



Export and generation credits policy

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Export and generation credits policy

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1. Introduction

This document defines the basis for credits that are available from Orion for approved distributed generation which is embedded within our network area. Two separate credits are available:

- **export credits**, for electricity exported onto our network at anytime or during our peak and control periods, depending on the generator size, and
- **generation credits**, for electricity generated, and measured at the generator, during our generation period (generation credit are no longer available to new generation but remains in place for current participating customers)

We apply export credits to the party that contracts with us for delivery services (usually the electricity retailer) and we apply generation credits directly to the generating customer. Subject to meeting the criteria set out in this document, customers with generators can apply to take advantage of either or both of these credits.

The following sections describe the criteria, the process for determining credit quantities, and the payment process. The actual credit prices are provided in our schedule of *Export and generation credits* available from the pricing section of our website (see www.oriongroup.com/DeliveryPricing).

Distributed generation that reliably generates during peak demand times can provide an economical alternative to electricity delivery and we provide export credits in recognition of this benefit to the network. Separately, generators that respond to our signal at other times can also assist with capacity constraints, enhancing security of supply and service quality, and this benefit is reflected in our generation credits. The credits do not represent the purchase of electricity, and exporting customers are able to separately negotiate to sell exported energy, usually to their electricity retailer.

While not covered in this document, often the most significant benefit available to customers with generators is the ability to reduce their electricity purchase charges by meeting a proportion of their own load. This benefit, together with our export and generation credits, can provide significant rewards for customers with generators.

Caution: while generators are often installed to improve security of supply, running a generator can increase the chance of outages, and this should be considered before customers elect to operate generators in response to our pricing signals. Specifically, the additional electrical protection equipment that is required with the installation of a generator can respond to events (such as voltage fluctuations) on the electrical network by shutting down the generator and disconnecting from the network, effectively causing outages that might otherwise not occur.

A plain English introduction to our provisions for distributed generation is available in our Distributed generation information pack, also available on our website.

Need help? Please call Gavin Bonnett on 03 363 9731 (or send an email to gavin.bonnett@oriongroup.co.nz) if you have any queries.

2. Export credits

Orion provides credits for exports of electricity into our network at various times based on the benefit to the network through reduced peak loading levels. This standardised arrangement applies to connections where the combined output rating of the generation at the connection does not exceed 750 kW (based on the prime or continuous nameplate rating(s), or 80% of the equivalent kVA rating where a kW rating is not given). We consider the terms and level of credits on an individual basis for connections with generation capacity in excess of 750 kW - refer to the section for *Large generation* below. Export credits were first introduced and have been provided since May 1995. Over time, we have developed and enhanced these arrangements to form the basis provided in this document.

2.1 Requirements

To be eligible for export credits, distributed generation must meet a number of prior requirements. In summary, each customer must:

- Apply to Orion to qualify for export credits

We must approve the generation as being eligible for export credits (refer to the application form at the back of this document). We assess each application based on generation capacity, local network capacity and expected growth in demand, reliability/availability of response and supply security in the area of the generator.

Where we assess that the addition of the generator will beneficially supplement network capacity, operating characteristics (eg power factor) and/or enhance supply security (even in the longer term, considering the possible connection of further distributed generation), we will generally approve eligibility for export credits.

In terms of reliability, our network can accommodate some diversity between generator outputs but any single large generator that may fail following a single fault event, or any group of highly correlated generation (such as wind turbines), will not normally provide sufficient security of supply to be of benefit, and will not be approved for standard export credits. Generators that are temporarily or seasonally installed do not provide an appropriate alternative to our long term delivery assets and will not generally be approved.

We may offer alternative export credit terms for generation that does not meet our standard criteria.

- Commit to the specified level of generation

The customer must agree to use reasonable endeavours to generate and export at the levels and during the periods indicated in the application for approval. We may withhold payment if we establish that this commitment has not been met. With reasonable notice, customers may withdraw from this arrangement at any time, and may subsequently re-apply for export credits. Customers who withdraw during a peak period or control period season and subsequently re-apply may not be accepted on our standard terms.

- Have appropriate metering

Our export credits are based on measured export volumes during specific periods. Customers wishing to take advantage of our credits must ensure that appropriate metering is in place to record the creditable quantities required for the calculation of credits.

In addition to the above eligibility requirements for export credits, connections with distributed generation must comply (and continue to comply) with the requirements for connection given in our *Distributed generation information pack* available on our website.

2.2 Categories

For the purpose of applying credits, connections with distributed generation are categorised by size range based on the combined available output capacity (in kW) of the installed generators at the connection. In most cases this will be the sum of the generator nameplate ratings (based on the prime or continuous rating, or 80% of the equivalent kVA rating where a kW rating is not given), but this may be de-rated where the power source is limited.

To encourage smaller distributed generation, we accept lower cost metering arrangements for the smaller sized categories and consequently apply greater averaging in the credit basis. Points to note in relation to these categories are:

- Choice of credit basis for 0 - 30 kW generation

Customers with 0 to 30 kW generation may choose to accept the lower **anytime** credit payment basis for all their export (and simply meter anytime kWh exports), or instead receive the higher **peak period** credit payment basis only for export at peak times (and upgrade their metering equipment to record kWh exported during our peak period). This option is provided for situations where it is economically beneficial for a customer to enhance their metering and take advantage of the higher credit price level for generation during our peak period. We will generally accommodate category changes from 1 April following the date of application - customers should complete the application form included with this document to change their pricing option.

- Export credits for photovoltaic generation

We have a specific credit price for connections with photovoltaic (PV) generation. The price reflects the fact that export contribution from PV generation is generally very low during our peak load periods which occur during the worst of the winter weather and in particular on winter evenings. Connections with 0 – 30 kW generation that includes PV can still elect to receive the higher peak period credit payment basis subject to appropriate metering being installed.

- Reactive credits are optional for 30 to 350 kW distributed generation

Our minimum metering requirements (see our *Distributed generation information pack*) do not require reactive export metering where generators are less than 350 kW with a low voltage connection. The customer can choose to receive reactive export credits for these generators by ensuring that reactive export metering is in place. Credit quantities for reactive power (kVAr) export is limited to 33% of the credit quantity for real power (kW) export in each half hour period, the equivalent of exporting with a 0.95 lagging power factor.

2.3 Periods when export credits are applied

The credit basis for each export category varies in terms of incidence, duration and payment level.

For 0 - 30 kW generators, customers can choose for their credits to be either:

- based on the sum of all export that occurs **anytime**, 24 hours a day, 365/366 days a year, or
- based on the sum of all export that occurs during our **peak period**. A full definition of our chargeable peak periods is provided in our Pricing Policy document. In summary, peak periods occur when we are shedding residential hot-water heating load in order to limit the maximum load on the network, generally during cold winter weekday mornings and evenings. The durations of peak periods are governed by our daily target service levels for residential hot-water heating, and we expect to accumulate between 100 and 150 hours per winter season.

For 30 to 750 kW generators, the credit is based on the average export that occurs during our **control period**. A full definition of our chargeable control periods is provided in our Pricing Policy document. In summary, control periods occur within peak periods when loading (and therefore load shedding) is at its highest. We aim to limit the total duration of the control period to between 80 and 100 hours per winter season. Any electricity imported (used) during the control period contributes toward delivery charges (that is, export and import quantities do not offset each other).

It is important to note that the credit for 30 to 750 kW generators is based on the average export power, rather than the total exported energy (ie average export power is total energy exported divided by the duration of the chargeable period). This means that seasons with relatively longer total control period duration will require longer periods of generation for the same level of credit.

Other than as noted above, we will not provide credits for export that occurs at other times. For example, we will not provide additional credit where a failure in control equipment results in inadvertent operation of a generator.

2.4 Metering requirements

In addition to the minimum metering requirements specified in our *Distributed generation information pack*, the customer will need to ensure that the following additional metering is in place in order to take advantage of our export credits:

0 to 30 kW with anytime credits	No additional metering requirements as the anytime network connection point export metering is used for credits.
0 to 30 kW with peak period credits	Half-hour export metering to measure kWh export at the network connection point during our chargeable peak period half-hours.
above 30 kW real-power credit component	Half-hour interval metering to measure kWh export volumes at the network connection point during our chargeable <i>control period half-hours</i> .
above 30 kW reactive-power component (required only for optional reactive power credit)	Half-hour interval metering to measure kVARh export volumes at the network connection point during our chargeable <i>control period half-hours</i> .

On application, we will consider the suitability of alternative metering arrangements.

Please note that these metering requirements are additional to our general metering requirements for delivery, and electricity retailers will also specify their own requirements. We recommend that customers with generators discuss their metering with their electricity retailer who can provide metering options that meet all requirements.

2.5 Contractual arrangements

This document is referred to in our published *Pricing Policy* document, which details the pricing and charges that apply under our *Delivery services agreements* with electricity retailers, and under our *Direct Delivery Services Terms And Conditions* (for those major customers that contract with us directly).

We apply export credits on the invoices to the party that contracts with us for delivery services. In most cases this is the electricity retailer and we expect retailers to pass on these credits (in some form) to the exporting customer.

2.6 Payment of credits

Export assessments and credits are applied on an annual cycle as follows:

Category	Assessment period	Credits applied
0 to 30 kW with anytime credits	1 April to 31 March	In May invoice
0 to 30 kW with peak period credits	1 May to 31 August	In November invoice
above 30 kW	1 May to 31 August	In November invoice

We apply credits at a later date if there is any delay in receiving the metering information on which the credits are based, and apply subsequent adjustments to credits if there are material corrections to metered quantities.

3. Generation credits

For limited group of currently participating generation we provide credits for generation support in response to our generation signal. This arrangement provides the opportunity for us to enhance security of supply during constraints and reduce the duration of residential hot-water shedding during times of peak loading. Generation credits are separate from, and available in addition to, the export credits (as detailed in section 1). Unlike the export credits, this credit is based on the amount of electricity generated, rather than the amount exported, recognising that generation lowers the load on our network (regardless of whether the electricity is used at that connection or at other connections).

Closed arrangement – the generation credits arrangement has not provided the anticipated benefits and we have encountered a range of challenges and difficulties with the reliability, operation and administration of the arrangement. The option is no longer available for new generation and we will reassess its availability for those currently participating in future pricing updates.

3.1 Requirements

Prior to the arrangement being closed, there were a number of requirements for distributed generation to be eligible for generation credits. In summary, each customer must:

- Apply to Orion to qualify for generation credits.

We must approve the generation as being eligible for generation credits. Our aim was to have the ability to lower the load on our overall network and we approved generation that assisted with that aim. We assessed each application based on the expected reliability/availability of response, the generation capacity, and the appropriateness of the generator's location within the network. Only generation that supplies load that our network would otherwise supply was eligible.

Unlike export credits, customers are not required to commit to any set level of generation. With the aim of lowering loading levels on the overall network, the diversity in generation response is spread over a larger number of contributors (this generation is not intended for localised security of supply or to reduce capital expenditure on network capacity). Customers may elect not to run for various reasons such as high diesel prices, maintenance constraints, because they might exceed the running hours allowed in the terms of their operating resource consent, or because they cannot run at certain times of day or days of the week.

We did not generally approve credits for passive generation, such as wind turbines or solar PV, which are not able to switch on when required. We also did not generally approve credits for generators that were temporarily or seasonally installed on the basis of their limited availability.

- Have appropriate metering

Our generation credits are based on measured generation volumes during our ripple signalled generation period. Measuring this volume normally requires installation of specific metering at the point of generation, rather than at the point of connection to our network. Our minimum metering requirement is a simple kWh meter that is switched on via the generation period ripple signal.

Customers wishing to take advantage of our credits must ensure that appropriate metering equipment is in place to record the creditable quantities required for the calculation of credits, and provide appropriate access for us to read the meter.

In addition to the above eligibility requirements for generation credits, connections with distributed generation must comply (and continue to comply) with the requirements for connection given in our *Distributed generation information pack* available on our website.

3.2 Periods when generation credits are applied

We provide generation credits only during our ripple signalled **generation period**. We instigate generation periods when it is beneficial to lower the overall load on the network, subject to the following:

- Generation periods only relate to *load management* (in response to peaks or constraint situations, or to test the response of the arrangement). To generally comply with resource consents, generation periods are not initiated for other reasons (such as in response to energy shortages).
- Each generation period runs for a minimum of 30 minutes, but is not limited to any maximum duration. In extended generation periods, customers may elect to cease generation prior to the end of the generation period.
- There is no minimum or maximum total duration of accumulated generation period each year, although we expect to test the arrangement each year providing at least 30 minutes of generation period.
- Generation periods can occur at any time of day, any day of the year, with no warning.

We aim to minimise any period of overlap between generation periods and major customer control periods. On occasions when overlap does occur, the customer may simultaneously benefit from the generation credit, a reduced contribution to control period demand, and possibly the export credit.

A history of our generation periods (in Excel format) is available from the load management section of our website (www.oriongroup.com/LoadManagementDashboard).

Other than as noted above, we will not provide credits for generation that occurs at other times. For example, we will not provide additional credit where a failure in control equipment results in inadvertent operation of a generator outside the signalled generation period.

3.3 Contractual arrangements

We provide this arrangement as part of our delivery service, but in direct contract with customers that are approved for generation credits. The provisions of the agreement are provided in our counter-signed letter of offer, which we provide in response to approved applications.

The generation credits agreement is in addition to and separate from each party's obligations under our *Delivery services agreements* with interposed electricity retailers, or under the *Terms and conditions of providing delivery services to major customers*.

3.4 Payment of credits

We estimate generation credits that have accumulated during each calendar month and apply credits via an IRD approved "buyer created tax invoice". Although Orion produces these invoices, they are treated as an invoice to Orion, and we pay the customer by the due date on the invoice.

Our estimates are based on our record of the total duration of generation period during the month and the customer's indication of available generation capacity. Periodically (at least once per year), we arrange for a meter reading and correct any under or over payment in the following month's invoice.

4. Large generation

The standard export credits do not normally apply for connections with combined generation capacity in excess of 750 kW (based on the nameplate prime or continuous rating, or 80% of the equivalent kVA rating where a kW rating is not given). The benefits to Orion of distributed generation in relation to electricity delivery are not as clear when a large contribution is applied at a single point in the network, even if this is only offsetting a customer's existing load. The economic feasibility of the arrangement depends on the capacity available in the network in the vicinity of the connection and the charging basis from Transpower.

Our restrictions on the standard basis for export and generation credits allow us to maximise the benefit from this group of customers, and therefore enables us to provide relatively high credit price levels. We are aware that the benefit to the network from the connections that receive standard export and generation credits must be maintained in order to maintain the level of credits.

We individually assess the benefits provided by larger generation, and provide customised credits that reflect these benefits. In some cases the standard credit prices may be offered, but in other cases a reduced credit price or additional terms and conditions are offered. We may also limit the term of the credits to an appropriate number of years to reflect the benefit derived from distributed generation.

When assessing the benefits provided by larger generation, we consider:

- Planned capital expenditure which might be deferred
- The actual expected reduction in transmission expenses
- The level of supply security provided by the generation
- The interaction with other generation in the area
- The availability of generation during capacity shortages (other than at peak times, for example, during planned maintenance)

All other arrangements and requirements detailed in this document, as appropriate, will generally still apply. These include:

- The requirement for application and approval
- A commitment to the level and availability of generation
- Metering and control requirements
- Contractual arrangements, creditable periods and payment of credits

Customers with more than the standard export credit capacity limit wishing to apply for credits should complete the application at the back of this document.



Application for export credits

Use this form to apply for Orion's export credits. Please note that you must separately apply to connect a distributed generator. Please call Gavin Bonnett on 03 363 9731 or email gavin.bonnett@oriongroup.co.nz if you have any queries.

Return to: Orion New Zealand Ltd
PO Box 13 896
Christchurch
info@oriongroup.co.nz

Customer details

Name _____ Phone _____

Contact person _____ Mobile _____

Postal address _____ Email _____

_____ Electrical consultant _____
(associated with generation, if any)

Generation details

ICP of installation _____
(where generator is connected)

Generation output:

Unit	Nameplate	Available (if different)
1	_____ kW	_____ kW
2	_____ kW	_____ kW
3	_____ kW	_____ kW
4	_____ kW	_____ kW

The available output value is relevant where the output is limited by the power source.

Energy source:

- | | |
|----------------------------------|--------------------------------|
| <input type="checkbox"/> Diesel | <input type="checkbox"/> Hydro |
| <input type="checkbox"/> Solar | <input type="checkbox"/> Gas |
| <input type="checkbox"/> Wind | <input type="checkbox"/> Steam |
| <input type="checkbox"/> Battery | |

Normal generation set-point (combined) _____ kW
_____ kVAr

Expected maximum export (if exporting) _____ kW
_____ kVAr

Battery storage (if applicable) _____ kWh

Availability

Anytime, 24 hours, 365/366 days

- or -

Only between the hours of _____ and _____

and only between the dates _____ and _____

Maximum continuous running time _____ hours

Maximum annual running time _____ hours

Other restrictions: _____

When assessing this application, Orion will use this availability information to assess the benefit of the distributed generation to the network.

Electricity retailer _____

You must make appropriate arrangements for your electricity retailer to purchase and meter any exported electricity. Orion applies export credits to your retailer (or to you, if you are a directly contracted major customer).

Export credit category (please tick one)

- 0 to 30 kW anytime credits (without any PV)
- 0 to 30 kW anytime credits (with PV)
- 0 to 30 kW peak period credits (with or without PV)
(half-hour interval export kWh metering must be installed)
- 30 to 750 kW control period credits (kWh credits only)
(half-hour interval export kWh metering must be installed)
- 30 to 750 kW control period credits (kWh and kVArh credits)
(half-hour interval export kWh & kVArh metering must be installed)
- above 750 kW control period credits
(half-hour interval export kWh & kVArh metering must be installed)

You acknowledge and agree that:

- you are authorised to make this application, the information provided is correct and you apply for export credits on the basis described in this application
- if this application is accepted, you will use reasonable endeavours to generate and export at the levels and during the periods indicated in this application. You may provide reasonable notice to Orion and withdraw from this arrangement
- you have read and will comply with the requirements of Orion's Application for export and generation credits (applicable from 1 April 2018)
- export credit prices are provided in Orion's schedule of Export and generation credits available on Orion's website and updated from time to time (in accordance with Orion's delivery services agreements)
- Orion is not liable for any direct or indirect losses resulting from your decision to operate (or not operate) your generator(s) under this arrangement
- Orion will assess this application and, if approved, will confirm the date and basis for credits that will apply. Orion may review the availability and terms applicable to credits from time to time to reflect the reliability of generation or the benefit to the network as it changes over time. Orion will provide reasonable advance notice of any change to the availability or basis for credits.

Authorised _____
Signatory

On behalf of _____

Name _____

Date _____