^2$

Examples of cap firmness factor calculation[14]

- A standard cap with a strike price up to $735 has a firmness factor of 1.

- A standard cap with a strike price of $1000 has a firmness of 0.96.

   Firmness factor = $(1/0.95^2) \times (1 - strike\ price/MPC)^2$

   Firmness factor = $(1.108033) \times (1 - 1000/14700)^2$

   Firmness factor = 0.96

- A standard cap with a strike price of $10,000 has a firmness of 0.11.

   Firmness factor = $(1/0.95^2) \times (1 - strike\ price/MPC)^2$

   Firmness factor = $(1.108033) \times (1 - 10000/14700)^2$

   Firmness factor = 0.11

4.1.3 Load following contracts

This section outlines the AER's *firmness methodology* for assessing load following contracts. A load following contract is a swap contract that has a fixed price and a variable volume. Typically, the buyer agrees to pay a fixed price for a contract with a volume that matches the buyer's actual load at each trading interval. This volume is unknown until settlement data is available.

A load following contract is a *standard qualifying contract* if it meets all of the following criteria:

- Meets the definition of a *qualifying contract* in section 14O(1) of the National Electricity Law.

- Provides cover for 100 per cent of the *liable entity's* load.

- Has no other contract terms or conditions which could limit the cover provided to the *liable entity.*

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[14] At the time of publication, the MPC is $14,700. The examples in this guideline use this input. As the MPC changes, this will need to be factored into a *liable entity*'s calculations.

The buyer of a 100 per cent load following contract has no exposure to spot price volatility. This contract is fully firm unless the contract contains terms which limit its coverage.

In order to calculate the *liable entity's net contract position* after the *forecast reliability gap period* has occurred, a buyer of a load following contract that is a *standard qualifying contract* must follow the *default firmness methodology* below. The AER may request that the *liable entity* provide additional information about the load following contract.

Load following contracts that do not meet all three of the criteria above are either *non-qualifying contracts* or *non-standard qualifying contracts* (refer to sections 5.3.7 and 7). The seller of a load following contract will need to assess the contract as a *non-standard qualifying contract.*

Default firmness methodology for bought load following contracts

The following *default firmness methodology* applies for load following contracts that are *standard qualifying contracts*, based on the criteria above.

The buyer of the load following contract assigns a firmness factor of one to the contract for all trading intervals covered by the contract. The buyer does not nominate a contract volume when recording the contract in the *NCP report*. Instead the buyer must record the load following *qualifying contract* in the *NCP report* and leave the contract volume field blank. The AER will use the *liable entity's* actual load to calculate the contract volume. The example below illustrates how this type of contract is recorded in the *NCP report*.

Example: Load following contract

A *forecast reliability gap period* has been identified for 16.00 – 19.00 for all weekdays in February 2023. Liable Entity G has bought a load following contract. The contract is in place for all trading intervals from Jan 1 2023 – Dec 31 2023. The contract covers 100 per cent of the *liable entity's* load and has no additional terms that might limit the coverage of the contract.

Liable Entity G records the load following contract in the Grouped Contracts sheet of the NCP Report Excel Template (refer to section 9.1.2 of this guideline for template specifications) in the following manner:

Table 4.2 Load following contract example

Contract ID	Contract Category	Start Date	End Date	Number of Contracts	Unadjusted Contract Volume (MW)	Firmness Factor	Adjusted Contract Volume (MW)	Methodology
0001A	LFBUY	01/02/23 00.05	01/03/23 00.00	1		1		DEFAULT

Note. The contract category LFBUY is used by the AER to identify any load following contracts.

At 40 weeks after the *forecast reliability gap period*, when data is made available for compliance assessments, AEMO provides the AER a scaled-back demand (*liable share*) for Liable Entity G for each trading interval to be assessed for compliance. In this example, there are three trading intervals under assessment. The AER calculates the *net contract position* of Liable Entity G based on the scaled-back demand volume it is liable for. Because the load following contract has a firmness factor of one, the calculated *net contract position* is equal to the scaled-back demand volume for each trading interval.

Table 4.3 Load following contract example

Trading Interval	Liable Entity G Liable Share	Liable Entity G Net Contract Position **
17/02/23 18.00	20.3 MW	20.3 MW
17/02/23 18.30	21.2 MW	21.2 MW
17/02/23 19.00	19.9 MW	19.9 MW

** Calculated by the AER

4.1.4 Grandfathered contracts

Grandfathering arrangements, as defined in ~~rule~~ clause 11.116.8, apply to large energy users that are *Market Customers* and *opt-in customers*. They do not apply to licenced retailers (a licenced retailer is defined in the Rules[15] as a person who holds a retailer authorisation under the National Electricity Retail Law or an electricity retail licence under the *Electricity Industry Act 2000* (Vic)).

A grandfathered contract is a *qualifying contract* which was entered into by the *liable entity* prior to the RRO policy design being published in August 2018. It is a *qualifying contract* up to the load covered by the contract and need not be firmness adjusted for the purposes of calculating the *net contract position*. The grandfathered contract is deemed to have a firmness of one.

A grandfathered contract can be a retail, wholesale or demand response contract. A grandfathered contract does not apply in relation to a *liable entity's* own generation or load curtailment (internal hedges cannot be grandfathered contracts).

A grandfathered contract must meet the following criteria:

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[15]   ~~Rule~~ Clause 11.116.8(a)

- Is a *qualifying contract* which reduces the *Transitional Customer's*[16] exposure to the volatility of the spot price in a relevant *region* during the *gap trading intervals* for the load for which it is a *liable entity*; and

- The *qualifying contract* was in effect as at 10 August 2018.

A contract is grandfathered until:

- the end of the term of the *transitional contract* specified in that *transitional contract* as at 10 August 2018, excluding any extension or renewal of such term even if the right to extend or renew existed as at 10 August 2018; or

- if no term is specified, 1 July 2023.

4.1.5 MLO Products

MLO products, as defined in the rule 4A.G.22, are bought by *liable entities* on an exchange to manage their exposure to spot market volatility. *MLO products* are sold by *MLO generators* to satisfy their MLO obligation.[17] A *MLO product* need not be firmness adjusted for the purposes of calculating the *net contract position*. The *MLO product* is deemed to be a *qualifying contract* and have a firmness of one.[18]

The Rules[19] defines a *MLO product* as an electricity 'derivative' (within the meaning given to that word in the *Corporations Act 2001* (Cth)) contract which:

(1) has a contract unit of either:

(i) 1 MW of electrical energy per hour based on a base load period, being from 00.00 hours Monday to 24.00 Sunday (in the relevant *region*) over the duration of the contract period (as specified at ~~rule~~ clause 4A.G.22(a)(2)(ii)); or

(ii) 1 MW of electrical energy per hour based on a peak load period, being from 07.00 hours to 22.00 hours (in the relevant *region*) Monday to Friday (excluding public holidays) over the duration of the contract period (as specified at ~~rule~~ clause 4A.G.22(a)(2)(ii)), provided that, if the trading intervals identified in the relevant *forecast reliability gap period* apply only during parts of a day, then the contract unit must include those trading intervals; and

(2) satisfies each of the following criteria:

(i) it is a contract relating to electrical energy bought and sold in the *region* in which the forecast reliability gap has been identified;

(ii) the contract period is monthly or quarterly, provided the contract period covers all of the trading intervals identified in the relevant *forecast reliability gap period*, in that month or quarter;

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[16] ~~Rule~~ Clause 11.116.8(b) A *Transitional Customer* is a *Market Customer* or an opt-in customer who is not a licenced retailer

[17] *MLO Guideline*s. https://www.aer.gov.au/retail-markets/retailer-reliability-obligation

[18] ~~Rule~~ Clause 4A.E.1(d)

[19] ~~Rule~~ Clause 4A.G.22

(iii) the maximum contract unit is 1 MWh;

(iv) the contract price is quoted in AUD per MWh; and

(v) the contract quantity is for an identical contract unit in each trading interval.

For more information on the MLO and *MLO products*, refer to the AER Market Liquidity Obligation Guidelines (MLO).[20]

4.1.6 Summary of standard qualifying contracts

Table 4.4 Summary of default firmness metholologies for standard qualifying contracts

Standard contract	Default firmness methodology
Swaps and Futures	Applies to swaps and futures with a fixed price and known volume (including a shaped volume) where no other contract limitations are present. (Refer to guideline section 4.1.1) **Firmness factor = 1**
Caps with a strike price <= 5% of MPC	Applies to caps with a strike price <= 5% of MPC where no other contract limitations are present. (Refer to guideline section 4.1.2) **Firmness factor = 1**
Caps with a strike price > 5% of MPC	Applies to caps with a strike price > 5% of MPC where no other contract limitations are present. (Refer to guideline section 4.1.2) **Firmness factor =** $(1/0.95^2) \times (1 - strike\ price/MPC)^2$
100 per cent Load following contracts (bought)	A load following contract has a fixed price and a variable volume. The buyer and seller of the contract agree that the volume exactly matches the buyer's actual load at each trading interval. The buyer of a 100 per cent load following contract has no exposure to spot price volatility. This contract is fully firm unless the contract contains terms which limit the coverage of the swap. (Refer to guideline section 4.1.3) **Firmness Factor = 1**

Standard contract	Default firmness methodology
Grandfathered contracts	Grandfathered contracts must meet the definition of grandfathered arrangement in ~~rule~~ clause 11.116.8. Grandfathered contracts only apply for large energy users who are either *Market Customers* or *opt-in customers*. (Refer to guideline section 4.1.4) **Firmness factor = 1**
MLO Products	*MLO products* must meet the definition of *MLO product*s in ~~rule~~ clause 4.A.G.22(a). (Refer to guideline section 4.1.5) **Firmness factor = 1**

5 Bespoke firmness methodologies

Liable entities must develop and apply *bespoke firmness methodologies* to firmness adjust *non-standard qualifying contracts*. *Bespoke firmness methodologies* should be developed to determine firmness factors that reflect the extent to which contracts reduce the buyer's exposure to spot price volatility. A *bespoke firmness methodology* must be approved by an *Independent Auditor*, in accordance with the guidance below.

It is important to note that *bespoke firmness methodologies* cannot be used to firmness adjust *standard qualifying contracts*. All contracts that meet the definition of a *standard qualifying contract* must be assessed using the appropriate *default firmness methodology.*

5.1 Development of a bespoke firmness methodology

Bespoke firmness methodologies must be developed in accordance with the *firmness methodology* outlined in section 3 of this guideline. *Liable entities* must assess the *non-standard qualifying contract's* price risk, volume/shape risk and any other contract limitations to determine an appropriate firmness factor. The nature of *non-standard qualifying contracts* is that they aren't suited to the application of a simple "catch-all" process for determining a firmness factor. Instead, there are a range of approaches that may be used to arrive at the appropriate firmness factor.

Where aspects of a *default firmness methodology* are relevant to a *non-standard qualifying contract*, they should be used. For example, if a *non-standard qualifying contract* has a price term similar to a standard cap, its firmness adjustment should include an adjustment for price risk similar to the *default firmness methodology* for standard caps.

Firmness is also adjusted for the non-standard terms and conditions that relate to volume/shape risk and contract limitations. For example, if a *qualifying contract* specified a maximum daily payout, the firmness allocated to that contract would need to be adjusted based on a reasonable expectation of whether that threshold would be exceeded during the *forecast reliability gap period*.

5.2 Guidance on firmness for common non-standard qualifying contracts

The AER has identified several *qualifying contracts* that, while commonly relied upon by *liable entities*, are not standard, and require the use of a *bespoke firmness methodology*. We have provided specific guidance on developing a *bespoke firmness methodology* for these *qualifying contracts*. *Bespoke firmness methodologies* must be developed in accordance with this guidance, and the *firmness principles* discussed in section 3 of this guideline. *Independent Auditors* can only approve *bespoke firmness methodologies* and their resulting firmness factors if they are satisfied these criteria have been met.

5.3 Guidance for non-standard qualifying contracts not listed in this guideline

The *non-standard qualifying contracts* listed in this section are not exhaustive. *Qualifying contracts* not included here may be developed or become more common in the future. For *non-standard qualifying contracts* that aren't listed in this guideline, *liable entities* must develop a *bespoke firmness methodology* and have it approved by an *Independent Auditor*.

When developing a *bespoke firmness methodology* for these *qualifying contracts*, *liable entities* must have regard to the guidance provided elsewhere in this document.

For example, consider a *non-standard qualifying contract* with a price term similar to a standard cap, but with a number of non-standard terms and conditions that will affect firmness. Standard caps have a *default firmness methodology* for setting a firmness factor. The *bespoke firmness methodology* developed should include the standard cap approach to develop price risk. Firmness would also need to be adjusted for the non-standard terms and conditions that relate to volume/shape risk and contract limitations. For example, if the *qualifying contract* specified a maximum daily payout, the firmness would need to be adjusted based on a reasonable expectation of whether that threshold would be exceeded during the *forecast reliability gap period*.

5.3.1 Options

Options are electricity futures or forward contracts that are traded on an exchange or 'over the counter' bilaterally (either brokered or direct). They include standard options (e.g. captions and swaptions) and average rate options (also commonly referred to as "Asian options").

The buyer of an option has the right, but not the obligation, to buy (call) or sell (put) an underlying product such as a swap (a swaption) or a cap (a caption).

Development of a bespoke methodology

Standard options

For a standard option, the right to purchase is usually exercised when the option is said to be "in the money". For example, a standard call option to purchase a swap is "in the money" if the strike price of that option is lower than the market price of the relevant swap at the time the option is required to be exercised. If the strike price on the call option was higher than the market price, then it would not be exercised. The option would ultimately not provide the *liable entity* with cover against volatility in spot prices during the *forecast reliability gap period*. Firmness must be adjusted in accordance with the likelihood of the option being exercised. Because there will always be some uncertainty over whether an option will be "in the money" before its exercise date, the firmness factor will always be lower than that of the underlying instrument.

Average rate options

Average rate options differ from standard options. For these options, the payout is based on the average spot price over a specified period and settled automatically against the spot price outcome rather than being exercised on a particular date.

Average rate call options are bought to limit exposure to higher than expected spot price outcomes, similar to a cap. However, they manage different types of risk, and the incentive on the seller to defend the contracts is different. Standard caps limit the buyer's exposure to high price events, such as where prices are high in individual trading intervals. Average rate caps cover the buyer from high average prices, but not necessarily from individual high price events.

For example, if average spot prices are low over an averaging period, but there are some high price events, a cap would pay out, but the average spot price might not be high enough for the average rate option to payout. If average prices are high over the averaging period, because of underlying prices or high price events, the average rate option would pay out, limiting the buyer's exposure to ongoing high prices.

Consequently, while average rate options can provide a similar type of cover to standard caps, the approach outlined in section 4.1.2 to adjusting the firmness for standard caps is not appropriate. Average rate options may not payout in high price events, where standard caps would. We consider average rate options should be adjusted for firmness in the same way as standard options (i.e. using an accepted option valuation method).

Guidance to auditors

We consider any standard option valuation approach can be used to adjust the firmness of these *qualifying contracts*. The option delta, provides a reasonable approximation of the likelihood of the contract being in place during the *forecast reliability gap period*, and is therefore an appropriate measure of the contract's firmness.

As part of a normal risk management process, the owner of an option will calculate the option's delta (or the delta for a portfolio of options) using an option pricing model. The delta value measures how much the price of the option will change with a movement in the underlying instrument. The delta value is also generally used as an approximation of the likelihood that the option will be exercised. Consequently, we consider the delta value from an option pricing model will provide a reasonable estimate of the likelihood that an option will be exercised – and provides a good measure of the cover the option provides the *liable entity* against volatility in the spot market.

To mitigate the risk that *liable entities* could meet their requirements for *qualifying contracts* by selling large quantities of puts at strikes that are unlikely to be exercised, the volume of puts that a *liable entity* can use is limited to the volume of bought calls.

Firmness methodology for options

Delta is a measure used by organisations to assess how much the price of the option will change with a movement in the value of the underlying instrument. It is also used to

approximate the likelihood that an option will be exercised. Delta ranges between zero and one for call options, and zero and negative one for put options. A delta close to one or negative one is more likely to be in the money at the expiry date (or payout if it is an average rate option). A delta close to zero is unlikely to be in the money by the expiry date (or provide any payout for an average rate option).

Liable entities may use the absolute value of either call or put deltas to determine the firmness factor of these *qualifying contracts.* If the delta is used, *liable entities* must adopt an industry accepted option pricing model to calculate the option delta. When assessing the delta, a *liable entity* may use the volatility as published by a registered exchange.[21] A *liable entity* may use an alternative method of estimating volatility, however, it must provide reasons why this is more suitable than the published volatility.

A *liable entity* may use an alternative method of estimating option value to determine a firmness factor. If an alternative approach is used, it should be:

- Based on accepted principles of option valuation
- Adhere to the principle that options are less firm than their underlying instrument

The *liable entity* must provide reasons justifying the use of an alternative approach as part of the *Independent Auditor's* report.

Example: call option

A call option has a delta of 0.6. It is 60 per cent likely to be in the money at the exercise date, and 40 per cent likely to be out of the money. The firmness factor is 0.6

A put option has a delta of -0.8. It is 80 per cent likely to be in the money, and 20 per cent likely to be out of the money. The firmness factor is 0.8

5.3.2 Power purchase agreements

This section outlines the AER's guidance for developing a *bespoke firmness methodology* for power purchase agreements (PPAs).

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[21] The volatility used must be from the closest strike price to the value of the underlying instrument, as published by a registered exchange.

Definition

PPAs are contracts or arrangements to buy a share of a generator's electricity output over a period of time. PPAs are typically entered into to purchase the output of renewable generation such as wind or solar.

The volume covered by the PPA contract will vary based on the actual generation of the plant for each trading interval. The buyer/owner of a PPA is entitled to a proportion of this electricity output at an agreed price. For example, a PPA contract may entitle the buyer/owner to 50 per cent of the electricity output from a solar farm, at an agreed price. The actual volume would change based on the solar farm's output during daylight hours, and would likely offer no coverage at night.

Development of a bespoke methodology

Liable entities that own PPAs limit their exposure to volatility in the spot market if the generation assets are generating electricity during the *forecast reliability gap period*. The cover provided to *liable entities* by the contract is directly linked to the performance of generation assets. Consequently, PPAs expose *liable entities* to volume risk. *Liable entities* must apply a firmness factor that reflects the level of volume risk in the contract. A *liable entity* may assess multiple PPAs as a portfolio. However, a firmness factor must be assigned to each PPA in the *NCP report*.

Guidance to Auditors

When assessing the *bespoke firmness methodology* for a PPA, the *Independent Auditor* must take into consideration any factors which limit the ability for the contract to be used during a *one-in-two year peak demand* event during the *forecast reliability gap period*. The Independent Auditor must demonstrate how the firmness factor is representative of the principle that the contract/arrangement should support (directly or indirectly) investment that can supply energy that may be dispatched or can reduce demand for energy[22]. The *Independent Auditor* must apply the *firmness principles* outlined in section 3.

Specifically, the *Independent Auditor* must consider whether the proposed *bespoke firmness methodology* accurately represents the volume of electricity that is likely to be available during the *forecast reliability gap period* from the PPA. The firmness of a PPA may be expressed as the likely output of the contracted generator during the *forecast reliability gap period* divided by its *registered capacity.*

Ideally, the firmness factor will be derived using actual historical performance data from the relevant generating assets, or site measurement data for new developments (discounted by an appropriate allowance for likely forced outages and network congestion).

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[22]   Rule Clause 4A.E.1(b)

Auditor Guidance where actual historical information is available

Solar PPA

Solar generation assets have their highest output in the middle of the day. Without storage, the performance falls over the afternoon, and there is no meaningful generation after sunset (the inverse is true in the morning).

Historical information relevant to the time of day of each trading interval in the *forecast reliability gap period* should be used. For a *gap trading interval* after sunset, a firmness of zero should be used. For *gap trading intervals* in daylight hours, a historical sample should be used. This should include an average of historical generation data for the relevant trading intervals and the relevant time of year. For example, if the *gap trading interval* is for 18.30 on 31 January, the *liable entity* may consider historical data for 18.30 for days around 31 January (e.g. they may consider data from 21 January to 10 February to be indicative and provide a large enough sample). If available, we consider at least three years of historical data should be used.

After taking the average generation output over a relevant period, the *liable entity* should divide this by the rated capacity of the generator to arrive at a firmness factor. The MWs to be firmness adjusted depend on the terms of the PPA. If a *liable entity* owns a 50 per cent share of a solar farm with a *registered capacity* of 50 MWs, then the pre-adjustment MWs will be 25 MWs. If the firmness factor for the *gap trading interval* is 0.6, the firmness adjusted MWs for the *qualifying contract* is 15 MWs.

If the generation assets include storage, *liable entities* may adjust the firmness factors based on the likelihood of storage being available for use during some or all of the *gap trading intervals*.

Wind PPA

Wind generation tends to differ based on time of day and time of year, and is more variable than solar generation. Average historical generation data should be used to derive a firmness factor. This average should be taken for historical data for each trading interval in the *reliability gap period*. For example, if the *gap trading interval* is for 18.30 on 31 January, the *liable entity* may consider historical data for 18.30 for days around 31 January (e.g. they may consider data from 11 January to 1 February to be indicative and provide a large enough sample). If available, we consider at least three years of historical data should be used.

After taking the average generation output over the relevant period, the *liable entity* should divide this by the rated capacity of the generator to arrive at a firmness factor. The MWs to be firmness adjusted depend on the terms of the PPA. If a *liable entity* owns a 50 per cent share of a wind farm with a *registered capacity* of 200 MWs, then the pre-adjustment MWs will be 100 MWs. If the firmness factor for the *gap trading interval* is 0.6, the firmness adjusted MWs for the *qualifying contract* is 60 MWs.

If the generation assets include storage, *liable entities* may adjust the firmness factor*s* based on the likelihood of storage being available for use during some or all of the *gap trading intervals*.

Method where historical information is incomplete or not available

Liable entities should endeavour to use as much actual historical data as is available. Where this data is incomplete (or there is no data because the generation assets are being commissioned), it may be supplemented by estimates based on observations such as measuring masts and other survey equipment and weather data that match the historical period. These estimates must be adjusted for expected forced outages, using reasonable expectations of performance based on similar technology.

Where historical performance data does not reflect expected future performance, this data may be supplemented by estimates of future performance. This may occur where planned maintenance of assets is likely to result in fewer forced outages in the future, or planned upgrades are likely to increase the *registered capacity* of the assets during the *forecast reliability gap period*. *Liable entities* must demonstrate that the past performance is not indicative of future performance, and must have a reasonable expectation that the estimates used better reflect future performance. For example, if the assets are being upgraded, a *liable entity* must expect that the upgrade will be in service during the relevant *forecast reliability gap period*, such that more capacity will be available during the gap.

PPAs for other generation types

PPAs for other generation types must also be firmness adjusted. *Liable entities* must develop a *bespoke firmness methodology* consistent with the solar and wind examples above. Specifically, the methodology must be based on historical performance if available, or reasonable estimates if the asset is new, historical data is incomplete, or historical data is not indicative of future performance.

5.3.3   Interregional contracts

This section outlines the AER's guidance for developing a *bespoke firmness methodology* for interregional contracts.

Definition

An interregional contract, for the purposes of this guideline, is a contract held by a *liable entity* that relates to generation or demand response in a *region* outside the *region* of the *forecast reliability gap period*. The *region* must be directly connected to the gap *region* via an interconnector. A contract held in Queensland, for example, cannot be a *qualifying contact* for a *forecast reliability gap period* in South Australia.

Interregional contracts offer *liable entities* the option to contract outside the *region* of their load. Contracting in this manner carries a higher level of risk as it relies on the operation of interconnectors to minimise divergence between the spot prices in each *region*. The participant takes on the risk that if the prices in the *regions* of interest separate as its

interconnector(s) bind, the assumed correlation between the spot price in the two *regions* may differ from expectations.

An interregional position may be paired with the purchase of settlements residue distribution units (SRD units) which give them access to a proportion of IRSR across the relevant interconnector. This is consistent with the fact that the demand in one *region* is met not only by generators in that *region* but also possibly by generators in other *regions*, up to the capacity of the interconnector/s. An interregional contract must be paired with SRD units to be classified as a *qualifying contract*. The contract and the SRD units must cover all or part of the *forecast reliability gap period* identified in the *reliability instrument*. For the purposes of the RRO, secondary SRD units may be considered in the same manner as SRD units for firmness calculations.

Development of a bespoke methodology

Liable entities with an interregional contract paired with SRD units must make an assessment of the firmness of this contract by developing a *bespoke firmness methodology*.

The *bespoke firmness methodology* must be assessed and approved by an *Independent Auditor* in accordance with the criteria in sections 3, 5 and 6 of this guideline. The AER has provided guidance below, that *Independent Auditors* must have regard to when making an assessment.

Guidance to Auditors

When assessing the *bespoke firmness methodology* for an interregional contract, the *Independent Auditor* must take into consideration any factors which limit the ability for the contract to be used during a *one-in-two year peak demand* event during the *forecast reliability gap period*. The *Independent Auditor* must demonstrate how the firmness factor is representative of the principle that the contract/arrangement should support (directly or indirectly) investment that can supply energy that may be dispatched or can reduce demand for energy.[23] The *Independent Auditor* must apply the *firmness principles* outlined in section 3.

The following factors must be taken into consideration:

  1: Contract risk:

  What is the firmness factor assigned to the underlying contract (outside the *region*)? The firmness factor of the underlying contract should be calculated using the relevant *default* or *bespoke firmness methodology*. For example, if the underlying contract is a swap with a fixed price and volume, the contract risk firmness factor is one as dictated by the *default firmness methodology* in section 4.1.1 of this guideline. If the underlying contract is a PPA with a wind farm, the *liable entity* develops a *bespoke firmness methodology* (see section 5.3.2) and the contract risk firmness factor is less than one.

  2: Volume risk:

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[23]   Rule 4A.E.1(b)

- How many SRD units does the *liable entity* own on the corresponding interconnector at *position day*? The *liable entity* must pair the underlying contract with SRD units. For example, if the underlying contract has a firmness adjusted volume of 100 MWs, the *liable entity* must have purchased at least 100 SRD units.[24] If the *liable entity* holds less than 100 SRD units, the firmness factor is adjusted down accordingly. If the *liable entity* has purchased additional SRD units, the volume risk firmness factor may be higher however the *liable entity's* cover is restricted to the volume of firmness adjusted interregional contracts that it holds.

- What is the likely interconnector limit during periods where demand meets or exceeds the *one-in-two year peak demand forecast*? When there is price separation between the two *regions*, the contract becomes ineffective in reducing the *liable entity's* exposure to spot price volatility if the actual flow on the interconnector is less than the notional capacity that was calculated in determining the number of SRD units.

- To assess the cover from spot market volatility provided by the IRSR, the *liable entity* must assess the probable limit of the interconnector during the *forecast reliability gap period* by considering:

    o Recent historical availability of the interconnector in the relevant direction. The AER considers three years of historical data to be a sufficient sample range. The *liable entity* must use historical data representative of periods relevant to the forecast *one-in-two year peak demand*. For example, if the *forecast reliability gap period* is identified in January, the *liable entity* must use summer historical data representative of periods when demand approaches or exceeds a *one-in-two year peak demand.*

    o Any planned outages forecast for the *forecast reliability gap period*. A planned outage of the interconnector would reduce the firmness factor.

    o Upgrades to the interconnectors. If upgrades to the interconnector have recently been completed or are planned to be completed before the *forecast reliability gap period*, this adjustment may result in a higher forecast limit on the interconnector than historical data would suggest.

5.3.4 Generation owned by the liable entity (internal hedge)

This section outlines the AER's guidance for developing a *bespoke firmness methodology* for the contribution of generation within a *liable entity's* portfolio to their *net contract position*.

Specifically, this section applies only to vertically-integrated *liable entities*, in which both generation assets and load are owned by the one entity (the one NEM *Registered Participant*). In this situation, the *liable entity* can limit their exposure to spot price volatility by reserving all or part of the projected generation output from its own generation assets to hedge against its retail load. This arrangement (internal hedge) within the *liable entity* is a

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[24] On the basis that the maximum number of units for a unit category represents a reasonable measure of nominal interconnector capacity assigned to the directional interconnector.

qualifying contract for the purposes of the RRO, provided it is documented and evidenced in the manner described below.

For clarity, this section does not apply to contracting between separate *liable entities or* between a *liable entity* and a non-liable party, even if they are held by a single corporate group.

When a *liable entity* is using its own generation to contribute to its *net contract position*, the associated *qualifying contract* is an internal hedge. Like other types of *qualifying contracts*, internal hedges are assessed for their firmness (or the likelihood that they will reduce the *liable entity's* exposure to volatility in the spot market) and included in the *liable entity*'s *NCP report*.

The internal hedge must be recorded by the *liable entity*. The *liable entity* must be able to provide to the AER, on request, documents providing evidence of the total generation capacity of the *liable entity*, and inputs to the firmness factor calculation (for example, evidence of historical generator performance, planned outages and upgrades, and relevant fuel considerations).

Development of a bespoke methodology

Liable entities must firmness adjust an internal hedge to reflect how likely the hedge is to limit the *liable entity's* exposure to volatility in the spot market. The amount of cover provided by the arrangement will depend on the generator's ability to generate during the *forecast reliability gap period*. Consequently, the *liable entity* must consider the likely generation during the *forecast reliability gap period* when determining how much cover the internal hedge is likely to provide.

The AER requires the *liable entity* to assess the firmness of internal hedges within their portfolio and assign a firmness factor to each internal hedge for each trading interval within the *forecast reliability gap period*. Outlined below is the AER's methodology for a firmness assessment of an internal hedge.

A *liable entity* may assess multiple generation units as a portfolio provided they are all owned by the *liable entity* (generation owned by the *Registered Participant* that is the *liable entity*).

The *bespoke firmness methodology* must be assessed and approved by an *Independent Auditor* in accordance with the criteria in sections 3, 5 and 6 of this guideline. The AER has provided guidance below, to which the *Independent Auditors* must have regard when making an assessment.

Guidance to Auditors

When assessing the *bespoke firmness methodology* for an internal hedge, the *Independent Auditor* must take into consideration any factors which limit the ability for the contract to be used during a *one-in-two year peak demand* event during the *forecast reliability gap period*. The Independent Auditor must demonstrate how the firmness factor is representative of the principle that the contract/arrangement should support (directly or indirectly) investment that

can supply energy that may be dispatched or can reduce demand for energy.[25] The *Independent Auditor* must apply the *firmness principles* outlined in section 3.

The following factors must be taken into consideration:

(1) Recent historical performance of the generator/s. The AER considers three years of historical data is a sufficient sample range. The *liable entity* must use historical data representative of periods relevant to the forecast *one-in-two year peak demand*. For example, if the *forecast reliability gap period* is identified in January, the *liable entity* must use summer historical data representative of periods when demand approaches or exceeds a one-in-two year peak demand. It is important that the historical data chosen is representative of conditions likely to occur when the *actual demand* meets or exceeds the *one-in-two year peak demand forecast*. If a *reliability instrument* is issued in summer hot weather conditions are likely to contribute to the high demand. The historical data chosen should be reflective of the types of weather conditions likely to contribute to a one-in-two year peak demand.

(2) The AER provides the following guidance for internal hedges with specific generation types:

- Solar farm internal hedges: historical generation data relevant to the time of day of each trading interval in the *forecast reliability gap period* should be used. For a *gap trading interval* before sunrise or after sunset, a firmness of zero should be used. For *gap trading intervals* in daylight hours, the historical sample should include an average of historical generation data for the corresponding trading interval at the relevant time of year.

- Wind farm internal hedges: historical generation data relevant to the time of day (trading interval) and time of year of each trading interval in the *forecast reliability gap period* should be used. The historical sample should include an average of historical generation data for the corresponding trading interval at the relevant time of year.

(3) Liable entities should endeavour to use as much actual historical data as is available. Where this data is incomplete (or there is no data because the generation assets are new), it may be supplemented by estimates. The estimated generator capacity should factor in unforced outages and the effect of seasonal weather conditions.

(4) Any planned outages forecast for the forecast reliability gap period. A planned outage of a generating unit would reduce the firmness factor to 0 for any gap trading intervals coinciding with the planned outage.

(5) Planned upgrades to the generating units. If upgrades have recently been done or are planned before the *forecast reliability gap period* and are consistent with AEMO's committed criteria, this adjustment may result in a higher forecast generation level than historical data would suggest.

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[25]   ~~Rule~~ Clause 4A.E.1(b)

(6) Any fuel considerations. For a hydro plant this would include modelling of dam storage levels and any impact this would have on the capacity of the plant during the *forecast reliability gap period*.

(7) If the generation assets include battery storage, *liable entities* may adjust the firmness factors based on the likelihood of storage being available for use during some or all of the *gap trading intervals*.

Example: Coal Generator

The *reliability instrument* has confirmed a *forecast reliability gap period* of February from 16.00 to 20.00 on weekdays.

The *liable entity* owns a brown coal generator with a summer capacity rating of 300 MW. Using historical data, the *liable entity* calculates that the expected output of this coal generator is 270 MW during the *forecast reliability gap period*. The *liable entity* records the internal hedge and the methodology used to calculate the firmness factor. The *liable entity* records this as an internal hedge in the *NCP report* as follows:

Table 5.1 Coal generator internal hedge example

Contract ID	Contract Category	Start Date	End Date	Number of Contracts	Unadjusted Contract Volume (MW)	Firmness Factor	Adjusted Contract Volume (MW)	Methodology
0001A	INTERNAL	01/02/23 00.05	01/03/23 00.00	1	300	0.9	270	100GEN

*** The firmness factors have been chosen to illustrate how an internal hedge is reported and is not reflective of any analysis of the firmness factors likely to be assigned to a brown coal generator*

Example: Battery

The *reliability instrument* has confirmed a *forecast reliability gap period* for all weekdays in January and February from 16.00 to 20.00.

The *liable entity* owns a battery with a capacity of 25 MW/50 MWh. The *liable entity* may choose how to use the battery to best meet forecast demand requirements, and can calculate the firmness factor accordingly. Below are two examples of how the same battery may be used by the *liable entity* and the different approaches to calculating the firmness factor.

Scenario one. The *liable entity* plans to run the battery at maximum capacity (25 MW) for two hours.

Table 5.2 Battery (scenario one)

TI	16.30	17.00	17.30	18.00	18.30	19.00	19.30	20.00
Unadjusted Contract Volume	25 MW	25 MW	25 MW	25 MW	25 MW	25 MW	25 MW	25 MW

Firmness Factor	0	0	1	1	1	1	0	0
Adjusted Contract Volume	0	0	25 MW	25 MW	25 MW	25 MW	0	0

Scenario two: The *liable entity* plans to run the battery over three hours at varying dispatch volumes to better match the shape of their demand.

Table 5.3 Battery (scenario two)

TI	16.30	17.00	17.30	18.00	18.30	19.00	19.30	20.00
Unadjusted Contract Volume	25 MW	25 MW	25 MW	25 MW	25 MW	25 MW	25 MW	25 MW
Firmness Factor	0	0.4	0.8	1	1	0.6	0.2	0
Adjusted Contract Volume	0	10 MW	20 MW	25 MW	25 MW	15 MW	5 MW	0

Example: Solar Farm

The *reliability instrument* has confirmed a *forecast reliability gap period* for all weekdays in January and February from 16.00 to 20.00.

A *liable entity* owns a solar farm and must calculate the firmness factor to account for the firmness of the generation. The *liable entity* must forecast generation for the solar farm over the *forecast reliability gap period.* Where historical data is not available, the *liable entity* must make reasonable efforts to estimate the likely output. For example, the *liable entity* may use data on the output of an existing solar farm that is located in the same area, weather and climate data for the area, or data used by the solar farm for planning and financing approval processes.

The RRO is focused on reliability during the *forecast reliability gap period*, therefore historical data relevant to the *forecast reliability gap period* (time of year and trading intervals) must be used.

The *liable entity* must calculate a firmness factor for each trading interval of the *forecast reliability gap period*. A solar farm has a high firmness factor in the afternoon which declines to zero into the evening once the sun has gone down.

Table 5.4 Solar farm example

TI	16.30	17.00	17.30	18.00	18.30	19.00	19.30	20.00
Unadjusted Contract Volume	25 MW	25 MW	25 MW	25 MW	25 MW	25 MW	25 MW	25 MW
Firmness Factor	0.96	0.96	0.92	0.82	0.74	0.41	0.02	0

| Adjusted Contract Volume | 24 MW | 24 MW | 23 MW | 20.5 MW | 18.5 MW | 10.25 MW | 0.5 MW | 0 |

*** The firmness factors have been chosen to illustrate how an internal hedge (solar farm) is reported and is not reflective of any analysis of the firmness factors likely to be assigned to a solar farm.*

5.3.5 Generation and contracts owned by other entities within a corporate group

This section outlines the AER's guidance for the treatment of generation and contracts held by different entities within a single corporate group.

As noted in section 5.3.4 above, above, each individual *liable entity* is required to meet its contracting requirements under the RRO, with respect to its load, and submit a *NCP report* to the AER. This is the case irrespective of the relationship between separate *liable entities,* including their corporate grouping. In the case of a compliance assessment, the AER will need to be able to assess the compliance of each *liable entity* individually.

The internal hedging arrangements described in section 5.3.4 relate only to hedging within a *liable entity*, when both generation and load are owned by the one entity (one NEM *Registered Participant*). These arrangements do not apply for arrangements between a *liable entity* and any other *liable entity* or non-*liable entity*.

If a single corporate group owns two *Registered Participants*, both of which are *liable entities*, it must meet the requirements for each entity separately. If the corporate group wishes to use generation or contracts held by one *liable entity* to contribute to the *net contract position* of the other *liable entity*, it will need to establish and record a contract/arrangement (inter-entity arrangement) to reallocate the generation or contract between the two *liable entities.* This inter-entity arrangement is recorded in the *NCP report* of both *liable entities (*reducing the NCP of one *liable entity* and increasing the NCP of the other *liable entity)*. The inter-entity arrangement must be firmness adjusted in line with guidance given in this guideline.

If a single corporate group owns two *Registered Participants*, one of which is a *liable entity* and the other of which is not (because, for example, it is not a Market Customer), it only has RRO requirements for the *liable entity*. To use the generation or contracts held by the non-*liable entity* to contribute to the *net contract position* of the *liable entity*, the corporate group must establish and record a contract/arrangement (inter-entity arrangement) to reallocate the generation or contract between the two *liable entities.* This inter-entity arrangement is recorded in the *NCP report* of the *liable entity (*increasing the NCP of the *liable entity)*. The inter-entity arrangement must be firmness adjusted in line with guidance given in this guideline.

All inter-entity arrangements must be recorded by the *liable entity*. The *liable entity* must be able to provide to the AER on request documents providing evidence of the inter-entity arrangement and inputs to the firmness factor calculation (for example, evidence of historical generator performance, planned outages and upgrades, and relevant fuel considerations).

Guidance to Auditors

Corporate groups do not affect the *net contract position* calculation and reporting requirements of *liable entities.* Each individual *liable entity* must meet its requirements under the RRO and must submit a *NCP report* to the AER. *Liable entities* must treat any generation or contracting arrangements between themselves and other entities (inter-entity arrangements) in accordance with the approach and methodologies defined in this guideline, even when the generation or contracting arrangements are held by the same corporate group.

5.3.6 Contracting by a liable entity on behalf of others

In some circumstances, *liable entities* under the RRO may act as financial intermediaries. For example, in its role as a financial intermediary a *liable entity* may buy a cap contract and then later sell that contract to a third party.

The RRO requires that *liable entities* report all bought and sold *qualifying contracts* in their *NCP report*, as well as *non-qualifying contracts* that increase their exposure to the spot price. This means that a *liable entity* buying and selling contracts is required to include these contracts, adjusted for firmness, in its report to the AER (to the extent that they are relevant *qualifying* or *non-qualifying contracts*).

If a *liable entity* acts as an agent on behalf of another party, it is not required to report this in its *net contract position*. To be clear, this is only applicable to contracts for which the *liable entity* was formally acting as an agent or clearer. Contracts entered into on behalf of a retail customer, in the *liable entity's* capacity as a retailer, must be reported in the *NCP report*. Similarly, contracts bought and sold by a *liable entity* on its own behalf, for any purpose other than as an agent or clearer, must be reported in the *NCP report*.

5.3.7 Load following contracts

This section outlines the AER's guidance for developing a *bespoke firmness methodology* for non-standard load following contracts. Load following contracts that don't meet the criteria for a *standard qualifying contract* (see section 4.1.3) are *non-standard qualifying contracts*.

Definition

A load following contract is a swap contract that has a fixed price and a variable volume. Typically, the buyer agrees to pay a fixed price for a contract with a volume that matches the buyer's actual load at each trading interval. This volume is unknown until settlement data is available.

Load following contracts that meet specified criteria (see section 4.1.3) *are standard qualifying contracts* with a *default firmness methodology.* All other load following contracts are *non-standard qualifying contacts*.

A sold load following contract is a *non-standard qualifying contract*. The seller of the contract must develop a *bespoke firmness methodology* to assess the firmness factor for the

contract. Load following contracts that contain additional contract terms that limit the cover the buyer receives are *non-standard qualifying contracts*. For example, a load following contract may have a cap on the number of customers covered by the contract. If the *liable entity's* load grows so that the number of customers exceeds the contract cap, the *liable entity* is not covered for the additional customer's usage.

Reporting load following contracts in the NCP report

Load following contracts that are *non-standard qualifying contracts* must be recorded in the *NCP report* with a volume and firmness factor.

Development of a bespoke methodology

Liable entities with a load following contract that is a *non-standard qualifying contract* must make an assessment of the volume and firmness of the contract by developing a *bespoke firmness methodology*.

The *bespoke firmness methodology* must be assessed and approved by an *Independent Auditor* in accordance with the criteria in sections 3, 5 and 6 of this guideline. The AER has provided guidance below, to which the *Independent Auditors* must have regard when making an assessment.

Guidance to Auditors

When assessing the *bespoke firmness methodology* for a load following contract, the *Independent Auditor* must take into consideration any factors which limit the ability for the contract to be used during a *one-in-two year peak demand* event during the *forecast reliability gap period*. The Independent Auditor must demonstrate how the firmness factor is representative of the principle that the contract/arrangement should support (directly or indirectly) investment that can supply energy that may be dispatched or can reduce demand for energy.[26] The *Independent Auditor* must apply the *firmness principles* outlined in section 3.

The following factors must be taken into consideration:

- The seller of the load following contract (the *liable entity*) must develop a *bespoke firmness methodology* which makes an assessment of the likely volume of the contract when the demand is at the *one-in-two year peak demand forecast*. The *liable entity* must use, where available, historical data to inform the calculation of the contract volume. The *liable entity* must use historical data representative of periods relevant to the forecast *one-in-two year peak demand* and must make adjustments to account for any growth in the buyer's load.

- The buyer of the load following contract (the *liable entity*) must develop a *bespoke firmness methodology* which takes into account any contract terms that limit the cover of the contract. For example, the load following contract caps the cover provided to the *liable entity* at 10 MW for any trading interval within the *forecast*

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[26] ~~Rules~~ Clause 4A.E.1(b)

reliability gap period (and has no other contract terms). The *liable entity* records the contract as a *qualifying contract* with a volume of 10 MW and a firmness factor of one.

5.3.8 Demand response contract/arrangement

This section outlines:

- The two approaches to using demand response to meet RRO obligations.

- AER's guidance to *Independent Auditors* to assess a *bespoke firmness methodology* for demand response contracts/arrangements as *qualifying contracts.*

- Guidance on how to record a demand response contract/arrangement in the *NCP report.*

Definition

A demand response contract/arrangement is a contract or arrangement under which non-scheduled load is curtailed or, in certain circumstances, for the provision of unscheduled generation.

A demand response contract/arrangement may be used by a *liable entity*, for the purposes of RRO compliance, in one of two ways.

- The *liable entity* may record the demand response contract/arrangement as a *qualifying contract* (if it meets the criteria for *qualifying contracts* listed below). The contract is included in the *liable entity's NCP report*.

- The *liable entity* can rely on the demand response contract/arrangement to reduce the actual load for which it is liable under the RRO. It is not recorded as a *qualifying contract* and is not included in the *net contract position* reported in the *NCP report*.

Demand Response as a qualifying contract

Demand response may be recorded as a *qualifying contract* if it meets all of the following criteria:

- meets the requirements of section 14O(1)(a)[27] of the NEL

- is registered in AEMO's Demand Side Participation Information Portal (DSPIP)[28]

- Is allocated to a *liable entity*

- Is in-market i.e. not contracted with AEMO under the Reliability and Emergency Reserve Trader (RERT) arrangements

A demand response contract/arrangement used as a *qualifying contract* must be allocated to the *liable entity*. The demand response must be registered in AEMO's DSPIP. An *opt-in*

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[27] A *qualifying contract* of a *liable entity* is a contract or other arrangement to which the *liable entity* is a party (a) that (i) is directly related to the purchase or sale, or price for the purchase or sale, of electricity from the wholesale exchange during a stated period; and (ii) the *liable entity* entered to manage its exposure in relation to the volatility of the spot price

[28] ~~Rules~~ Clause 4.A.E.1(c)

customer or a *Market Customer* can submit an internal demand response arrangement in the DSPIP.

Reporting a demand response contract/arrangement as a *qualifying contract* and in the DSPIP gives AEMO visibility of the demand response. This will aid AEMO to improve their forecasts and may have an impact on whether AEMO make a *T-1 reliability instrument* request.

A *liable entity* may choose not to report demand response as a *qualifying contract* but may still enter the demand response in the DSPIP. Therefore, not all demand response arrangements entered into the DSPIP are necessarily *qualifying contracts*.

Reporting demand response in the NCP Report

If a *liable entity* chooses to use a demand response contract/arrangement as a *qualifying contract*, the demand response needs to be reported in the *net contract position* in a *liable entity's NCP report*.

Section 9 of this guideline specifies the format of the *NCP report*. Appendix G contains worked examples showing how demand response is accounted for in the *liable entity's* expected maximum demand*.

Where a demand response contract/arrangement is reported as a *qualifying contract*, the contract must be allocated to the relevant NMI/s.[29] The AER requires the *liable entity* to submit, as part of their *NCP report,* a list of the NMI/s corresponding to each demand response *qualifying contract*. Refer to section 9.1.2 of this guideline.

Development of a bespoke methodology

To record a demand response contract/arrangement as a *qualifying contract*, the *liable entity* must develop a *bespoke firmness methodology*. The *bespoke firmness methodology* must be assessed and approved by an *Independent Auditor* in accordance with the criteria in sections 3, 5 and 6 of this guideline. The AER has provided guidance below, to which the *Independent Auditors* must have regard when making an assessment.

Guidance to Auditors

When assessing the *bespoke firmness methodology* for a demand response contract/arrangement, the *Independent Auditor* must take into consideration any factors which limit the ability for the contract to be used during a *one-in-two year peak demand* event during the *forecast reliability gap period*. The *Independent Auditor* must demonstrate how the firmness factor is representative of the principle that the contract/arrangement should support (directly or indirectly) investment that can supply energy that may be dispatched or can reduce demand for energy.[30] The *Independent Auditor* must apply the *firmness principles* outlined in section 3.

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[29] National Metering Identifier

[30] Rule 4A.E.1(b)

The following factors must be taken into consideration:

- Historical performance of the load in response to a curtailment notice from the *liable entity* - evidence that the load has a history of responding to a curtailment notice results in a higher firmness factor.

- Response time of the load to a notice of curtailment - historical data may be used to gauge the response time. If the load has a long response time, the firmness factor of the arrangement is lower than a load with a fast response time.

- Any contract limitation that limits the number of times the load can be curtailed or the maximum duration of a curtailment event - the more restrictive the contract terms, the lower the firmness factor for the contract. For example, a contract for demand response may limit the number of hours that the load can be curtailed per quarter. In this case, the *liable entity* would need to assess the likelihood that demand exceeding the *one-in-two year peak demand forecast* will occur more in the quarter than the contract allows.

- Any price triggers or incentive in the contract terms - for example, a demand response contract/arrangement under which load curtails at the market cap has a very low firmness factor. Conversely, a contract or arrangement under which load curtails at $1,000/MWh has a higher firmness factor.

5.3.9 Spot pass-through contracts/arrangements

This section outlines the AER's guidance for developing a *bespoke firmness methodology* for spot pass through contracts.

Definition

Retailers may enter into contracts or arrangements with their customers where the customer agrees to pay the wholesale spot price for their electricity supply. These are referred to as spot pass through arrangements.

Spot pass through arrangements are considered to be *non-standard qualifying contracts*. Their firmness must be assessed using a *bespoke firmness methodology* approved by an auditor.

Development of a bespoke methodology

Spot pass through contracts move the wholesale spot price risk from a *liable entity* to the participating customer. When firmness adjusting a spot pass through arrangement, the *liable entity* must consider the likelihood the customer will engage in demand response to manage the risk.

The *bespoke firmness methodology* must be assessed and approved by an *Independent Auditor* in accordance with the criteria in sections 3, 5 and 6 of this guideline. The AER has provided guidance below, to which the *Independent Auditors* must have regard when making an assessment.

Guidance to Auditors

When assessing the *bespoke firmness methodology* for a spot pass through contract, the *Independent Auditor* must take into consideration any factors which limit the ability for the contract to be used during a *one-in-two year peak demand* event during the *forecast reliability gap period*. The *Independent Auditor* must demonstrate how the firmness factor is representative of the principle that the contract/arrangement should support (directly or indirectly) investment that can supply energy that may be dispatched or can reduce demand for energy.[31] The *Independent Auditor* must apply the *firmness principles* outlined in section 3.

A spot pass through arrangement may be assigned a firmness factor above zero if the *liable entity* can demonstrate the customer is likely to engage in demand response during all or part of the *forecast reliability gap period*. For spot pass through arrangements, in the absence of other controls and incentives, the customer's exposure to the wholesale market price should encourage the customer to reduce their demand in response to price. Typically a customer operating under a spot pass through arrangement has a price threshold above which they will curtail their consumption.

The spot pass thorough arrangement must meet the following criteria:

- be registered in AEMO's Demand Side Participation Information Portal (DSPIP)[32]

- is allocated to one or more NMIs

- is not contracted with AEMO under the Reliability and Emergency Reserve Trader (RERT) arrangements.

A spot pass through contract, that meets the criteria above must be firmness adjusted using a *bespoke firmness methodology*.

The following factors must be taken into consideration:

- Historical relationship between regional demand and price - evidence of the relationship between demand exceeding the one in two demand and the wholesale market price: a strong relationship between higher demand and high price results in a higher firmness factor.

- Historical performance of the load in response to high spot price outcomes - evidence that the load has a history of curtailing load during periods of high spot price outcome results in a higher firmness factor.

- Response time of the load to price - historical data may be used to gauge the response time. If the load has a long response time, the firmness factor of the arrangement is lower than a load with a fast response time. This would also explore the response of the load to a forecast high price.

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[31]   ClauseRule 4A.E.1(b)

[32]   ClauseRule 4.A.E.1(c)

6 Auditors Panel

The AER must establish and maintain an *Auditors Panel*.[33] The *Auditors Panel* will be comprised of persons who meet certain criteria, most notably experience in valuing, buying, selling or advising on energy derivatives and energy contracts. *Liable entities* may engage these persons as *Independent Auditors*. *Liable entities* must have their *bespoke firmness methodologies* and resulting firmness factors approved by an *Independent Auditor* before they can be included in an *NCP report*.

6.1 Establishment and maintenance of an Auditors Panel

The AER, in establishing and maintaining the *Auditors Panel*, will have regard to:

- the need for a person to have sufficient experience and expertise in energy derivatives and energy contracts to carry out the functions of the *Independent Auditor*;

- the person's knowledge of the RRO and the Interim *Contracts and Firmness Guidelines*

- relevant qualifications and affiliations;

- references citing experience and expertise from industry peers, clients and professional bodies;

- whether the person is an *independent person*.

The AER has ~~will~~ published an Auditor's Handbook ~~on its website~~ relating to the *Auditors Panel,* detailing information on applications, selection, oversight and other governance arrangements.[34] ~~We will conduct an expression of interest process to establish an *Auditors Panel*. We expect the process to be finalised by November 2019.~~

The AER must review the composition of the *Auditors Panel* at least every four years and may, at any time, add or remove an *Independent Auditor* from the *Auditors Panel* at its discretion.[35]

6.2 Independent Auditor approval of bespoke firmness methodologies

If a *liable entity*'s *net contract position* includes *non-standard qualifying contracts*, it must be accompanied by a report from an *Independent Auditor*.[36] The report must state whether the *Independent Auditor* considers the *bespoke firmness methodology* and firmness factor used in relation to the *non-standard qualifying contract* has been developed and applied in accordance with the *firmness principles* and the *firmness methodology* set out in section 3 of this guideline.

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[33] ~~Rule~~ Clause 4A.E.5

[34] AER Auditors Panel Handbook: Retailer Reliability Obligation – August 2024

[35] ~~Rule~~ Clause 4A.E.5(d)

[36] The *Independent Auditor* appointed from the Auditor Panel must an independent person from the *liable entity*.

A *bespoke firmness methodology* and firmness factor approved by an *Independent Auditor* and included by a *liable entity* in its *NCP report* is binding on the AER in the absence of fraud or manifest error.[37]

The AER will conduct spot audits of *bespoke firmness methodologies* and their *firmness factors*. If we form the view that the particular *bespoke firmness methodology* or *firmness factor* included fraud or manifest error, the affected *firmness factors* would not be binding on the AER, and could not be used in the *NCP report*. In circumstances where the manifest error was a simple calculation error, we will ask that the *liable entity* obtain and submit a new report from an *Independent Auditor*. This would be re-audited and, if appropriate, the result would be binding on the AER, and included in the *NCP report*.

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[37]   ~~Rules~~ Clause 4A.E.5(e)

7 Non-qualifying contracts

A contract or arrangement is non-qualifying if it does not meet the requirements of the National Electricity Law and National Electricity Rules. The AER considers *qualifying contracts* are those that have a direct link to the wholesale electricity spot price, and are entered into for the purpose of managing spot price volatility. Contracts or arrangements without a direct link to the spot price, or the purchase or sale of electricity on the spot market, do not meet this criteria and are not *qualifying contracts*.

Nonetheless, *liable entities* must take account of the effect of *non-qualifying contracts* in their *net contract position*. ~~Rule~~ Clause 4A.E.2 (c) requires that *liable entities* make adjustments to their *net contract position* to account for any contracts or other arrangements that would increase the exposure of the *liable entity* to the volatility of the spot price. For example, where a *liable entity* purchases a standard cap from a generator, and separately sells a forward contract that compensates the generator for lost revenue from the cap (without referencing the spot price). The cover provided from the bought standard cap (a *qualifying contract*) would be removed by the sold forward contract (a *non-qualifying contract*). The *liable entity* is required to adjust its *net contract position* to account for this. The Rules do not allow *liable entities* to report *non-qualifying contracts* that have the effect of decreasing exposure to the spot price.

8 Net contract position

A *liable entity* is required to calculate their *net contract position* for each trading interval within the *forecast reliability gap period.* The *net contract position* is the net of all *qualifying contracts* that reduce exposure to the spot price, and all *qualifying contracts* and *non-qualifying contracts* that increase exposure to the spot price. All *qualifying contracts* included in the *net contract position* must be firmness adjusted in accordance with this guideline.

A *liable entity's net contract position* forms the basis of the AER's calculation of their *uncontracted MW position*. This is used in the *PoLR debt reallocation* calculations carried out by AEMO.

Figure 8.1 Net contract position
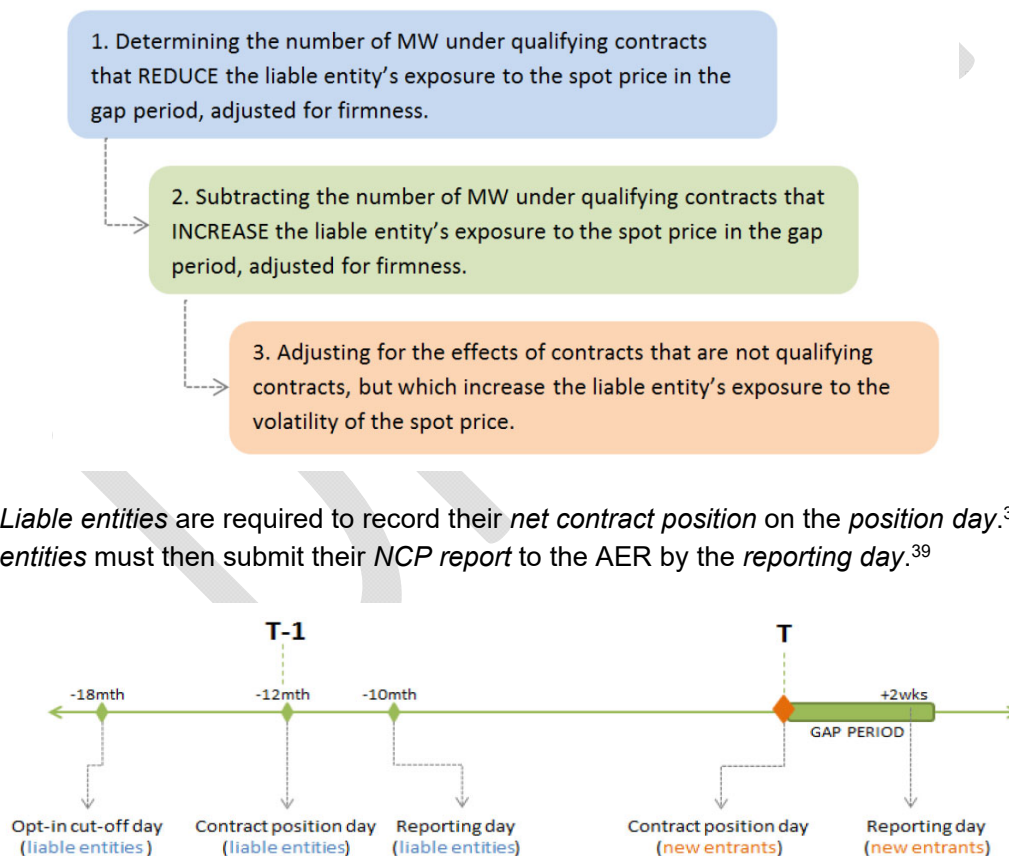
Liable entities are required to record their *net contract position* on the *position day*.[38] *Liable entities* must then submit their *NCP report* to the AER by the *reporting day*.[39]

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[38] *Position day* – The AER must specify a *contract position day* and a *new entrant contract position day* when it makes a *T-1 reliability instrument*. For existing *liable entities*, the *contract position day* must be a day in the period which starts 7 days before the *T-1 cut-off day* and ends on the *T-1 cut off day* (~~Rule~~ Clause 4A.C.10(b)). For *new entrants*, the *new entrant contract position day* must be after the first day of the *forecast reliability gap period*. The *T-1 cut-off day* for a *forecast reliability gap period* is the day that is one year before the day the *forecast reliability gap period* for the forecast reliability gap starts (section 14G(4)).

[39] *Reporting day* – The AER must also set the *reporting day* in a *T-1 reliability instrument* (~~Rule~~ Clause 4A.C.10(d)). The *reporting day* must not be set within 2 months of the *contract position day*, or, for *new entrants*, within 10 business days of the *new entrant contract position day*.

9 Net contract position report

All *liable entities* must submit a *NCP report* to the AER by the *reporting day* for each *forecast reliability gap period*. The *NCP report* demonstrates a *liable entity's net contract position* for the *forecast reliability gap period*, as it was on the *contract position day*. The *NCP report* is required to include the specific information set out in ~~Rule~~ clause 4A.E.6(b). This information and the manner in which it must be submitted are outlined in the sections below.

9.1 NCP report format

A *NCP report* for a *liable entity* must include:

- A written report with all of the information required in section 9.1.1 of this guideline.[40]

- A completed NCP Report Excel Template. See section 9.1.2 of this guideline.[41]

- If any bespoke methodologies have been applied to calculate firmness factors for *non-standard qualifying contracts*, an *Independent Auditors* report/s. See section 9.1.3 of this guideline.[42]

- If any adjustments have been made for *non-qualifying contracts*, a document outlining any adjustments made for *non-qualifying contracts* that increase exposure to spot price volatility. See section 9.1.4 of this guideline.[43]

Each of these documents are described in detail in the following sections of the guideline.

9.1.1 Written Report

The written report must be signed by a Director of the *liable entity* certifying that:

- all information provided is accurate and is not false or misleading in a material particular;

- all information required by Rule 4A.E.6, including any other information specified in the *Interim Contracts and Firmness Guidelines*, has been provided;

- the *NCP report* has been prepared and provided to the AER in accordance with, and in the format required by, the *Interim Contracts and Firmness Guidelines*.

The written report must be prepared using the pro-forma in Appendix A.

9.1.2 NCP Report Excel Template

All *liable entities* must submit a completed NCP Report Excel Template. The NCP Report Excel Template is made up of a number of sheets as summarised below.

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[40] ~~Rule~~ Clauses 4A.E.6(c) and 4A.E.6(b)(8)

[41] A completed NCP Report Excel Template satisfies the requirements of: ~~rules~~ clauses 4A.E.6(b)(1) – 4.A.E.6(b)(6) and 4.A.E.6(b)(9).

[42] ~~Rule~~ Clause 4.A.E.6(b)(6)

[43] ~~Rule~~ Clause 4.A.E.6(b)(7)

Table 9.1 NCP Excel Template

Sheet	Description
NCP Summary	All *liable entities* must complete this sheet. It records *the liable entity's* NCP and expected maximum demand for each trading interval within the *forecast reliability gap period.*
Qualifying Contracts: Contracts by Trading Interval	A *liable entity* must record all *qualifying contracts* that contribute to their NCP in one of these two sheets.
Qualifying Contracts: Grouped Contracts	To ease the reporting burden on *liable entities*, some contracts are eligible to be recorded in the Grouped Contracts sheet (where the firmness factor is the same in all trading intervals). All other *qualifying contracts* must be recorded in the Contracts by Trading Interval sheet.
NMIs assigned to DR contracts	A *liable entity* will need to complete this sheet if they have included any demand response as *qualifying contracts* in their NCP report.

A more detailed description of each of the NCP Report Excel Template sheets is outlined below.

NCP Summary Sheet

All *liable entities* must fill in the NCP Summary sheet. The NCP Summary must provide the following for each trading interval within the *forecast reliability gap period:*

- **NCP:** The *liable entity's net contract position* for each *gap trading interval.* The *net contract position* is a MW value assigned to each trading interval. The NCP will be used by the AER in their calculation of *uncontracted MW position*. Refer to section 8 of this guideline.

- **Expected Maximum Demand:** The expected maximum demand for the *gap trading intervals* (without taking into consideration any demand response *qualifying contracts*). The expected maximum demand is the *liable entity's* likely share of the system *one-in-two year peak demand* during the *forecast reliability gap period*. Appendix G details how to account for a demand response contract/arrangement into expected maximum demand calculations.

Full specifications for the NCP Summary sheet fields is set out in Appendix B.

Example: NCP Summary

Below is a sample NCP Summary sheet. It shows the NCP and expected maximum demand for a *liable entity* for a 1 hour period ~~(5-minute settlement)~~ within the *forecast reliability gap period*.

Table 9.2 NCP Summary example

Trading Interval	NCP (MW)	Expected Maximum Demand (MW)
03/01/23 18.05	242	235
03/01/23 18.10	242	236
03/01/23 18.15	242	238
03/01/23 18.20	242	238
03/01/23 18.25	242	242
03/01/23 18.30	242	242
03/01/23 18.35	245	246
03/01/23 18.40	245	246
03/01/23 18.45	245	245
03/01/23 18.50	245	240
03/01/23 18.55	240	240
03/01/23 19.00	240	240

Qualifying Contracts: Contracts by Trading Interval Sheet

All *qualifying contracts* must be reported in the NCP Report Excel Template. A *liable entity* must record the contract MW value and the firmness factor for each trading interval within *the forecast reliability gap period.*

The Contracts by Trading Interval sheet must be set out in the format shown in Appendix C.

Example: Contracts by Trading Interval

A reliability instrument has been issued in Victoria for January and February 2023 from 16.00 – 20.00. The liable entity has a PPA with a solar farm with a registered capacity of 18 MW. Below is an excerpt of the liable entity's NCP Report Excel Template *showing how this contact is recorded for 1 hour (5-minute settlement) from 17.30 – 18.30 on 3rd January 2023.*

Table 9.3 Contracts by trading interval example

Contract ID	Contract Category	Trading Interval	Unadjusted Contract Volume (MW)	Firmness Factor	Adjusted Contract Volume (MW)	Methodology
0002A	PPA	03/01/23 17.35	18	0.86	15.48	001PPA
0002A	PPA	03/01/23 17.40	18	0.855	15.39	001PPA
0002A	PPA	03/01/23 17.45	18	0.84	15.12	001PPA
0002A	PPA	03/01/23 17.50	18	0.82	14.76	001PPA
0002A	PPA	03/01/23 17.55	18	0.81	14.58	001PPA
0002A	PPA	03/01/23 18.00	18	0.795	14.31	001PPA
0002A	PPA	03/01/23 18.05	18	0.785	14.13	001PPA
0002A	PPA	03/01/23 18.10	18	0.77	13.86	001PPA
0002A	PPA	03/01/23 18.15	18	0.76	13.68	001PPA
0002A	PPA	03/01/23 18.20	18	0.745	13.41	001PPA
0002A	PPA	03/01/23 18.25	18	0.72	12.96	001PPA
0002A	PPA	03/01/23 18.30	18	0.7	12.6	001PPA

** The firmness factors have been chosen to illustrate how a contract with varying firmness factors must be reported and is not reflective of any analysis of the firmness factors likely to be assigned to a solar PPA.

Qualifying Contracts: Grouped Contracts Sheet

To ease the reporting burden on a *liable entity*, some contracts may be recorded in the Grouped Contracts Sheet instead of the Contracts by Trading Interval Sheet. A contract is eligible to be recorded in this way if it has the same firmness factor for every trading interval within the *forecast reliability gap period*. A contract that only covers part of the *forecast reliability gap period* may be recorded in this manner if it has the same firmness factor for all periods covered by the contract. The *liable entity* may group these contracts and report them as a single entry instead of reporting them for each trading interval.

An example of a contract that would qualify to be reported in this manner is a baseload swap. The swap will have the same firmness factor for each trading interval within the contract period.

Full specifications for the Grouped Contracts sheet is set out in Appendix D.

Example: Grouped Contracts (Example A)

A reliability instrument has been issued in Victoria for January and February 2023 from 16.00 – 20.00. A liable entity has purchased a Q1 baseload swap from the ASX for 5 MW. The swap is reported in the Grouped Contracts sheet of the NCP Report Excel Template *as follows:*

Table 9.4 Grouped Contracts – example A

Contract ID	Contract Category	Start Date	End Date	Number of Contracts	Unadjusted Contract Volume (MW)	Firmness Factor	Adjusted Contract Volume (MW)	Methodology
0001A	BVH2023	01/01/23 00.05	01/03/23 00.00	1	5	1	5	DEFAULT

Example: Grouped Contracts (Example B)

A reliability instrument has been issued in Victoria for January and February 2023 from 16.00 – 20.00. A liable entity has purchased a January monthly baseload swap from the ASX for 10 MW. The baseload swap only covers a portion of the forecast reliability gap period (January only) but can still be recorded in the Grouped Contracts sheet. The swap is reported in the Grouped Contracts sheet of the NCP Report Excel Template *as follows:*

Table 9.5 Grouped Contracts – example B

Contract ID	Contract Category	Start Date	End Date	Number of Contracts	Unadjusted Contract Volume (MW)	Firmness Factor	Adjusted Contract Volume (MW)	Methodology
0001A	EVH2023	01/01/23 00.05	01/02/23 00.00	1	10	1	10	DEFAULT

A *liable entity* may buy and sell a number of identical exchange traded contracts. These may be grouped and recorded as one entry. All identical bought contracts must be summed and recorded as one entry and the identical sold contracts recorded as a second entry.

Example: Grouped Contracts (Example C)

A reliability instrument has been issued in Victoria for January and February 2023 from 16.00 – 20.00. The liable entity has purchased 20 MW of Q1 baseload swap from the ASX in 20 transactions of 1 MW. The liable entity has also sold 12 MW of Q1 baseload swap from the ASX in 12 transactions of 1 MW. The swaps are reported in the Grouped Contracts sheet of the NCP Report Excel Template *as follows:*

Table 9.6 Grouped Contracts – example C

Contract ID	Contract Category	Start Date	End Date	Number of Contracts	Unadjusted Contract Volume (MW)	Firmness Factor	Adjusted Contract Volume (MW)	Methodology
0001B	BVH2023	1/1/2023 0.05	1/3/2023 0.00	20	20	1	20	DEFAULT
0002B	BVH2023	1/1/2023 0.05	1/3/2023 0.00	12	-12	1	-12	DEFAULT

NMIs assigned to each DR contract.

The AER requires a *liable entity* submit a list of all NMIs associated with each demand response contract/arrangement included in their *NCP report* as a *qualifying contract*. A demand response *qualifying contract* may be associated with one or a number of NMIs. All

NMIs must be listed against the corresponding Contract ID (the Contract ID that is assigned to the demand response *qualifying contract* in the NCP Report Excel Template).

The NMIs assigned to each DR contract must be set out in the format shown in Appendix E.

Example: NMIs assigned to DR contracts

A reliability instrument has been issued in Victoria for January and February 2023 from 16.00 – 20.00. The liable entity has 2 demand response contracts. These contracts have been recorded in the Contracts by Trading Interval sheet. Contract 1000A is associated with one NMI while Contract 2000A is associated with 4 NMIs. Below illustrates how their NMIs are recorded:

Table 9.7 NMIs assigned to DR contracts

Contract ID	NMI
1000A	6306278394
1000B	6203987326
1000B	6408845326
1000B	6509008924
1000B	6509009519

9.1.3 Independent Auditor reports

Each *bespoke firmness methodology* must be approved by an *Independent Auditor.* The *Independent Auditor* must certify that the methodology has been developed and applied in accordance with the *Interim Contracts and Firmness Guidelines.* The *Independent Auditor* must provide the *liable entity* with an Auditor's Report for each *non- standard qualifying contract* included in the *liable entity's NCP report.* If the same *bespoke firmness methodology* is applied to a number of contracts, the *Independent Auditor* may provide one *Auditors Report* for all contracts with that *bespoke firmness methodology*.

The Auditors report should be submitted in a PDF format.

The *Independent Auditors* Report must comprise:

- The Auditor's name and business (where applicable)

- The *liable entity's* name.

- A statement confirming that the *Independent Auditor* is a member of the *Auditor Panel*.

- The gap period for which the Auditor Report applies.

- A statement confirming that the *bespoke firmness methodology* has been developed and applied in accordance with the *Interim Contracts and Firmness Guidelines*

- A statement confirming that the firmness factor/s have been correctly calculated using the *bespoke firmness methodology*.

- The methodology ID assigned to the *bespoke firmness methodology* covered by the Auditors report. The Methodology ID is a unique identifier given to each *bespoke*

firmness methodology by the *liable entity*. Refer to Appendix C and Appendix D for ID specifications.

- The contract ID for each contract assessed by the *Independent Auditor* using the specified *bespoke firmness methodology*. The Contract ID is a unique identifier given to each *qualifying contract* by the *liable entity.* Refer to Appendix C and Appendix D for ID specifications.

- The firmness factor associated with each contract ID.

- A date and signature from the Auditor

- A short summary of the *bespoke firmness methodology*/s. The summary should outline the methodology used and the inputs. Full calculations are not required to be submitted with the *NCP report*, but the *liable entity* must document these calculations should the AER request more information during a spot audit of the *NCP report*.

9.1.4 Adjustments for non-qualifying contracts

If a *liable entity* has entered into any *non-qualifying contracts* that increase its exposure to spot price volatility during the *forecast reliability gap period,* the *liable entity* must adjust *its net contract position* to account for these contracts and must provide the AER a document outlining these adjustments.

This document must include, for each type of *non-qualifying contract* for which *the liable entity's net contract position* has been adjusted:

- a brief description of the non-*qualifying contract*,

- a brief description of how the *net contract position* has been adjusted to account for the contract,

- if a firmness factor has been calculated for the contract, the firmness factor and a brief description of the methodology used to calculate it

This document should be provided to the AER in PDF format.

9.2 Submission of net contract report to the AER

The *NCP report* must be submitted to the Australian Energy Regulator at RRO@aer.gov.au, with the subject heading "Net Contract Position Report [gap period]" or as advised in writing by the AER. The *NCP report* must be submitted by COB on the *reporting day*.

9.3 Adjustments to net contract position

A *liable entity*'s *net contract position,* which reflects its *contract position* for the *forecast reliability gap period* as at the *contract position day,* is locked in at *reporting day*. There are five categories of permitted adjustments to the *net contract position*. If such a change occurs between T-1 and T, a *liable entity* may apply to the AER for an adjustment. The *liable entity* must submit an updated *NCP report* for the *region* in which the change occurs. The *liable entity* must submit their entire *NCP report* again, and not just an updated subsection.

The Rules[44] specify that permitted adjustments to the *NCP report* can occur if, after the *contract position day*, any of these 5 conditions are met.

(1) the number of *connection points* for *small customers* in the *region* for which the *liable entity* is *financially responsible* changes such that the *liable entity's* expected maximum demand reported in its *NCP report* will increase by more than 10 per cent;

(2) the number of *connection points* for *large customers* (who are below the *opt-in customer threshold*) in the *region* for which the *liable entity* is *financially responsible* changes such that the *liable entity's* expected maximum demand reported in its *NCP report* will increase by more than 1 per cent;

(3) the *liable entity* becomes *financially responsible* for a new *connection point* established after the *position day* where the *large customer* at that *connection point* is at or above the *opt-in customer threshold* such that the *liable entity's* expected maximum demand reported in its *NCP report* will increase by more than 1 per cent;

(4) a *liable entity* is transferred *retail customers* in the *region* in its capacity as a *RoLR*; or

(5) if the *liable entity* is an *opt-in customer*, that *liable entity's* expected maximum demand reported in its *NCP report* will increase by more than 1 per cent.

A *liable entity* may only seek permitted adjustments to the *net contract position* to the extent necessary to accommodate the increase in load. When determining whether a relevant percentage has been reached small customers shall be counted together in one group, large customers shall be counted together in another group and ROLR customers shall be counted in a third group. It is possible for a *liable entity* to reach the relevant percentage for a group of customers on multiple occasions between T-1 and T, and each time the *liable entity* may apply to the AER to adjust its *net contract position*.

9.3.1 Small Customers

The increase in small customer load must result in the expected maximum demand of that *liable entity* increasing by at least 10 per cent to qualify for an adjustment to the *NCP report*. The onus is on the *liable entity* to demonstrate to the AER that its forecast retail load has increased its total demand by at least 10 per cent since *contract position day*.

9.3.2 Large Customers

The increase in large customer load must result in the expected maximum demand for the *liable entity* increasing by at least 1 per cent to qualify for an adjustment to the *NCP report*. A large customer may be counted for an adjustment to *net contract position* if the customer meets the definition of large customer under the National Electricity Rules[45] and is below the *opt-in customer threshold* defined in the Rules at 4A.D.6.

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44   Rule Clause 4A.E.7(b)

45   The National Electricity Rules define a large customer as a large customer based on the meaning given in the National Energy Retail Law (NERL) in the jurisdictions in which the NERL applies, and the meaning given in the relevant jurisdictional electricity legislation in jurisdictions in which the NERL does not apply.

The definition of large customer taken from the Rules is a business customer who consumes energy at business premises at or above the upper consumption threshold. The upper consumption thresholds are currently 100 MWh in all *regions* except South Australia where the threshold is 160 MWh. The *opt-in customer threshold* defined in the Rules is the aggregate consumption of electricity at all connection points in the *region* exceeds or is expected to exceed 50 GWh per annum.

The *liable entity* may group together large customers and assess the total change in load against the expected maximum demand to assess if they meet the 1% threshold. The onus is on the *liable entity* to demonstrate to the AER that its forecast large customer load has increased its total demand by at least 1 per cent since *contract position day*.

9.3.3 Retailer of Last Resort (RoLR) Customers

If a *liable entity* is transferred retail customers in the *region* of the gap in its capacity as RoLR, the *liable entity* can increase their expected maximum demand and *net contract position* by the load of the RoLR customers. There is no threshold to meet in this clause so any increase in load as the result in gaining customers through RoLR is classed as a permitted adjustment.

9.3.4 Opt-in Customers

The increase in demand for an *opt-in customer* must result in the expected maximum demand of that *liable entity* increasing by at least 1 per cent to qualify for an adjustment to the *NCP report*. The onus is on the *liable entity* to demonstrate to the AER that its expected maximum demand has increased by at least 1 per cent since the r*eporting day*.

9.3.5 Application to AER to adjust net contract position

A *liable entity* may apply to the AER to adjust its *net contract position* if it can satisfy the adjustment conditions in section 9.3 of the guideline above. The application for adjustment must include:

(1) The *liable entity*'s revised *NCP report*, including the adjusted *net contract position*. The *NCP report* must be in the format specified in section 9 of this guideline. The entire *NCP report* must be submitted not just the amended portion.

(2) Information justifying the basis of the adjustment to the *net contract position*. *Liable entities* must provide documentation supporting the increase in demand forecast has satisfied the conditions in section 9.3 of this guideline.

The application must be submitted to the Australian Energy Regulator at RRO@aer.gov.au, with the subject heading "Adjustment to Net Contract Position Report [gap period]" or as advised in writing by the AER. The adjusted *NCP report* must be submitted prior to the first day of the *forecast reliability gap period* or an alternative date as provided by the AER.

9.3.6 Approval process for Applications to adjust net contract position

The AER will approve or reject an application to adjust *net contract position* based on the threshold criteria set out in section 9.3 of this guideline. The onus is on the *liable entity* to provide sufficient supporting information to satisfy the AER that their demand increase has reached the specified thresholds. The AER has access to weekly NMI data which it may use to verify the application has met the thresholds.

If the AER approves the application, the adjusted *net contract position* is taken to be the *liable entity*'s *net contract position* as at the date of the AER's notification of its approval. The AER will notify the *liable entity* in writing that their application has been approved. The AER will endeavour to provide written approval within 30 business days of the submission.

If the AER rejects an application to adjust the *net contract position*, it will provide written reason to the applicant for its rejection. The AER will endeavour to provide a written reason within 30 business days of submission. The AER may approve an alternative adjustment to the *liable entity*'s *net contract position* which the AER considers is consistent with the criteria specified in section 9.3 of this guideline.

10 New entrant

The ~~Rules~~ clause 4A.D.3 states that a *new entrant* for a *region* is a person who meets the following 3 criteria:

- The person is a *Market Customer* or *Integrated Resource Provider* that is *financially responsible* for a connection point in that *region* at the end of the *new entrant contract position day*

- The person was not a *liable entity* for that *region* at the end of the *contract position day*

- the aggregate consumption of electricity of all connection points in that *region* for which the person ~~it~~ is *financially responsible* at the end of the *new entrant contract position day* (excluding any ~~small resource~~ *exempt market* connection points) exceeds, or is expected to exceed, 10 GWh per annum
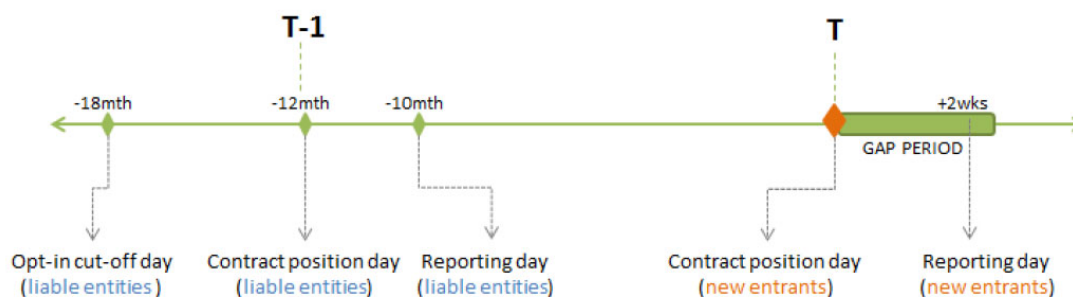
On the *new entrant contract position day*, *new entrants* must have a *net contract position* for the *forecast reliability gap period* that is sufficient to cover their RRO obligation. *New entrants* must report their *net contract position*, as at the *new entrant contract position day*, to the AER on the *new entrant reporting day*. Refer to section 9 of this guideline which outlines the format the *NCP report* must take.

The rules define the *new entrant contract position day* as the first day of a *forecast reliability gap period*, unless an alternative date is stated in a *T-1 reliability instrument*. *New entrant reporting day* is the day stated in the *reliability instrument*, and must not fall within 10 business days of the *new entrant contract position day.*

The AER provides the following guidance in relation to identifying new entrants. Any *Market Customer* or *Integrated Resource Provider* could be *liable entity* under the RRO if they are financially responsible for a *connection point* at the end of the *new entrant contract position day* and their net aggregated consumption exceeds the 10 GWh per annum threshold (excluding consumption from *exempt market connection points*). This is irrespective of when they first became a *Market Customer* or *Integrated Resource Provider* (including when this occurs between the *contract position day* and the *new entrant contract position day*).

10.1 New entrant threshold

To be liable under the RRO as a *new entrant*, a *new entrant's* aggregate consumption of electricity at all connection points in the *region* to which the RRO pertains for which it is *financially* responsible must be expected to exceed 10 GWh per annum for its first year as a Market Customer or Integrated Resource Provider. For the avoidance of doubt, the aggregate consumption of electricity will be the sum of all pool purchased electricity supplied to the *new entrant* at connection points (excluding any ~~small resource~~*exempt market connection points*) in the relevant NEM *region*, over a 12 month period.[46]

This threshold is intended to ensure that any large Market Customers, of sufficient size to manage their liability, are liable under the RRO, while protecting smaller Market Customers from the associated risk.

~~By definition, a~~A *new entrant* ~~is unlikely~~ may not ~~to~~ be able to demonstrate 12 months of historic data as evidence of its annual consumption. As a result, a *new entrant* is required to provide an anticipated annual consumption volume and justification for this anticipated volume. We expect this justification will likely take the form of evidence of consumption since establishing (for example, relating to the weeks or months the *new entrant* has been operating as a Market Customer in the *region*), in addition to evidence of likely growth. This may take the form of contracts with load or for supply that indicate expected consumption, contracts or development approvals indicating load growth, or other evidence. The AER will assess the anticipated consumption and justification on a case-by-case basis.

The AER provides the following guidance in relation to the *new entrant* threshold. Entities can become *new entrants* after the *contract position day* up until the *new entrant contract position day*. If an entity's annual consumption was less than 10GWh as at the end of the *contract position day* but exceeds 10 GWh as at the *new entrant contract position day* (excluding consumption from *exemption market connection points*) then it could be considered a *new entrant* and therefore liable under the RRO. This may happen if, for example, between the *contract position day* and the *new entrant contract position day,* there is an increase in the entity's load or the number of *connection points* for which the entity is financially responsible, or a *connection point* is no longer considered an *exempt market connection point* due to a change in circumstances (and therefore must be included when calculating the 10 GWh threshold).

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[46]   Refer to section 2.1 of these guidelines for further guidance on *exempt market connection points.*

11 Notification of compliance trading intervals

~~Rule~~ Clause 4A.F.4 states that AEMO must provide written notice to the AER stating whether or not there were any *compliance trading intervals*, and if so which *gap trading intervals* are a compliance trading interval. AEMO must provide this written notice to the AER within 15 business days of the end of the *forecast reliability gap period*. AEMO must publish a notice on its website within 5 business days of submitting it to the AER.

When providing this information AEMO must specify the following:

- The *reliability instrument* to which the *compliance trading intervals* relate

- The date and time of each compliance trading interval

- *Actual demand* and *one-in-two year peak demand forecast* for each compliance trading interval

AEMO must provide this information electronically to the AER at RRO@aer.gov.au, with the subject heading "Notification of compliance trading intervals [gap period]" or as advised in writing by the AER.

12 AEMO compliance report

~~Rule~~ Clause 4A.F.4 states that if AEMO has provided notice of *compliance trading intervals* to the AER under ~~rule~~ clause 4A.F.5 (see section 11), within 40 weeks after the end of the *forecast reliability gap period* AEMO must provide the AER each *liable entity's* share for each compliance trading interval.

For each compliance trading interval AEMO must provide the following information to the AER:

- The *reliability instrument* to which the *compliance trading intervals* relate

- The date and time of each compliance trading interval

- *Liable entity's* details (registered name, participant ID, ABN)

- *The liable entity's liable share* in each compliance trading interval

- Any adjustment that have been made to the *liable share* (for example a demand response contract that has been added back).

AEMO must provide this information electronically to the AER at RRO@aer.gov.au, with the subject heading "Compliance Report [gap period]" or as advised in writing by the AER.

APPENDIX A Written Report

From: [Name]

          [Title]

          [Liable Entity]

To: Australian Energy Regulator

          GPO Box 520

          Melbourne VIC 3001

Net Contract Position Report – Report for Gap Period [gap period]

This report documents the net contract position of [liable entity] prepared for forecast reliability gap period [gap period].

This report and all attachments have been prepared by [liable entity] with all due care and skill in accordance with the AER Interim Contracts and Firmness Guidelines.

All information provided is accurate and is not false or misleading in a material particular. All information required by rule 4A.E.6 of the National Electricity Rules, including any other information specified in the Interim Contracts and Firmness Guidelines, has been provided. The *NCP report* has been prepared and provided to the AER in accordance with, and in the format required by, the Interim Contracts and Firmness Guidelines.

Date:

Signed:

……………………………………………

Print Name:

……………………………………………

Director

Attachments:

[NCP Report Excel Template]

APPENDIX B TEMPLATE: NCP Summary

Column Name	Data Type/Allowed values	Description
Trading interval	Date data type Format: dd/mm/yy hh:mm The trading interval is period ending.	One row for each trading interval within the gap must be reported. At the time of writing the guideline the trading interval is the 30-minute period ending in the time given. Once the NEM transitions to 5-minute settlement, the trading interval is a 5 minute period ending in the time given.
NCP (MW)	Numeric data type	The *liable entity's net contract position* for each *gap trading interval*. The *net contract position* is a MW value assigned to each trading interval within the *forecast reliability gap period*. Refer to section 8 of the guideline
Expected Maximum Demand (MW)	Numeric data type	The expected maximum demand for the *gap trading intervals* (without taking into consideration any demand response *qualifying contracts*). The expected maximum demand is the *liable entity's* likely share of the system *one-in-two year peak demand* during the *forecast reliability gap period*.

APPENDIX C TEMPLATE: Contracts by Trading Interval

Column Name	Data Type/ Allowed values	Description
Contract ID	String data type	Each *liable entity* must assign a contract ID to each contract. The contract ID must be a combination of numbers or letters only with a maximum length of 8 characters. No special characters. A unique Contract ID must be used for each contract.
Contract Category Code	String data type	Each contract must be assigned a contract category code. The contract category code must be chosen from the comprehensive list in Appendix F.
Trading Interval	Date and time data type Format: DD/MM/YYYY HH24:MM:SS	The trading interval is period ending. A row for each trading interval within the gap must be reported. At the time of writing the guideline the trading interval is the 30-minute period ending in the time given. Once the NEM transitions to 5-minute settlement, the trading interval is a 5 minute period ending in the time given.
Unadjusted Contract Volume (MW)	Numeric data type	If the contract increases a *liable entity's net contract position* (for example a bought swap), the number is a positive number. If the contact reduces a *liable entity's net contract position* (for example a sold swap), the number is a negative number. For example, a bought 10 MW swap is recorded as 10 while a sold 10 MW swap is recorded as -10.
Firmness Factor	Numeric data type 0<= Firmness Factor <=1	
Adjusted Contract Volume (MW)	Numeric data type	Adjusted MW = Unadjusted MW x Firmness Factor If the contract increases a *liable entity's net contract position* (for example a bought swap), the number is a positive number.

Column Name	Data Type/ Allowed values	Description
		If the contact reduces a *liable entity's net contract position* (for example a sold swap), the number is a negative number.
Methodology ID	String data type	If the contract is a *standard qualifying contract*, the Methodology ID is 'DEFAULT'.
		If the contract is a *non-standard qualifying contract*, the *liable entity* must assign a methodology ID to each *bespoke firmness methodology*. The methodology ID must correspond to the methodology ID listed in the corresponding Auditors Report.
		The methodology ID must be a combination of numbers or letters only with a maximum length of 8 characters. No special characters are to be included.

APPENDIX D TEMPLATE: Grouped Contracts

Column Name	Data Type/Allowed values	Description
Contract ID	String data type	Each *liable entity* must assign a contract ID to each contract. The contract ID must be a combination of numbers or letters only with a maximum length of 8 characters. No special characters are to be included. A unique Contract ID must be used for each contract or group of contracts.
Contract Category code	String data type	Each contract must be assigned a contract category ID. The contract category code must be chosen from the comprehensive list in Appendix F.
Start Date	Date and time data type Format: DD/MM/YYYY HH24:MM:SS	The start date is the latter of the *forecast reliability gap period* start date and the contract period start date. The trading interval is period ending.
End Date	Date and time data type Format: DD/MM/YYYY HH24:MM:SS	The end date is the last trading interval of the *forecast reliability gap period* or contract period (whichever comes first). The trading interval is period ending.
No of Contracts	Integer data type	Where the *liable entity* has aggregated more than one contract, the number of contracts must be recorded.
Unadjusted Contract Volume (MW)	Numeric data type	If the contract increases a *liable entity's net contract position* (for example a bought swap), the number is a positive number. If the contact reduces a *liable entity's net contract position* (for example a sold swap), the number is a negative number.

Column Name	Data Type/Allowed values	Description
		For example, a bought 10 MW swap is recorded as 10 while a sold 10 MW swap is recorded as -10.
Firmness Factor	Numeric data type 0<= Firmness Factor <=1	
Adjusted Contract Volume (MW)	Numeric data type	Adjusted MW = Unadjusted MW x Firmness Factor If the contract increases a *liable entity's net contract position* (for example a bought swap), the number is a positive number. If the contact reduces a *liable entity's net contract position* (for example a sold swap), the number is a negative number.
Methodology ID	String data type	If the contract is a *standard qualifying contract*, the Methodology ID is 'DEFAULT'. If the contract is a *non-standard qualifying contract*, the *liable entity* must assign a methodology ID to each *bespoke firmness methodology*. The methodology ID must correspond to the methodology ID listed in the Auditors Report. The methodology ID must be a combination of numbers or letters only with a maximum length of 8 characters. No special characters are to be included.

APPENDIX E TEMPLATE: NMIs assigned to each demand response qualifying contract

Column Name	Data Type/Allowed values	Description
Contract ID	String data type	Each *liable entity* must assign a contract ID to each contract. The contract ID must be a combination of numbers or letters only with a maximum length of 8 characters. No special characters are to be included. The Contract ID must match the Contract ID that was given to the demand response *qualifying contract* in the NCP Report Excel Template (Grouped Contracts or Contracts by Trading Interval sheets).
NMI	NMI data format Ten alphanumeric digits. Do not include data-stream suffix or check digit.	

APPENDIX F Contract Category

Contract	Contract Category Code	Description
Exchange Traded Derivatives (Swaps/Caps/Options)	ASX product Codes or other exchange product code	*Liable entities* must use the exchange product codes as the contract category. Below are examples showing of ASX product codes. • BQH2023 – (Baseload Swap, Queensland, Q1, 2023) • GNM2024 – (Cap, New South Wales, Q2, 2024) • HNM18500C (Asian Option, New South Wales, $185 Strike Price, Call)
OTC swaps/non exchange traded swaps	SWAP	Refer to section 4.1.1
OTC caps/non exchange traded	CAP	Refer to section 4.1.2
OTC options/non exchange traded options	OPTION	Refer to section 5.3.1
Load Following – Bought	LFBUY	Refer to sections 4.1.3 and 5.3.7
Load Following - Sold	LFSOLD	Refer to section 5.3.7
Grandfathered Contract	GRANDF	Refer to section 4.1.4
PPA	PPA	Refer to section 5.3.2

Contract	Contract Category Code	Description
Internal Hedge	INTERNAL	Refer to section 5.3.4
Interregional Contract	INTERREG	Refer to section 5.3.3
Demand Response	DEMRESP	Refer to section 5.3.8
Inter-entity Hedge	INENTITY	Refer to section 5.3.5
Spot Pass Through Contract	SPOTPASS	Refer to section 5.3.9
All other non-standard qualifying contracts	NONSTAND	All other contracts that don't fall into any of the above contract categories

APPENDIX G Forecast load worked examples

Below are 2 examples showing how to record the expected maximum demand in the *NCP report* when the *liable entity* has a demand response contract/arrangement.

Example 1: Where the *liable entity* has a demand response arrangement/contract that it has recorded as a qualifying contract.

Liable Entity A has the following forecast load profile (before any demand response).

Trading Interval	Forecast Load (MW)
16.30	200
17.00	200
17.30	200
18.00	200
18.30	200
19.00	200

They have a demand response contract that is recorded as a *qualifying contract*. The demand response contract is capable of delivering 10MW of demand response for a 2-hour period. The *liable entity* has allocated a firmness factor to the contract of 1 from 16.30 to 18.30 and 0 for all other trading intervals.

Trading Interval	Demand Response(MW)
16.30	0
17.00	10
17.30	10
18.00	10
18.30	10
19.00	0

The *liable entity* therefore expects that their actual load during this 2-hour period will be 190 MW. When recording the expected maximum demand for their *NCP report*, the *liable entity* will not take into account the 10 MW of expected demand response. This is because this is already accounted for in their *NCP report* with an additional 10 MW added to their NCP.

Trading Interval	NCP
16.30	200
17.00	200
17.30	200
18.00	200
18.30	200
19.00	200

Example 2: Where the *liable entity* has a demand response contract/arrangement that it plans to use to reduce its actual load but has not registered it as a qualifying contract.

Liable Entity A has the following forecast load profile (before any demand response).

Trading Interval	Forecast Load (MW)
16.30	200
17.00	200
17.30	200
18.00	200
18.30	200
19.00	200

They have a demand response contract capable of delivering 10 MW of demand response for a 2-hour period. The *liable entity* expects to use this demand response contract to reduce their actual load from 16.30 to 18.30.

Trading Interval	Expected Demand Response(MW)
16.30	0
17.00	10
17.30	10
18.00	10
18.30	10
19.00	0

The *liable entity* therefore expects that their actual load during this 2-hour period will be 190 MW. When recording the expected maximum demand for their *NCP report*, the *liable entity* will subtract the 10 MW of expected demand response to correctly reflect their expected load on the day.

Trading Interval	NCP
16.30	200
17.00	190
17.30	190
18.00	190
18.30	190
19.00	200

APPENDIX H Demand response worked examples

Below are two worked examples showing how a *liable entity's uncontracted MW position* is calculated if the *liable entity* has used demand response. The *uncontracted MW position* is used in the *PoLR debt*[47] calculations.

The only difference between the two examples is that in example 1, the *liable entity* has recorded their demand response arrangement as a *qualifying contract*. In example 2, the *liable entity* is relying on the demand response to reduce their demand and has not recorded the demand response arrangement as a *qualifying contract*.

Assumptions made in both examples:

- A *reliability instrument* has been issued in Victoria for January and February weekdays between 16.00 and 20.00.

- AEMO's one-in-two year peak demand forecast is 9,300 MW

- The forecast peak demand of 9,300 MW was exceeded on only 1 day during the *forecast reliability gap period*. This occurred on 17 January. The forecast peak demand was exceeded in 4 trading intervals (17.00, 17.30, 18.00, 18.30)

- 17 January was the only day in which the *actual demand* met or exceeded the *one-in-two year peak demand forecast*.

- The *liable entity* has purchased a 20 MW swap for the entire *forecast reliability gap period*.

- The *liable entity* has a demand response arrangement that provides 10MW of demand response for a three hour period. The *liable entity* expects to use the demand response arrangement from 17.00 – 20.00.

- The *liable entity's* expected maximum demand for the 17 January (before any demand response occurs) is.

16.30	17.00	17.30	18.00	18.30	19.00	19.30	20.00
18.5 MW	19.5 MW	22 MW	27 MW	29 MW	28 MW	26 MW	24.5 MW

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47   ~~Rule~~ Clause 3.15.9A(f)

Example 1 – Demand Response used as a qualifying contract

The *liable entity* has 2 *qualifying contracts* with the following specifications:

- Baseload Q1 Swap. 20 MW. Bought. Firmness factor 1 for all trading intervals.

- Demand response arrangement. 10 MW. Available for a 3-hour period every day. Firmness factor of one assigned for three hours 17.00 – 20.00 every day within the *forecast reliability gap period*. Firmness factor is 0 outside of these 3 hours. The *bespoke firmness methodology* to determine the firmness factors have been approved by an Auditor.

Below is a snapshot of part of the *NCP report* for the *liable entity* for 17 January.

Contract ID	Contract Category	Trading Interval	Unadjusted Contract Volume (MW)	Firmness Factor	Adjusted Contract Volume (MW)
9001A	Swap	17/01/2023 16.30	20	1	20
9001A	Swap	17/01/2023 17.00	20	1	20
9001A	Swap	17/01/2023 17.30	20	1	20
9001A	Swap	17/01/2023 18.00	20	1	20
9001A	Swap	17/01/2023 18.30	20	1	20
9001A	Swap	17/01/2023 19.00	20	1	20
9001A	Swap	17/01/2023 19.30	20	1	20
9001A	Swap	17/01/2023 20.00	20	1	20
9002A	Demand Response	17/01/2023 16.30	10	0	0
9002A	Demand Response	17/01/2023 17.00	10	0	0
9002A	Demand Response	17/01/2023 17.30	10	1	10
9002A	Demand Response	17/01/2023 18.00	10	1	10
9002A	Demand Response	17/01/2023 18.30	10	1	10
9002A	Demand Response	17/01/2023 19.00	10	1	10
9002A	Demand Response	17/01/2023 19.30	10	1	10
9002A	Demand Response	17/01/2023 20.00	10	1	10

The *liable entity* combines the firmness adjusted contract volume MWs in the above table, to give them their NCP for each trading interval. The *liable entity* also submits their expected maximum demand for each trading interval. Because the demand response arrangement is

recorded as a *qualifying contract*, the *liable entity* has not adjusted their forecast to account for any demand response. The *liable entity's* NCP Summary (part of their *NCP report*) is shown below.

Trading Interval	NCP	Expected Maximum Demand
17/01/2023 16.30	20	18.5
17/01/2023 17.00	20	19.5
17/01/2023 17.30	30	22.0
17/01/2023 18.00	30	27.0
17/01/2023 18.30	30	29.0
17/01/2023 19.00	30	28.0
17/01/2023 19.30	30	26.0
17/01/2023 20.00	30	24.5

Actual demand on 17 January exceeded the *one-in-two year peak demand forecast* in 4 trading intervals. They are highlighted in bold in the table below.

Trading Interval	1-in-2 year peak demand forecast	Actual Demand
17/01/2023 16.30	9,300	9,130
17/01/2023 17.00	**9,300**	**9,390**
17/01/2023 17.30	**9,300**	**9,410**
17/01/2023 18.00	**9,300**	**9,580**
17/01/2023 18.30	**9,300**	**9,420**
17/01/2023 19.00	9,300	9,110
17/01/2023 19.30	9,300	8,960
17/01/2023 20.00	9,300	8,760

Calculation of the *liable entity's liable share* for each *PoLR TI*:

- AEMO calculate the *liable entity's* actual load (Column 1 below).

- AEMO calculate the *liable entity's* demand response (Column 2 below) [48]. In this example, the demand response in trading intervals 18.00 and 18.30 was less than the expected 10 MW.

- AEMO calculate the *liable entity's liable load* – the demand after adding back the demand response (Column 3).

- AEMO scale the *liable entity's liable load* to their share of the *one-in-two year peak demand forecast*. [49] This is the *liable entity's liable share* (Column 4). [50]

Trading Interval	Demand	Demand response	Liable Load (total demand after adding back DR)	Liable Share (after scaling to 1-in-2 year peak demand by AEMO)
17/01/2023 17.00	10.5	10	20.5	19.901
17/01/2023 17.30	13.6	10	23.6	22.910
17/01/2023 18.00	21.8	9.0	30.8	29.900
17/01/2023 18.30	23.5	8.5	32	31.065

AER will be given by AEMO the *liable entity's liable share* (the last column in the table above). The AER will compare this number to the NCP reported by the *liable entity* in their *NCP report* for all trading intervals where the *actual demand* exceeded the *one-in-two year peak demand forecast*. If the *liable share* is greater than the NCP, the *liable entity* has an *uncontracted MW position*.

Trading Interval	Liable Share (after scaling by AEMO)	NCP	Uncontracted MW position
17/01/2023 17.00	19.901	20	0
17/01/2023 17.30	22.910	30	0
17/01/2023 18.00	29.900	30	0
17/01/2023 18.30	31.065	30	1.065

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[48]   ~~Rules~~ Clause 4A.F.10. AEMO ~~will publish~~has published the PoLR cost procedures which ~~will~~ outline how a *liable entity's* measured actual demand response is determined.

[49]   ~~Rules~~ Clauses 4A.F.3 and ~~Rules~~ 4A.F.10. AEMO ~~will publish~~has published the PoLR cost procedures which ~~will~~ outline how a *liable entity's liable load* and *liable share* is determined.

[50]   *Liable share* is calculated using the formula in ~~Rules~~ Clause 4.A.F.3. The HAPD (highest adjusted peak demand) used in the calculation is 9,580 as this is the highest peak demand occurring during the *forecast reliability gap period.*

The AER notify AEMO that the *liable entity* is a *PoLR liable entity* for the 18.30 trading interval. The *liable entity's* actual load (after adding back demand response and scaling) exceeded their NCP by 1.065 MW.

AEMO use the 1.065 MW volume in their *PoLR debt* calculations.

Example 2 Demand Response used to reduce actual load (not used as a qualifying contract)

The *liable entity* has 1 *qualifying contract* - a Baseload Q1 Swap. 20 MW. Bought. Firmness factor 1 for all trading intervals.

Below is a snapshot of part of the *NCP report* for the *liable entity* for 17 January.

Contract ID	Contract Category	Trading Interval	Unadjusted MW	Firmness Factor	Adjusted MW
9001A	Swap	17/01/2023 16.30	20	1	20
9001A	Swap	17/01/2023 17.00	20	1	20
9001A	Swap	17/01/2023 17.30	20	1	20
9001A	Swap	17/01/2023 18.00	20	1	20
9001A	Swap	17/01/2023 18.30	20	1	20
9001A	Swap	17/01/2023 19.00	20	1	20
9001A	Swap	17/01/2023 19.30	20	1	20
9001A	Swap	17/01/2023 20.00	20	1	20

The *liable entity* uses the firmness adjusted MWs in the above table, to give them their NCP for each trading interval. The *liable entity* also submits their expected maximum demand for each trading interval. Because the demand response arrangement is not recorded as a *qualifying contract*, the *liable entity* has adjusted their forecast to account for the expected demand response. The *liable entity's* NCP Summary (part of their *NCP report*) .is shown below.

Trading Interval	NCP (MW)	Expected Maximum Demand (MW)
17/01/2023 16.30	20	18.5
17/01/2023 17.00	20	19.5
17/01/2023 17.30	20	12.0
17/01/2023 18.00	20	17.0
17/01/2023 18.30	20	19.0
17/01/2023 19.00	20	18.0
17/01/2023 19.30	20	16.0
17/01/2023 20.00	20	14.5

Actual demand on 17 January exceeded the *one-in-two year peak demand forecast* in 4 trading intervals. They are highlighted in bold in the table below.

Trading Interval	1-in-2 year peak demand forecast	Actual Demand
17/01/2023 16.30	9,300	9,130
17/01/2023 17.00	**9,300**	**9,390**
17/01/2023 17.30	**9,300**	**9,410**
17/01/2023 18.00	**9,300**	**9,580**
17/01/2023 18.30	**9,300**	**9,420**
17/01/2023 19.00	9,300	9,110
17/01/2023 19.30	9,300	8,960
17/01/2023 20.00	9,300	8,760

Calculation of the *liable entity's liable share* for each *PoLR TI*:

- AEMO calculate the *liable entity's* actual load (Column 1 below).

- AEMO calculate the *liable entity's* demand response (Column 2 below). Because the *liable entity* has no demand response *qualifying contracts*, this column is zero.

- AEMO calculate the *liable entity's liable load* – the demand after adding back the demand response (Column 3).

- AEMO scales the liable entity's liable load to their share of the one-in-two year peak demand forecast.[51] This is the liable entity's liable share (Column 4).[52]

Trading Interval	Demand	Demand response	Liable Load (total demand after adding back DR)	Liable Share (after scaling to 1-in-2 year peak demand by AEMO)
17/01/2023 17.00	10.5	0	10.5	9.902
17/01/2023 17.30	13.6	0	13.6	13.203
17/01/2023 18.00	21.8	0	21.8	21.163
17/01/2023 18.30	23.5	0	23.5	22.813

AEMO calculate the *liable entity's liable share* and give these numbers to the AER (the last column in the table above). The AER compare this number to the NCP reported by the *liable entity* in their *NCP report* for all trading intervals where the *actual demand* exceeded the *one-in-two year peak demand forecast.*

Trading Interval	Liable Entity's Liable Share (after scaling by AEMO)	NCP	Uncontracted MW position
17/01/2023 17.00	9.902	20	0
17/01/2023 17.30	13.203	20	0
17/01/2023 18.00	21.163	20	1.163
17/01/2023 18.30	22.813	20	2.813

The AER notify AEMO that the *liable entity* is a *PoLR liable entity* for the 18.00 and 18.30 trading intervals. The *liable entity's* actual load (after adding back demand response and scaling) exceeded their NCP by 1.163 MW during trading interval 18.00 and 2.813 MW during trading interval 18.30.

AEMO would use the 1 163MW and 2 813MW volumes in their *PoLR debt* calculations.

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[51] ~~Rules~~ Clauses 4A.F.3. and 4A.F.10. AEMO will publish the PoLR cost procedures which will outline how a *liable entity's liable load* and *liable share* is determined.

[52] *Liable share* is calculated using the formula in ~~rule~~ clause 4.A.F.3. The HAPD (highest adjusted peak demand) used in the calculation is 9,580 as this is the highest peak demand occurring during the *forecast reliability gap period.*

Comparison of the two examples

The examples above illustrate that the choice whether to record a demand response contract/arrangement can impact a *liable entity's uncontracted MW position* (and therefore their *PoLR debt*).

In Example 1, the demand response arrangement is recorded as a *qualifying contract* with a firmness factor of one. The 10 MW is added to the NCP but only the actual demand response is added back to the *liable entity's* actual load. Even though the demand response fails to result in the full 10 MW of expected demand response, the *liable entity* still has the benefit of the full 10 MW which has been added to the NCP.

In Example 2, the demand response arrangement is not recorded as a *qualifying contract*. In the trading intervals where the demand response results in less than the expected 10 MW (18.00 and 18.30), the *liable entity* only receives the benefit of the actual demand response and not the 10 MW they expected to receive. This is why their uncontracted MW position is greater in the 18.00 and 18.30 trading intervals in Example 2.