

**Gas Appliance and Equipment Energy Efficiency
Program (GAEEEP) -**

OUTLINE STRATEGIC PLAN

Prepared for the

**Office of Gas Safety, Sustainable Energy Authority Victoria
and the Australian Greenhouse Office**

by

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Overview of this Document

The objective of putting in place a gas appliance and equipment energy efficiency program (GAEEEP) as a joint government-industry partnership, modelled on the national appliance and equipment energy efficiency program for electrical appliances (NAEEEP), has been approved in principle by senior government officials, by representatives of gas appliance suppliers and by other gas industry stakeholders.

The Standing Committee of Officials (SCO), which reports to the Ministerial Council for Energy (MCE), has requested that a Strategic Plan be prepared and submitted for SCO's consideration by December 2004. It is envisaged that the Plan will look forward about ten years, with a detailed work program for the first three to four years.

This document outlines the main issues to be addressed and the program elements to be put in place to enable the establishment and smooth operation of the GAEEEP. Some over-arching matters such as agreement on a regulatory model and the administrative arrangements to support it will need to be resolved during the development of the Strategic Plan over the coming months.

The Strategic Plan itself will, in essence, set out the principles for the technical elements of the GAEEEP and a process and schedule to develop those elements. It will identify who could carry out the tasks, and specify the resources that will be needed and the time required.

Early feedback on the issues in this Outline were obtained during the GAMAA Annual Conference in August 2004. Some of the comments raised have been incorporated in the present document.

Comments on this document are invited up to mid September, preferably using the Feedback Form on the SEAV website (www.seav.vic.gov.au/energy_efficiency/gas_meps.asp).

Following consideration of comments, the full Strategic Plan will be drafted and released for comment around mid-October, with the public consultation and comment period closing by mid-November to give enough time to prepare the final version and put forward a proposal to SCO in December, as requested.

Contents

OVERVIEW OF THIS DOCUMENT	2
<i>Abbreviations</i>	4
BACKGROUND TO GAEEEP	5
<i>Commitment by Australian Governments</i>	5
<i>Industry Position</i>	6
ELEMENTS OF THE STRATEGIC PLAN	7
<i>Regulatory Framework</i>	7
Australia	7
Trans-Tasman issues	8
<i>Product Coverage</i>	9
Criteria for inclusion	9
Coverage by gas type	10
Application of criteria	10
<i>Standards and Ratings</i>	11
Research on appliance selection and use	11
Structure and content of standards	12
Ratings and labels	13
<i>Regulation Impact Statements</i>	14
RIS guidelines	14
Conduct and timing of RISs	15
<i>Administration</i>	16
Management framework	16
Testing and registration	16
Transition from existing certification scheme	18
Funding	19
<i>Stakeholder Communications</i>	19
Product Suppliers	19
Other Stakeholders	19
Retailers	20
Consumers	20
<i>Compliance</i>	20
Label verification	21
Registration and check testing	21
<i>Monitoring, Reporting and Review</i>	22
<i>Lead times and stability periods</i>	22
DEVELOPMENT OF THE STRATEGIC PLAN	24
<i>Process and consultation</i>	24
<i>Summary of Issues Identified for Strategic Plan</i>	24
Regulatory framework	24
Product coverage	24
Standards and ratings	25
Regulation impact statements	25
Administration	26
Stakeholder communication	26
Compliance	26
Monitoring and review	27
Lead times and stability periods	27
<i>References</i>	28
<i>Appendix 1 Product Categories Covered by AGA and ALPGA Approval Certification Scheme</i>	29
Domestic and Commercial Appliances	29
Commercial Catering Equipment	30

Abbreviations

AGA	Australian Gas Association
AGO	Australian Greenhouse Office
AG	Australian Gas (product standard)
AS	Australian Standard
BAU	Business as usual
COAG	Council of Australian Governments
EECA	Energy Efficiency and Conservation Authority (New Zealand)
EEWG	Energy Efficiency Working Group
GAEEEP	Gas Appliance and Equipment Energy Efficiency Program
GAMAA	Gas Appliance Manufacturers Association of Australia
GTRC	Gas Technical Regulators' Committee
LPG	liquefied petroleum gas
MCE	Ministerial Council on Energy
MEPS	Minimum Energy Performance Standards
NAEEEC	National Appliance and Equipment Energy Efficiency Committee
NAEEEP	National Appliance and Equipment Energy Efficiency Program
NATA	National Association of Testing Authorities
NFEE	National Framework for Energy Efficiency
NG	natural gas
NGS	National Greenhouse Strategy
OGS	Office of Gas Safety (Victoria)
PC	Productivity Commission
RIS	Regulation Impact Statement
SCO	Standing Committee of Officials (reporting to MCE)
SEAV	Sustainable Energy Authority of Victoria
TG	town gas
TLP	tempered liquefied petroleum gas
TTMRA	Trans Tasman Mutual Recognition Agreement

Background to GAEEEP

The Office of Gas Safety (OGS), Sustainable Energy Authority Victoria (SEAV), and the Australian Greenhouse Office (AGO) have formed a joint industry-government working group with the Gas Appliance Manufacturers' Association of Australia (GAMAA), the Australian Gas Association¹ (AGA) and Standards Australia, to explore options for improving the effectiveness of the current industry-run gas appliance efficiency scheme to drive energy efficiency improvements in gas appliances. The scheme covers both Minimum Energy Performance Standards (MEPS) and energy labelling.

The aim is to put in place a new national gas appliance and equipment energy efficiency program (GAEEEP) as a joint government-industry partnership, modelled on the national appliance and equipment energy efficiency program for electrical appliances (NAEEEP). The first priority is water heaters, but other products will be covered as well.

This objective was approved in principle at the June 24 meeting of the Standing Committee of Officials (SCO), which has requested that a Strategic Plan be prepared by December 2004, which, if approved, will then be submitted to the Ministerial Council for Energy (MCE) for consideration.

Commitment by Australian Governments

In the 1998 *National Greenhouse Strategy*, the Council of Australian Governments committed to 'working with industry to improve gas appliance minimum energy performance standards (MEPS) and labelling programs' (NGS 1998, 48).

After some early discussion, the process accelerated in 2002 with the publication of a study which reviewed the existing MEPS and labelling program for gas appliances in Australia, and made comparisons with overseas test methods and MEPS levels. This was published as *Energy labelling and minimum energy performance standards for domestic gas appliances* (MEA 2002).

In July 2003 SEAV published the Discussion Paper *Driving Energy Efficiency Improvements to Domestic Gas Appliances* on behalf of the joint government-industry working group. Submissions on the Discussion Paper indicated that key stakeholders, including the Gas Technical Regulators Committee (GTRC) and GAMAA, support the transition to the new national regulatory framework.

The Prime Minister's June 2004 Statement *Securing Australia's Energy Future* announced that:

'The successful Minimum Energy Performance Standards (MEPS) programme will be further expanded in concert with state and territory governments. MEPS

¹The energy policy-related activities formerly carried out by the AGA are now with the new Energy Networks Association. AGA now focuses on gas and related product certification, conducted through the Australian Gas Industry Product Certification Scheme Ltd.

will be applied to a greater range of appliances (gas appliances and some commercial equipment), and more stringent standards will be applied to appliances already included.'

The National Framework for Energy Efficiency (NFEE), which is currently under development, is also likely to endorse expansion of MEPS and labelling programs.

In New Zealand, support for participation in the proposed GAEEEP has been expressed by officials in the Energy Efficiency and Conservation Authority (EECA) but not, so far, by the gas technical regulator, nor at the Ministerial or Prime Ministerial levels.

Industry Position

The Gas Appliance Manufacturers Association of Australia (GAMAA) and the Australian Gas Association (AGA) have publicly indicated their in principle support for a transition to the new national regulatory framework, subject to satisfactory resolution of the details (SEAV 2003). Several matters have been discussed and agreed between representatives of GAMAA and the government agencies charged with developing the new national scheme.

In its submission on EECA's *Appliance and Equipment Energy Efficiency Forward Programme 2003-2005*, which made reference to the SEAV Discussion Paper, *Driving Energy Efficiency Improvements to Domestic Gas Appliances*, the Gas Appliance Suppliers Association of New Zealand stated its opposition to mandatory labelling and MEPS for gas appliances. The apparent differences between the views of New Zealand officials and of the New Zealand gas and gas appliance industries in this regard will require clarification.

Elements of the Strategic Plan

Regulatory Framework

Australia

At its meeting on June 24, SCO requested that Australia's national appliance & equipment energy efficiency program be expanded in scope to include gas as well as electrical appliances. While NAEEEP would become the overall 'umbrella' program for appliance and equipment efficiency, this left open the possibility of different administrative structures to implement the gas elements of the program.

It is likely that the regulatory framework for the GAEEEP will resemble the NAEEEP. A preliminary investigation suggests that the legislation covering the approval and sale of gas appliances in each State and Territory includes powers to make regulations for the energy efficiency and energy labelling of appliances, in addition to powers to make regulations for safety, the traditional focus of such legislation.

It will be necessary for each State and Territory to verify that this is so, to ensure that the powers apply at the point of product sale (not just at the point of connection to the gas network), and to enact uniform regulations regarding gas appliance MEPS and labelling. This will establish a direct link between the regulations and the relevant Australian Standards, rather than the present arrangements under which, in some jurisdictions, products are required to have AGA certification in order to be sold, so creating an indirect link to any labelling and MEPS elements in that certification.

If they follow the format of the corresponding electrical appliance energy efficiency regulations, the gas appliance energy efficiency regulations will need to include:

- A means for scheduling categories and types of gas appliances to be subject to mandatory MEPS and energy labelling (probably a subset of the products subject to safety approval);
- References to the Australian Standards (or Parts of Standards) containing the energy tests, related performance tests, labelling requirements and MEPS levels;
- The requirement that products be registered, the conditions of registration (eg fees, the submission of test results), a registration mechanism in that jurisdiction and/or the recognition of registrations in other States and Territories;
- A process for verifying compliance; and
- Penalties for non-compliance by retailers, product suppliers etc.

The regulations may allow for approved third parties (eg the AGA) to certify that products meet the relevant energy labelling and MEPS provisions, although if a direct registration power is established this may not be the case. If it is the case, the

regulations may also need to contain provisions for the approval, authorisation, performance monitoring and, if necessary, deregistration of certifiers.²

In the event that State and Territory-based regulations prove cumbersome to implement or cannot be implemented without undue delay, the proposed mandatory water efficiency labelling program might offer an alternative regulatory model for consideration. A bill currently before the Federal Parliament provides for the Commonwealth to make regulations for the registration, minimum water efficiency and water efficiency labelling of scheduled products, with the head of the Commonwealth Department of the Environment and Heritage designated as the program administrator.

Trans-Tasman issues

When the Trans-Tasman Mutual Recognition Agreement (TTMRA) was implemented in 1998, gas appliances were designated as one of 5 (subsequently 6) categories for “special exemption”.(PC 2003) This means that trade in gas appliances is exempt from the TTMRA rules for temporary or for permanent exemption that apply to, say, electrical appliances.

For each category of special exemption a “Five Year Co-operation Program” was established with the objective of resolving the issues which prevent that product category from becoming part of the general TTMRA regime. This program has not been completed for gas appliances, so the special exemption remains in place.

The development of the new GAEEEP will obviously become another factor to be resolved within the Co-Operation Program before the special exemption status of gas appliances can be reviewed. The Strategic Plan should identify links between GAEEEP and the TTMRA Co-Operation Program via process, stakeholders and milestones.

If New Zealand wishes to participate in the GAEEEP, as it now participates in the NAEEEP, it will be necessary to resolve a number of significant differences in the regulatory regimes for gas appliances. While gas appliances sold in New Zealand must comply with an appropriate gas product standard, this is not restricted to the Australian standard. Japanese, Canadian, USA and United Kingdom standards are also recognised. Consequently there are many model types and brands on the New Zealand market that are not sold in Australia and are not certified.

As it is likely that the technical criteria for GAEEEP will be embodied in Australian Standards (or, if developed, joint Australian and New Zealand Standards), products meeting other standards may well have to be also tested to the relevant provisions of the AS/AG/NZ standards in order to be certified for sales in Australia.

It would be desirable for the New Zealand government and gas industry to focus on what is necessary to clear the way for full participation in the GAEEEP. Unless this is done early in the process, there is a real possibility that GAEEEP will evolve in a way that precludes full New Zealand participation. New Zealand could still derive significant benefit because the average efficiency of gas appliances sourced from

² This issue is canvassed in the proposed Gas Supply (Gas Appliances) Regulations 2004, under the NSW Gas Supply Act 1996, and the AGA’s response to the proposal (both dated June 2004, both published on the AGA website).

Australia would increase, and all would probably arrive energy labelled (whether or not the labels remain on the products at the point of sale in New Zealand). However, the program would not necessarily influence the efficiency or labelling of other gas products in New Zealand.

Product Coverage

The Strategic Plan should set out a priority order of products to be considered for inclusion in the GAEEEP, and the criteria to be applied when products are considered for inclusion. The mode of coverage might be different for different products. For some, MEPS and physical point-of-sale labelling might best serve the objectives of the GAEEEP, while for others mandatory registration of product energy efficiency on a website might be sufficient.

Criteria for inclusion

The suggested criteria for inclusion are:

1. Whether that product is already covered by the existing AGA scheme;
2. Magnitude of gas consumption by that product group (current or projected);
3. Existence of AS/AG test standard, or reasonable prospect of development of such a standard (whether by adoption/adaptation of existing international standards or development from scratch);
4. For products considered for mandatory registration and physical labelling (typically household and consumer products) – likelihood that prospective customers will see the physical label and make use of it in purchase decisions;
5. For products considered for mandatory registration, with optional physical labelling (typically commercial and industrial products) – likelihood that specifiers will seek out the information from the register and use it in their selection decisions;
6. For products considered for MEPS – the likelihood of setting a MEPS level which will impact on the market while also meeting cost/benefit and other criteria.

The highest priorities for inclusion are those domestic products already covered by the existing AGA scheme, and of those the order of priority based on gas consumption are:

- a. Water heaters
- b. Ducted heaters
- c. Room (space) heaters – flued and unflued

The first 3 years of the 10 year Strategic Plan are likely to focus on these products.

Consideration will also be given to domestic gas appliances not currently included in the AGA program, such as boilers for hydronic heating systems, cooktops, ovens and other household products.

Consideration will also be given to including those commercial/industrial products which meet the selection criteria, possibly including commercial gas water heaters, packaged boilers and commercial catering equipment (see Appendix 1).

Coverage by gas type

The Strategic Plan will also have to clarify the coverage of products by gas type. The Standards usually cover all gas variants of products, whether designed for natural gas (NG), town gas (TG), liquefied petroleum gas (LPG) or tempered liquefied petroleum gas (TLP). The issues to be resolved are:

- Should non-NG variants of products which are mostly used with NG be included in the GAEEEP?
- Should products which are generally or solely used with LPG be included?

Application of criteria

The process of considering products for inclusion in the GAEEEP would be similar to the one adopted for the NAEEEP. The first step would be the preparation of a Product Profile to describe the product, its technology and its market, and to make a preliminary assessment with regard to the criteria for inclusion in the GAEEEP and to suggest possible labelling and/or MEPS approaches.

The release of the Product Profile would initiate a period of public comment and consultations with stakeholders. A decision to proceed to further evaluation will then be taken by the parties managing the GAEEEP. (It is not necessary to prepare new profiles on the household products already covered by the existing AGA labelling and MEPS schemes, since several detailed studies have already been completed, and these are automatic candidates for proceeding to the next step in the evaluation).

For some products, the Product Profile may conclude that the product is unsuitable for coverage, and - subject to the agreement of stakeholders - that would be the end of the evaluation process. (This has occurred with a number of products considered under the NAEEEP). For products which are considered likely to meet the criteria for inclusion, the next steps would be:

- The development of detailed labelling and/or MEPS proposals in consultation with stakeholders (this may involve drafting a new or revised A/NZ Standard);
- If the Ministerial Council on Energy decides to proceed with the regulatory proposal, the preparation of a Regulation Impact Statement;
- Subject to a satisfactory RIS, the MCE would decide to implement the regulatory proposal, and jurisdictions would schedule the product in their regulations.

One element of the Strategic Plan will be a proposed schedule for preparation of Product Profiles, taking into account the relative priority of products and the resources available to the GAEEEP for carrying out the necessary work.

Standards and Ratings

A key element of the Strategic Plan will be to ensure that the test standards for gas appliances support the objectives of the GAEEEP. This means that, among other things:

- the tests should fairly reflect the way that products are likely to be used by consumers;
- the description and classification of products should reflect market segments as well as technical criteria, so that consumers can compare the products which are likely to compete for their selection; and
- the structure of the standards should facilitate linking to regulations and the general administration of the scheme.

Research on appliance selection and use

Water Heaters

There are several areas of controversy with regard to the use of gas water heaters. The task efficiency of a water heater varies with both daily hot water consumption and the pattern of use (ie frequency of drawoffs and the magnitude of each drawoff). Also, if the user discards the initial flow before it reaches the desired temperature, the energy in that water and the water itself are both wasted.

It may be possible to incorporate these factors into the method of rating gas water heaters, possibly at relatively low cost, using simulation techniques based on the physical tests. However, there is little point in making this effort unless all parties to the standards development process support it, and there is an objective basis for incorporating this approach into the information that reaches consumers.

Research on hot water use in households of various size (eg 1-2 person, 3-4 person etc), layouts and appliance mixes is necessary to enable informed debate about changing the gas water heater tests and rating algorithms. It is understood that there is some existing research, but it is not recent and its geographic coverage is limited.

Space Heaters

While all water heaters provide a comparable service, this is not necessarily the case with space and room heaters. There is a very wide range of gas space heaters on the market, and the categorisation is not entirely consistent, as Table 1 indicates.

The AGA has historically used a system based on its technical standards, whereas GAMAA uses a categorisation that more closely corresponds to the way that gas heaters are marketed. Another approach to classification is from the consumer's perspective – to group the products that are likely to be within the consumer's search criteria, so that the potential buyers can more easily compare the energy efficiency of alternatives, and understand the energy consequences of features such as flame or log effects. Again, such an approach needs the support of all parties to the standards development process, and should be backed by consumer research on the gas space heating market.

Table 1 Alternative categorisations of gas space heater types

GAMAA Categories (a)	AGA Categories (b)	Possible GAEEP Categories (c)
Central Heaters	Ducted air heaters	Ducted
Flame fires	Flued radiant/convection	Flued – radiant/effect
Flued radiant		
Portable convection	Flueless convection	Unflued
Portable radiant	Flueless radiant/convection	
Portable radiant convection		
Power flued	Balanced flue convection	Flued – convection only
Wall furnaces	Wall furnaces	

(a) GAMAA website (b) AG 103, AG 106 (c) GWA 2004

Structure and content of standards

The structure of the Australian Standards supporting the electrical appliance program has evolved in parallel with the regulatory requirements, and this approach is may be appropriate for gas product standards as well. In general, different parts of each electrical appliance standard describe the energy and performance tests (the same parts usually contain minimum performance criteria, eg for washing or drying). The MEPS levels, physical energy labelling requirements, algorithms (the formulae which translate the raw test results into the energy ratings on the label) and criteria for describing products as “high efficiency” are usually in another part, which is under the control of the regulatory bodies.

The advantage of this modular structure is that different parts can be updated independently. For gas appliances there may also be a case for having the safety requirements separated in a different part. Existing State gas technical regulations focus on safety approvals and certification, and retaining these element in a distinct part could increase the flexibility of the regulatory regime if, for example, the energy efficiency requirements were to be contained in different regulations under the same State legislation, in different State legislation or, indeed, in Commonwealth legislation.

The technical design of the tests will need to anticipate approaches and data that may not be available until later. For example, the physical tests for gas water heaters should measure all the values necessary to estimate or simulate a wide range of different drawoff and usage patterns, so that if research indicates the adoption of different energy rating approaches for task efficiency and water wastage, these can be implemented without additional physical testing.

MEA (2002) identified a number of issues related to the testing of gas water heaters, including the maintenance rate test, recovery efficiency for storage water heaters and treatment of startup energy for instantaneous water heaters. Some of these are now being addressed by the relevant subcommittees of Standards Australia. AGO is currently funding some work on the water heater test standards to assist Standards Committee AG-001. The steps needed to resolve the test and method of test issues for water heaters and other products needs to be part of the Strategic Plan.

Ratings and labels

The star ratings appearing on gas water heater labels are based on a “standard reference” unit which uses 28,900 MJ per year performing a task of delivering the equivalent of 200 litres of hot water per day raised 45°C. The standard reference unit is equivalent to a water heater which just meets the current MEPS level for minimum thermal efficiency and (for storage water heaters) maximum maintenance rate, although there is no longer such a model on the market.

Under the NAEEEP the energy label rating algorithms are related to MEPS levels, and so need to be reviewed from time to time as MEPS levels are tightened. If the least efficient models permitted on the market are rated at one star, then the progression to higher ratings gives buyers a quick visual indication of the relative energy efficiency of the various models on the market.

At the time the new labelling scale is adopted, no model should rate at the top of the scale (ie 6 stars) because there should be scope for suppliers to introduce still more efficient models which achieve a higher rating. How far short of the top of the scale the most efficient model should be requires some judgement about the scope for further technical improvement and the rate at which progress towards higher efficiency will be made. Experience with the NAEEEP has shown that regulators have in the past underestimated the scope for and pace of improvement for some products, with the result that models have rapidly clustered near the top of the labelling scale, undermining the value of the label as a comparative indicator for buyers.

The transition to the GAEEEP provides an ideal, low-cost opportunity to review all aspects of the gas appliance label, including the rating scales, the label design and such details as the mode of indicating increments (eg only half-star increments are permitted on NAEEEP labels, whereas the current AGA scheme allows decimal increments). The following factors should be considered:

- the starting point or reference for the label scale. The rationale for continuing to base the gas water heater rating scale on an obsolete model that can no longer be sold should be reviewed. MEPS levels are likely to become more stringent under the GAEEEP, so unless the base for the rating scale also changes buyers will see a narrower and narrower range of ratings on the market - perhaps only 4 or 5 stars. This will not necessarily be a problem if the higher MEPS levels become effective drivers for increasing the sales-weighted energy efficiency of products;
- alternatively, if it remains an objective to have a reasonable range of ratings on the market (say not less than 4 gradings), this could be accomplished either by shifting the rating scale (eg the present 3 stars becomes 1 star and 6 becomes 4) or by elongating it (5 stars remains 5 but there are smaller intervals between gradings);
- the value of increasing the visual consistency of the gas appliance label with the Energy Rating (and to a lesser extent, the forthcoming Water Rating) labels. Simple design changes could increase the consumer awareness of and tendency to use the gas labels in the purchase decision, as well as reduce the risk of confusion between old and new series gas labels.

Regulation Impact Statements

RIS guidelines

GAEEEP proposals will be subject to the same requirements for Regulation Impact Statements (RISs) as the NAEEEP and other mandatory programs. Under Council of Australian Governments (COAG) guidelines proposals to implement or strengthen mandatory programs such as MEPS must be subject to a RIS, which must estimate the benefits, costs and other impacts of the proposal, assess the likelihood of the proposal meeting its objective, and consider a range of alternatives (COAG 1997).³

All RISs compare the proposed action to “no government intervention” or “business as usual”, which in this case would mean leaving gas appliance energy efficiency standards and energy labelling requirements to the existing industry scheme (with the risk, however remote, that such requirements might be abandoned).

The transition to a mandated GAEEEP will create new obligations and constraints, even for products already subject to energy labelling and MEPS under the AGA scheme, eg:

- An obligation on retailers and other intermediaries to display energy labels on products offered for sale. At present the only labelling obligation is on suppliers;
- An obligation on suppliers to test (or re-test) and register (or re-register) all models by a given date whenever energy labelling or MEPS are introduced or changed. At present models only have to be re-tested and re-registered when there is a change in product design. Where there are no such changes, a model may continue on the market with its original label even though the labelling and MEPS requirements for models registered later may have changed.

These additional obligations would apply to products already within the ambit of the AGA program. The impacts for products that would become subject to energy efficiency requirements for the first time under GAEEEP would of course be greater.

In keeping with current AGA and NAEEEP practice, it is likely that products lawfully manufactured or imported before a date at which MEPS are introduced, or more stringent MEPS take effect, could continue to be sold indefinitely. In this respect the GAEEEP may not be more onerous than present arrangements (although there may be a

³ The COAG Guidelines state that:

“The purpose of preparing a regulation impact statement (RIS) is to draw conclusions on whether regulation is necessary, and if so, on what the most efficient regulatory approach might be. Completion of a RIS should ensure that new or amended regulatory proposals are subject to proper analysis and scrutiny as to their necessity, efficiency and net impact on community welfare. Governments should then be able to make well-based decisions. The process emphasises the importance of identifying the effects on groups who will be affected by changes in the regulatory environment, and consideration of alternatives to the proposed regulation.

Impact assessment is a two step process: first, identifying the need for regulation; and second, quantifying the potential benefits and costs of different methods of regulation. In demonstrating the need for the regulation, the RIS should show that an economic or social problem exists, define an objective for regulatory intervention, and show that alternative mechanisms for achieving the stated objective are not practicable or more efficient” (COAG 1997).

case for re-testing products whose claims for compliance with the superseded MEPS are based on questionable test methods).

However, any MEPS set under GAEEEP would be more onerous than current MEPS. For example, it is understood that the proposal in the revision of AS 4552/AG102 to raise the minimum thermal efficiency requirement for gas water heaters from 70% to 75% from 1 January 2005 would not affect any model now on the Australian market. Under the GAEEEP, MEPS would be set at levels that excluded some existing models, otherwise the main objective of the program, to drive gas consumption below BAU, would not be met.

Conduct and timing of RISs

The Strategic Plan will need to consider the points at which RISs are necessary and allow for the time and resources to complete the process, including public consultations.

The process would be streamlined if each RIS met the requirements of all governments participating in the GAEEEP, including New Zealand. It would also be helpful to plan the RISs so that each could cover a range of linked regulatory proposals, eg mandatory registration, labelling and MEPS for a particular product group, or, in the case of mandatory labelling, cover all affected products.

On the other hand, it may be advisable to de-link some proposals in order to more rapidly implement measures which require shorter lead times, such as mandatory labelling, from those which may require years to develop and implement, such as more stringent MEPS levels. Indeed, the costs and benefits of different phasing-in scenarios, including the deferment of major label change until MEPS issues are resolved, might be among the range of options to be considered in a gas appliance labelling RIS.

Administration

Management framework

The work load of establishing the GAEEEP may be heaviest in the next 2 to 3 years, when considerable effort will have to be made to refine tests, revise standards, develop rating algorithms and initiate RISs. Consequently it may be useful to manage this initial phase somewhat differently from the longer-term management framework more suited to a mature program. In this first phase an 'Implementation Committee' drawn from government agencies that have already nominated to take key roles, such as the Victorian Office of Gas Safety (OGS), the Australian Greenhouse Office (AGO) and the Sustainable Energy Authority Victoria (SEAV), may be appropriate.

In the longer term the management structure for the GAEEEP is likely to comprise a committee of the AGO, State and Territory gas technical regulators, State and Territory agencies responsible for energy efficiency programs, and their New Zealand counterparts. This would be analogous to the composition of the National Appliance and Equipment Energy Efficiency Committee (NAEEEC). The AGO is likely to chair both committees, and there would no doubt be considerable overlap in membership, this would ensure a high degree of consistency between the GAEEEP and the NAEEEP. Joint sittings might be appropriate from time to time, to share experience from the respective programs and resolve common issues.

Whether 'GAEEEC' reports in its own right to MCE via the Energy Efficiency Working Group, whether it reports via NAEEEC or whether both report via some new co-ordinating entity has yet to be considered. Given the high degree of overlap in function and composition, and SCO's request that gas appliances be included under the banner of NAEEEP, there is likely to be support for a unified line of reporting.

Industry stakeholders have many opportunities to participate in the NAEEEP via membership of the relevant Standards committees, participation in special working groups set up from time to time (eg to review MEPS levels for a specific product type, or to consider the transition to a revised label), via the formal consultation phases of RISs and via participation in annual NAEEEP Forums.

It is likely that all of these avenues would be available to GAEEEP stakeholders in due course. In the first years of the GAEEEP there may be need to be several working groups – in addition to the existing government-GAMAA Task Force, or perhaps under its wing – in order to make rapid progress on a number of fronts simultaneously.

Testing and registration

For electrical products, all States maintain a registration capability for product safety, but only four States maintain a registration capability for energy efficiency. The agencies responsible for the two types of registration in each State may be different, and the energy tests are carried out independently of safety inspections or tests.

Safety, performance and energy testing is more closely linked for gas appliances. The same laboratory is likely to conduct all the necessary tests on the one product, and the certifying body (AGA) will receive and evaluate all tests, and certify that the product

meets all relevant requirements. The main relationships in these arrangements are illustrated in Figure 1.

There appear to be a number of options for registration of gas product for labelling and/or MEPS under GAEEEP:

- States and Territory gas appliance efficiency registrars could require that energy tests from accredited laboratories be submitted to state agencies along with applications for registration⁴;
- States and Territory gas appliance efficiency registrars could require certification by a third party that a product meets the necessary energy criteria. This is analogous to the present situation with gas safety, and would require the authorisation of one or more third parties to carry out this function. (At present the only entity authorised by all states to undertake gas product certification services is the AGA, but it is understood that other parties are also preparing to offer such services); or
- Allow both options, so that parties can register directly for energy efficiency, say, while remaining within the current certification arrangements for product safety.

These alternative registration pathways are illustrated in Figure 2.

It may be more robust to establish a direct registration capability, so that the program would not be vulnerable if for some reason a certifying body ceased to operate or if its authorisation were withdrawn. However, if the energy registration fees charged by State agencies were significantly lower than those charged by certifiers (eg because they did not recover the full costs) this could undermine the commercial viability of the certifiers, to the detriment of the safety certification framework.

The establishment of alternative or multiple registration pathways could also create a risk of higher program costs and more complex administrative arrangements for suppliers. At the very least, the economies of allowing one set of product tests to yield results acceptable for all purposes (safety as well as energy) should be retained, even if the results are then submitted under different regulations to different registration or certification bodies.

⁴ Australia has four laboratories NATA-accredited to carry out certification tests for gas appliances: Agility Management (formerly AGL) in Auburn, Sydney; Origin Energy at Hindmarsh, Adelaide; Enertech at Studfield, Melbourne and Gas Technology Services at Port Melbourne. Not all labs have accreditation for all types of test work.

Figure 1 Schematic diagram of existing certification scheme

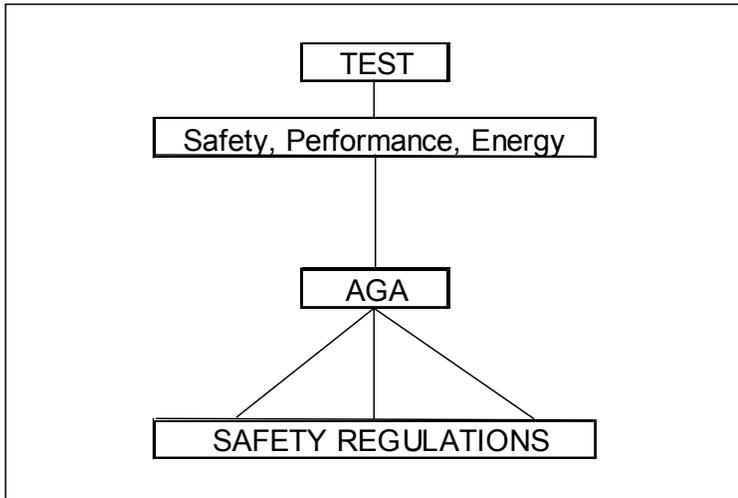
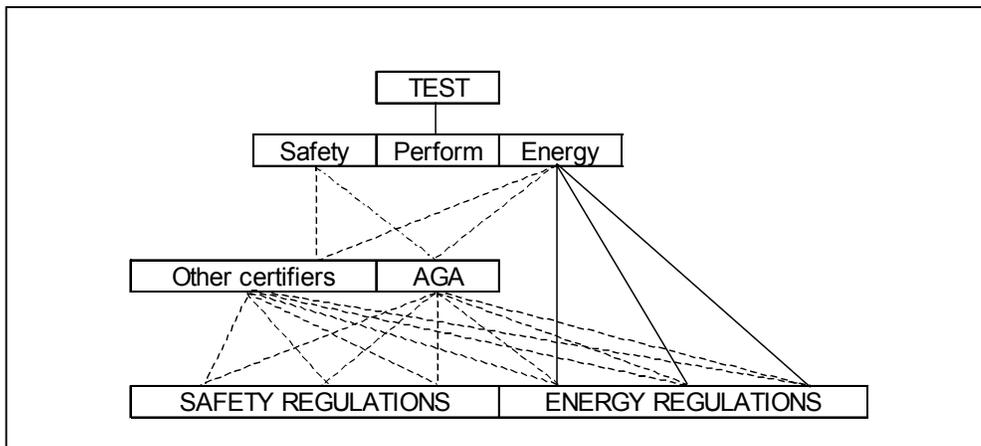


Figure 2 Schematic diagram of possible new administrative arrangements



Transition from existing certification scheme

For maximum effectiveness the GAEEEP will need to completely replace the existing AGA energy labelling program, not co-exist with it. Consumers will then be able to compare all products tested on the same basis, using visually uniform labels.

The regulations are likely to enforce the termination of energy ratings and labels obtained under the current AGA program from the commencement date of the GAEEEP. It will then be unlawful to make statements about gas appliance energy performance in any form other than the GAEEEP energy label, or with reference to any test standards other than those recognised by the regulations.

The AGA may wish to anticipate the termination of the energy efficiency aspects of registrations, and advise new registrants and those renewing their registrations (as is required annually) to that effect. At the same time, given that the GAEEEP may not

take effect for some time, it would be important to maintain the current program at its maximum effectiveness for the duration.

Funding

During the initial development phase, funding will be required to support working groups, to develop tests and to carry out special studies and RISs. Once the GAEEEP is under way the budgetary requirements should be somewhat lower than those for the NAEEEP, since fewer product classes will be covered and there should be some economies from co-ordinating activities such as meetings, website maintenance and annual stakeholder forums across the two programs

The Strategic Plan will need to consider funding needs and sources for all elements of the program. One threshold decision is the sharing of costs between Commonwealth, State and Territory governments and parties registering products. The NAEEEP provides for registration fees that more or less cover the transaction costs of each five-year registration, but do not seek to recover other program costs.

NAEEEP fees are independent of sales volumes, in contrast to the fee scale for the AGA certification, which is tied to sales volumes by the requirement that registrants purchase badges from the AGA to fix to every unit sold.

Stakeholder Communications

The Strategic Plan will need to identify the key communication needs of the GAEEEP at different phases of its development.

Product Suppliers

Manufacturers and importers are already involved in the development of the program through the GAMAA Task Force, and will need to become even more involved in the next 3 years. However not all manufacturers and importers are members of GAMAA. The most effective channels of communication may be working groups set up around specific products or specific standards.

Other Stakeholders

Stakeholders such as Standards Australia, NATA, consumer groups⁵, the AGA and potentially other certification bodies will need to be involved, together with GAMAA and regulators, in developing the general principles to be applied in all standards and the administrative framework covering all products.

⁵ The Australian Consumers Association is well aware of the limitations of the current labelling regime, in particular that as long as the supplier complies with the testing and labelling requirements in force at the time of product registration, it is not required to retest or relabel that product when there is a change in the test. In a recent report on instantaneous gas water heaters, the ACA commented: "This means the star ratings you see in shops may not be based on comparable test conditions, and a model with a higher star rating may actually be less efficient than another with fewer stars – rendering the star rating scheme useless. We suggest you ignore the number of stars on this type of water heater til things are sorted out" (*Choice*, October 2003).

Retailers

Retailers as a group have no obligations under the current gas labelling program, and would need to be informed about their obligations to display the correct label under the GAEEEP. Many retailers sell both gas and electric appliances, so they will already be familiar with NAEEEP requirements. Matching these requirements as closely as possible with the GAEEEP, and harmonising the visual formats of the two labels, would be of considerable assistance to retailers and their sales staff, who will need some training in interpreting and explaining the gas product labels.

Consumers

The level of consumer awareness of the existing gas labels has not been consistently monitored, but occasional surveys have shown that it is generally lower than awareness of the electric appliance label. Even so, it will be necessary to avoid confusion between the existing program labels and the new GAEEEP labels when they are introduced. The easiest way to do this is by changes in the appearance of the label that are obvious enough to indicate a discontinuity but small enough to reassure users that the essential function of the label remains. This was the approach used in the transition from old to new series electric appliance labels in 2000.

User awareness of the gas label may be assisted if it could be read in the same steps as the new electrical appliance label. One feature of the new electrical label design which could be applied to the gas label is standardisation on half-star increments. Integer steps are too coarse but allowing labelling to one decimal place, equivalent to nominal differences of only 200 MJ/yr for water heaters, may be less than the margin of error in the tests, and could confuse rather than clarify real efficiency differences between models.

The Strategic Plan should also cover the development of supplementary communication media, in particular the Internet. The data from a number of registries may need to be combined, and made available to the public via a user-friendly, searchable database, preferably linked to the AGO's www.energyrating.gov.au website.

Compliance

It is important to have a compliance regime in place prior to the implementation date of the GAEEEP - the date from which it becomes unlawful to supply gas appliances that fail the prescribed MEPS levels or those which do not carry the correct label. The regime will need to set out the procedures to be followed in the event that unlabelled or mis-labelled products are found, or in the event that check testing finds that a product's performance deviates from that claimed in its registration by more than the permitted margin. For the NAEEEP these issues are covered in the *Administrative Guidelines* (NAEEEP 2000).

Liable parties will also want to know the level of resources that regulators propose to allocate to compliance checking.

Label verification

The presence of a gas energy label on a product at the point of sale can be easily verified by inspection. Some State gas regulators already have inspectors undertaking occasional showroom visits in order to verify that gas appliances carry AGA certification labels, so the extra costs of verifying the presence of energy labels would be negligible. Where there is no existing program of inspections, special surveys such as those commissioned for the NAEEEP would be necessary. As many retailers carry both gas and electric appliances, joint surveys could be carried out.

Registration and check testing

Registration testing is carried out at the expense of the party seeking registration, and the test results must be submitted with the application for registration. Check testing is undertaken at the instigation of and at the expense of the regulator.

The current AGA certification program provides for products to be subject to a 'Product Verification Audits' (PVA) to ensure that the design corresponds the registered characteristics. The aim of check testing for compliance with mandatory labelling and MEPS is to ensure that every unit offered for sale meets the level of energy performance stated in its registration. The check testing rules need to allow for some inevitable variability in manufacture, so there are allowable margins and provisions to test additional randomly selected units in the event that the first unit fails.

For the NAEEEP some of these check testing rules are incorporated in the test standards themselves and some in the *Administrative Guidelines*. The GAEEEP Strategic Plan should allow for the development of similar rules, so that they can be incorporated into the revision of gas standards or separate Guidelines - in general the rules are not suitable for incorporation into the regulations themselves.

Some of the issues to be considered are:

- The qualification of laboratories to undertake registration testing: NAEEEP now requires all registration testing to be undertaken in a laboratory accredited by NATA or in a laboratory accredited by a body with a mutual recognition agreement with NATA.
- Whether registration testing may be undertaken in the manufacturer's own facility, if that meets the qualification requirements, or only in an independent laboratory;
- The qualification of laboratories which undertake check testing;
- The ability of regulators to refuse further registration tests from laboratories whose test results exceed a given failure rate in subsequent check tests;
- The sharing of costs of additional check tests in the event that more than one is necessary;
- The overall annual budget to be allocated by the regulators to check testing.

Monitoring, Reporting and Review

One of the features of the NAEEEP is an established review and reporting process. Key indicators of activity and impact (some reported annually in the *Achievements* document, some less often), include:

- Coverage of the program by appliance types and by proportion of energy consumed;
- Level of compliance with check testing, including deregistrations;
- Level of compliance with labelling, including retailer prosecutions;
- Consumer awareness of labels;
- Sales-weighted energy efficiency of products sold; and
- Projections of impacts, costs and benefits for the program as a whole (generally prepared every 3 years).

A similar level of monitoring and reporting would be expected for the GAEEEP, and the Strategic Plan will need to provide for the establishment of the means to do so if they do not exist – for example, better data collection on gas appliance sales so that sales-weighted efficiency can be tracked.

The annual NAEEEP Forums (held alternately in Melbourne and Sydney) provide a valuable opportunity to report on the program and for stakeholders to become aware of and comment on new developments.

The GAEEEP Strategic Plan should include proposals for similar monitoring, reporting and review activities, either separately from or in combination with the NAEEEP (reducing time and travel costs would obviously be a factor). It is possible that in the early phase of the GAEEEP it would be appropriate to hold meetings alongside gas industry events (as is the case with the GAMAA 2004 Conference), but as the program matures, annual reviews could be combined with the NAEEEP events.

Lead times and stability periods

Minimising implementation costs to product suppliers, and hence to product buyers, would be one of the objectives of the GAEEEP. This can be assisted by giving sufficient notice to industry of the introduction of new requirements. For example, where an increase in MEPS levels would lead to the introduction of new models more efficient than any currently on the market, it would be reasonable to allow a lead time of 3 years or so from the time the requirements are agreed. Furthermore, in recognition of the need to amortise the necessary capital investment, manufacturers should be assured of a ‘stability period’ for the new requirements – 5 years would be reasonable.

However, MEPS may not require the introduction of new models, but only the removal of some existing models. If there is high public benefit from taking this step sooner rather than later, and provided no suppliers are unfairly disadvantaged (eg by having

their entire product range affected), it may be reasonable to have a somewhat shorter lead time.

The introduction of mandatory energy labelling would not, of itself, involve any change in the product lineup. However, if GAEEEP labelling is to be based on a common test and method of test, and with a new label design, then some lead time would be necessary for new tests to be carried out on some products. About a year should be adequate. Another factor would be the period after which old labels could not be displayed on showroom stock – although, as with the NAEEEP, there would be no obligation to remove old labels or fix new labels to products going directly from warehouses to customers.

Development of the Strategic Plan

Process and consultation

Early feedback on the issues in this Outline were obtained during the GAMAA Annual Conference in August 2004. Some of the comments raised have been incorporated in the present document.

Comments on this document are invited up to mid September, preferably using the Feedback Form on the SEAV website (www.seav.vic.gov.au/energy_efficiency/gas_meps.asp).

Following consideration of comments, the full Strategic Plan will be drafted and released for comment around mid-October, with the public consultation and comment period closing by mid-November to give enough time to prepare the final version and put forward a proposal to SCO in December, as requested.

Summary of Issues Identified for Strategic Plan

This section summaries the issues raised in each of the previous section.

Regulatory framework

- The regulation framework is likely to resemble those for electrical appliance energy efficiency, with regulations under State and Territory legislation calling up the relevant energy-related parts of Australian standards.
- Unlike the electrical appliance regulations, the gas regulations may allow for approved third parties (eg the AGA) to certify that products meet the relevant energy labelling and MEPS provisions.
- In the event of difficulties with State and Territory-based regulations, the alternative of Commonwealth regulation (as recently used for water efficiency labelling) could be considered.
- New Zealand participation in the GAEEEP will require the resolution of a number of significant differences in the regulatory regimes for gas appliance. Unless this is done early in the process, there is a real possibility that GAEEEP will evolve in a way that precludes full New Zealand participation.

Product coverage

- Products covered by existing AGA scheme should be automatically included.
- Criteria should be developed for the inclusion of other household gas appliances.
- Criteria should be developed for the inclusion of commercial and industrial gas equipment.

- Coverage of products (or product variants) using gases other than natural gas should be considered.
- The process of evaluating product types for inclusion in the GAEEEP should commence with the preparation of Product Profiles.

Standards and ratings

- Research into hot water usage patterns is required in order to objectively address some of the assumptions built into the present water heater tests and labelling algorithms.
- There should be a review of product categorisation and classification of space and room heaters to align categories with consumer selection and purchase behaviour.
- Gas product standards should be restructured so that safety, performance and energy aspects are covered in different parts, which can be referenced separately by different regulations and updated independently of one another.
- The technical content of the tests and the directions for carrying them out ('method of test') should be reviewed. (The review process is well under way for gas water heaters).
- The physical tests should be designed to yield enough data to support different rating approaches, should those be adopted.
- All aspects of the label algorithm and the label design should be reviewed. MEPS levels and 'reference models' provide the basis of label ratings at present, and as MEPS levels change and reference models disappear from the market the ratings need to be reviewed.

Regulation impact statements

- The transition to a mandated GAEEEP will create new obligations and constraints, even for products already subject to energy labelling and MEPS under the AGA scheme, and so will require a Regulation Impact Statement (or Statements).
- The Strategic Plan will need to consider the points at which RISs are necessary and allow for the time and resources to complete the process, including public consultations.
- The process would be streamlined if each RIS met the requirements of all governments participating in the GAEEEP, including New Zealand, and each RIS covered a range of linked regulatory proposals, eg mandatory registration, labelling and MEPS for a particular product group, or, in the case of mandatory labelling, if the RIS covered all affected products.

Administration

- The optimum administrative arrangements may be different for the early stages of the program's development than when the program is mature.
- Industry stakeholders will have many opportunities to participate in the GAEEEP via membership of the relevant Standards committees, participation in special working groups set up from time to time, via the formal consultation phases of RISs and via participation in annual NAEEEP Forums.
- Because of the existence of the AGA Certification Scheme, and possibly the introduction of similar services by others, there may be several alternative pathways for models to be included in the GAEEEP, other than just through registration with a State agency.
- Alternative or multiple registration pathways could create a risk of higher program costs and more complex administrative arrangements for suppliers. The one set of product tests should be acceptable for all purposes (safety as well as energy).
- For maximum effectiveness the GAEEEP should completely replace the existing AGA energy labelling program, so consumers can compare products tested on the same basis, using visually uniform labels. However, given that the GAEEEP may not take effect for some time, it is important to maintain the current program at its maximum effectiveness in the meantime.
- The Strategic Plan will need to consider funding needs and sources for all elements of the program. Fees may be independent of sales volumes (as in the NAEEEP), or somehow tied to sales volumes, as is the case with AGA certification..

Stakeholder communication

- The Strategic Plan will need to identify and meet the communication needs of the key GAEEEP stakeholders. The most effective channels of communication may be working groups set up around specific products or specific standards.
- Retailers as a group have no obligations under the current gas labelling program, and would need to be informed about their obligations under the new arrangements.
- Some changes in the label format may assist retailer and consumer awareness and understanding of the gas label.

Compliance

- The presence of a gas energy label on a product at the point of sale can be easily verified by inspection. Some State gas regulators already have inspectors visiting showrooms, so the extra costs of verifying the presence of energy labels would be negligible.
- The aim of check testing for compliance with mandatory labelling and MEPS is to ensure that every unit offered for sale meets the level of energy performance stated

in its registration. The check testing rules need to allow for some inevitable variability in manufacture

Monitoring and review

- The Strategic Plan will need to provide for monitoring of indicators of program activity and impact including:
 - Coverage of the program by appliance types and by proportion of energy consumed;
 - Level of compliance with check testing, including deregistrations;
 - Level of compliance with labelling, including retailer prosecutions;
 - Consumer awareness of labels;
 - Sales-weighted energy efficiency of products sold; and
 - Projections of impacts, costs and benefits for the program as a whole.

Lead times and stability periods

- Implementation costs can be contained by giving sufficient notice to industry of the introduction of new requirements.
- Where an increase in MEPS levels requires the introduction of new models more efficient than any currently on the market, a lead time of 3 years would be reasonable.
- Furthermore, in recognition of the need to amortise the necessary capital investment, manufacturers should be assured of a ‘stability period’ for the new requirements – 5 years would be reasonable.
- Measures that do not require the introduction of new models may have shorter lead times.

References

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MEA (2002) *Energy labelling and minimum energy performance standards for domestic gas appliances*, Mark Ellis & Associates, Energy Efficient Strategies and George Wilkenfeld & Associates for SEAV, November 2002

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PC (2003) *Evaluation of the Mutual Recognition Schemes*, Research Report, Productivity Commission, Canberra, October 2003

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Appendix 1 Product Categories Covered by AGA and ALPGA Approval Certification Scheme

(May 2004)

Domestic and Commercial Appliances

AS 4551/AG 101 Domestic Cooking Appliance

- Freestanding Cookers
- Elevated Cookers
- Built-In Cookers and Ovens
- Wall Ovens
- Hotplates
- Counter Top Cookers
- Caravan and Marine Cookers

AS 4552/AG 102 Water Heaters

- Storage Water Heaters
- Gas Boosted Solar Water Heaters
- Instantaneous Water Heaters
- Boilers (Central Heating and/or Water Heating)

AS 4553/AG 103 Space Heating Appliances

- Flued Radiant/Convection Heaters
- Balanced Flue Convection Heaters
- Wall Furnaces
- Flueless Radiant/Convection Heaters
- Flueless Convection Heaters
- Miscellaneous Heaters

AS 4565/AG 405/ Overhead Heaters

AG 403 Radiant Heaters

- Internal Use Only
- External Use Only
- Internal & External Use

AG 404 Industrial Direct-Fired Air Heaters

AS 4554/AG 104 Laundry Dryers

AS 4555/AG 105 Refrigerators

AS 4556/AG 106 Indirect Fired Air Heaters

- Ducted Air Heaters
- Duct and Unit Heaters

AS 4552/AG 102/AS 4556/AG 106 Air Conditioning Units

AS 4557/AG 107 Outdoor Barbecue Grillers

AS 4558/AG 108 Decorative Appliances
Gas Log Fires
Indoor Gas Lights
Exterior Lights

AG 110 Swimming Pool and Spa Pool Heaters

Commercial Catering Equipment

AS 4563/AG 300 Boiling

AG 301 Boiling Tables

Chinese Cooking Tables

AS 4563/AG 300 Ranges

AG 301 and 305 Ranges

AG 302 Salamanders, Grillers and Toasters

AS 4563/AG 300 Solid Grill Plates and Griddles

AG 303 Solid Grill Plates and Griddles

AS 4563/AG 300 Barbecues, Charbroilers and Rotisseries

AG 304 Barbecues, Charbroilers and Rotisseries

AG 305 Ovens

AG 306 Boiling Water Units

AS 4563/AG 300 Stockpots and Brat Pans

AG 307 Stockpots and Brat Pans

AG 308 Atmospheric Steamers

AG 309 Commercial Fryers - High Speed

AS 4563/AG 300 Commercial Fryers

AG 309 Commercial Fryers

AG 309 Pasta Cookers

AG 310 Commercial Food Warmers including Bains Marie

AS 4563/AG 300 Convection Ovens

AG 311 Convection Ovens

AS 4563/AG 300 Steam Convection Ovens

AG 311 Steam Convection Ovens
