



LOW CARBON LIVING
CRC

RP3016 EnergyFit Homes Initiative

Working paper 8: Stakeholder map - Industry and government preferences for a national residential building energy efficiency information system



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Executive Summary

Scope and objectives

This report provides the findings from the stakeholder-mapping stage the EnergyFit Homes Initiative phase 1.

The objectives of this phase were to develop a map of the relevant stakeholders and to understand their perspectives of the need, scope and implantation of a national home energy efficiency information framework. A secondary objective of this stage was to begin to build consensus and a coalition of support for options to be built on in the next stage.

This is the penultimate research stage of Phase 1. These findings inform the final research stage: consumer message testing. These findings directly feed into the next stage of the project to develop a recommended framework, implementation plan and business case.

Methodology

A stakeholder map was developed based on OEH's "Collaborative Sustainable Housing Initiative" framework, adapted for existing homes in consultation with the EnergyFit Steering Committee. This map covered the key organisation types involved in the policy and supply chain for home energy efficiency. A number of stakeholders representing each of these organisations types were invited to participate in structured interviews. The stakeholders interviewed included representatives from:

Government	Building product industry
Community groups	Real estate
Energy services	Banking
Research	Property construction

Interviews were structured around the primary research questions for this project. These questions cover the attributes and implementation of a national home energy efficiency framework. These are:

Attributes	<ul style="list-style-type: none">• What information do consumers need? At what decision points? From which trusted sources? In what form?
Implementation	<ul style="list-style-type: none">• What technological and market framework will facilitate this?• What's the appropriate governance structure and funding model?

Key Findings

The overarching finding of this report is that there is a very high degree of support for developing a standard, agreed national framework to measure, compare and communicate the energy performance of existing homes. This support extends across government, industry, research and community organisations.

There is a high degree of consensus on the general attributes of a potential framework, with differences of opinion on some details. In contrast to the high level of consensus on framework attributes, there was greater diversity of views on implementation. Within these views, there were a number of dominant options with respect to administrative, technology and market governance.

Within findings on attributes and implementation, there are some issues with high consensus, where key stakeholders strongly hold alternative views. These issues, and issues with low levels of consensus require further consideration, analysis and consultation.

The findings, and stakeholder positions are summarised in the Table of findings below and detailed in the body of this report.

Project next steps

The next steps of this project are to integrate the findings of the different research stages into options and a recommended implementation pathway. The major steps are to:

1. Validate findings and recommendations with Steering Committee
2. Investigate desired attributes through message testing
3. Consolidate stakeholder mapping findings with other research streams to recommend final attributes

4. Conduct stakeholder workshops to present findings, develop market framework and test implementation options
5. Seek steering committee endorsement of recommended implementation option
6. Develop implementation plan and business case

Table of findings

1. The overarching finding of this report is that there is a very high degree of support for developing a standard, agreed national framework to measure, compare and communicate the energy performance of existing homes. This support extends across government, industry, research and community organisations.
2. There is a high degree of consensus on the general attributes of such a framework, with some differences of opinion on some of the detailed specific elements. These are summarised in Table 1.
3. Stakeholders have expressed a broader range of perspectives on implementation, centring on some dominant options, as summarised in Table 2.
4. There is a general consensus that a framework would mostly like have the greatest success in encouraging improvements in medium-grade building stock, and reward already high performing homes.
5. Information alone is not considered likely to help low income and energy hardship households. However a framework for measuring and comparing performance could help with minimum standards and other low-income policy objectives.
6. Stakeholders generally feel that it is important for a framework to cover apartments, but note that this may be difficult to achieve. A framework would most likely need to be easily tailored to cover fewer or different features and separate benchmarks for apartments.

The major issues are summarised as follows, and detailed in the body of this report. some consensus positions involve strong minority perspectives, which require further consideration and consultation. Non-consensus positions also require further consideration and consultation.

Framework attributes

Table 1 Stakeholder support for potential framework attributes

Category	Preferred attributions of a home energy efficiency performance information framework	Level of consensus	Outstanding concerns
What information?	Measures energy rather than carbon, features, comfort or other metrics.	High	
	Provides additional, layered, supporting information on home energy performance to build consumer trust and facilitate improvement actions.	High	
	Covers major elements of building fabric, fixed appliances and solar PV.	Very high	
	Gives consistent results, but should not focus on accuracy to minimise costs. [Strong minority position: some stakeholders feel that both high accuracy and high consistency are vital]	High	Y
At what points?	At point of sale.	High	
	Should be relevant at other delivery points (such as lease, high energy bills, renovations or appliance purchases).	High	
Which sources?	Endorsed by a credible and trusted source, preferably government or quango. May be new or existing body.	High	
	Governance structure and processes must ensure consistent information.	Very high	
	Allow many different delivery sources to maximise potential channels and minimise delivery cost (e.g. delivered by trades or professionals already in a home).	High	
	Must be simple to use to minimise delivery cost and skills required.	High	
	Training and accreditation required. [Strong minority position: some stakeholders consider there should be no training or accreditation to minimise costs]	High	Y
	Allows informal, self-assessment by households to provide a zero cost zero risk entry point into the framework.	Moderate	
In what form?	Information is gathered and presented in a way that is replicable and comparable.	Very high	
	Must be low cost or free. [Variation: Must have a nominal cost so consumers value the information, although this can be waived as part of bundled offers].	High	Y
	Is a rating system.	High	
	Must not be inconsistent with NatHERS and BASIX. [Variation: broader categories e.g. bronze, silver, gold, platinum could avoid be a reliable,	Moderate	Y

	low cost way to avoid inconsistency with new home ratings]		
	Gives information that is specific to the house, based on interaction between features	High	
	Gives simple checklist of features present	Low	
	Provides tiered forms of information provision e.g. from free informal self-assessment, to low cost certification with low precision, to higher cost certification with high precision	High	

Framework implementation

Table 2: Framework implementation

Category	Implementation option	Level of consensus	Outstanding concerns
Administrative governance	Must have meaningful and transparent oversight by representatives of government, industry, research and consumer advocates.	Very high	
	Small, efficient governance framework with robust, outsourced training, audit, compliance and reporting functions. [Strong minority position: some stakeholders suggest a National standard or industry code of conduct rather than administration, as costs could not be sustained under a voluntary framework.]	High	Y
Technology	Rating tool is necessary to deliver the measurement and communication to households.	Very high	Y
	New or enhanced tools required, as current systems lack the required functionality.	High	Y
	Split options one approved tool, or an ecosystem of consistent tools. Variations suggested include: Single tool to ensure consistency. Ecosystem based on a single data engine accessed through an application program interface (API) National labelling standard or code of conduct to endorse tools	Low	Y
Market framework	Very low costs to consumers, while generating direct or indirect revenue for service providers that deliver information. Framework design must minimise: Administrative, training and compliance costs. Information gathering and delivery time and skill requirements.	High	Y
	Streamlined with existing business processes.	High	
	Significant initial marketing investment to stimulate interest.	Moderate	Y

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1 Introduction

Report scope and objectives

This report provides the findings from the stakeholder-mapping stage the EnergyFit Homes Initiative. The objectives of this phase were to develop a map of the relevant stakeholders and to understand their perspectives of the need, scope and implantation of a national home energy efficiency information framework. A secondary objective of this stage was to begin to build consensus and a coalition of support for options to be built on in the next stage.

This is the penultimate research stage of Phase 1. These findings inform the final research stage: consumer message testing. These findings also directly feed into the next stage of the project. The next phase of this project is to develop an implementation pathway, by consolidating the findings of our research to identify the most appropriate energy efficiency information system, and document the steps required to make this a reality. This includes to developing a recommended framework, implementation plan and business case.

About the EnergyFit initiative

The EnergyFit homes initiative is a collaboration of business and government committed to helping consumers unlock the value of energy efficient homes. As a first step towards this objective, the EnergyFit homes project is working with consumers and stakeholders to design a national framework to measure and communicate the energy efficiency of existing homes

The EnergyFit project seeks to understand the information that consumers need at different decision points, and identify the best framework, resources and pathway to make it happen. The project is led by consumer and stakeholder needs and capabilities. To date, the EnergyFit project has focussed on gathering data to understand these needs and capabilities, by benchmarking existing energy efficiency information systems and surveying the attitudes of consumers and tradespeople. This paper documents the needs and capabilities of energy efficiency industry and government stakeholders.

The founding partners of the EnergyFit Homes Initiative are AGL Energy, Australian Window Association, Centre for Liveability Real Estate, Clean Energy Council, CRC for Low Carbon Living, CSIRO, CSR, Energy Efficiency Council, Energy Efficiency Certificate Creators Association, Fletcher Insulation Australia, Knauf Insulation Australia, NSW Office of Environment and Heritage, and Stockland.

EnergyFit Homes is specifically focussed on reducing carbon emissions by increasing uptake of energy efficiency features and appliances in existing homes. The project aims to understand if and what type of information framework could increase uptake through home sale and lease processes.

The components of the project are set out in Table 2 below

Table 2 EnergyFit Homes project summary by stage

Activity	Scope
Benchmark existing national and international rating systems and tools	<ul style="list-style-type: none">• Review system scope and functionality• Review user experience and costs• Results, governance and business models
Understand consumer wants and needs	<ul style="list-style-type: none">• Consumer focus groups• National 1500 person telephone survey• Interviews with tradespeople and real-estate agents• Message testing of different communication strategies
Consultation with industry and government stakeholders	<ul style="list-style-type: none">• Understand current goals, capabilities and gaps• Incentive structures, market channels and governance• Commercial and skill capabilities and constrains• Coalition building
Develop an implementation pathway	<ul style="list-style-type: none">• Identify the desired attributes of a national framework• Options for governance structure and business model• Develop a business case and implementation plan

Based on the findings of the EnergyFit homes research, the initiative will work with government and industry stakeholders to develop and implement a national framework for existing home energy efficiency.

Methodology

This Stakeholder mapping exercise is the penultimate data-gathering phase of the EnergyFit Homes Project. The objectives of this phase are to understand the views of key stakeholder views with respect the measurement and communication of home energy efficiency at the point of sale and lease. Issues considered include stakeholder:

- Current goals, capabilities and gaps
- Incentive structures, market channels and governance
- Commercial and skill capabilities and constrains

A key priority for this phase was to identify options, and next steps for to support the next phase of this project, which is to develop and implementation path way. Stakeholders were also asked their views on:

- The desired attributes of a national framework
- Options for governance structure and business model
- Insights into developing a business case and implementation plan

A key element of this phase of the project was also consensus and coalition building for a consistent, voluntary national framework.

Consultation was conducted in the form of face-to-face interviews. Interviews were designed to draw out insights into the key issues above. As part of consensus and coalition building stakeholders were also provided updates on the preliminary findings of the research to date including:

- Literature review
- Information system benchmarking
- Focus groups
- Consumer and industry surveys

Interview findings have also helped identify considerations for the final research phase of the project: consumer message testing.

Interviews and finding updates where structured around the four overarching research questions of this project, with a series of probing sub questions. The overarching questions are:

1. What information do consumers need? At what decision points? From which trusted sources? In what form?
2. What technological and market framework will facilitate this?
3. What's the appropriate governance structure and funding model for this framework?
4. What is the implementation plan and business case for establishing this framework?

The sub-questions and context are described in under research objectives of the project findings in Sections 3.2 to 3.6.

Interview questions were conducted to draw out views on the potential for information systems to build an enhanced market for energy efficient housing, and on the best method to deliver information. Interviewees identified their role in influencing household decisions to invest in energy efficient home products and services, their connection to other stakeholders in the market, and the flow of information throughout their supply chain.

All interview comments are de-identified to protect the privacy of participants, in accordance with the ethical review processes of CSIRO within the guidelines of the National Statement on Ethical Conduct in Human Research.

1.1 EnergyFit Stakeholders

The key stakeholders in the delivery of energy efficient homes were identified with reference to the "Housing Production Lifecycle" stakeholder map (Figure 1), and enhanced for this project in consultation with the EnergyFit Steering Committee.

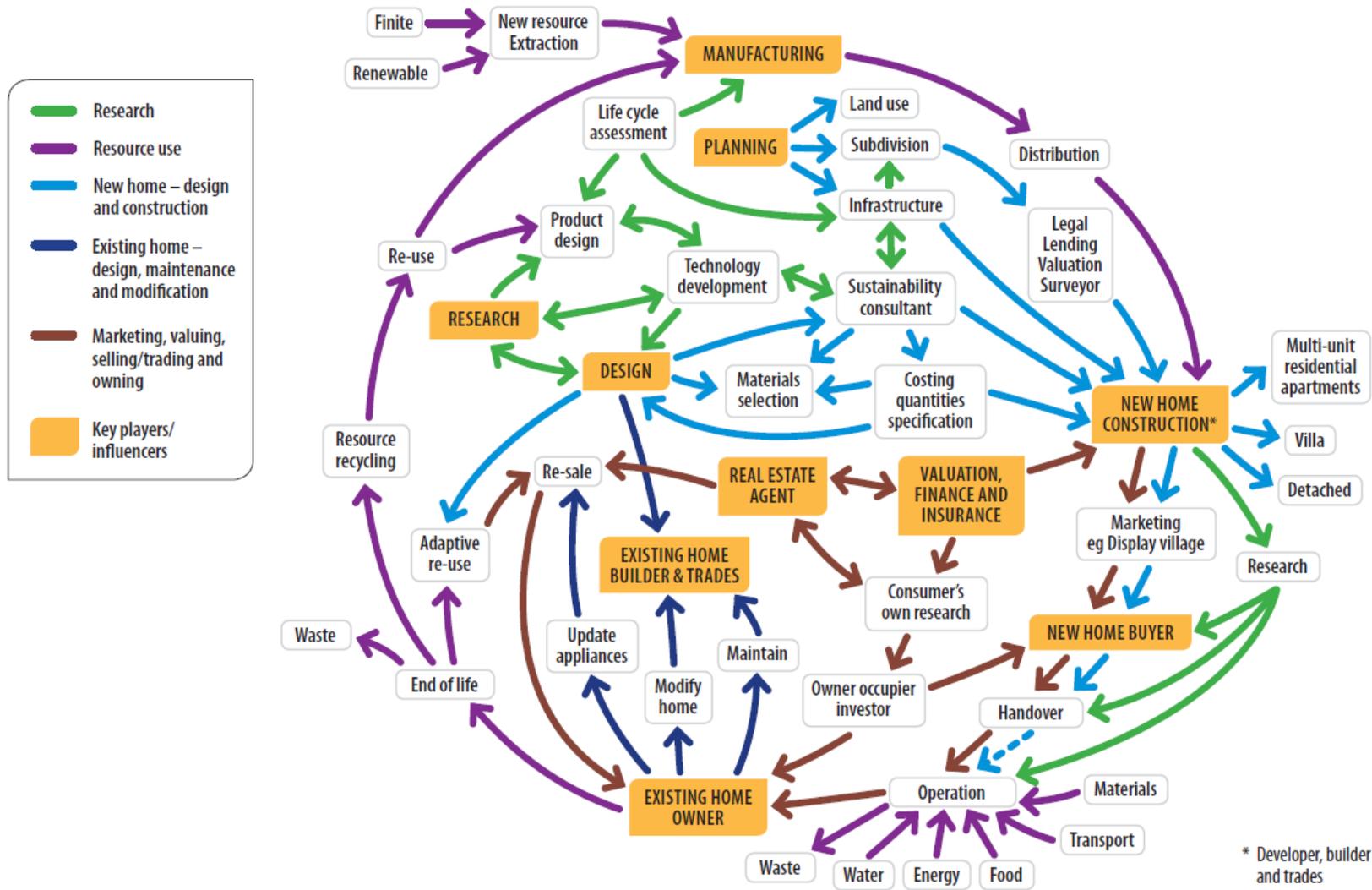
This map was originally produced for the Office of Environment and Heritage (OEH) as part of their Collaborative Sustainable Housing Initiative. The map includes significant detail on stakeholders in new building supply, but less in the operational phase of the building, so a number of stakeholders were included in this report that are not identified in the housing production lifecycle. For the purposes of this project, the key stakeholders in the existing building market were identified as:

Table 3 Stakeholder categories

Category in this report	Housing Production Lifecycle reference
Real estate (includes agents and listing services)	Real estate agents, Property listing services
Banking	Valuation, finance and insurance
Community groups	Existing home owner, New home buyer
Property construction (including developers and builders)	New home construction
Research	Research
Building product industry	Manufacturing and research.
Energy services	New stakeholder. Plays an important in measuring and

	communicating energy efficiency in existing homes.
Government	New stakeholder. Plays an important role in regulating property and energy markets and transactions, and providing "common good" services such as energy efficiency certificates and information programs.

The housing production life-cycle



1.2 Stakeholder interviews

A broad range of industry participants were approached to participate in this research project. These interviews included the relevant officers in six government departments across five jurisdictions. It also included major stakeholders from energy retail, building products, finance, real estate, community and research industry.

Participation was stronger from some industry sectors than others, largely reflecting their current level of involvement in the provision of energy efficiency information. Government participation was particularly positive, reflecting a strong interest in this space.

Table 4 List of energy efficiency systems in this review

Sector	Participants
Government	Department of Industry and Science (Aust. Gov.) NSW Department of Planning and Environment Office of Environment and Heritage (NSW) Victorian Department of Economic Development Department of State Development (SA) Environment and Planning (ACT) City of Sydney
Developers	Stockland
Energy efficiency products	Knauf Insulation CSR Bradford Fletchers Insulation Australian Windows Association Insulation Council of Australia and New Zealand
Property services	Liveable Property Institute REA Group (realestate.com)
Lenders	BankMECU Bendigo Adelaide Bank
Energy services	Energy Efficiency Council AGL
Consumers	Victorian Council of Social Services Brotherhood of St Lawrence Consumer Utilities Advocacy Centre (CUAC) Environment Victoria
Energy experts	CSIRO RMIT

Building trades industry bodies were not included in this research to avoid duplication of effort with the national survey of tradespeople. Where relevant, this research notes published positions of the building industry, primarily as part of public consultation to previous national government initiatives to implement energy efficiency disclosure programs.

1.3 Selection Bias

In part, it is likely that there is a degree of selection bias in the stakeholders interviewed. Most of the industry, government, research and community group stakeholders interviewed have long been actively involved in this policy area. In conducting our research we reached out to stakeholders from a broader range of organisations, but were not successful in obtaining interviews from several.

The key gap in our stakeholder research is organisations that do not currently deliver energy efficiency services, but potentially could. This includes property valuers, building inspectors, and customer facing tradespeople. We have had feedback from a number of government and industry stakeholders that these challenges are not surprising. Several stakeholders have recommended new potential interview subjects. They also recommend that engagement is likely to be more successful in the next phase of the project, when we are discussing tangible options and recommendations. This is discussed further in Section 0 on next steps.

Research findings

This section provides an overall summary of stakeholder perspectives on using information to transform the market for energy efficient homes at the point of sale and lease. Overall, there was very strong support across stakeholders interviewed for the development of a national home energy efficiency framework. This support and general findings are discussed in 3.1.

Stakeholders had a high level of consensus on the features required for such a framework, with some important differences, as detailed in sections 3.2 to 3.5 below. These sections synthesise stakeholder feedback on the desired attributes of a national framework.

There was a broader range of perspectives on how to implement such a framework, as detailed in Section 3.6. This section summarises stakeholder perspectives on next steps including:

- Options for governance structure and business model, and
- The next steps required for:
 - Further coalition building, and
 - To develop a business case and implementation plan

Strong support for a standard national framework

The overarching finding of this report is that there is a very high degree of support for developing a standard, agreed national framework to measure, compare and communicate the energy performance of existing homes. This support extends across government, industry, research and community organisations.

All stakeholders agreed with the propositions that:

1. Communicating the energy performance of homes at the point of sale and lease requires a standard framework to measure and compare existing homes
2. A framework with appropriate scope, functionality and governance does not presently exist
3. Were standard energy measurement and comparison framework to be developed it would have useful applications beyond the point of sale and lease

There is a general consensus that a framework would mostly like have the greatest success in in encouraging improvements in medium-grade building stock, and reward already high performing homes.

Information alone is not considered likely to help low income and energy hardship households. However a framework for measuring and comparing performance could help with minimum standards and other low-income policy objectives.

Stakeholders generally feel that it is important for a framework to cover apartments, but note that this may be difficult to achieve. A framework would most likely need to be easily tailored to cover fewer or different features and separate benchmarks for apartments.

There is a high degree of consensus on the general attributes of a potential framework, with differences of opinion on some details. For some issues where there is high consensus, key stakeholders have alternative perspectives that need to be considered and addressed. Sections 3.2 to 3.5 detail the key findings on framework attributes.

In contrast to the high level of consensus on framework attributes, there was greater diversity of views on implementation. Within these views, there were a number of dominant options with respect to administrative, technology and market governance. Section 3.6 details findings on framework implementation options.

What information do people need?

Research objectives

The first research question for the EnergyFit initiative is what information do people need on the energy performance of homes. The literature, review, focus groups and surveys are the primary work streams responsible for answering this question. However the stakeholders interviewed in the stakeholder mapping work have significant experience and insights to contribute to this research.

The energy efficiency performance of a home can be communicated in many different ways. For example energy efficiency can be communicated terms of absolute energy consumption, or relative energy consumption compared with equivalent homes. It can be measured in terms of energy (e.g. megajoules p.a.), carbon (tonnes CO₂e), running costs (\$/p.a.), features (e.g. 6 star A/C and R3 insulation), and comfort.

This question aims to understand the issues that influence people's decisions to invest in energy efficiency features. This includes investing in homes that already have energy efficiency features, and adding these features through renovations or refurbishments. Stakeholder views showed a high level of consensus on this question, and were consistent with the preliminary finding of the consumer research streams.

Stakeholder perspectives

There was generally a high degree of consensus among stakeholders across government, industry and community groups on the type of information required. Consultation identified three main issues to consider:

1. The importance of consistency and comparability versus accuracy.
2. A strong preference for energy over carbon and other metrics.
3. The importance of providing supplementary and layered information.

There was a high degree of consensus amongst stakeholders on most of these findings. The exception is accuracy. The vast majority of stakeholders from government, industry and community groups believed accuracy was not an important consideration. However a minority of informed stakeholders felt strongly that accuracy was at least as critical as consistency.

All of these issues are discussed in more detail below.

Accuracy, consistency and comparability

There was a very high level of consensus among stakeholders that the following framework attributes are more important than the metric used to communicate energy efficiency:

Replicable If different people measure the same home they would get the same result

Comparable The results for one home can be easily understood and compared with those of other homes

Only a small number of stakeholders felt that accuracy was important. These stakeholders hold a strong view that any communication of energy efficiency must closely match the results of robust scientific models such as NatHERS. However, the majority of stakeholders felt that consumers would not be overly concerned about accuracy, but that consistency of results was essential to public trust in a framework.

In part this is because stakeholders believe that consumers innately understand that the energy consumption of a given home can vary greatly depending on the behaviour of its occupants. The behaviour of future occupants can't be accurately measured, which places significant limits on the potential to accurately measure future energy performance.

In contrast majority stakeholders strongly believe that consistency (or precision) in measurement is essential to the success of a framework. There is a high-level of consensus that a framework would lose public credibility if results for the same home varied when different people provided the information. Some stakeholders considered that a solution to this was a simple measurement framework with broad categories that makes it very difficult to wrongly assess a home.

Energy as the primary metric

Within these parameters, energy is considered the most important metric, rather than carbon or other factors. This is broadly consistent with the findings of the consumer research which found a very high percentage of households are concerned about energy costs. The research also found that environmental benefits were only a driver for action in a minority of households.

However there was split between stakeholder consultation and the consumer research as to how energy should be measured and communicated. The consumer research has found that energy costs are the issue of energy efficiency that consumers care most about. Many stakeholders considered cost a poor measure for energy efficiency, as energy costs could vary significantly based on energy tariff structures and the use of the home.

Some government and industry stakeholders felt strongly that base building energy is a more objective metric and better suited to provide consistency in the measurement and communication of information. As discussed in section 3.5, several stakeholders also pointed out that there is a gap between what consumers say they want in interviews, and the factors that actually drive their decision-making. Studies have shown that more abstract metrics like stars can be much more effective at changing behaviour and driving rational decision making than data on running costs. For example, Shewmake and Viscusi (2014) report that research into how consumers make data intensive decisions suggests that a simple evaluative metric such as poor/average/good or a star rating "reduces cognitive hurdles and helps consumers pick better higher quality products at similar prices".¹

Some stakeholders would like to see comfort conveyed as a benefit. OEH's *Insight and Reason* research suggests comfort is potentially an important communication device to engage key demographics on the benefits of energy efficiency. However there is as yet no clear metric to use to measure and compare comfort. Some stakeholders felt that comfort is highly subjective and attempting to develop general, quantified metrics risks undermining its communication value.

¹ Shewmake, S and Viscusi, W 2014, Producer and consumer responses to green housing labels, *Economic Inquiry*, Vol 53 No.1

Layered information

While stakeholders broadly agree that energy should be the primary metric, almost all stakeholders interviewed felt that it was important to provide consumers with layered information, including key features, energy savings recommendations, co-benefits such as comfort or property value implications, and potentially bill impacts. This perspective was based on a general government, industry and community group consensus that layered information was essential to building trust and credibility.

Stakeholders felt that consumers needed clear, simple headline information on a primary metric. However they believed that consumers would want additional, easily verifiable information to be able to assess the relevance of headline energy efficiency performance information. For example, information on the features and appliances that lead to a high overall energy efficiency performance would allow householders to sense-check performance information. Some stakeholders felt that this was essential to building consumer trust. No stakeholders had any objections to providing layered information. This perspective aligns with the experience of the focus groups. Focus group participants initially engaged strongly with star ratings and energy bill benchmarking information, and then questioned whether it would apply to them. Consumer-facing stakeholders believe this would be common, and that a framework needs to allow consumers to validate results for themselves.

Other stakeholders felt that an information framework needs to include tangible energy savings actions if it is to drive investments that improve energy efficiency. Stakeholders agree that home energy efficiency is a complex issue, and that there is a lack of public understanding of the factors that influence energy consumption. Some stakeholders strongly believed that simply telling people whether or not a home was efficient would not catalyse change. They believed a framework should offer tailored tips of specific actions that would improve the energy performance of the home in question. This aligns with the results of a survey of 3000 European households, which found that householders were twice as likely to have carried out one or more energy efficiency measures if the Energy Performance Certificate provided at the point of sale included recommendations on energy savings opportunities².

Finally some stakeholders also felt it is also critical to provide additional information in a way that doesn't overload consumers, and that the whole package of information would need to be simple, engaging and easily accessed by householders.

At what point?

Research objectives

The second research question asks at what point do consumers need information on the energy performance of homes. This question seeks to understand the "moments that matter" in the process of buying, selling and renting homes from an energy efficiency perspective – the points at which information on the energy efficiency of a home is likely to result in decisions that improve home energy efficiency.

These decisions could include:

- Property sale: Paying a higher price for a more efficient home, and thereby creating an incentive for other owners to invest in efficiency.
- Property lease: Paying a higher rent for a more efficient home, creating an incentive for other landlords to invest in energy efficiency.
- During occupation: Investing specifically in measures to improve energy efficiency because of perceptions about the value for current or future occupants.
- During renovation: Including energy efficiency as part of a broader home renovation for the reasons above.

In defining the scope of the EnergyFit home initiative, the Steering Group recognised that the "point of sale and lease" is broader than the final contract signing. All phases of this project have looked at both the period when consumers are thinking about the sale, purchase or lease of a home, and other times in which decisions could influence the future sale, purchase or lease – such as choosing to renovate the home. The project has considered the information consumers seek and the decisions they make that have the potential to influence the energy performance of homes.

Consumers can think about, research and plan home sale, purchase or leasing decisions for up to a couple of years before taking action. Over this time there are many potential direct and indirect triggers that could influence their views and actions on energy efficiency. The purchase or lease of a home can be followed by a period of "nesting" or customisation, which has many potential direct and indirect opportunities to improve home energy efficiency. Consumers that value energy efficiency might prefer to buy or lease a less efficient home with other features that they value, and invest in their own energy efficiency improvements. Alternatively they might prefer a home that already has energy efficiency features.

² IDEAL-EPBD 2011, Key findings & policy recommendations to improve effectiveness of Energy Performance Certificates & the Energy Performance of Buildings Directive, <www.ecn.nl/docs/library/report/2011/o11083.pdf>

The consumer research streams of this project are primarily focussed on answering the question “at what point”. Nonetheless, stakeholder-mapping research also tested this scope with stakeholders and canvassed a broad range of potential decision points. These include decision points that are directly part of the real estate process. They also include moments that may occur while someone is in the market for a home, which may influence their thinking and actions. For example:

Real estate process	Related interactions
Property advertising / research	High energy bills
Property appraisal	Appliance failure
Property inspection	Cold winters / hot summers
Building inspection report	Interaction with trades people
Property valuation report	
Pre/post sale renovation / refurbishment	

Stakeholder perspectives

Stakeholders from across government, industry, research and community sectors generally concurred with the broad framing of “point of sale and lease” in the project. However, a majority of stakeholders felt that the priority for the framework should be to support communication between buyers and sellers. Within this context there was a high level of support for a framework that was useful at a broader range of touch points through the extended sale/lease life cycle. A significant majority of stakeholders also supported or strongly supported a framework that allowed informal self-assessment by consumers.

1.3.1.1 Home vendor-buyer communication is the priority

The majority of stakeholders believe that the most important use for home energy information is communication between buyers and sellers. This decision point was generally viewed as the point most likely to influence consumer views on the value of energy efficient homes, and thereby to serve as a catalyst for action at other points.

The majority of stakeholders across sectors believed highly efficient rental properties were important, but were consistently less optimistic about the impact of voluntary information systems in the rental market. This view is based on a perception that tenants lack the market power to drive landlords to improve stock in most (but not all) rental markets in Australia at the moment. Despite this caution, stakeholders generally believed that it was still important for a framework to be designed operate at the point of lease to help catalyse longer-term change.

Community and industry organisations working with low income and energy hardship customers strongly felt that information alone would not help these consumers. Low income and energy hardship households often face additional economic and social challenges to adopting energy efficiency. Nonetheless there was high consensus among these stakeholders that a well-designed and nationally accepted framework for benchmarking home energy efficiency could assist other policy goals. For example, some stakeholders in this policy space are pursuing mandatory minimum energy efficiency standards for rental homes. A uniform national approach to measuring and comparing the energy efficiency performance of homes could underpin these standards if it were designed with this in mind.

1.3.1.2 Additional decision points increase potential for action

Stakeholders also broadly support a framework that can facilitate communication of home energy performance across a broader range of decision points. In particular a framework could potentially help energy efficiency suppliers to credibly communicate product benefits. An effective framework is also of potential use for energy retailers to engage with customers on issues of energy consumption and energy efficiency products. These benefits however are only likely to be achieved if the framework is flexible, cost effective and nationally accepted as a standard.

There is a general consensus that the value of the framework to customers will be reinforced if it is also relevant and used at other decision points.

Energy efficiency performance information was not seen as a priority for the banking industry. Energy bills have little impact on lending approvals and pricing.

From what source?

Research objectives

The third research question seeks to identify the sources through which a framework should deliver information. It aims to understand the sources of information on home energy efficiency that consumers trust and are influenced by. This question is primarily a focus of the consumer and trades research. However stakeholders were also asked their views.

Potential sources include are illustrated in Table 5 below

Table 5 Potential sources of energy efficiency information

Type	Example sources
Peer to peer	Self assessment, interactions with friends and neighbours
Government	Local, state or national agencies and research organisations
Property sector	Real estate agents, property data providers, building inspectors, property valuers
Professionals and trades	Electricians, plumbers, architects, designers, builders
Product suppliers	Insulation, window, solar or appliance retailers
Non-government organisations	Choice, Clean Energy Council, Green Building Council
Energy efficiency	Energy assessors, NatHERS assessors

Stakeholder perspectives

Overall there was a high level of consensus that the most important factor for establishing trust in information was the overarching organisation that endorsed it. A strong majority of stakeholders believed that a framework should be open for use by individuals from any background, provided that they had appropriate training, accreditation and administrative oversight. There was a greater diversity of views as to the appropriate levels of training, accreditation and administrative oversight.

1.3.1.3 *The endorsing body is paramount*

The majority of stakeholders believe that for a framework to succeed it must be endorsed by an overarching credible and trusted source. The majority of stakeholders remained open-minded about what types of organisation could be trusted. Across all sectors, stakeholders generally preferred a government administrator or a quasi-autonomous nongovernment organisation (quango). Most stakeholders were not adverse to a commercial administrator, but believed government or a quango would be more trusted. Stakeholders that supported government or quango administration were generally agnostic as to which body should provide administration, and whether it was existing or new.

However, the vast majority of stakeholders felt strongly that appropriate governance is necessary for a framework to be trusted and embraced by consumers and industry. There was a spectrum of opinions as to what appropriate governance entails. These issues are covered in section 3.6 on implementation.

1.3.1.4 *A diversity of delivery sources is desirable*

There was strong consensus that members of a broad range of industries should be able to deliver information, provided they are supported by appropriate training, accreditation, and compliance. This perspective is based on a general agreement that in a voluntary framework, the more people than can deliver information, the greater the likelihood it will be delivered. It also reflects a general agreement that the cost of information delivery are likely to be lower if it can be provided by professionals who are already interacting with households.

However there was a spectrum of views as to what appropriate training, accreditation, and compliance entails. Across sectors, stakeholders were agreed that the test of a governance framework is whether a framework delivers consistent information, regardless of who delivers the information. There is also a high level of agreement amongst stakeholders that the cost of training, accreditation and compliance should be kept as low as possible. Some stakeholders feel that it is critical that training and accreditation costs are zero or near zero to keep the cost to consumers down. Many others feel that this is not possible, but that the framework administration must be designed with efficiency and effectiveness at its centre. These issues are covered in section 3.6 on implementation.

1.3.1.5 *Self assessment is important*

There was a high degree of consensus that a framework should involve the option for informal self-assessment. Stakeholders generally had a preference for low cost, formal and professional auditable property ratings. However most stakeholders saw merit in allowing the framework to be used online for free by households for their own research purposes. This was seen as another channel through which understanding and trust of a voluntary system could be spread.

Some stakeholders went further. They believed that free self-assessment was in fact critical to the success of a voluntary framework. These stakeholders pointed to their experience of the National Australian Building Energy Ratings System (NABERS). They argue that if building owners were not able to conduct their own informal NABERS ratings they would have been far less likely to incur the cost and risk of a formal rating. Under a voluntary rating system, ratings are only of benefit to a homeowner if they showcase the energy efficiency strengths of a home. A free, informal self-assessment allows a homeowner to understand what a home performance is likely to be, and how to maximise it before they invest in a formal rating for marketing purposes.

In what form?

Research objectives

The final set of framework attribute research questions looks at the form in which information should be provided. This covers appropriate message framing, the nature of the content and the medium by which it is provided. Again these questions are primarily the focus of the consumer research and message testing. However stakeholders across sectors have significant experience in these areas and their views were canvassed.

In terms of message framing, options include comfort, running costs, bill savings, waste avoidance, neighbour comparisons, and investment payback. The consumer research and OEH's Insight and Reason research have helped shed significant light of some of these issues.

In terms of nature of the content, potential options include star ratings, heat maps, bill savings, bill cost, features checklists, and energy saving actions. Information can be personalised or generalised, individual or comparative (e.g. ratings), highly accurate or provide rules of thumb.

The form of the content could range from online or tablet based assessments to physical certificates or stickers.

Stakeholder perspectives

Some stakeholders have specific views on message framing, but the majority of stakeholders are looking to the findings of the consumer research and messaging testing. The majority of stakeholders strongly support some kind of rating system that provides comparative benchmarks, with additional supplementary information. There is a general consensus that there is a need for hard copy formal certificates, combined with informal online assessment tools.

There was a greater diversity of perspectives on this issue in comparison to the other attributes of the framework. Stakeholder opinions on many of these issues were not as strongly held, with high interest in research findings.

1.3.1.6 Stakeholders look to the research for direction on framing

There is a general consensus across sectors that existing energy efficiency messages are not driving action as they do not sufficient resonate with consumers.

Some stakeholder feel that comfort is a key message to engage consumers, but these stakeholders are split as to how. Some believe that the strength of comfort framing lies in its subjectiveness, and inherent positive connotations. Others are interested in whether objective measures of comfort would help with communication.

Some stakeholders are interested in whether information on running costs would be more effective than messaging on energy efficiency. However other stakeholders feel strongly that appealing to consumers on economic terms is ineffective. Several stakeholders pointed to the success of Australia's appliance ratings system that frames information in general comparative terms (stars). They argue that studies have found this clean and consumer marketing style of communication was far more effective than factual based systems in the USA and Europe. They argue that consumers have a tendency to overly discount future benefits (hyperbolic discounting), and to make decisions on short-term factors. They note that studies have shown that qualitative tools like star ratings drive more rational decision-making than providing empirical information.

1.3.1.7 Comparative ratings are the preferred form of content

A strong majority of stakeholders are firmly committed to ratings to communicate the comparative energy efficiency of homes. Within in this majority, most stakeholders believe that consumers are likely to resonate most strongly with star-based rating systems. These stakeholders believe that consumers understand and value ratings and are familiar with them from appliances, hotels, and an increasing array of Internet services

However, some government and industry stakeholders believe that it essential that ratings for existing homes are not inconsistent with NatHERS or BASIX ratings for new homes. They fear that such in consistency would cause confusion and undermine the credibility of both frameworks. Ensuring frameworks are aligned perfectly could avoid this inconsistency. However, most stakeholders believe that this is neither desirable nor possible, due to the different scope and high cost of the existing new-build ratings. Instead some stakeholders believe that the way to avoid inconsistency is for an information framework for existing homes to use non-star based ratings. One example given is bronze, silver, gold and platinum certification.

A minority of stakeholders however were sceptical of the value of ratings, and suggested that simple checklists could be sufficient to communicate existing home energy efficiency. But the general consensus was that a system which considers how features interact in a specific house of necessary to provide meaningful information.

As noted in Section 3.2, the majority of stakeholders believed that layered information was important. Those that supported ratings, largely also believed ratings need to be accompanied by information on the features that underpin the rating and preferably include recommendations to improve ratings.

1.3.1.8 Physical certificates are important

The majority of stakeholders believe that some form of physical certificate is required for effective communication of home energy efficiency at the point of sale and lease. They believe an endorsed assessor, accredited by a credible governance body for the framework, must provide the certificate.

Some stakeholders believe that a range of certificate types might be desirable, including for example:

- A free online assessment for research purposes that is not certified.
- A low cost, formal assessment with a lower degree of accuracy that is officially certified to suit most homes.
- A higher cost formal assessment with a high degree of accuracy for houses that attain the highest standards of efficiency.

There is high consensus that the information must be low cost or free. However some emphasise that consumers won't value information that is free, and it must have a nominal price that can be waived as part of bundled offers.

There is general support for tiered forms of information provision including free informal self-assessment and higher cost certification options.

What is required to make this happen?

Research objectives

The final research questions help to establish the options for an implementation pathway for the next phase of this project. These questions consider the administrative governance arrangements, supporting tools and technology and market frameworks required to deliver a framework.

In terms of governance arrangements, options include delivery, independent government and industry administration, private commercial delivery or no administration. The tools and technology options include leveraging existing or developing new tools and systems. Another question is whether one single tool/system is required or whether an ecosystem of competing/complementary tools can be effective. Options on market structure range from completely funded through to full cost recovery.

Stakeholder perspectives

There was a high-level of consensus that a framework requires government, industry, research and consumer organisation oversight to be embraced by consumers and industry. There was a greater diversity of perspectives as to what this oversight should look like.

The primary next task for this project is to define clear implementation options, assess them against consolidated research findings and conduct further stakeholder consultation. These next steps are discussed further in Section 0.

1.3.1.9 Governance

There was a very high level of consensus that whatever governance framework is adopted, it must have meaningful and transparent oversight by representatives of government, industry, research and consumer advocates to be credible and supported.

Most government and all non-government stakeholders agreed that the governance framework must be as lean as possible to keep costs to consumers low. The majority of stakeholders supported a small, efficient governance framework with robust, outsourced training, audit, compliance and reporting functions. However, some stakeholders strongly felt that even light administration would add too much cost and a national standards or industry code of conduct would be a preferable approach.

Some of the developers of existing and potential energy efficiency tools did not support oversight from government, industry, research and consumer advocates.

1.3.1.10 Technology

The vast majority of stakeholders agreed that some kind of tool was necessary to deliver the measurement and communication of information.

Almost all stakeholders agreed that the information systems currently available lacked the required functionality in their current form. They believed that either existing systems needed to be enhanced or that new systems were required.

Stakeholders across sectors were split on whether one approved tool was required, or whether a governance framework could deliver consistency within an ecosystem of tools. Stakeholders within and outside government generally supported an ecosystem approach to provide innovation and customisation provided consistency was guaranteed. Some felt an ecosystem could be feasible if it was based on a single data engine, accessed through an application program interface (API). Others felt that even greater flexibility is desirable, with tools endorsed under a national labelling standard or industry code of conduct.

Other stakeholders felt strongly that a single preferred tool is essential to ensure the high level of consistency that would be required to create trust in communication between strangers, for example home vendors and buyers. They argue that highly customised solutions available in other fields (e.g. public transport apps) are designed for personal use, and are not a valid comparison with this framework.

1.3.1.11 Market

Of all the research questions, stakeholder perspectives on a market framework were least conclusive. Non-government stakeholders would uniformly welcome a fully funded solution, provided it had sufficient non-government consultation and oversight. These stakeholders generally expected though that full funding would not be possible, and either partial or full cost recovery options would need to be considered.

The majority of stakeholders did not disclose their appetite or capacity to provide funding. However, they did not rule out at least partial funding contributions.

Across government and non-government stakeholders there was a high degree of consensus that a voluntary framework must:

- Be provided at very low costs to consumers (\$50-\$150 per assessment).
- Generate direct or indirect revenue for service provider that delivers information.

Stakeholders also had a high degree of consensus that a framework must be designed to minimise to the greatest extent possible:

- Administrative, training and compliance costs.
- Information gathering and delivery time and skill requirements.

To achieve the lowest cost possible, the framework will also need to be as streamlined as possible with existing business processes.

Within these considerations, some stakeholders believe significant initial marketing investment is essential.

Further research is required to identify specific stakeholders with current commercial design to provide information/rating solutions under a voluntary framework.

Implications and next steps

The findings of this report feed directly into the subsequent stages on the Energyfit Homes project.

The consumer message testing has potential to shed light on some of the unresolved issues in these findings. In particular, these include issues of:

- The importance of accuracy versus consistency
- Effective forms of comparative information (eg. stars, colours, etc)
- The significance of inconsistency with NatHERS ratings
- Layering of information
- Communication of comfort

Stakeholder findings on project attributes need now to be considered in the context of the consolidated findings from all research phases. Common Capital now needs to consolidate the findings of literature review, focus groups, consumer and trades surveys to develop a draft set of framework attributes for Steering Committee approval.

Based on these attributes Common Capital needs to identify and assess potential implementation options and governance arrangements. This assessment is likely to require additional stakeholder consultation with stakeholder categories that were difficult to engage for this stage. In particular, further engagement is required to develop detailed options for the market framework. This includes consultation with potential delivery organisations including property inspectors, trades and customer facing energy service and building product organisations. We propose that to conduct this engagement in the form of further interviews and a public workshop on findings and recommended options.

These findings and recommendations will then be presented to the Steering Committee for approval. This research will also inform the development of the recommended implementation plan and business case for the final project report. The nature of the business case may depend on the recommended implementation option.

In summary the recommended project next steps from this report are:

1. Validate findings and recommendations with Steering Committee
2. Investigate contended attributes through message testing
3. Consolidate stakeholder mapping findings with other research streams to recommend final attributes
4. Conduct stakeholder workshops to present findings, develop market framework and test implementation options
5. Seek steering committee endorsement of recommended implementation option
6. Develop implementation plan and business case