

DOWNSTREAM GAS SUPPLY AND AVAILABILITY IN NSW

Organisation: Energy Networks Association
Name: Mr John Bradly
Position: Chief Executive Officer
Date Received: 21/06/2013

21 June 2013

Committee Manager
State and Regional Development Committee
Parliament House
Macquarie Street
Sydney NSW 2000

Inquiry into the Downstream Gas Supply and Availability in NSW (the Inquiry)

The Energy Networks Association (ENA) is pleased to make a submission to the Inquiry on behalf of its gas distribution network business members. The ENA is the peak national body representing gas distribution and electricity transmission and distribution businesses throughout Australia. Three ENA member companies, Jemena Gas Networks (JGN), Envestra and ActewAGL Distribution are responsible for delivery of gas to more than 1.1 million customers in NSW.

ENA understands that the focus of the Inquiry is on the adequacy of gas networks in NSW to meet future demand, and the potential for policy measures to address network constraints. Given the State and Regional Development Committee's (the Committee) charter, the ENA submission also considers the future role that gas networks can play in supporting sustainable economic growth, particularly in regional NSW.

The policy measures we propose for consideration by the Inquiry are intended to benefit consumers through increased capacity utilisation of the gas networks, potentially reducing gas network price increases, and to facilitate the expansion of gas networks in NSW.

Outside of these measures and the scope of the Inquiry, the ENA recognises that developments in Australia's upstream eastern gas market will potentially impact on the competitiveness of delivered gas prices and therefore demand in NSW.

ENA supports a market based framework for the expansion of cost-competitive sources of natural gas in NSW. ENA considers it is important that unnecessary regulatory constraints on the development of wholesale gas supplies are removed, without compromising the evidence-based environment regulation which is important to community confidence. We consider that there is potential for NSW gas supply requirements to be efficiently met from the development of domestic gas sources and/or additional interstate gas transmission capacity.

The Association would be happy to provide any assistance to the Committee in relation to this ENA submission.

Yours sincerely,


John Bradley
Chief Executive Officer

ENA Submission – Inquiry into the Downstream Gas Supply and Availability in NSW

ENA's response addresses the following terms of reference.

(a) The adequacy of transmission pipeline systems and distribution networks for future downstream gas needs and supply challenges

Gas plays an important role for households, businesses and the economy in NSW. As a source of energy natural gas burns more cleanly than other fossil fuels, contributing to lower greenhouse gas emissions, and can be cost competitive with electricity.

Gas networks supply more than 1.1 million household and business customers in NSW. It has been estimated that thirty per cent of the state's energy needs are met by gas.

Despite the significance of gas to commercial, industrial and residential customers as a fuel to support a lower carbon economy, it is apparent that any significant increase in gas demand in NSW will be limited if potential supply shortfalls are not addressed such that gas remains competitively priced. The Infrastructure NSW's *State Infrastructure Strategy* released in 2012 highlighted the importance to the State's economy of access to gas. The risks in the gas supply environment were emphasised in the recently released study, *Potential Economic Significance of NSW Coal Seam Gas* prepared by ACIL ALLEN for the Australian Petroleum Production and Exploration Association (APPEA).

The ENA supports market-based responses to meet the supply requirements of NSW, whether through the development of additional wholesale sources or further interconnection. For instance, this may include the further development of CSG production and/or the expansion of transmission pipeline capacity from interstate.

Assuming the NSW upstream gas supply constraint is addressed such that gas supplies remain competitively priced, there is existing capacity within gas distribution networks to meet increased demand within the current reticulated network. According to JGN there are more than 300,000 homes in NSW that are passed by a gas main and are not connected to natural gas.¹ Envestra, in its submission to this Inquiry, has observed that average capacity utilisation on part of its network is as low as 20 per cent.²

The availability of gas as a source of energy can play an important role in strengthening and diversifying regional economies. A number of communities, towns and regions in NSW have publicly identified the importance of gas to their region, including Armidale and Northern Tablelands, Crookwell and Gunning, Lachlan Shire and the Mid North Coast Region. To take just one example, Armidale Dumaresq Council in their submission to this Inquiry have identified that businesses in their region are "uncompetitive with other regional cities that do have access to this lower cost energy source".

ENA provides the attached map to highlight the gas networks in NSW in the context of the population density by local government area. As the map shows there are significant areas of NSW with relatively high population densities that are not currently reticulated with natural gas.

¹ JGN supplies gas to the Greater Sydney Metropolitan region as well as other regions, including the Central Coast, Central West, Central Tablelands, the Southern Tablelands, Riverina and the Southern Highlands.

² The largest towns in Envestra's network in NSW are Albury and Wagga Wagga.

The closer that the proposed area for connection is to existing pipelines or network infrastructure and the higher the forecast load, the more likely a gas network extension is to be viable. However, it will not be economically viable to reticulate all areas in NSW with natural gas. For example, some areas in Sydney and in regional NSW the costs will be prohibitively high because of geography or terrain.

Further, alternative options to the extension of gas pipelines could be considered. It may be more economic in some circumstances to evaluate transporting gas by road or rail to a central injection point. This provides benefits in optimising the significant costs involved in the construction of major pipelines.

(b) Barriers to the expansion of downstream gas supply and distribution networks

Assuming unnecessary regulatory constraints on the wholesale supply sector can be addressed, the ENA considers the primary barrier to the expansion of the gas distribution network in NSW remains economic viability.

For an expansion of a distribution network to be economic it must have a foundation load over which to amortise the costs. Where there are significant pipeline construction costs involved, it is often the case that demand from industrial users of gas or gas fired electricity generation is necessary to underpin the economic feasibility of an expansion to the gas network.³ Where the network expansion may be incremental and largely based on residential customers, such as urban “infill”, there must be sufficient demand for gas, with hot water or heating often required in addition to cooktop gas use.

While gas can be a very competitive and convenient fuel for residential users to take up, the nature of consumer decision making often prevents a consideration of fuel switching when appliances are replaced. Specifically, the “fix-when-fail” nature of the hot water heater market often results in an urgent decision to replace like with like, which sees the continued use of electric hot water heating. This decision-making process by the customer may not allow consideration of the whole of life cost of the appliance choice, in which gas is often more competitive. These issues are made more challenging in areas where the climate is warmer, and subsequently there is lower gas demand.

There are opportunities for governments to mitigate gas network costs that could improve the economic viability of a gas network expansion. For instance, efficient local government planning, approval and permit processes can reduce the cost of development.

Governments are also in a position to improve the cost-competitiveness of gas appliances.

At the state level this could include offering rebates for the retro-fitting of medium and high density dwellings where the upfront costs might otherwise be prohibitive for individual householders and body-corporates

At the Federal Government level, ENA has proposed a measure to encourage the replacement of greenhouse-gas intensive electric resistance hot water heaters. Water heating is the largest single source of greenhouse emissions from the average Australian home and accounts for about a quarter of household energy use.

³ Industrial and gas fired power generation accounts for three quarters of consumption of gas nationally.

There are currently 1.4 million households in NSW with an electric resistance hot water heater, of which 37 per cent are already connected to gas.

It is recognised that most governments have decided not to proceed with the previous Council of Australian Governments' phase out of electric resistance water heaters in existing homes. As this change in policy will reduce the potential take-up of energy efficient gas hot water heating, the ENA has recently called for Governments to revisit the policy framework for hot water heating rebates or incentives, to address the discriminatory effect of the Renewable Energy Target on energy efficient gas appliances.

ENA proposed an alternative measure be introduced to assist existing households with the upfront cost of replacing an electric resistance system, with the amount of assistance for gas or solar water heaters to be directly related to their relative greenhouse gas efficiency. Further details of the measure, and how it might be implemented, are included in the attached policy proposal.

(e) Possible measures to encourage gas network operators to extend existing distribution networks, including financial incentives or licence obligations, particularly in regional centres that do not have access to reticulated gas

ENA considers that the availability of cost-competitive sources of natural gas is important to the future prosperity and living standards of communities in regional NSW. In this context we consider that the Inquiry has an important role in establishing a process for identifying the regional centres that could most benefit from realising the potential that could be unlocked through greater availability of natural gas.

ENA would welcome the opportunity to assist the Inquiry with technical support in this role, and in prioritising opportunities to support the delivery of reticulated natural gas to regional communities in NSW.

As a matter of principle the ENA does not support imposing licence obligations to improve the access of regional centres in NSW to reticulated natural gas.

Licence obligations, which impose a requirement for gas networks to invest in expansion of gas networks into regional centres that may be uneconomic, could mean that existing gas customers would be required to subsidise the newly connected customers. It would also be necessary to establish that such expenditure would be considered prudent and efficient as required under the National Gas Law, such that the gas networks would be able to recoup this investment.

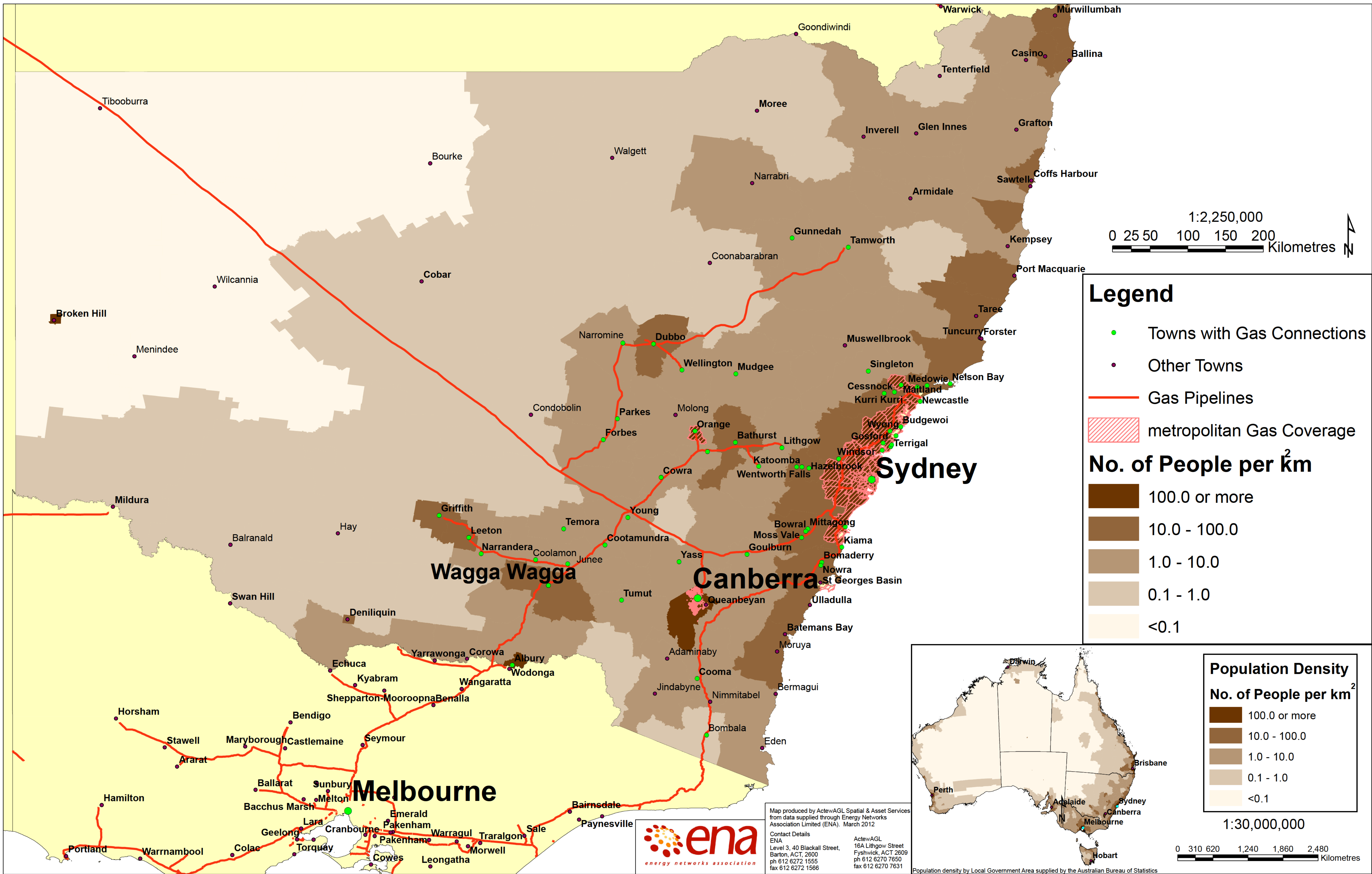
ENA favours an alternative approach for identifying and funding the opportunities for expanding the availability of gas as an energy source in regional NSW. The ENA suggests that a Regional Energy for Growth Strategy could be established by the NSW Government. Its purpose would be to identify strategic gas networks infrastructure projects in NSW which may require Government support to proceed on a commercial basis, where a public benefit can be demonstrated by the availability of gas in regional centres.

A NSW government regional energy growth strategy could have five components as follows:

1. Establish a Regional Energy for Growth Fund to support the strategy.
2. Identify regions that could benefit from gas as an energy source;
3. Identify the costs of expanding gas networks or other options to those regions;
4. Evaluate a development plan for each regional project;
5. Prioritise projects where government assistance and facilitation is required to support the commercial development of gas network augmentation.

AUSTRALIAN GAS NETWORKS

NEW SOUTH WALES GAS CONNECTIONS



ENA POLICY PROPOSAL

REDUCING EMISSIONS FROM RESIDENTIAL HOT WATER HEATING

INTRODUCTION

In the last twelve months some State governments have announced that they will not proceed with, or will reverse, the agreed nationwide phase out of electric resistance hot water systems, which has been in place since 2010. This policy reversal is claimed to be a response to rising cost pressures on households.

In the absence of a ban on electric resistance water heaters in existing homes, the expected reduction of over 50 million tonnes CO₂-e in Australia's greenhouse gas emissions – or 4% of Australia's projected greenhouse gas abatement by 2020 – is at risk.

LARGEST SOURCE OF HOUSEHOLD EMISSIONS

Water heating is the largest single source of greenhouse emissions from the average Australian home and accounts for about a quarter of household energy use.

Currently about half of all Australian households use electric resistance hot water heaters in their homes. These water heaters produce up to three times the amount of greenhouse gas as low emission alternatives.

WHAT CAN BE DONE?

ENA proposes that alternative measures be introduced to assist existing households with the upfront cost of a replacement electric resistance system from 1 July 2013.

This package would include either assistance for all alternative water heater systems through issuing small scale technology certificates in the Renewable Energy Target (RET), with the certificates issued in proportion to the greenhouse efficiency savings. Alternatively, households would receive a proportionate subsidy paid directly to them, with electricity displacement technologies removed from being eligible under the Australian Government's Renewable Energy Target scheme.

REDUCED EMISSIONS AT LOWER COST

Most purchases of water heaters are replacements when an existing one fails, and most households replace like-with-like. With a ban in place, households faced a higher upfront cost to install an electric resistance hot water heating alternative, such as gas, solar or heat pump systems. However, according to the Department of Climate Change and Energy Efficiency (DCCEE) this was offset by reduced energy consumption and lower power bills. Table 1 compares the up-front cost to the household of a solar, electric heat pump, gas and electric resistance water heater replacements.

TABLE 1 INDICATIVE UPFRONT WATER HEATER COSTS

	Appliance	Installation	Total
Solar (gas boost)	\$4,000	\$1,900	\$5,900
Solar (electric boost)	\$3,800	\$1,500	\$5,300
Electric heat pump	\$3,200	\$600	\$3,900
Gas (5 star instantaneous)	\$1,400	\$800	\$2,200
Gas (5 Star storage)	\$1,400	\$600	\$2,000
Electric resistance	\$1,200	\$500	\$1,700

Source: Building Codes Queensland, Review of Hot Water System Laws

The RET scheme effectively discounts the cost of eligible appliances to households by the issuing of certificates whose value (shown in Table 2) depends on the type of appliance, and the current market value of the certificates. Of the three alternate water heater types – solar, heat pump and gas – only the first two are included in the RET. Clearly households are disadvantaged as the least cost gas alternatives are not included in the scheme.

Further, the gas water heater alternatives excluded from the scheme are either as efficient an option for reducing greenhouse gas emissions, or achieve least cost abatement (see Table 3).

TABLE 2 INDICATIVE DISCOUNTED WATER HEATER COSTS

	Total cost	STCs	Net cost
Solar (gas boost)	\$5,900	\$1,500	\$4,400
Solar (electric boost)	\$5,300	\$1,300	\$4,000
Electric heat pump	\$3,900	\$1,100	\$2,800
Gas (5 star instantaneous)	\$2,200		\$2,200
Gas (5 Star storage)	\$2,000		\$2,000
Electric resistance	\$1,700		\$1,700

Source: Building Codes Queensland

TABLE 3 ACTUAL AND PROPOSED ABATEMENT COSTS

	Efficiency*	STC/Subsidy equivalent	Cost per tonne CO ₂ -e***
Solar (gas boost)	95%	\$1,500	\$250
Solar (electric boost)	85%	\$1,300	\$240
Electric heat pump	70%	\$1,100	\$250
Gas (5 star instantaneous)	70%	\$1,100	\$250**
Gas (5 Star storage)	65%	\$900	\$220**

Source: ENA & Building Codes Queensland

* Defined as the reduction in greenhouse gas emissions compared with electric resistance hot water heaters

** Proposed under new policy proposal

*** Over 10 years

In its most recent report on the RET (December 2012) the Climate Change Authority stated that

“In principle, technologies that displace energy, rather than generate it,... while important, do not belong in the RET.”

The Authority also states that, as two electricity displacement technologies are already in the RET, it is difficult to argue against adding new technologies that have the same impact on greenhouse gas emissions. Contrary to this, they conclude by recommending maintenance of the status quo.

ENA does not agree with the Authority. Either all or none of the displacement technologies should be included in the RET. There is evidence that gas water heater appliances are close to or of similar greenhouse gas efficiency as electric heat pumps which are included in the scheme.

If all technologies are included in the RET it is clear that abatement can be achieved more efficiently if certificates are issued in proportion to the relative efficiency of the different appliances (as shown in Table 3 as ranging between \$900 - \$1,100). At the current levels of demand for solar hot water heaters in the RET there is scope to include gas hot water heaters with no increase in projected retail electricity prices.

If on the other hand displacement technologies are to be excluded from the RET, ENA proposes assisting households to choose from among all the greenhouse gas efficient alternatives to electric resistance hot water heaters with a single rate direct rebate. The estimated cost is between \$36- \$60 million per annum, assuming assistance to an average of 120,000 households annually.

BAN ON INSTALLATION IN NEW HOUSING

A ban applies for *existing houses* only in South Australia. According to the DCCEE, a ban applies to installation of greenhouse intensive electric resistance water heaters in *new houses* in all jurisdictions except Queensland, the Northern Territory and Tasmania (not part of the agreement as it relies largely on hydro power).

Given the greenhouse gas intensity of electric resistance hot water heater systems, and as lower cost alternatives become available, the ENA supports the universal restriction over time, as agreed by COAG, on installation of electric water heating systems in new houses in mainland Australia. The ban should apply to all new dwellings including medium density housing.

GAS WATER HEATERS OFFER LEAST-COST, GENUINE ABATEMENT.

Energy Networks Association

P [REDACTED] E [REDACTED]

Level 1, 110 Giles Street, Kingston ACT

[REDACTED]