

Application of export and generation credits

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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.

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 (www.oriongroup.co.nz).

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.

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 (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 *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 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, 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.

- 30 to 750 kW distributed generation categorised as major customer connection

In order to align chargeable periods for delivery charges with creditable periods for export credits, and to minimise the cost of handling half-hour metering information, all 30 to 750 kW distributed generation connections approved for export credits will be classified as major customer connections for the purpose of delivery charges.

Most customers with generators in excess of 30 kW that intend to export during our control period will already be categorised as major customer connections. However, general connections that are re-classified as major customer connections as a result of this condition will be subjected to a significant change in the basis for their delivery charges. Refer to our document *Application of major customer delivery prices* for details of major customer connection pricing.

- 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.

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 days a year, or
- based on the sum of all export that occurs during our peak period. A full definition of our peak periods is provided in the document *Application of delivery prices*. 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 approximately 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 control periods is provided in the document *Application of major customer delivery prices*. 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 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.

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	Switched kWh metering measuring accumulated export at the network connection point during our ripple signalled <i>peak period</i> , or Half-hour export metering to establish export at the network connection point during our chargeable peak period half-hours.
above 30 kW real-power credit component	Switched half-hour interval metering to separately measure kWh export volumes at the network connection point each half hour during our ripple signalled <i>control period</i> .
above 30 kW reactive-power component (required only for optional reactive power credit)	Switched half-hour interval metering to separately measure kVAh export volumes at the network connection point each half hour during our ripple signalled <i>control period</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 document *Application of delivery prices*, which details the pricing and charges that apply under our *Delivery services agreements* with electricity retailers, and under the *Terms and conditions of providing delivery services to major customers* (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. For 0 to 30 kW generators we apply credits to the retailer, as the contracting party. We expect retailers to pass on these credits (in some form) to the exporting customer. For above 30 kW generators the contracting party may be the customer in which case we will credit the customer directly.

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 June invoice
0 to 30 kW with peak period credits	1 April to 30 September	In December invoice
above 30 kW	1 May to 31 August	In December 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

We provide credits to customers that generate electricity 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).

Subject to the requirements below, our published generation credit prices are available in respect of all connections where the combined output rating of the generation is between 30 kW and 750 kW. We will consider making credits available to connections with more generation than this on a case-by-case basis, considering the location within the network and the magnitude of the load change. In these cases, we may offer an alternative credit price (usually lower) or specify a maximum generation setting. It is not economic for us to process payments for generation of less than 30 kW.

We introduced generation credits from 1 April 2006.

3.1 Requirements

There are a number of requirements that must be met prior to distributed generation becoming 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 (refer to the application form at the back of this document). Our aim is to have the ability to lower the load on our overall network and we will approve generation that assists with this aim. We assess 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 is 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 will not generally approve this credit for passive generation, such as wind turbines or solar PV, which are not able to switch on when required. We will also not generally approve credits for generators that are 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. We will arrange for a quotation and consider contributing to the cost of purchasing and installing metering equipment through our preferred contractor to meet the minimum metering requirement for larger generation plants with flexible availability (see the application form at the back of this document).

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.

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.co.nz).

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 (above 750 kW)

The standard export and generation credits do not normally apply for connections with combined generation capacity in excess of 750 kW. 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 750 kW of combined generation wishing to apply for credits should complete the application at the back of this document.

Application for export or generation credits

Use this form to apply for Orion's export and/or generation credits. You may apply for one or both credits by completing the appropriate sections on the reverse side. 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
Fax 03 363 9723

Customer details

Name _____ Phone _____
 Contact person _____ Mobile _____
 Postal address _____ Email _____

 Electrical consultant _____
 (associated with generation, if any)
 GST Number _____ Bank account _____
 (for generation credit payments)

Generation details

ICP of installation _____
 (where generator is connected)

Generation output:

Unit	Nameplate	Available (if different)	Energy source:
1	_____ kW	_____ kW	<input type="checkbox"/> Diesel <input type="checkbox"/> Hydro
2	_____ kW	_____ kW	<input type="checkbox"/> Solar <input type="checkbox"/> Gas
3	_____ kW	_____ kW	<input type="checkbox"/> Wind <input type="checkbox"/> Steam
4	_____ kW	_____ kW	

Normal generation set-point (combined) _____ kW
 _____ kVAr
 Expected maximum export (if exporting) _____ kW
 _____ kVAr

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

Availability

Anytime, 24 hours, 365 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). Orion applies generation credits directly to you.

Application for export credits (only complete this section if you wish to apply for export credits)

Export credit category (please tick)

0 to 30 kW anytime credits

- with a kWh meter recording total anytime export

0 to 30 kW peak period credits

- with a ripple switched peak period export register
 with half-hour interval export kWh metering

30 to 750 kW control period credits

- with half-hour interval metering recording kWh exported during Orion's control period for real-power credits only (for 30 to 350 kW generation)
 with half-hour interval metering recording kWh and kVArh exported during Orion's control period for real-power and reactive-power credits

above 750 kW

- with half-hour interval metering recording kWh and kVArh exported during Orion's control period for real-power and reactive-power credits

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 2010)
- 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.

Authorised Signatory _____ On behalf of _____

Name _____ Date _____

Application for generation credits (only complete this section if you wish to apply for generation credits)

Generation metering

New generation metering required? _____ yes / no

Orion will arrange for a quote and consider a contribution towards the purchase and installation of metering through our preferred contractor for larger generation plants with flexible availability (based on the minimum metering requirement - a ripple switched kWh meter).

You acknowledge that:

- you apply for generation credits on the basis described in this document, *Application for export and generation credits* (applicable from 1 April 2010)
- the value of generation credits depends on the duration of the signalled generation period. Orion does not guarantee that there will be any generation periods in a year, and consequently there may be no generation credits payable
- 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 provide a letter detailing the basis of credits offered (which may be accepted or declined).

Signed _____ On behalf of _____

Name _____ Date _____