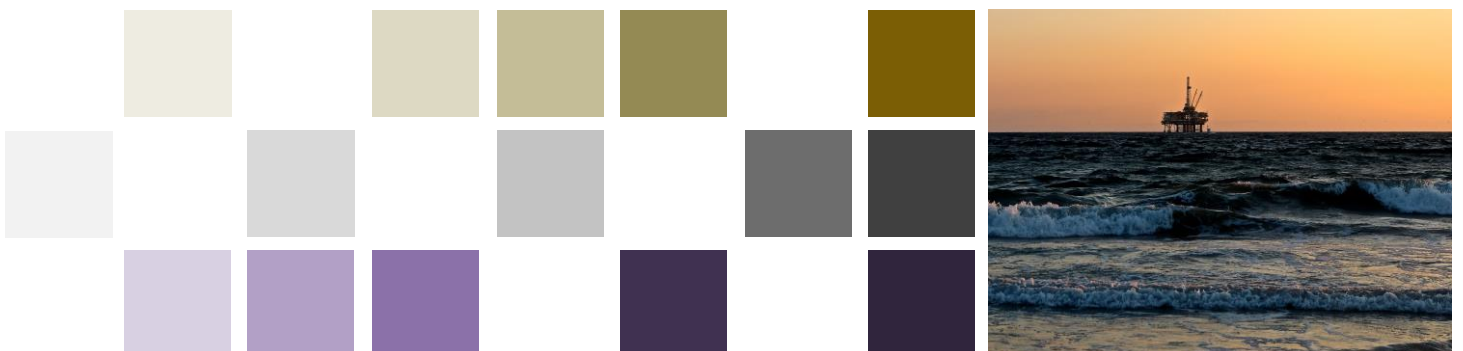


# Cost benefit analysis of GIC statement of proposal for changes to governance arrangements

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Report to GIC

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8 December 2023





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# 1. Our understanding

Gas Industry Company (GIC) requires a cost benefit analysis (CBA) to a statement of proposal (SOP) that it is in the process of finalising. This SOP involves changes to the gas governance rules relating to use of advanced gas metering infrastructure (AGMI), gas allocation, reconciliation of green gases, the breach process and other minor rule changes.

As part of regulatory good practice a CBA is required to evaluate whether the SOPs deliver value to the economy over the intended operating period of the new regulations and rules. Cost benefit analysis is the analytical tool that is best suited to delivering a view on value creation.

This SOP is an omnibus proposal of rule changes which together bring the rules into line with current practice and to enable industry initiatives. It is understood that there is a degree of consensus over the rule changes and that the costs are likely to be absorbed within existing operations.

## 2. Description of the method

In undertaking a CBA we perform an economy-wide assessment of the changes. We are not interested in wealth transfers between participants or even whether there is an advantage gained for the gas industry. If we can discern, for example, a lowering of costs to consumers, then in normal circumstances we will have satisfied the conditions for a positive CBA outcome. We would also, in some situations, want to consider the effects on New Zealand's international position if there is the potential for New Zealand's trade position to be affected.

The approach to a CBA normally follows a series of steps that produce a result that indicates a preferred option or options that produce economic value. These steps include:

- definition of the problem and the objective sought
- identification of the beneficiaries and those on whom a cost burden might lie
- identification of any constraints (e.g. budgetary, physical possibilities, time)
- identification of alternative options for achieving the objective, which include the status quo
- description, and, if possible, quantification of the costs and benefits of each option; analysis of non-tangible costs and benefits
- description of the risks associated with each option and choice of a discount rate
- valuation of the costs and benefits using net present value
- sensitivity analysis, where appropriate
- reporting and discussion of the results.

The CBA of the gas governance arrangements is a qualitative evaluation. The broader policy direction was set back in 2007/08 and was the subject of a more detailed analysis at the time.<sup>1</sup> These rule updates are a response to market-driven changes which mean that a consideration of the direction of travel is more appropriate rather than a complete reappraisal. In this light we look at the detail of the rule changes, assess support for these changes, and provide a discussion of the advantages of maintaining coherent and accepted rules on which industry participants rely. We have discussed with several affected participants the nature of the changes proposed.

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<sup>1</sup> <https://www.gasindustry.co.nz/our-work/work-programmes/downstream-reconciliation/background/statement-of-proposal-september-2007/>

### 3. Background

GIC is proposing rules updates to several areas, some of which are independent from each other and some of which are interdependent. We summarise the main aspects as follows:

- advanced metering infrastructure
- D+1 (day plus one) allocation
- green gases
- rule change registers
- other matters.

For practical purposes we are grouping the minor rule changes arising from the rules change registers and other matters (which do not require rule changes) together to simplify the analysis.

To a large extent the rule changes and initiatives that GIC is proposing in this SOP relate to ensuring that the arrangements are consistent with the capabilities and opportunities that exist in the current environment. Advanced metering technology is a globally available technology which is key to a more accurate, cost-effective, and timely allocation of gas positions. D+1 balancing has been undertaken for some time now and has demonstrated its value: GIC characterises stakeholder views of D+1 balancing as an “industry critical system.”<sup>2</sup>

Green gases are a response to increased concern over non-renewable energy sources with carbon emissions and constitute a possible means of continuing to exploit the value of gas infrastructure under different development scenarios. By facilitating the possibility of gas injections within distribution areas, GIC is laying the groundwork for the possible introduction of green gases within the economic life of the gas infrastructure if the production of green gas proves economic.

Finally, GIC proposes to keep its rulebook up-to-date and to consult on developments that are relevant to its stakeholders.

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<sup>2</sup> Changes to Gas Governance Arrangements Statement of Proposal, GIC, December 2023.

## 4. Outlining of the options

To a large extent these changes can be considered discrete initiatives, even if there is some limited overlap. In each case there is an option to remain with the status quo, to pass a subsection of the initiatives or to pass them fully. However, for our purposes we propose to treat each initiative in its entirety rather than to examine at a granular level. We have grouped these initiatives as follows:

- rule changes relating to advanced metering infrastructure
- rule changes relating to D+1 allocation
- rule changes relating to green gases
- other matters.

### 4.1 Advanced metering infrastructure

Advanced gas metering infrastructure (AGMI). AGMI is an encompassing term which refers to, as described in GIC analysis:<sup>3</sup>

- a) The metering equipment which makes it possible to measure real time consumption, enable remote disconnection, and undertake fault detection, among other features.
- b) Communications equipment, which enables the two-way communications between the meters and other parties.
- c) Meter management systems, which are central units that house the data collected from advanced meters to store, process and analyse data in security, and communicate with other parties and the advanced meters themselves.

The particular initiatives that are being pursued include:

- new AGMI fields in gas registry
- new allocation group for AGMI
- criteria and interrogation requirements for AGMI
- add AGMI to allocation methodology and modification of G1M rule (global 1 month)
- separate calculation for gas gate residual profile (GGRP) and seasonal adjustment daily shape values (SADSV).

### 4.2 D+1 allocation

D+1 is a service provided by the Allocation Agent (AA) which enables the day after processing of gas metering data to provide timely (day after consumption) information to positions within each gas gate. Shippers, in particular, need to be aware of their mismatch positions to keep self-balancing and limit exposure to daily cash outs. While alternatives to D+1 have been investigated, D+1 has proved enduring. D+1 needs to be supported by arrangements relating to:

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<sup>3</sup> <https://www.gasindustry.co.nz/assets/WorkProgrammeDocuments/Advanced-Gas-Metering-Infrastructure-Issues-Assessment.pdf>



- a) metering
- b) appropriate IT systems
- c) arrangement for managing interactions between balancing participants
- d) governance arrangements for the process
- e) funding of the process.

The specific initiatives relating to D+1 balancing are:

- telemetry requirements
- submission requirements for advanced metering and allocation group 1
- 7-day data requirements
- rules modifications to deadlines and timing and embedding of D+1 in rules
- changes to timing of initial and interim allocations
- clarification of error and estimation processes
- notification requirements
- publishing requirements.

### **4.3 Green gases**

Green gas is a term that describes gases that are produced from renewable sources. Examples include biogas and hydrogen blending. GIC is proposing rules that allow for gas injections in distribution areas (as opposed to the transmission system) to facilitate the introduction of green gas to the gas supply.

The relevant initiatives relating to green gases are:

- definition of distribution injection points
- creation and notification of installation control points (ICPs) that are distribution injection points
- validated injection data pertaining to distribution injection points
- calculation of calorific values for distribution injection points
- allocation of gas at distribution injection points
- contract IDs at distribution injection points.

### **4.4 Other matters**

Rule change registers. GIC has some rule amendments that are proposed relating to ongoing evaluation of rules operations that it describes as “largely minor and technical”.

Other matters. Finally, there are some initiatives such as instituting security enhancements to the gas registry which do not require rules changes but GIC wishes to notify to participants and seek feedback on.

## 5. Benefits framework

<b>Benefit category</b>	<b>Description of claim</b>	<b>How benefit can be manifested</b>
AGMI	Enables more accurate & timely allocation	D + 1 advantages; benefits for gas users in seeing position
D+1	Enables participants to have earlier view of volume position	Reduction of costs doing business
Green gases	Enables an additional supply option	Productive efficiency
Green gases	Potential to extend useful life of infrastructure	Option value if green gas proves economic.
Green gases	Consistency with Government objectives relating to climate change	Potential to lower costs of energy transformation
All	An up-to-date rule book minimises costs to undertaking business	Reduction in costs of conducting business may reduce prices to consumers in a competitive environment

## 6. Measuring the impacts

### 6.1 The costs are not significant

In our view the costs of the initiatives are minor. As stipulated at the beginning of this paper, we have ignored wealth transfers. We acknowledge that some participants may find that their personal circumstances are less fortunate than the current arrangements. In some cases wealth transfers can undermine the functioning of a market if instability is the consequence. However, in this case we have not seen evidence to suggest that this is the case.

Other costs incurred will relate to the need to update procedures and to ensure that operational staff are brought up to speed with the changes. In our view these costs will be absorbed into normal operational requirements, requiring no additional staff or external costs to be incurred.

There are, we understand, 50 ICPs that would require the installation of telemetry infrastructure to capture an estimated annual volume of 1.8PJ. We have not estimated this cost for reasons that we set out in our conclusion. In our view these costs are not highly material compared to the benefits for the gas market.

### 6.2 Benefits are hard to quantify

#### 6.2.1 Improved accuracy of volumes leads to better outcomes for consumers

In an ideal world, when parties enter into a transaction, certain key pieces of information are known prior to agreeing the transaction:

- precise details of the good or service being exchanged (such as quality of the good or service)
- the price to be paid for the exchange
- the quantity being exchanged
- how payment will be delivered and when
- how delivery of the good or service will be undertaken and when
- how any disputes over any of the above features will be resolved.

If there is any uncertainty of any of the above elements, then the parties to the transaction may take measures to reduce their risks. Such measures will often result in additional costs, which ultimately are passed on to consumers and reduce economic welfare. A well-functioning industry body will attempt to ensure that it plays its part in ensuring that the market arrangements are conducive to reducing the costs of exchange.

AGMI has a place in the nexus of exchange by measuring at what point in time a volume is being consumed and thereby achieves a more accurate allocation of gas to shippers and retailers. To a large extent, decisions to introduce AGMI will be made by the directly affected parties, who can evaluate the costs of the infrastructure and work out whether a financial advantage is gained or not from reduction

in costs of meter reads, for example, and other benefits of remote monitoring. However, AGMI can also provide benefits to indirectly affected parties and to the market as a whole. With the exception of the new requirement that telemetry be required when an installation consumes more than 20TJ per annum, participants are able to make choices as to whether their circumstances justify the installation of AGMI, and SOP is merely facilitating the uptake of AGMI through the provisions in the SOP.

AGMI makes it possible to assess more accurately the position of each party that is allocated gas at a gas gate in a timelier fashion. Shippers will be able to balance their positions more effectively. Retailers who do not have access immediately to their customers' consumption will know from an allocation with more AGMI data what their position is more accurately and, ultimately, will see a reduction in the costs of doing business.

GIC has advised that analysis of the volume threshold shows that 20TJ per annum is the right cut-off to balance the needs of the D+1 allocation and the costs to participants. This analysis indicates that D+1 allocations will be based now on 66 per cent of actuals compared to 44 per cent now. A timely initial/interim allocation (in this case the day after consumption) will reduce the uncertainty and reduce transaction costs.

## **6.2.2 Preparing for green gases will help support the transition to a lower-emission economy**

We emphasise that this CBA is concerned about economy-wide effects. The possible advantages of accommodating green gas in existing infrastructure over time are:

1. Some distribution networks will have additional supply, which could be useful if there are supply issues from the transmission network, extending security of supply.
2. Providers of green gases are provided a platform to test and demonstrate green gas on a small scale and prove the technology for larger-scale introduction.
3. If larger scale is achieved, then the life of existing assets of the gas network can be extended, which will delay investment into alternatives to gas.

Although there are many unknowns (economics of green gases and associated technology, political interventions regarding use of fossil fuel), there is merit in developing the arrangements now to create the option value for green gases. The option to utilise the infrastructure further within its economic life is, by definition, a positive value. According to recent research,<sup>4</sup> up to 7PJ per annum of economic gas potential could be available by 2035 or enough to meet all residential and a significant proportion of commercial gas demand.

In any case it is necessary to update the rules to anticipate the possibility of injection of gases at downstream locations if the rules are to continue to make sense.

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<sup>4</sup> BECA – Gas Transition Plan – Biogas Research Report, report for GIC, February 2023.

### **6.2.3 Maintenance of an up-to-date rulebook enhances industry's confidence in the regulatory arrangements**

To maintain confidence in the market arrangements it is sensible for a regulator to make regular adjustments based on feedback and analysis. Ultimately, having a rulebook and information that is current and can be found in one place helps participants and new entrants to know the operating requirements and to reflect current practice.

It is well known that businesses will choose to conduct business in jurisdictions where the meaning of contract terms is clear and disputes can be resolved in a cost-effective and fair manner. Ensuring that the rules process is responsive to wider developments reduces the cost of doing business and ensures engagement from participants to have their interests taken into account. Feedback from participants indicates that these changes are in the interest of the overall market in a general sense (confidence in regulatory arrangements) and specific sense (that the rule changes are supported).

## **7. Determining the net result**

In our view the costs of the associated rule changes and modifications included in this SOP are minor and the benefits are evident. For these reasons we suggest that there is a net benefit associated with the combined initiatives of this SOP.

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‘Sapere’ comes from Latin (to be wise) and the phrase ‘sapere aude’ (dare to be wise). The phrase is associated with German philosopher Immanuel Kant, who promoted the use of reason as a tool of thought; an approach that underpins all Sapere’s practice groups.

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