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 CO_2-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 $C0_2$-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 +61 2 6272 1555 **E** info@ena.asn.au
Level 1, 110 Giles Street, Kingston ACT
www.ena.asn.au