RESPONSE TO SUBMISSIONS

Renewable gas certification
July 2021

Certified Energy
New Zealand Energy Certificate System

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1. Background

Certified Energy is the operator and administrator of the New Zealand Energy Certificate System[1] (NZECS), a system for the certification of energy production. At this time, the NZECS supports the trading of energy attribute certificates for electricity generation. As a specialist provider of energy certification systems and services, Certified Energy is well equipped to expand its service offering to include certification of gas production.

Reducing the amount of fossil natural gas used in New Zealand has been identified as an opportunity to achieve significant emissions reductions. To realise this opportunity, a combination of solutions will be needed. While electrification of process heat and behavioural change (energy efficiency / energy conservation) are important solutions and should be utilised where possible, we see the use of renewable gases in place of fossil gases or other fossil fuels as having the potential to make a meaningful contribution to our national decarbonisation efforts.

In support of the development of renewable gas production capacity, Certified Energy has committed to expanding the NZECS to enable certification of gas production.

As a first step in the process of system development, Certified Energy released a discussion paper outlining key aspects of a possible certification system – for consideration by those likely to participate in, or have an interest in, the system. The discussion paper was the first step in publicising the existence of this new system and was intended to provide information for those interested parties as to the possible structure and nature of the system. This paper gave interested parties an opportunity to offer their feedback and provide guidance on key considerations and changes necessary to support their work.

2. Introduction

Following up on the discussion paper, Certified Energy is now providing information on the initial rules for gas certification.

This summary paper outlines the key points raised by respondents in submissions on the discussion paper. In addition, we have provided our response to these points, and where applicable, an amendment or development to our original thinking.

The initial rules set has taken into account feedback received through consultation to date. The rules are consistent with the thinking outlined in this document.

2.1 List of submitters

We appreciate the time and effort that respondents put into providing their submissions to the discussion paper. Those parties that provided a submission, and were happy to be listed, are:

- Biogrid consulting

1. www.certifiedenergy.co.nz

- EMS Tradepoint
- FirstGas
- Hiringa Energy
- LMS Energy
- Powerco
- RHC IMZADI Consulting
- Victoria University of Wellington
- WSP

These parties provided submission in various forms. One additional party submitted a response and asked not to be named. Feedback from this party has been included in this summary.

3. Key areas – raised by respondents

Key areas of interest to respondents were:

- Types of gas
- Unit of measurement
- Production year
- Market boundary
- International alignment
- Process of change

These topics are discussed in sections 3.1 to 3.6 below.

In addition, in this document we wish to provide more information on a number of additional topics, including:

- Structure of system
- Information contained in a certificate
- Residual Supply Mix
- Interaction with the NZ Emissions Trading Scheme
- Application of certificates

These topics are discussed in sections 4.1 to 4.5.

3.1 Types of gas

3.1.1 Discussion

Throughout the consultation process to date, feedback has shown that there is interest in clarifying the types of gas production that can be certified, and clarifying how different gases, with different production methods and varying levels of carbon intensity will be labelled.

3.1.2 Response:

While all gas production can be verified and subsequently is eligible for certification, we recognise that there is value in clarifying the gas types which will be eligible to be certified as renewable and how they will be depicted with the certification system.

We intend that the certificate format is uniform, but information will be captured to allow the specification of gas type and its classification as renewable. The initial gas types that will be specified are:

- Hydrogen
- Biomethane
- Biogas
- BioLPG

Biomethane, biogas and LPG will need to show that their input feedstocks were renewable in order to gain classification as a renewable gas. In time, we may find that it is useful to provide a shortlist of pre-approved renewable and sustainable feedstocks, in line with international standards. If developed, this would be through the process of change outlined in section 3.6 below.

Hydrogen which has been produced from electrolysis will need to demonstrate the technology type and carbon intensity of the electricity used in the production process. Hydrogen from steam-methane reforming seeking classification as renewable would need to demonstrate the renewability and carbon intensity of input methane, using a contractual instrument to provide explicit certification.

Where hydrogen production uses low-carbon fuels, or renewable fuels with some carbon emissions, this will be displayed clearly within all documentation. Clarification of how different levels of carbon intensity adhere to international colorised product scales will be provided outside of the rules.

More detail of the information contained within a Certificate is in section 4.2. Information on how a Certificate can be used is contained in section 4.5.

3.2 Unit of measurement

3.2.1 Discussion

The discussion paper put forward two options for energy units for gas certificates – MWh or GJ – and sought feedback on the pros and cons of each. Most submitters were silent on this issue but those few who provided a preference were in favour of GJ.

Only one submitter provided a reason for favouring GJ over MWh, and that was to "simplify reconciliation".

3.2.2 Response

Certified Energy recognises that use of GJ as the primary unit of measurement would be the most familiar option for those in the gas industry.

As we noted in the discussion document, the gas industry has tended to standardise on SI[2] units, using joules as the base measure of energy, most commonly GJ. From that perspective, it may be most convenient for existing gas users and suppliers to have certificates denominated in the same units. However, there are a great number of gas users (albeit small in volume) for whom their bills are based on kWh.

It is also noted that, for maximum effectiveness, a renewable energy certificate scheme needs to offer certificates that align with those issued in international jurisdictions. Unless that is done, renewable energy that is certified by such a scheme may not be recognised internationally.

Is there an international standard?

Comparison with international systems finds that MWh appears to be used almost universally as an energy unit within certification systems, whether for electricity[3] or gas.

The requirement to use MWh for Guarantees of Origin (GOs) is written in EU directive 2009/28/EC, dated April 2009, which states, at Article 15 paragraph (2):

> *"Member States shall ensure that a guarantee of origin is issued in response to a request from a producer of electricity from renewable energy sources. Member States may arrange for guarantees of origin to be issued in response to a request from producers of heating and cooling from renewable energy sources. Such an arrangement may be made subject to a minimum capacity limit. A guarantee of origin shall be of the standard size of 1 MWh. No more than one guarantee of origin shall be issued in respect of each unit of energy produced."*

The RED II directive, December 2018, echoed that in Article 19, paragraph (2):

"A guarantee of origin shall be of the standard size of 1 MWh."

That same denomination has subsequently been adopted by CertifHy for its hydrogen certification scheme where the scheme document states.

"Each GO shall have a value of 1 MWh based on the lower heating value."[4]

That unit corresponds with the definition of "output" from a hydrogen production device, which is also measured in units of MWh.

The Green Gas Certification Scheme[5] from Renewable Energy Assurance Limited in London issues RGGOs (Renewable Gas Guarantee of Origin) in units of kWh.

2. International System of Units - https://www.nist.gov/pml/weights-and-measures/metric-si/si-units
3. Guarantees of Origin (GOs), Renewable Energy Certificates (RECs), or I-RECs (international RECs)
4. CertifHy Scheme document V1.0 11 March 2019.
5. GreenGas Certification Scheme - https://www.greengas.org.uk/

While not universally the case, the weight of evidence internationally is that renewable energy certification schemes are most commonly denominated in MWh. This is our preference – given the ability to denominate consistently across energy types.

Decision

We do appreciate that there was preference among submitters that a unit be measured in GJ. However, we have decided on balance to select MWh as the certificate unit because:

1. We expect larger gas users to be sufficiently knowledgeable, and so able to undertake the necessary unit conversion. Additionally, and to the extent there is demand, small gas consumers bills are generally already in kWh, meaning that those customers have no requirement for conversion.
2. To facilitate any future interaction with gas markets overseas, it is better to use a unit consistent with international practice.
3. For consumers that are seeking certificates for both electricity and gas, there is benefit in using the same unit of energy. This includes those parties using renewable electricity or methane reforming to produce hydrogen.

3.3 Production year

3.3.1 Discussion

The concept of a Production Year was introduced in the discussion paper as having value from a system operational perspective, and as a mechanism to demonstrate vintage - the relativity between consumption and production volumes. Without a production year, Certificates could be stored indefinitely, weakening the effect of increasing demand for renewable gas.

In response, respondents stressed the need to ensure stored gas was not excluded from certification, as it is likely that consumption of gas will happen in a different year to its production. With appropriate consideration of stored gas, there was support for the value of the Production Year concept.

3.3.2 Response

Certified Energy recognises the importance of making sure the NZECS adequately supports the activities of its users.

We maintain that where a Certificate has been issued, it is important that it is only redeemed against consumption that took place within the same period. We also maintain that it should not be possible to issue Certificates against Production that took place in prior years.

However, where gas is produced within a Production Year, stored and therefore available in future years, this stored gas should be available for certification until it is eventually consumed.

It is our preference that stored gas be recognised within the system where it may have the potential to have Certificates issued against it in the future. As a mechanism to enable this

we propose to enable the redemption of Certificates against a gas storage facility, and to allow for that stored gas to have Certificates issued against it upon release.

The gas certification rules provide more detail as to how we propose this should happen.

It is worth noting here that in other jurisdictions certificate lifetime can vary, with some markets allowing a longer time before certificate expiry[6]. We choose not to extend the certificate lifetime at this stage, as doing so would reduce our ability to deliver positive system outcomes - for example, the inability to present timely emissions information to market.

3.4 Market boundary

3.4.1 Discussion

The discussion paper introduced the need to define a suitable market boundary for gas certification under the NZECS. Feedback on this matter generally agreed with the setting of the market boundary as the country boundary of New Zealand, while also recognising the importance of enabling cross-border trading. Submitters who expressed concern about the setting of a boundary referred to the risk that such a boundary may have on the ability of domestic producers to participate in international markets.

A related question was whether certification should be constrained to those producers and consumers that are connected to the gas transmission system (either directly or via a distribution system). In general, respondents to this question considered such a restriction either unnecessary or undesirable. A number of respondents indicated their belief that restricting access could restrict renewable gas production.

3.4.2 Response:

As noted above, boundary delineation is important for the operation of a certification system for a number of reasons. Creating a boundary defines the region of activity that will be monitored and reconciled by Certified Energy. The boundary should be sufficiently large to maximise the number of parties that can participate, but sufficiently small to ensure that all functions can be performed effectively, e.g. all production facilities can be visited for the sake of verification. In addition, it makes most sense if the boundary encompasses a region with consistent governance, economic conditions, goals and objectives etc.

Taking all of the above into account, we maintain that the market boundary for gas certification should be the country boundary of New Zealand. As a result, any complying activity within the country of New Zealand is eligible for certification. The setting of this boundary is not intended to inhibit international trading. In our opinion, the clear delineation of boundaries and a clearly defined process for handoff of attributes is a requirement for the successful trade in gas products. This is discussed further in section 3.5.

We consider that the arguments given in support of non-pipeline projects being eligible for certification were sound. The broader the coverage of the certificate system, the more

6. CertifHy, for example, allows a 12-month lifetime after issuance, which can take place up to 12 months after production.

projects that may come to market. In addition, we recognise that one of the key principles of the NZECS is to simply verify the characteristics of gas production, with value being ascribed separately to the verification process.

Section 4.5 discusses the issue of what certificates can be used for.

3.5 International alignment & harmonisation

3.5.1 Discussion

As discussed above, a number of comments made by respondents indicated the importance of ensuring that system settings maximise the ability of domestic producers to participate in international trade. While we recognise that both import and export of gas may be desirable in time, we understand that export may be a more immediate focus.

Feedback focussed on the ability of gas production to receive certification that could be provided to international trade partners, and which would be fully recognised and accepted within international certification and reporting systems. A number of countries were suggested as potential international trade partners.

3.5.2 Response

Certified Energy recognises the potential for significant international trade of renewable gas, predominantly – if not exclusively – hydrogen, and acknowledges that this is an opportunity of interest for New Zealand producers. In addition, we acknowledge the need for New Zealand Energy Certificates (NZ-ECs/Certificates) to maintain alignment with international certification practice, so that domestic gas users can participate in the NZECS with confidence that their products will be internationally recognised.

Certified Energy intends for the NZECS to be supportive of export from the outset. Exported volumes must be trackable, as it is a priority to ensure that no double-counting arises between local and international markets. Further, certification and supporting documentation must be sufficient to enable the product to be accepted internationally.

We propose that we denote renewable gas destined for export through a process similar to that used for stored gas. Where gas is intended for export, we propose that a number of NZ-ECs corresponding to the volume of gas to be exported be redeemed against a storage device, ensuring that those attributes don't leak into the domestic market.

When gas is exported, it is our view that exported volumes should be supported with NZ-ECs. Ideally, where a local certificate system is in place in the receiving country, these NZ-ECs would be converted into the local certificate class once received, with notification provided to the NZECS to enable removal from the New Zealand ledger.

As per the format for storage devices, ECs that are intended for export and redeemed against a storage device won't expire at the end of the Production Year.

Certified Energy will seek to engage with international system providers, to ensure acceptance of NZ-ECs, and to further our understanding of the direction of development of international systems. Interaction with international systems will ensure that the NZECS continues to provide a world-class system for use with domestic consumption, import and export.

3.6 Change process

3.6.1 Discussion

Responses to the questions on how changes should be raised, designed, and implemented expressed a range of views but, collectively, supported a mechanism that:

- provided a voice for participants in the scheme to suggest changes,
- sought assessment of proposed changes from an expert technical panel, and
- enabled broad consultation on proposed changes.

On the question of who should bear the cost of changes there was a spread of views but the majority of submitters recognised that the scheme needs to be self-funding, i.e. a provision for rule changes would need to be factored into the certification body budget.

3.6.2 Response

We fully intend for the provision of gas certification to evolve over time, as the market itself evolves. As such, we are eager to put in place a process whereby users and stakeholders can contribute to the identification of necessary changes, and help to shape the nature of the changes themselves.

Change process

Gas certification will need a formal change process to provide clarity to users and stakeholders how changes will be made and how their input will be recognised. At this stage we see the key elements of a change process as follows:

- ability for anyone to suggest a change;
- a review of suggested changes against defined criteria, to determine whether suggested changes are to be considered;
- input of expert industry representatives into the change assessment process, in the form of a Technical Advisory Committee (described below);
- consultation with stakeholders on suggested changes being assessed;
- review of submissions, including by the TAC;
- provision of recommendation by the TAC to Certified Energy; and
- eventual change implementation, if any, performed by Certified Energy.

We see that there will need to be explicit provision for streamlining changes that are either immaterial, inconsequential, or are required by law.

Gas Technical Advisory Committee

The support for a Gas Technical Advisory Committee (G-TAC) is welcome and we see such a committee as potentially wearing multiple hats:

- providing a preliminary review of a suggested change, and making a decision as to whether to support the need to consider the suggested change; and
- for all suggested changes that are assessed, supporting Certified Energy in:
    - development of material for consultation,
    - evaluation of submissions, and
    - provision of a final decision on any change to be implemented as a result of suggestion and consultation.

The G-TAC could also perform a function of reviewing performance as was raised in section 10.2 of the Discussion Paper. As industry representatives, the technical committee could receive and independently review documentation related to system performance. Where any need for performance improvement was identified, the committee could make a recommendation, including suggesting rule changes where necessary.

The discussion included a suggested composition for the TAC which included: renewable gas producers; gas users; subject matter experts; and an independent chair. On reflection we consider that the composition would be improved with the addition of: engineering knowledge (the certification process has an engineering component); a pipeline representative; and someone with international expertise in this area.

A further consideration is whether it would be desirable to have Government, the Gas Industry Company and/or agency involvement in the TAC. Such a person could be a member of TAC or they could be given observer status. Such involvement would be valuable as a means of ensuring continued alignment of the certification system and governmental activity.

4. Additional developments

Through the process of consultation, it has become clear that there is value in clarifying a number of other areas of proposed system operation. These areas are discussed below.

4.1 Structure of system (class of NZECS)

The discussion paper presented gas certification as a stand-alone system, conceptually referred to as the New Zealand Gas Certificate System (NZGCS). Through discussion of various points both internally and externally, we have reached the conclusion that it is logical for energy certification to be treated as having equivalent potential across a range of energy carriers. Energy certificates for electricity, gas, or other biofuels, for example, all exist for a similar purpose and have many similarities. For this reason, we have revised our proposed structure and intend to offer gas certification under the existing New Zealand Energy Certificate System (NZECS). Gas certificates will form a new and independent class of New Zealand Energy Certificate (NZ-EC / Certificate) transacted within the NZECS, with differences in rule, process, composition and use as appropriate to their different end-use markets.

This approach takes into account the fact that gas certification will be applied to a range of gas production methods, and redeemed against a number of gas consumption types across multiple industries. Given the diversity of activity that will fall under gas certification, it is logical to keep the system as neutral as possible. Gas certification under the NZECS will not apply to any particular industry, energy carrier, or end-use, but rather will be flexible enough to be applied to any gaseous fuel type.

While the process of certification will remain democratic, and will be theoretically accessible to producers of any type of gas production, we expect that most, if not all, gas certified will be renewable and/or low-carbon.

4.2 Information captured on a certificate

All NZECs will carry a base set of information describing the production characteristics of gas being certified. In addition, different classes of Certificates may have the requirement to carry more expansive information in order to enable adequate classification e.g. renewable / non-renewable.

Information captured on an NZ-EC will include:

a) the identity of the Device
b) the location of the Device
c) the production or storage capacity of the Device
d) the date on which the Production Device was commissioned
e) the type of gas product produced
f) detail of the inputs from which the gas was produced
g) the technology type from which the gas was produced
h) the volume of carbon dioxide equivalent emissions associated with the production of the gas; including
    a. the volume of scope 1 carbon dioxide equivalent emissions; or

b. the volume of biogenic carbon dioxide emissions;

i) the date of issue
j) the first day on which the Output to which it relates was produced
k) the last day on which the Output to which it relates was produced
l) a unique serial number as identifier of this issuance.

Additional information could be captured within the Certificate, including information on positive consequential outcomes such as volume of displaced carbon emissions.

Information captured within a Certificate will be derived from both parameters verified during the process of Production Device registration and site audit, and additional information provided in support of a request for issuance.

4.3 Residual supply mix

A primary function of energy attribute transfer is to enable accurate and credible disclosure of emissions associated with energy consumption. Where certificates are explicitly traded and redeemed with the knowledge of the energy user, this is simple. However, as soon as certification is introduced, it is also necessary to begin to inform energy users of changes to the attributes of energy supplied by the main grid or pipeline.

This function is provided by the Residual Supply Mix (RSM). The RSM is determined by deducting the volume of NZ-ECs redeemed in a production year from the National Supply Mix and then calculating the carbon intensity (and other characteristics) of that residual.

In the case of gas certification, we see the Residual Supply Mix as playing a slightly different role than in New Zealand's electricity system. Not only is the total renewable gas production capacity currently low, but it is expected that demand will be high, making it unlikely that renewable gas will be delivered into the main pipeline without the attributes being intentionally allocated.

Where in electricity the RSM removes renewable electricity attributes previously reported from the national supply mix and increases grid carbon intensity, the role of the gas RSM in this case would be to ensure that users of gas who are not purchasing NZ-ECs do not begin to claim and report the production attributes of renewable gas as components of their own consumption.

For these reasons we see the role of a gas RSM as ensuring accuracy of information, and avoiding the occurrence of double-counting and confusion. The absence of an RSM could be seen to provide a less comprehensively accurate result. As accuracy is a key principle of energy certification in New Zealand, for this reason it cannot be ignored.

4.4 Interaction with the NZ Emissions Trading Scheme

The New Zealand Emissions Trading Scheme (ETS) is one of the main tools that exists in New Zealand to help with the decarbonisation of the economy. As described by the Ministry for the Environment[7]:

"Businesses in the NZ ETS are required to buy units to cover their emissions. This helps businesses participating in the NZ ETS to consider emissions in their decision making and provides an incentive for them to reduce their emissions."

In addition, the Climate Change Response Act now includes a cap on allowable emissions. This cap limits the amount of total emissions from activities within our economy, leading to reductions over time.

The ETS imposes a cost on emissions, incurred by producers of fossil fuels, but ultimately borne by energy users. In the New Zealand gas industry, the cost of the ETS is usually passed through transparently within a user's gas bill. The operation of the ETS does not directly trigger an increase in reduction or sequestration activities, but instead acts as an financial incentive to reduce emissions over time.

How much an energy user must pay under the ETS is directly driven by a user's consumption of fossil natural gas. The cost structure of delivered gas is negotiated between retailer and consumer, however it is clear that renewable gas production will not be required to purchase and surrender NZU's, and so purchasers of renewable gas should not be subject to the same costs.

Where both gas and certificate are purchased from the same party, this should be easily reconciled. Where gas certificates are purchased separately to the underlying gas however, there could be greater difficulty. It is a task of Certified Energy to promote a solution to this issue, to ensure that energy users are getting maximal benefit and are therefore providing maximum support to renewable energy producers.

4.5 Application of certificates

While section 3.1 addresses the types of gas production that will be eligible for certification, and discusses our intended approach to ensuring that NZ-ECs can be easily differentiated, we see the topic of allowable redemption (application) of Certificates as a separate, but related topic.

It is logical, for example, that a biogas facility be able to achieve production certification for their output. It is not immediately clear what that Certificate can be used for, and with the likelihood that gas certification will be applied to the production and consumption of various types of gas, it is important that we clarify allowable application within the NZECS.

7. Text from: https://environment.govt.nz/what-government-is-doing/key-initiatives/ets/a-tool-for-climate-change/nz-ets-responding-climate-change/

Generally, we see that standards for application will be developed over time in conjunction with users, industry and the government, however a starting point is required. From the outset, allowable application will be established by the rules of certificate redemption. Redemption of Certificates will take place within the Registry, against the defined energy consumption of registered energy users.

We propose from the outset that Certificates be able to be redeemed with as much flexibility as possible. The market for Certificates should be maximised, in order to maximise the support available to producers. Restrictions on this should be carefully considered, and only installed where necessary to avoid unintended consequences, or where lack of restriction could compromise the integrity of the NZECS.

In practicality, this proposal means that all NZ-ECs issued against gas produced within the NZECS market boundary should be able to be redeemed against any gas consumption of a registered Energy User. As effectively all renewable gas production against which Certificates are issued will be new[8], any Certificate transaction will have the effect of supporting fossil fuel displacement.

Discrimination within application may develop over time, and may be useful to support differential Certificate pricing. This will be investigated further, in conjunction with industry.

8. Having been developed after the launch of gas certification