Submission to

Ministry for the Environment

On the Draft

Climate Change (Stationary Energy and Industrial Processes) Regulations 2008

From

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1. Executive Summary

Contact submits that we:

- support the approach taken in developing the SEIP methodologies
- support the use of default emissions factors, with a process made available to participants for applying for unique emission factors
- support the provision for gas storage and/or coal stockpiling
- support the methodological approach for Opt-in participants and the use of the "unit of purchase" (instead of unit of production) as the criteria for measurement
- propose an amendment to the methodologies for the mining (and purchase) of natural gas, including the need to account for emissions related to "own use" of fuel gas during processing
- recommend an additional methodology be developed for geothermal fluid used for industrial heat
- propose an amendment to the geothermal methodology to account for the additional re-injection of dissolved gases
- propose consideration of an opt-in provision for future geothermal activities
- propose that the Regulations include an annual emission factor review process
- propose an annual review of emission factors, including a comparison of default emission factors and unique emission factors (with a provision for more frequent review of factors)
- propose that the Emission factor tables sit outside the SEIP regulations

2. Introduction

Contact Energy (Contact) appreciates the opportunity to make a submission to the Ministry for the Environment (MfE) on the draft Climate Change (Stationary Energy and Industrial Processes) Regulations, dated October 2008.

Contact is one of New Zealand's leading electricity generators and retailers, and it employs about 1,000 people across the country. Contact generates around 25 per cent of the country's electricity from its nine power stations and sells electricity and gas to around 635,000 customers. Contact is also one of the country's largest listed companies; 82,000 New Zealanders hold shares in our company.

Contact, as a major purchaser of Natural Gas and owner of geothermal resources, will be a participant in the New Zealand Emissions Trading Scheme, with an estimated obligation of 3-4 million tonnes CO2-e per annum. As such, Contact is supportive of the introduction of the Emissions Trading Scheme as a mechanism to assist in addressing Climate Change within New Zealand.

With respect to the Stationary Energy and Industrial Process (SEIP) regulations, Contact supports the process that has been undertaken in the development of the Regulations. Contact applauds the decision by officials to engage with industry in the development of the regulations, and also to employ a simple methodological approach specific to each SEIP activity utilising default emission factors and allowing participants the opportunity to apply for unique emission factors.

It is Contact's view that this initial approach removes unnecessary complexity. An annual review of the methodologies and the associated emission factors will assist in incremental improvements in the SEIP regulations over time as participants gain more information and knowledge.

Contact agrees with the criteria used to determine the point of measurement, including the principles that the methodologies are:-

- Least cost to the participant and the economy
- Consistent with NZ inventory
- Pragmatic
- Simple
- Transparent
- Verifiable
- Have Scientific integrity
- Best emissions coverage
- Uses existing processes whether possible (e.g. RMA)

3. Areas for amendment

Contact was an active participant in the SEIP Technical Advisory Group, including the sub-group that provided advice to the Emissions Trading Group on the development of the methodologies for the sector.

Contact acknowledges the significant amount of work that has been undertaken in developing the draft regulations, and notes that they are consistent with the advice provided by the SEIP Technical Advisory Group. Since the release of these draft Regulations, Contact has had the opportunity to discuss the detail of the regulations with some of the upstream gas and geothermal participants. These subsequent discussions have identified some areas where Contact believes the draft regulations would benefit from further clarity, and in some cases amendment.

We have outlined these specific comments in the following section.

Gas

Opt-In

As a potential opt-in participant (as a major purchaser of natural gas) Contact agrees with the "opt-in" methodologies being consistent with those for the mandatory participants, but with the obligation being based on purchased fuels rather than production.

Contact is also supportive of the provisions in the draft regulations relating to stockpile and storage adjustments. We agree that the regulations need to recognise that the amount of fuel (e.g. natural gas) that passes the measurement point is not necessarily combusted in the same NZ ETS

compliance period, and therefore should not be counted until such time as it is removed from storage for use.

Contact further acknowledges that in the case of gas storage, the facility may hold gas from multiple sources with differing emission factors. Therefore the provision in the regulations to either use a default emission factor (for "all other processed fields") or to apply for a verified unique emission factor is sensible and appropriate for such situations. We note that it would be useful (for transparency and clarification purposes) if the calculation which determines the "all other processed fields" emission factor was also outlined within the associated emission factor tables.

Amendment to methodology

Contact notes that in the development of the natural gas methodologies there was concern that fugitive emissions from the pipeline may not be captured and that this would result in an inconsistency with NZ inventory figures. As a result, a provision was made within the regulations to capture and record "unaccounted for gas" emissions. Discussions with upstream producers has identified that

- The use of the term "unaccounted for gas" is confusing in relation to the high pressure gas transmission system as the terminology is not consistently used for both the Maui and the Vector pipelines. Any inconsistencies within the pipelines tend to relate to things such as metering errors, rather than a physical loss of gas from the system.

- The "losses" on the high pressure gas transmission system are minimal, and any imbalance in the system is managed by the upstream producer, and later contractually with their counterparties.

- The "unaccounted for gas" emissions measurement in the methodologies is therefore unnecessary. The upstream producer will be required to cover the additional emissions injected into the pipeline to maintain pipeline pressure, and to meet demand requirements. Such differences are dealt with contractually.

- Similarly, the methodology as currently drafted does not account for any emissions incurred if mined gas is used to power compressors, heater and other process equipment, prior to injection into the pipeline. For completeness, and consistency with other SEIP activities such as mining coal, "own use" fuel gas should be included as part of the obligations for mining natural gas.

Based on the above understanding, Contact proposes that the Unaccounted for Gas component of the methodology be removed and a provision for "own use" during processing be included, such that the "Method for calculating emissions from natural gas mined other than for export" is as follows

$$E = [(A*EF_1) + (C* EF_2) + (D* EF_3) + (X * EF_6)] – [(F * EF_4) + (G * EF_4) + (I * EF_5)]$$

Where the definitions for each term are as defined in the draft regulations, and

X is the total number of gigajoules of fuel natural gas that is used to power compressors, heaters and other process equipment

EF_6 is the emission factor for fuel natural gas of the class specified in <table to be developed>

Similarly, for the "Method of calculating emissions: purchasing natural gas"

$$E = (D * EF_5)$$

Where the definitions for each term are as defined in the draft regulations

In addition, the upstream producers have noted that while in some situations the "point of valuation" (being the point at the well head where the gas is first separated from oil, water and condensate), is an appropriate point of measurement for mined natural gas, for some gas fields a more appropriate point of measurement is the "point of sale". This "point of sale" is where the upstream producer either injects into the high pressure gas transmission system or sells its mined gas directly to an end user. As a point of measurement the "point of sale" will enable all emissions from mining and processing, including "own use" to be captured and reported. Contact recommends that the measurement point be amended to be the point of sale rather than the point of valuation.

Emission Factor

We note that the default "spec gas" emission factor is higher than the field specific emission factor for some of the gas fields. Contact supports the use of a default "spec gas" figure for "opt-in participants". We note, however, that there is a possibility that a situation may arise where there is an "over-recovery" of emissions – i.e. where an "opt in" participant has to surrender credits for emissions greater than those "created" by the miner from whom it purchased the gas. Contact seeks clarification on how the MfE would resolve such a situation, especially if a mismatch became apparent when reconciling sectoral emissions against NZ inventory calculations.

Contact further seeks clarification from the MfE on whether an "opt-in" participant can apply for a unique emission factor. If so, can the "opt in" participant apply for a factor that is equivalent to the default emission factor of the gas field from which they purchase their gas.

We note it is unclear from the table of emission whether the gas emission factors are "gross" (high heating value - HHV) or "net" (low heating value - LHV) figures. It is our understanding that the factors quoted are "gross" figures, and therefore recommend that this be made transparent and be noted in both the tables and in the body of the regulations.

Geothermal

Geothermal emission methodologies, as currently drafted, relate primarily to the use of geothermal fluid for generation, and they do not adequately cover the process of using geothermal fluid for industrial heat. We consider that it would be more appropriate to include an additional methodology rather than trying to modify the one used for electricity generation.

In Contact's experience there are industrial plants (using geothermal fluid for heating) whose processes result in intermittent emissions of non-condensable gases being released into the atmosphere, including H_2S, CO_2 and CH_4. The process used in these plants is such that as a result of the pressure drop through the heat exchanger, non-condensable gases are released from solution and are collected and stored. These gases are then intermittently discharged to atmosphere in batches throughout the day, as necessary.

Noting the intermittent nature of these releases Contact proposes that the methodology for the "use of geothermal fluid for the purpose of industrial heat" be based on the number of releases from the containment device (as recorded by the plant's SCADA or other such counter mechanism) and the volume, pressure and composition of the containment gases of the release. By measuring these components the associated emissions can be calculated.

Contact proposes that the inflow gases could be sampled periodically as part of any verification process for the non-condensable gases, if so required. Such sampling is common practice, and

allows for an analysis of an actual sample of vented gases to be undertaken. Alternatively, where possible, the released gases could be potentially be sampled for verification purposes.

In Contact's experience, any change in composition of such gas only varies slowly with time and it is reasonable to assume a linear change.

In relation to geothermal fluid being used for electricity generation or industrial heat, there is the possibility that some of the steam separated from the fluid (once used in the process) is condensed and injected back into the steam field together with the separated water. The methodology, as currently drafted, does not account for any dissolved gases remaining in that "second" re-injection. Contact therefore supports the principle that where fluid is re-injected back into the field the dissolved gases retained in that fluid should be subtracted from the calculation. (i.e. a net effect)

It is Contact's view that the formula is easily amended to allow for this netting off (if applicable).

In addition, it is Contact's view that the Regulations should also include a provision for the development of carbon capture and sequestration technology which may be applied to geothermal steam prior to its use in processing. Such technology, while not currently utilised, may enable geothermal processes to effectively become "carbon neutral" and Contact proposes that this be considered as part of "future proofing" the regulations.

Contact notes that unlike the mining of natural gas and/or coal, the regulations make no provision for the possibility of a purchaser of geothermal fluid being able to opt-in to the NZ ETS. While this may not be a significant issue at this point in time, we propose that this also should be considered as part of "future proofing" the Regulations, and would allow for consistency of Regulations across the various activities.

Default & Unique Emission Factors

Contact supports the principle of using default emission factors, supported with a process available for participants to apply for a unique emission factor.

We note, however, that the unique emission factor process has not yet been defined, and it is not clear how it will be managed. Contact respectfully requests that the MfE provides more details on when this process will be developed and consulted on, and whether it is likely to be before the Regulations come into force.

If an independent process, which applies to all sectors, is not likely to be developed prior to the Regulations being implemented, we would suggest that a process be incorporated as a section within the SEIP Regulations.

Contact notes that emission obligations by sector are calculated annually, and will be a function of volume and the associated emission factor per activity. As New Zealand's obligations under the Kyoto Protocol are not reconciled until the end of the first Commitment period, Contact seeks more information from the MfE on how "Inventory" will account for NZ Inc emissions over the 5 year period? Will the total emissions be calculated on the basis of the sum of the "per annum volumes" multiplied by the emission factor determined in 2012 or will they be calculated by totalling the reported emissions from each of the five years? Contact would support the latter, as this is consistent with the requirements being imposed on participants.

Review of Emission Factors

The Regulations as currently drafted, include a number of specific emission factors, the majority of which have been defined using historical information. During the Technical Advisory Group work it was noted that these factors can change over time due to a number of reasons, and that there should be a mechanism by which these "default" factors could be reviewed and updated.

Contact notes that despite the intent of being able to update emission factors as more information becomes available to both participants and officials, the Regulations do not provide for any update to occur. We believe it is necessary to include a review process within the Regulations. In considering such a review process, Contact recommends that the process also specify whether any review of the emission factors will be forward looking or retrospective, and the timing of when any change to an emission factor would take effect.

With respect to the timing of any such review, it is Contact's view that the emission factors should be reviewed at least annually, with participants being afforded the option of reviewing their own emission factors more regularly. There is a cost/benefit trade off to be considered when determining the frequency of measurement. We believe an annual review is appropriate, but the process (to be included within the Regulations) should allow for those who wish to review on a more frequent basis being allowed to do so.

More information is also sought on the frequency by which the emission factors (default and unique) will need to be "gazetted" as a change to the Regulations, if a participant chooses to update their emission factors on a more frequent basis than annually. It appears to be an unnecessary complication to require a regulatory change process to be initiated when participants wish to amend an emission factor.

For simplicity, Contact proposes that a process for the review of all emission factors be included within the Regulations (including the timing of any such review) and that the default emission factors and the Unique Emission Factor application process sit outside the Regulations[1], whereby these "non-regulatory" components are managed by the Chief Executive (responsible for the administration of the Act) or by the Ministry of Economic Development (MED). It is our view that by having the review process in the Regulations, but the emission factor tables outside them, the emission factors can be maintained in a timely and effective manner.

4. General Comments

In addition to the above comments, Contact notes the following specific comments to clauses and definitions.

General edits

With respect to the "Collection of information for purpose of calculating emissions: purchasing coal" – in Clause 45, 1, c) replace the word entry with exit, such that the clause reads

[1] The Tables of emission factors currently included in the Schedules of the Regulations could be managed as part of the MED annual NZ Greenhouse Gas Emissions publication, and held on the MED website.

> "the total number of tonnes of opt-in coal exported, as recorded at the customs **exit** point, in the year; and".

Similarly, with respect to the "Collection of information for purpose of calculating emissions from purchasing natural gas" - in Clause 48, 1, c), replace the word entry with exit, such that the clause reads

> "the total number of gigajoules of natural gas of the class exported from New Zealand by the person, as recorded at the customs **exit** point".

Definitions

Contact recommends that addition definitions are included in the regulations to assist with clarity and transparency. Additional definitions proposed include

- Unprocessed gas
- Processed gas
- Point of sale (as per our recommendation for a change in the point of measurement for mined natural gas)
- Industrial heat (in the context of the activity of "using geothermal fluid for the purpose of industrial heat)

In addition, Contact recommends that where a generic emission factor is used (e.g. "all other fields" for Geothermal fluid, or "all other natural gas fields (not coal seam gas)" for unprocessed gas), that the calculation for determining the default emission factors should be documented both in the appropriate tables, and also in the Regulations documentation.