



Submissions for

proposed changes to the Building Code and Compliance Documents on energy efficiency of hot water systems and HVAC (heating, ventilating and air-conditioning) systems

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1. Introduction

This submission is made by GANZ on behalf of its members. It represents the majority of organisations involved in natural gas reticulation, gas retailing and the associated appliance manufacturers and retailers. Our members operate 11,000 km of pipelines, supply more than 260,000 consumers and employ more than 500 people.

Its members are Vector, Powerco, and Nova Gas as network owners; with Genesis Power Limited (trading as Genesis Energy), Contact Energy, Mighty River Power, Wanganui Gas (trading as Energy Direct NZ), Nova Gas being gas retailers, with a variety of gas appliance manufacturers and retailers. A number of members also operate gas measurement system (GMS) business activities.

The natural gas industry competes in the energy market as an 'energy form of choice'. Its modest consumer base is spread across the greater expanse of the North Island. Considering then consumer density, its relative market size and the existence of a competitive energy sector; the gas industry has to deliver safety across a disproportionately large footprint compared to other energy options.

2. The Principal Objective

GANZ supports the principal objective of the subject proposal. It does, however, raise other matters of related interest which are addressed in our submission. Given the type of membership of GANZ clearly at this stage New Zealand would benefit more by increasing penetration - greater uptake of properties that are mains fronters connecting to natural gas or using LPG, particularly as it applies to the subject water heating load. There is therefore a natural alignment between this work and a GANZ project being undertaken addressing the 'Enhanced Direct Use of Gas'.

3. General

The proposal to base the measurements and comparisons of energy impact and sustainability on CO₂ emissions for different domestic hot water systems is fully supported and will identify improvements in energy efficiency. In looking at the various options it is important to consider the realistic average performance outcomes rather than the peak performance and to this end we support the use of efficiencies of the order of 200% for heat pumps and power generation based on the latest addition at Huntly.

The options that involve solar are, we believe, based around assumptions that will identify realistic savings and we are optimistic that once a model is available for the solar/gas water heating option the savings assumptions will be shown to be justified.

We note that EECA is currently working towards Minimum Energy Performance requirements for water heaters and we urge that DBH and EECA work to a common and co-ordinated goal that clarifies not confuses the options for consumers. We also urge that in setting standards the resources and processes offered by Standards NZ be considered.

4. Appliance Options

GANZ would suggest that there are more than just natural gas and/or solar options. There is in fact a mix and match across these options under solar gas boost. This therefore suggests that in any performance setting criteria - "standard" should entice innovation, cost effectiveness and a better uptake of what is currently available. In that regard a degree of regulation like this is far better than voluntary - normal market forces.

5. Installation

There will be a need to consider installation in two areas - retrofit and first fit into new buildings. A variety of issues arise in the retrofit option. It is likely that this option is the most productive over the first 5 - 10 years if the market uptake is successful. Therefore there will be a need to consider the impacts across building consents and other regulations that address durability statements and/or warranties where existing cladding is to be penetrated.

Considering this, therefore, means that the Gas Installation Standard, if not already closely aligned to the Building Standard, will need further consideration.

For new installations there should be fewer issues providing that solution designers, installers and maintainers have considered the through-life support requirements; which will need to consider price and costs to be met by the consumer - homeowner and/or landlord.

Furthermore, should the market embrace the objective of the subject document to the fullest with the assumption that there is a large degree of retro-fitting then there may be a commercial driver to lease these solutions to ensure that upgrading in technology over time can be installed cost-effectively.

6. Competence

There are already numerous issues in the market around the ideal mix for competency in the "utility - services sectors". We can already see the challenges around an alignment between "pipes and wires" rather than historic skill - trade categorizations.

Also being challenged, because of continuous improvements to appliance design and their modularised management componentery, is whether competence should best be driven by the appliance - product or retain a skill set aligned to fuels - trades i.e. gas, water and/or electricity. The industry is already being challenged as to how to best determine the ideal skill set and competence across these building - appliance related sectors. GANZ believes this is a key point to be made in this document because the absence of addressing competence in the wider logistics of delivering this objective could in fact be its downfall. The maintenance requirements and the ability to deliver a cost-effective and compliant outcome should not be under-estimated where currently it might be argued such a skill-set or competency structure does not exist. GANZ believes that there is a growing difference between competency needs across installing infrastructure and maintaining it. There is a relative cost-benefit to be addressed between proposing and delivering the solution against those costs for maintaining it and the advantages of keeping that solution compliant and efficient. It is suspected that, coupled with the cost advantage, it will be enhanced if multiple trades are not required to be involved to maintain the solution. Furthermore, it is envisaged that the solution will in fact add value to the property and long-term be a point of difference in sale. Therefore this needs careful consideration by the industry for the industry. Ideally the Department should undertake some consumer - public survey as such changes have to be made not for tomorrow but for 20-30 years or more.

Linked to all of this work is a clear need to create a community of interest to address all of these matters. There is an overarching interest above the consumers point of supply, be that gas, electricity, communication and/or water and waste, across the metering point and into the installation. A number of providers will be involved across a number of these and it is therefore important that the structure that is created best suits that commercial environment with sufficient mechanism for continuous improvement processes.

7. Efficiency

GANZ fully applauds the objective of improving energy efficiency and the knock-on affect that has regarding 'Healthy Homes' and 'Indoor Air Quality'. Those objectives however need to be met with a pragmatic view to cost and long term sustainability. In supporting the initiative it would be seen as critical to ensure that the advertised certified efficiency of the particular "solution" is maintained. It is not unusual in higher efficient products to sometimes find that they need greater maintenance to continue achieving their optimum efficiency. On balance, therefore, this needs to be considered given the nature of the market that will be required to maintain the solution. Householders, in our experience, are not well motivated in this regard.

As noted the appropriate competence will need to be available to maintain these requirements otherwise the home will become sub-optimal to the agreed - installed solution.

Is there an intention therefore for some form of Building Review - Warrant of Fitness system to certify - attest that a property is still within the appropriate Energy Efficiency Profile? If not, what is the value of this objective?

A passing observation is that the document suggests that commercial buildings need specific attention. It is suggested that there are other high density properties such as apartment blocks that would be advantaged by the application of the efficiency standards.

Any consideration of energy efficiency is not complete however unless the overall gross efficiency from source to end-use is considered. Poor efficiencies in generation or conversion of the energy into a form suitable for use by the end consumer cannot be ignored and must be factored into the cost benefit analysis to determine the greater good for the community that suits NZ. The direct use of gas in homes has a high overall efficiency ranking when considered in this context.

8. Appliances & Systems

It is likely that this initiative will create system-solutions within which are embedded an appliance. Some consideration will need to be given to how these appliances - systems will be certified and how that will be effected across the multiple trades that currently exist. This clearly is another driver to review the matters of cross-competency of plumbing, gasfitting and electrical work. Currently the gas industry has a poor appliance self-certification process. Whilst that is being improved there are other standards such as MEPS that are about to be introduced for water-heating. It is imperative that the industry co-operate to produce a single model that can be applied in this regard.

Compliance and conformance of such accredited or approved appliances and systems should also be consistent across the trades. It is unhelpful to have different systems across gas, electric and/or water based fuels - appliances. It is supposed, given New Zealand's alignment under TTMRA, that this will also need to be a consideration.

In the process of installing such solutions it will be imperative that the consumer understands who is accountable for post sale - installation complaints. This suggests that the current matters around making complaints, be that across ESS, EWRB and/or the PG & D Board, and even extended to the current Electricity and Gas Complaints Commission, need consideration also.

9. Implementation & Logistics

In creating the standard it seems to GANZ that an implementation and logistics analysis will be required to ensure that all the market influences:

- Skills - competence
- Maintenance
- Compliance - continuous improvement process

are addressed before the implementation proceeds. It will be embarrassing for the market if there is a wholesale campaign to introduce these new standards but the market is unable to respond and maintain the regulated outcome.

10. Consultation and Co-Operation

For this initiative to be successful with the minimum of legislative intervention the industry sectors need to fully embrace the objectives and assist with the mechanisms to deliver them. This will mean that the providers of the solutions will be looking for consistency of legislation across the variety of jurisdictions that currently appear to interpret the Building Act as they see fit and create by-laws accordingly, which in some cases are counter-productive and a disincentive to achieve national outcomes.

There is an opportunity here for New Zealand to now create a level of infrastructure delivery and management across the property sector provided that the tools to both deliver it and maintain it are created before venturing too far.



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