



# One Million Homes

ROUNDTABLE SUMMARY REPORT

May 2013



The One Million Homes Alliance is:



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**About the *One Million Homes* Alliance:** The *One Million Homes* Alliance is a coalition of Victorian-based consumer, social welfare, environmental and energy organisations advocating for significant investment to improve the long-term energy and water performance of Victoria's existing housing stock, as a response to rising energy prices and the need for more efficient homes.

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The Roundtable speakers and presenters:

Stella Avramopoulos, Kildonan Uniting Care

Paul Murfitt, MEFL

Dr Gill Owen, Monash Sustainability Institute

Tosh Szatow, Energy for the People

Breakout Facilitator: Mark Wakeham, Environment Victoria

Our note takers: Vincent Wong and Antonia Settle

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The views expressed in this document do not necessarily reflect the views of the Consumer Advocacy Panel or the Australian Energy Market.

## 1. Introduction

The purpose of this report is to summarise the information that was presented at the One Million Homes Roundtable on April 23, 2013. Part one of the report provides an overview of the role and work of the One Million Homes Alliance. Part two summarises the presentations and discussions at the Roundtable.

The report then identifies the key themes that emerged at the Roundtable, which provide direction markers for Victoria as it embarks on large scale residential efficiency schemes. The report then draws conclusions on the event and ways forward for the Alliance's work.

### 1.1 Background

#### The One Million Homes Alliance

The One Million Homes Alliance is a coalition of Victorian-based consumer, social welfare, environmental and energy organisations advocating for significant investment to improve the long-term energy and water performance of Victoria's existing housing stock, as a response to rising energy prices and the need for more efficient homes.

Ahead of the 2010 Victorian election, both major parties promised to substantially increase the energy efficiency of Victoria's existing housing stock to meet an average 5 star rating. The Liberal National Coalition committed to:

*"Support the transition of all existing housing stock to meet an average 5 star energy rating: A Liberals National Coalition Government will also work towards ensuring that all existing homes meet an average 5 star energy rating, as soon as possible."*<sup>1</sup>

Since the election of the Coalition government in 2010 the Alliance has worked to help the government identify the best ways forward to implement its important commitment.

Since 2009 the One Million Homes Alliance has produced several reports which support the delivery of this goal and identify the benefits to Victoria and Victorians of raising one million existing Victorian homes from a current average of 2 stars or below, to 5 stars. The reports are summarised as follows:

*Towards Climate Safe Homes*, 2009, makes the case for the goal of 'climate safe' homes, defines a climate safe home, and summarises federal and state policy measures necessary to achieve climate safe homes and neighbourhoods for Victorians.

*One Million Homes*, 2010, makes a clear case for the comprehensive retrofit of one million existing Victorian homes; identifies the range of energy and water saving measures required; the costs per home and financial benefits; the environmental benefits; and explores the governance and implementation requirements of the program.

*Liveable Homes, Liveable Future*, 2011, identifies a suite of policy options available to achieve the transition of one million existing Victorian homes to a 5-star standard.

*2.5 Billion Reasons to Invest in Energy Efficiency*, 2012, identifies the enormous potential savings to the Victorian Government's energy concessions budget (\$2.5 billion over 20 years) of raising one million concession-eligible Victorian homes to the 5 star standard over ten years.

#### Why One Million Homes?

There are around 1.9 million Victorian homes that were built before 2004-05 when the 5-star standard for new homes commenced. The average star-rating of these pre-existing homes is between 1 and 2 stars.

These homes use more energy and water than better designed homes and therefore have greater environmental impact, are uncomfortable to live in, and make residents more vulnerable to heat and cold. The costs of these inefficiencies are borne by those who are least able to afford them as many of our most vulnerable residents live in low standard housing.

The number of Victorian households who accessed the state energy concession for electricity in 2011/12 was approximately 880,000. For the gas concession it was around 810,000.<sup>2</sup> Over a decade allowing for the movement of people between homes, and the expected growth of the number of households accessing these energy concessions, it is estimated that around one million households will fit the criteria over this period.

These one million homes would benefit most from efficiency measures. The people who live in them are the Victorians who will benefit the most from these measures, but who are least able to afford the initial cost of upgrading their homes themselves. These are the homes that represent the best value for public money spent in raising home efficiency standards.

One Million Homes Alliance modelling shows that the majority of these homes can be raised from the current average of around 2 stars to a 5-star average standard for a cost of \$2,000 to \$4,000 per home. This figure accords with the level of investment made in other parts of the world where similar programs have been introduced (see the link to Gill Owen's presentation, slide 11 – Value for Money).<sup>3</sup>

### The Benefits

The benefits to Victoria and Victorians of raising one million homes to an average 5 stars are many. It will significantly reduce cost of living pressures for Victorians, help address steeply rising energy and water costs, increase the liveability of homes, build the Victorian economy by supporting job creation and innovation, deliver major savings to the energy concessions budget, help Victoria become smarter with energy and water and prepare for the impacts of climate change.

### Savings to Consumers

Raising a home from 2-star to 5-star results in a 54% reduction in energy required for space heating and cooling in Victorian homes, equivalent to a 32% total energy saving. Calculated on current energy prices the annual savings per home for average usage electricity-only homes is \$500 to \$600, and around \$300 for gas-heated homes.<sup>4</sup>

These savings will increase as energy prices continue to increase.

### Environmental Benefits

Raising the water and energy efficiency of Victoria Homes to a 5-star standard would result in:

- Estimated greenhouse gas emissions reductions of 2.38 million tonnes per year
- An estimated 32.5 billion litres of water savings each year<sup>5</sup>

### Energy Concessions Savings

Victorian government expenditure on gas, electricity and water concessions was more than \$370 million in 2011-12. The expenditure on concessions will be reduced through increased investment in energy and water efficiency for residential building stock as they will reduce household utility bills.

The savings to the concessions budget are based on projected average energy use reductions resulting from 2-star to 5-star upgrades, taking into account future energy demand and retail price scenarios. Retrofitting an average of 100,000 homes per year for ten years yields cumulative savings to the concessions budget in the order of:

- **\$100 million** after five years;
- over **\$600 million** within 10 years; and
- **\$2.48 billion** after 20 years.

Savings in the region of \$210 million per year would continue to accumulate beyond the life of the retrofit program, and increase as energy prices climb.<sup>6</sup>

### More comfortable and safer homes

Poorly insulated, draughty and inefficient homes are less comfortable to live in, and in many circumstances can present a risk to health. As well as making homes easier and cheaper to heat and cool to comfortable levels, these retrofits result in increased householder protection against heatwaves and the coldest days in winter.

### A comprehensive approach

Achieving an average 5-star rating for our existing housing stock is a sizeable undertaking. No single retrofit measure can achieve the commitment; rather, a whole home focus which includes a range of appropriate measures for each different house type is required. An example of the basket of measures required with indicative costs appears in the table below.

Retrofit activity	Cost*	Proportion of dwellings requiring measure (%)	Proportional Cost
Audit	\$400	100	\$400
Weather sealing retrofit	\$400	50	\$200
Ceiling insulation	\$1,200	29	\$348
Fridge upgrade	\$700	34	\$238
Standby power controller	Free	25	0
IHDs	\$50	90	\$45
Pelmets	\$300	50	\$150
Awnings /external shading	\$950	65	\$618
<b>Average cost per dwelling</b>			<b>\$2000</b>

\*Assumes VEET eligibility and continuation of VEET program beyond 2014.

A coordinated, multifaceted approach from government is required to ensure the efficient, equitable, and timely achievement of this commitment. A range of program approaches can be implemented by government to incentivise owner investment in maximum impact energy saving measures, and encouraging low-income households to take advantage of rebate programs by providing financing which is repaid through savings on energy bills. The One Million Homes Alliance has been advocating the following suite of programs to deliver the 5 star homes election commitment:

1. Large-scale retrofitting program for all low star rated homes, with a priority on concession households.
2. Minimum energy and water efficiency standards on homes at point of sale, and on rental homes phased in over an appropriate period (and at point of lease for newly rented homes).
3. Mandatory disclosure so energy and water efficiency of homes is disclosed at point of rent or sale.
4. Low and no-interest financing for residential efficiency improvements, including finance which is linked to properties or energy meters rather than individuals. Appropriate loans for low-income owner-occupiers and landlords are an essential accompaniment to a minimum standards regime.

### **What is the 5-star rating?**

Home star ratings measures how much energy is required annually to heat or cool a home to a comfortable temperature. That is, it measures the thermal efficiency of a home. For a 5-star home the energy required each year is 149 MJ per square metre of floor space. For a 2-star home the figure is 384 MJ/m<sup>2</sup>. Therefore improving the rating from 2-star to 5-star reduces the energy used to heat or cool a home by more than 50 per cent.

The Alliance has investigated a range of measures which achieve both thermal efficiency improvements, such as ceiling insulation and window shading, as well as other measures which deliver energy savings, such as efficient appliances and hot water systems.

## **1.2 The Roundtable**

The One Million Homes Roundtable, held on Tuesday April 23 2013 at Melbourne Town Hall, was informed by three questions consistently posed to the Alliance by politicians and government officials during meetings and discussion over the previous 12 months about how a large scale residential energy and water efficiency program can be managed and delivered in Victoria. The questions are:

- 1.** What is the international experience in delivering similar programs at scale and what can we apply from these lessons for Victoria?
- 2.** How can a comprehensive retrofit program be paid for? What are the financing models available?
- 3.** What are the retrofits? Which technologies would be covered and how can they be implemented safely and efficiently on such a large scale?

The Roundtable commenced with a presentation from UK residential energy efficiency expert Dr Gill Owen on the UK experience of implementing large scale residential energy efficiency programs.

The event then divided into two breakout discussions organised to address the other two questions. These sessions commenced with brief presentations designed to initiate discussion, and followed with 30-minute facilitated discussions.

Each Roundtable participant took part in each of the two breakout discussions.

### **Who attended?**

Forty six people attended the event representing state government, local government, non-government agencies in the welfare, environment, community and energy sector, and business.

Organisations represented are listed in the Appendix.

## 2. Roundtable Presentations and Discussion

This section provides an overview of the keynote presentation from Dr Gill Owen on the United Kingdom's experience of large scale residential energy saving schemes and the ensuing discussion. Also recorded below are the main points raised by the three presenters in the two facilitated breakout discussions on 1) financing mechanisms and 2) implementation and rollout of large scale residential energy and water efficiency in Victoria.

The presentations from Gill Owen, Tosh Szatow and Paul Murfitt are available at [www.environmentvictoria.org.au/onemillionhomes](http://www.environmentvictoria.org.au/onemillionhomes)

### 2.1 Dr Gill Owen Presentation: International context – United Kingdom

Gill moved to Australia in August 2012, following a career in the UK in energy policy, regulation and consumer affairs. She is a research leader at Monash University with an appointment at Monash Sustainability Institute and the Business and Economics Faculty.

Gill has published extensively on energy efficiency policy, the scope for electricity demand response and smart meters. She is currently undertaking work on the impacts of demand response initiatives on low income and vulnerable households.

Until her departure from the UK Gill was also :

- a Non-Executive Director of the England and Wales water regulator, Ofwat;
- a member of Ofgem's (Great Britain energy regulator) Consumer Challenge Group for the Distribution and Transmission Price Reviews;
- a member of the UK Government's Smart Meters Consumer Advisory Group;
- Vice Chair of the UK Government's Fuel Poverty Advisory Group.

She was a Commissioner of the UK's Competition Commission for ten years until 2002.

#### Presentation

*Dr Owen's presentation identified the motivators behind efforts to improve residential energy efficiency, and outlined the major schemes implemented in the UK since the 1990s.*

#### Fuel Poverty

- The health and mortality impacts of the UK's cold winters on people suffering social disadvantage and fuel poverty is a major motivator in UK energy saving schemes.
- People suffering social disadvantage and fuel poverty often live in poorly heated and poorly insulated homes. These people were identified as priority targets of energy efficiency schemes.

#### Energy saving measures

The key energy saving measures implemented for low income households were:

- Insulation of ceiling space and wall cavities
- Better heating systems

Other energy saving measures included:

- Draught-proofing
- Efficient appliances and lights

A combination of energy saving schemes have been implemented in the UK. The schemes are:

#### Implementation scheme: Warm Front

- Funded by government. Grants available up to £2,700 per home. About 635,000 households between 2005 and 2008 were assisted at an overall cost of £852 million. Average cost per home was £1,341 (A\$2,087).
- The measures resulted in average household saving of £300 (A\$466) per year. That equates to an average per household payback time of less than 5 years.
- Overall since 2000, Warm Front assisted 2.3 million vulnerable homes and resulted in energy savings of £610 per year.
- Training, quality control and review was emphasised.
- The scheme achieved a 86% recipient satisfaction rating.

The scheme was closed in 2013.

#### Implementation scheme: CERT

- The Carbon Emissions Reduction Target (CERT) existed in various forms since 1990s. Operated in conjunction with Warm Front.
- Energy retailers were required to achieve specified levels of energy savings which they achieved by providing incentives to their customers to invest in energy saving measures.
- The subsidised energy saving measures were ceiling/loft and wall insulation, lighting.
- Priority group requirement to tackle equity issue – all customers pay for CERT, but retailers unconstrained would do more work for better off who need less subsidy
- 40% of CERT had to be delivered for the priority group to ensure low income and vulnerable shared the benefits.

CERT was funded by consumers through the energy retailers.

#### Implementation scheme: ECO

After the election of the Conservative-Liberal Democrat Government in 2010 the government phased out Warm Front. In its place schemes were implemented in which providers, often energy retailers, delivered energy efficiency measures.

- Energy Company Obligation (ECO) begins in 2013 – obligation on energy retailers so costs flow through to all customers (as in CERT).
- Affordable Warmth and Carbon Saving Community Obligation (CSCO) schemes focused on low income households (heating and insulation) – estimated £540 million per annum of ECO's estimated £1.3 billion per annum.

The carbon target element will subsidise high cost measures – solid wall insulation – alongside Green Deal.

#### Implementation scheme: Green Deal

- Green Deal is an energy saving scheme for homes and small and medium enterprises.
- Green Deal providers (energy retailers and others) install measures at no up-front cost to the customer and recover costs via electricity bills over 25 years. Financing for the installed energy saving measures conforms to the “Golden rule”: bill savings should always exceed costs.
- Repayment is associated with the property rather than with the occupant (attached to the electricity account); if the occupants move out, the obligation to pay the Green Deal charge will pass to the new occupier.

Green Deal will not be suitable for many fuel poor households (e.g. under-heating, concerns about credit) so operates in conjunction with ECO, which provides for low income households.

### The rental property problem

- Availability of grants and incentives, and mandatory disclosure at point of rental have made little difference to the often poor energy efficiency of rental properties in the UK.
- From 2018 minimum energy efficiency standards for rental properties, home and business, will be legislated.

### Discussion

*After the presentation questions focussed on what elements of the UK experience were significant for Victoria, and what governance, financial and risk management structures would be required. The themes of the discussion during the Q and A are captured below.*

**Corporate social responsibility** and voluntary measures can be a step on the way to more significant investment and regulation, but regulation and business advantage are the major drivers in large scale projects. Large scale action requires a value proposition independent of any urge to do good.

**Energy company participation in voluntary schemes** was driven by a range of pressures on energy retailers to support and implement energy efficiency schemes. Motivators included meetings and pressure from government ministers, action groups, regulators, general community expectation.

**Group purchasing.** Investment in the order of £10 million in the UK was made in group purchasing programs, in which economies of scale bring down prices. However those who cannot afford even reduced prices do not tend to benefit. The ability to achieve outcomes for low income groups is yet to be demonstrated.

**Scaling up** from small scale residential energy efficiency programs in the 1980s to national scale programs at the turn of the century was a long process in the UK. Programs started with alliances of NGOs running small scale energy saving programs in the 1980s. General recognition across the community that there were positive impacts in homes and for the economy was part of the driver for scaling up. This community recognition was achieved in part through small NGO programs.

**Effective and thorough training** and accreditation was part of the scaling process which minimised risk of low quality work or damage and injury. The scope of the training meant the scaling was slower.

**Accreditation** ensured high standards and was an important part of quality control, but also meant that hundreds of small local operators who could not obtain the accreditation missed out on participating in the program.

UK experience shows a **20-30 year journey** to the current situation where millions of homes have been assisted.

**Government had an essential role** in driving scale increases. Government commitment to expanding small scale residential energy saving programs that achieve good outcomes was a major driver in scaling up.

**Local partnerships** were essential in building trust and good faith with recipients. Energy retailers do not enjoy high levels of trust or social legitimacy, so need local agency participation to build rapport with residents. Australian examples of this process include Kildonan Uniting Care and Department of Human Services staff as trusted brokers in outcomes for vulnerable recipients.

## 2.2 Financing One Million Homes

During this breakout session a range of financing models were discussed, along with the barriers and essential elements. The session commenced with a brief presentation from Tosh Szatow on financing options which essentially pay for themselves through energy savings. Stella Avramopoulos then spoke about ways of demonstrating to government the value propositions inherent in investing in residential energy efficiency for disadvantaged Victorians.

### Discussion: Tosh Szatow, Director, Energy for the People (E4P)

*Tosh's presentation identified a range of features that financing mechanisms require to effectively facilitate large scale uptake of energy saving retrofits. The key themes were:*

#### Energy saving measures can yield a rate of return greater than the cost of finance.

Most people find it hard to turn down something that costs them nothing, and pays them dividends. Many household energy saving measures do exactly that – they return greater than 10% per annum and so when financed at 10% or less, pay dividends from day one.

#### A successful financing model will:

- Match the source of finance to the customer
- Minimise the required rate of return
- Minimise transaction costs for all parties

Financial payments can be conditional on product performance. Financial payments can be tied to savings associated with the energy saving measures installed. This is appropriate for some measures (for example, solar PV, insulation) but not all.

Energy saving measures may be collected together in a comprehensive retrofit rather than viewed individually, so that the entire retrofit is considered when assessing savings, rates of return, and financial payments.

#### Two simple financing instruments are to:

1. Tie repayments to the meter – this enables payments for retrofits to be recovered as per an energy bill. Ideally suited to tenants/landlord. This model is enjoying massive growth in the US.
2. Tie repayments to property, either through a mortgage re-finance or a legal instrument such as a council charge recovered from the land owner.

The above instruments could also be used for landlords. A standard lease contract could simply pass on payment obligations to the tenant, who's direct financial benefit from the energy and water saving measures would outweigh the cost of the repayment.

Tying payments to a SmartMeter may see the introduction of greater competition at the household meter, including the ability to bill for various energy services in the home independently. So a company that installs energy saving measures could provide their services in parallel with an energy retailer, have those products metered so their value can be measured, and bill customers based on the value created.

#### Role of government:

Help broker low cost finance – lowest effort, most simple, relies on market/business models to drive it. Other government actions could include:

- Create legislation that lifts star-rating, i.e. create market demand. This requires medium effort and relatively simple legislation, but is politically harder.
- Create legislation that augments VEET – i.e. create market demand and extend VEET beyond 2014.

### Discussion: Stella Avramopoulos, CEO, Kildonan UnitingCare

*Stella spoke about ways that Kildonan UnitingCare had worked with government and corporate partners to provide energy audits and install efficiency measures for disadvantaged and vulnerable clients.*

Retailers refer to the energy audit that Kildonan carries out as the “Trojan Horse” because once a household is referred to Kildonan due to a bill that can’t be paid, energy auditors look at energy consumption and efficiency, also behaviour changes, billing issues, family or health issues and financial stability issues.

Because of these range of issues it is important to deliver an integrated strategy and model in terms of energy audits, which brings in family services, financial counselling, mental health strategies and the broader behaviour change in relation to efficiency and the retrofit element.

This integrated approach is not about just one government agency, but a whole-of-government system approach. This means that when Kildonan offers their services there are benefits to different departments across government. This is how government needs to approach fuel poverty, and the implementation of energy and water efficiency for disadvantaged households across Victoria.

Energy saving is not seen through a Corporate Social Responsibility lens but as a return on investment value proposition for corporate funders. Governments can also see the value proposition: there are huge savings available to government departments, particularly DHS, through reducing fuel poverty, addressing uncomfortable homes and increasing the physical and mental health of vulnerable Victorians.

### General discussion

*After the introductory presentations, all Roundtable participants took part in the discussion on financing options. The outcomes of the discussion groups are summarised below.*

Government is motivated to fund energy saving measures when a **value proposition** can be demonstrated – eg savings to the energy concessions budget, savings on interventions with vulnerable Victorians, savings on health costs associated with extreme heat or cold events.

An **overall government commitment** is required to address split incentives. For example, measurable financial benefits of energy saving measures may accrue to Human Services, but costs of the measures accrue to Planning and Community Development.

**Energy service contracting** is a finance model which enables the installation, by an Energy Services Company (ESCO) of energy saving measures at a guaranteed cost saving. The costs of installing the energy saving measures are paid through savings on energy costs over a set time period. The basic principle is that the savings always equal or exceed costs of finance.

**Energy Upgrade Agreements (EUA)** are a model through which finance to install efficiency retrofits to a large number of homes is supplied through a bank to a coordinating body such as a council, and is repaid through rates of the homes retrofitted over a 10-20 year period. Costs to rates are less than energy savings, so residents immediately benefit. City of Melbourne’s 1200 Buildings project is an example of this type of model.

Financially disadvantaged households usually cannot access the capital required to invest in their homes, and they often rent homes where a split incentive makes it unlikely that the home owner will invest in energy and water saving retrofits which benefit the tenant, but not the owner.

So who can provide the capital required?

- Governments have a role in brokering finance.
- Financial institutions. This is already happening to some extent. For example the City of Melbourne's 1200 Buildings program is funded in part through through this type of instrument.
- Energy retailers. Energy consumers cover the cost of installing energy saving measures, particularly in disadvantaged households, as in the UK ECO program. Retailers would need to be compelled to take part, not volunteer.

The Victorian Government's **Greener Government Buildings** program was discussed and the financing mechanism was highlighted as viable, and one the government is committed to. Financing was tied to an Energy Performance Contract. EPC projects aim to maximise energy and water savings within an average simple payback period of seven years for all existing buildings or infrastructure where agencies pay the utility bills.

The cost of the project is repaid from operational costs over seven years. This model, familiar to government and centrally administered through the Department of Treasury and Finance, was presented as a model that could, with adjustments, provide finance for large scale residential energy and water saving projects.

Utilising economies of scale, an investment per home of \$2000 to \$4000 can raise many Victorian housing types from 2-star to 5-star and deliver energy bill savings for residents of more than \$500 per year. That represents a return on investment in the vicinity of 10-20%.

Many households that can afford the up-front capital costs are already taking advantage and investing in home efficiency and reaping the benefits. The problem lies in making these upgrades accessible to Victorian households suffering financial disadvantage, and renters.

Energy poverty, often identified by inability to pay energy bills, is often linked to a range of other issues such as physical and mental health problems and financial disadvantage. Addressing the energy poverty, and increasing the energy efficiency and comfort of the home is often a significant part of addressing these other issues.

Department of Human Services are therefore a potential funding source for energy saving measures, as energy saving measures benefit DHS clients and reduce DHS costs.

### 2.3 Rolling out the Program

#### Presentation and Discussion: Paul Murfitt, CEO, Moreland Energy Foundation Ltd (MEFL)

*Paul's presentation focussed on Zero Carbon Moreland's Concession Assist program, which worked with 1000 concession eligible homes in Melbourne's north. The presentation identified program elements that should be replicated in a scaled-up, Victoria-wide program, as well as the elements that caused difficulties and required modification.*

Trust relationships in dealing with recipients was emphasised. Energy companies and some government agencies do not enjoy high levels of trust with target households. Working with local agencies is essential in effective communication and relationships. In Victoria, MEFL, Kildonan and several other agencies have significant experience in this area.

It is important to start relatively small and learn from early programs.

Installation and engagement teams need to be highly trained. This is an essential part of quality control.

Short term or limited term funding for energy efficiency programs is problematic. It is difficult or impossible to maintain relationships with households in these circumstances, after a program has closed. Opportunities for longer term monitoring and data collection are lost.

In short term projects investment in training and knowledge is largely lost when programs cease. A lot is learnt from delivering a program. The value of this knowledge is maximised when activities are repeated or continuous, but lost when no further activities take place.

Identifying recipients and recruiting households uses a large portion of project energy and resources. Larger scale, longer term projects with well-communicated positive outcomes will use less resources in attracting participants.

Programs benefit when energy saving measures are perceived as standard, not as optional extra, or an unusual addition to a home. Householders who see their neighbours or numerous others installing the measures are most likely to take part, or accept the measures.

A long-term commitment to ongoing residential energy and water saving is important from the start. Pilot programs are most useful when they are backed by the awareness of all involved that they are starting a long term commitment.

Excessive paperwork and procedural elements associated with government grants or other limited term funding packages are problematic. Onerous monitoring requirements result in strained relationships with recipients. 'Invasive requirements' included photographing appliances and repeated record keeping on consumption and behaviour. Recipients perceived there was an inconvenience cost associated with participation in the program, a significant downside for some.

Provision of lower cost energy saving measures offered an effective way to initiate contact with households. Then suitable and enthusiastic households could be identified for higher level engagements and retrofits.

Moving from subsidised or inexpensive small measures, such as lights or showerheads, to larger measures requiring significant investment from householders is a challenge and often not possible. Programs which provide installation of more expensive retrofits for households, with no upfront investment are essential for large-scale rollout, and particularly for low-income targets.

Householder understanding and acceptance of the changes/technologies being installed is important. Effective communication and trust relationships facilitate this.

Effective energy assessment/home audit process is an essential part of energy saving programs, as they allow individualisation of solutions, initiate the relationship between provider and recipient, and can establish trust,

Effectively retrofitted homes can be used to effectively market and promote outcomes to motivate investment and commitment to energy and water saving programs by future recipients.

### 3. Key Themes

#### United Kingdom Experience

The health and mortality impacts of fuel poverty are major motivators of UK residential energy saving schemes.

The measures installed were:

- Insulation of ceiling space and wall cavities
- Better heating systems
- Draught-proofing
- Efficient appliances and lights

635,000 households were assisted over three years in the first stage of Warm Front

Large-scale government-funded schemes resulted in large annual reductions in energy bills arising from modest per-home investment.

Training, accreditation, quality control and review were stringent. These meant that scaling up was a slow process.

Recipient satisfaction rates were high.

Other financial models have been identified as government investment ceased. These include:

- Energy company obligations, where costs are borne by all energy consumers through the price they pay for energy
- Green Deal, where the up-front costs of installing efficiency measures are borne by energy services companies, and are recouped through energy savings.

These activities have made little difference to the often poor energy efficiency of rental properties in the UK. From 2018 minimum energy efficiency standards for rental properties, home and business, will be legislated

Non-government organisations and community coalitions played an important role in initiating small scale energy saving programs in the 1980's, which identified and demonstrated the benefits available, and motivated government investment.

Local partnerships were essential in building trust and good faith with recipients.

Government had an essential role in driving scale increases.

## Financing

Government's role is not limited to funding home retrofits through grants. Government may broker finance and create legislation enabling and incentivising investment by other parties.

Many home energy saving measures can yield greater returns than the cost of loans. Utilising a broker, or coordinating body, such as Councils, can reduce the cost of finance, and can involve large numbers of households.

A number of financing models exist, which are in operation in Australia or overseas, in which returns from energy savings permit the installation of energy saving measures in buildings at no upfront cost and with rapid payback periods. These include Energy Performance Contracts and Energy Upgrade Agreements.

Addressing fuel poverty by increasing home energy efficiency results in a range of associated benefits, which in turn result in savings to government. These include alleviating physical and mental health risks and financial stress to DHS clients; and reducing costs of state energy concessions.

The government's role in a large scale residential efficiency program should not be limited to single departments. One department needs to play a coordinating role to minimise split incentives.

Energy saving measures should be collected together in a comprehensive retrofit rather than viewed individually, so that the entire household retrofit package is considered when assessing savings, rates of return, and financial payments.

## Implementation

Time – scaling can be a slow process. It is important to start relatively small and learn from early programs.

Trust – Energy companies and some government agencies do not enjoy high levels of trust with target households. Working with local agencies is essential in effective communication and relationships.

Short-term projects: There are a number of problems associated with short term residential energy saving projects

- Excessive paperwork for recipient households
- Excessive paperwork and reporting for funded organisations
- Loss on investment in staff
- Lost learning through no continuity

Long term commitment is important. There are significant efficiencies available through programs which scale up over longer time periods. Costs can decrease on modelled costings through economies of scale in large rollout.

Regulation and quality assurance of installers and processes is key to risk management, but necessarily makes scaling slower.

- Spot checks can be an important part of quality assurance process.
- Quality assurance checks can decrease in frequency as programs progress. For example, they may start at one in ten, reducing to one in 100 or less over time.

Communicating the effectiveness, energy cost savings, and recipient satisfaction through case studies and 'poster families' is important for building political and community acceptance of programs.

## 4. Conclusion

In 2010 the Victorian Coalition committed to transitioning Victorian homes to an average of 5-star efficiency as quickly as possible. By acting on this promise now the Coalition in government can drive historic improvement in the energy and water efficiency of Victoria's existing residential properties. The actions discussed in this report would save water, reduce Victoria's greenhouse pollution, create jobs, deliver affordable energy and water bills to households struggling to cope with the rising costs of living, and increase the comfort and liveability of Victorian homes.

There are examples from around the world of how large scale residential efficiency programs have been managed, financed and delivered to a high standard with a high degree of recipient satisfaction, and achieving significant reductions in energy use and cost savings on energy bills. Dr Owen's discussion of the United Kingdom experience emphasises that high standards of training and quality assurance are essential to minimise risks and ensure positive outcomes.

Dr Owen outlined a number of funding mechanisms which ensured that those who most needed the efficiency upgrades— those suffering from fuel poverty and social and financial disadvantage – received them.

Primary among them was government funding of the Warm Front program. Through this scheme 2.6 million households saved more than £300 (\$466) per year at an average cost per home of £1341 (\$2087). Since the closure of this government-funded scheme, new schemes funded through energy retailers and paid for by all energy consumers, and through loans repaid from energy bill savings, have been implemented.

The Roundtable considered two key questions:

1. How can improving the energy and water efficiency of one millions homes be paid for? What are the financing models available?
2. How can the program be implemented safely and efficiently on such a large scale?

The Roundtable concluded that the most effective way to achieve the transition of Victorian homes to a 5-star average is for the State Government to commit the funding required to install energy and water efficiency retrofits in Victorian homes. It also identified that there are a range of measures which can incentivise investment from owners and compel energy companies to take part in energy efficiency upgrades.

The key ingredients for success of this large scale project are that training and quality assurance is robust and of a high standard, and that the delivery agencies are trusted and communicate effectively with recipients. Further, only the comprehensive retrofit of households utilising a range of efficiency measures, rather than focussing on the installation of specific measures, can achieve a 5-star standard.

Significant policy development work on residential energy and water efficiency has been undertaken by the One Million Homes Alliance, and others who were present at the Roundtable, over the past five years. This body of knowledge can expedite the Victorian government's implementation of this policy. It is now up to the Victorian government to commit to the further action required to deliver on this important social, economic and environmental policy initiative.

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### Endnotes

<sup>1</sup> *The Victorian Liberal Nationals Coalition Plan for Planning, 2010 p.6*

<sup>2</sup> [http://www.budget.vic.gov.au/CA2579B200132B63/WebObj/BP5Ch5Word/\\$File/BP5Ch5Word.doc](http://www.budget.vic.gov.au/CA2579B200132B63/WebObj/BP5Ch5Word/$File/BP5Ch5Word.doc) p194

<sup>3</sup> *Alternative Technology Association; 2.5 Billion Reasons to Invest in Energy Efficiency, Modelling the impact of improving the energy efficiency of Victoria's homes on the Victorian Energy Concessions Budget, 2012*

<sup>4</sup> *Op cit.*

<sup>5</sup> *One Million Homes, 2010, available at <http://environmentvictoria.org.au/sites/default/files/OneMillionHomesReport.pdf>*

<sup>6</sup> *Alternative Technology Association; 2.5 Billion Reasons to Invest in Energy Efficiency, Modelling the impact of improving the energy efficiency of Victoria's homes on the Victorian Energy Concessions Budget, 2012; p. 5*

## Appendix - Roundtable Participants

Organisation	First name	Last name
Alternative Technology Association	Damien	Moyse
Council of the Aging Victoria	Debra	Parnell
Council of the Aging Victoria	Randall	Harkin
bankmecu	Simone	Douglas
Australian Sustainable Built Environment Council	Mark	Allen
City West Water	John	Fawcett
Climate Works	Emma	Lucia
City of Melbourne	Krista	Milne
City of Melbourne	Tom	Quinn
City of Melbourne	Brendan	Carriker
City of Melbourne	Cr Arron	Wood
Office of the Commissioner for Environmental Sustainability	Nicholas	Aberle
Consumer Action Law Centre	Cathy	Thwaite
Consumer Utilities Advocacy Centre	Jo	Benvenuti
Department of Planning and Community Development	Tony	Carmichael
Department of Human Services	Noelene	O'Keefe
Department of Human Services	Mecky	Sharpe
Department of Human Services	Kate	Noble
Department of Human Services	Daniel	Voronoff
Department of State Development, Business and Innovation	Peter	Handsaker
Department of State Development, Business and Innovation	Nichol	Slavin
Diamond Energy	John	Chiodo
EcoMaster	Lyn	Beinat
EcoVantage	Ione	McLean
Energy for the People	Alex	Houlston
Energy for the People	Tosh	Szatow
Energy Saving Social Club	James	Grugeon
Environment Victoria	Mark	Wakeham
Environment Victoria	Kelly	O'Shanassy
Going Solar	Mark	Donaldson
Just change	Craig	Irvine
Kildonan Unitingcare	Stella	Avramopoulos
Kildonan Unitingcare	Joanna	Leece
MEFL	Paul	Murfitt
Monash Sustainability Institute	Gill	Owen
Northern Alliance for Greenhouse Action (NAGA)	Rose	Read
Western Alliance for Greenhouse Action (WAGA)	Fran	MacDonald
The NOUS Group	Ian	Porter
Victorian Council of Social Services	Dean	Lombard
Victorian Local Government Association	Toby	Archer



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