



ACT
Government

ACT ENERGY EFFICIENCY IMPROVEMENT SCHEME

PROPOSED UPDATES TO RESIDENTIAL
ENERGY SAVING ACTIVITIES

Consultation Paper
June 2017



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1. EXECUTIVE SUMMARY

As part of the ongoing process of strengthening the ACT Energy Efficiency Improvement Scheme (EEIS), the ACT Government is expanding the range of activities eligible under the scheme. An EEIS stakeholder forum in 2016 identified insulation activities as the highest priority (Figure 1). In response to this, the ACT Government is now undertaking initial consultation on a proposal to introduce insulation activities into the EEIS. Average energy cost savings from ACT insulation retrofits are estimated at \$668 per year for ceiling insulation and \$85 per year from under-floor insulation¹.

This current consultation seeks stakeholder feedback on:

- » new proposals for EEIS ceiling, underfloor insulation and evaporative cooler cover activities
- » updates to current EEIS building sealing and exhaust fan seal activities
- » support for future activities to be included in the EEIS.

This consultation paper sets out:

- » the context, scope and objectives for these potential changes
- » a summary of the key proposed changes and rationale
- » the stakeholder submission process and EEIS questions for your consideration.

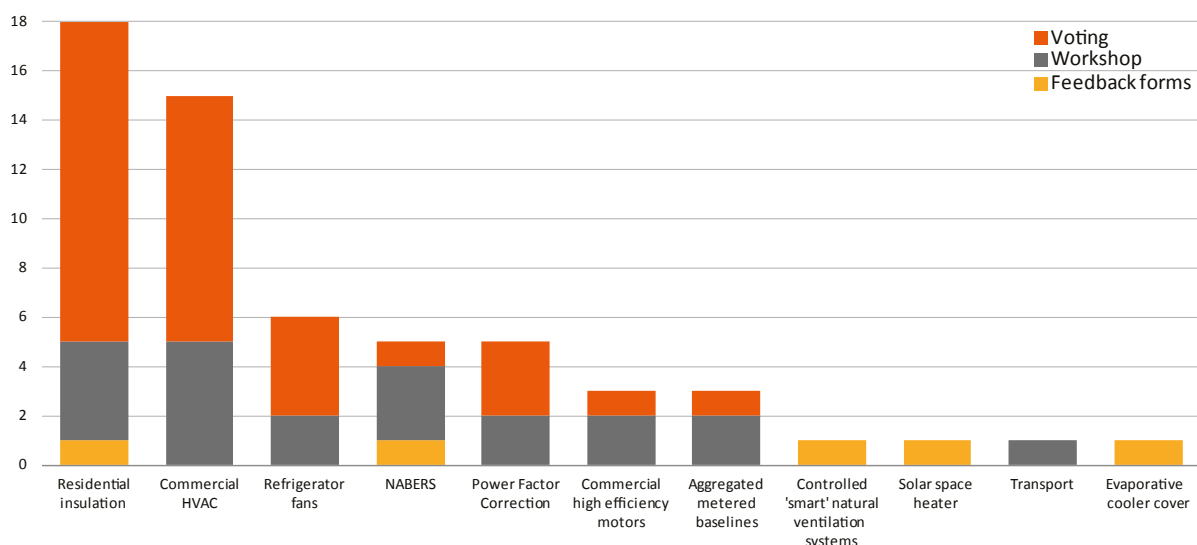
Please note that all proposals in this consultation paper are draft only for stakeholder consultation purposes.

This consultation on proposed EEIS insulation activities focuses first on issues relevant for developing the notifiable instruments required under the legislation. It does not cover codes of practice for implementing the insulation activities, which will be drafted and consulted upon later.

Other insulation activity options for the EEIS, such as a ceiling insulation ‘top up’ activity aligned with the South Australian Retailer Energy Efficiency Scheme (REES) existing ‘Top Up Ceiling Insulation’ activity, are being considered for the next phase of work. Your feedback on these changes will be considered before any amendments or additions are made to the activities.

Figure 1: 2016 Stakeholder Forum - New Activities Suggested by Stakeholders

Source: www.environment.act.gov.au/_data/assets/pdf_file/0005/909113/2016-Stakeholder-Forum-Report-ACCESS.pdf





2. STAKEHOLDER FEEDBACK WELCOME

The ACT Government is seeking your feedback on particular issues related to insulation and building sealing activities and your suggestions for potential new EEIS activities.

As a stakeholder, your feedback is invited on these options, either by email to epd-eeis@act.gov.au or via the online survey at www.surveymonkey.com/r/EEIS_insulation_etc.

Please provide your confidential response by close of business, **24 July 2017**. Submissions received after this time may not be considered.

Your views are very important to us. Stakeholder recommendations have guided EEIS development from the outset. The 2015 and 2016 stakeholder forums led to the development of commercial lighting, insulation, heating and cooling, heat pump water heater and other activities. Results from these forums are detailed in two stakeholder forum reports that can be found online at:

- » www.environment.act.gov.au/_data/assets/pdf_file/0004/798232/EEIS-Report-on-EEIS-Stakeholder-Forum,-3-September-2015.pdf
- » www.environment.act.gov.au/_data/assets/pdf_file/0005/909113/2016-Stakeholder-Forum-Report-ACCESS.pdf

All responses will be treated as confidential and results collated to protect anonymity and privacy. Respondents will only be identified in publications with their prior approval.

3. BACKGROUND - INTRODUCTION TO THE ENERGY EFFICIENCY IMPROVEMENT SCHEME

3.1 EEIS overview

The *Energy Efficiency (Cost of Living) Improvement Act 2012* (the Act) establishes the Energy Efficiency Improvement Scheme (EEIS). The EEIS places legislated obligations on energy retailers in the ACT to invest in activities that help ACT energy customers save energy.

The objectives of the Act are to:

- » encourage the efficient use of energy
- » reduce greenhouse gas emissions associated with stationary energy use in the Territory
- » reduce household and business energy use and costs, and
- » increase opportunities for priority households to reduce energy use and costs.

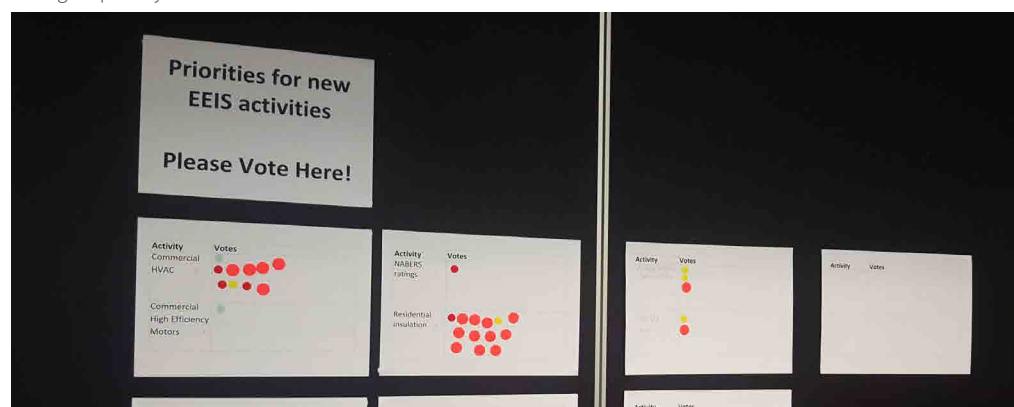
The Act is supported by a number of legislative instruments that provide for Scheme targets, Tier 2 contributions, and eligible activities as well as comprehensive codes of practice relating to requirements for undertaking activities and keeping records.

3.2 EEIS Extension

The EEIS commenced in 2013 and, following a legislated review in 2014, was extended to run until 2020. The extension recognises the significant success of the EEIS to date and the potential that remains to implement cost-effective energy savings in ACT households and businesses. The key elements of the EEIS extension until 2020 including:

- » Maintain momentum on ambitious, but achievable targets for low cost and high electricity and gas savings. Households and businesses should see a decrease in their energy bills as a result of energy efficiency improvements.
- » Deliver economic benefits of nearly \$40 million in Net Present Value to the ACT economy and \$106 million in Present Value to householders (as modelled for the 2015 Regulatory Impact Statement).
- » Give certainty to energy retailers about their obligations under the Scheme.
- » Increase participation and business opportunities by harmonising the ACT EEIS activities with equivalent activities in other jurisdictions.

Voting on priority activities at the 2016 EEIS Stakeholder Forum.



4. SCOPE OF THIS UPDATE

The current update includes new insulation and building sealing activities, and updates to existing building sealing and exhaust fan activities. A summary of the proposals follows.

4.1 Proposed activity updates

New Insulation Activity Proposals

New insulation activity proposals, drawing from priorities put forward in the April 2016 Stakeholder Forum:

- » Development of new EEIS Residential Building Envelope activities: 1.8 ceiling insulation and 1.9 underfloor insulation. This is being undertaken drawing on insights from the Victorian Energy Efficiency Target Scheme (VEET's) current review of potential insulation activity updates and REES's existing insulation activities. This consultation report is not consulting on codes of practice for 1.8 ceiling insulation and 1.9 underfloor insulation. Codes of practice for proposed EEIS insulation activities would be developed at a future date with appropriate stakeholder consultation occurring at that time.
- » The potential to also include an EEIS 'top up' insulation activity is briefly explored here, and will be progressed and consulted in the next phase of EEIS activity development.
- » Wall insulation is a potential future EEIS activity, and is discussed in section 4.2 over the page.

These factors informed the EEIS's focus in this initial phase on developing the ceiling and underfloor insulation activities for homes that currently have no insulation. That said, the EEIS is open to considering the potential for developing an EEIS wall insulation activity in the future. This consultation report invites feedback on this option. Other new activities and updates of existing activities in this consultation report are outlined below.

New Building Sealing Proposal

Development of a new building sealing activity (proposed for incorporation into activity 1.1) for the fitting of evaporative cooling covers in line with VEET's forthcoming Schedule 15 update of 1g: 'fitting covers to the ceiling outlet of a ducted evaporative cooling system on a temporary or seasonable basis'.

Updating Existing Activity Proposals

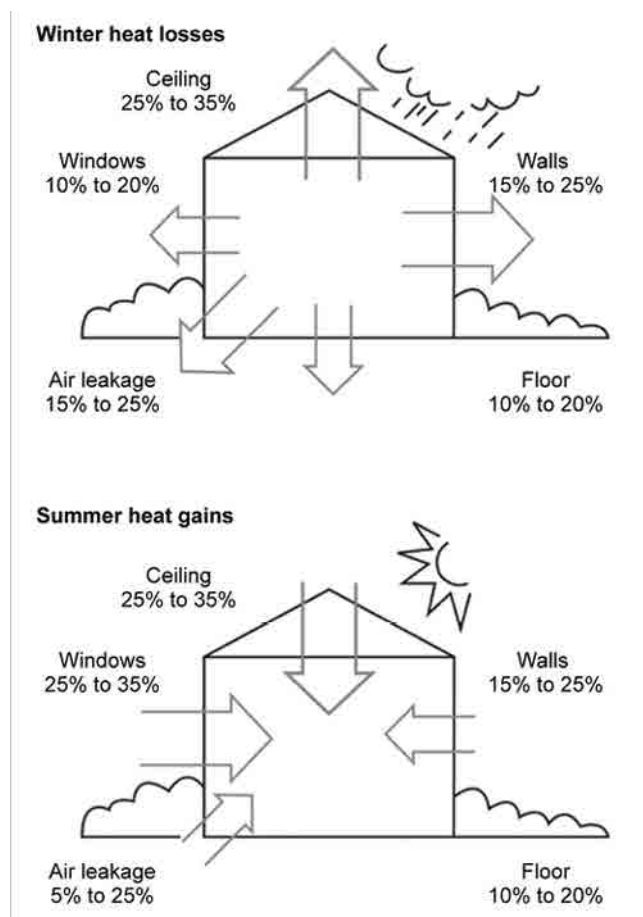
Selected existing activities were reviewed in light of current ACT regulatory, market and climate zone conditions as well as objectives for improved harmonisation with other schemes and streamlining. Existing activities proposed to be updated include:

- » 1.1 Building sealing
- » 1.2 Exhaust fan sealing activities.

The update process includes revised text and abatement values to, in part, harmonise with the forthcoming VEET Schedule 15. As part of this process, amendments to a number of underlying assumptions (in line with changes made as part of the 2016 update to the EEIS) were also undertaken. See the following subsections for details of those amendments.

4.2 Possible future wall insulation activities

This initial phase of work on insulation will not develop an EEIS wall insulation activity. This is because wall insulation activities are currently perceived to have:

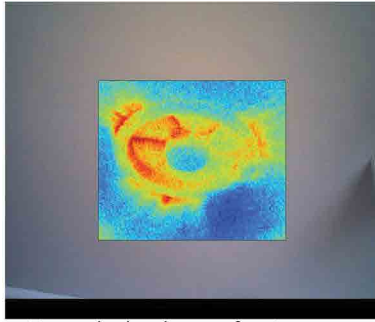


- » Significantly less residential energy savings and abatement compared to ceiling insulation activities². This is evidenced by the External wall cavity insulation activity in the South Australian REES scheme, which has significantly less abatement than ceiling insulation activities. However wall insulation may have more abatement potential than for underfloor insulation activities. This will require more analysis;
- » Higher costs - application of wall insulation to existing walls often presents difficulties particularly in relation to access, which leads to higher costs and lower cost effectiveness. However, pump-in wall insulation may have lower costs than other forms of wall insulation. This will require more analysis;
- » Risks of wall damage from moisture transfer between walls. If wall insulation gets wet, it may result in thermal bridging that can increase heating loads;
- » Electrical safety risks, insulation packed around existing wiring (particularly older wiring) can reduce the wirings current carrying capacity and can lead to the tripping of circuit breakers in switchboards.

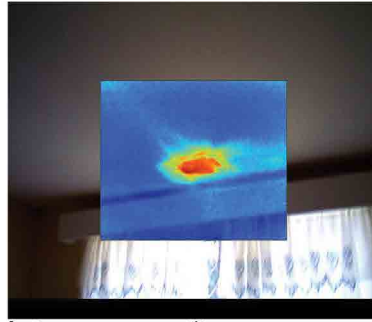
Higher compliance costs, due to the complexity of checking and auditing wall insulation jobs, which are often difficult to access. Some of these factors may be mitigated in possible options for wall insulation, including pumped foam. These options will be investigated in future EEIS activity updates.

These issues have informed the current EEIS's focus in this initial phase on developing ceiling and underfloor insulation activities for homes that currently have no insulation. That said, the EEIS is open to considering the potential for developing an EEIS wall insulation activity in the future. This consultation report invites feedback on this option (see questions on page 14).

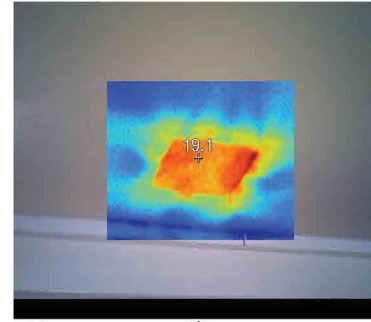
Thermal images showing insulation gaps



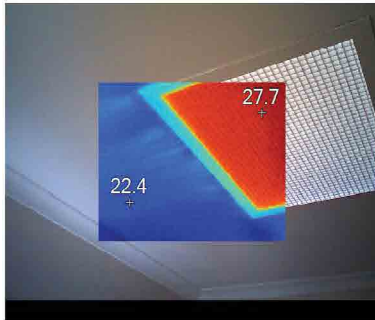
a Unsealed exhaust fan in kitchen, case study 1



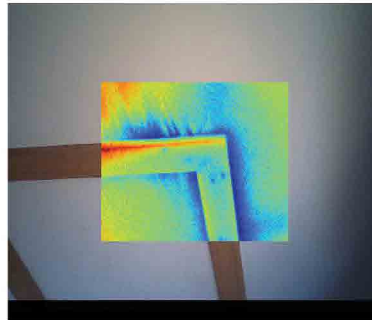
b Permanent ceiling vents, case study 4



c Permanent ceiling vents, case study 5



d Skylight with unsealed fan, case study 6



e Leakage around roof access hole, case study 6



f Leakage between architrave and wall, case study 4

4.3 Methodology and Assumptions

Thermal performance modelling

Many current EEIS factors are based on modelling relating to building shell improvements and heating and cooling upgrades that utilised analysis undertaken for the VEET scheme. The ACT baselines were assumed to be comparable to the 'Ballarat' climate zone coupled with a Victorian building stock profile. In this update, thermal simulation analysis was undertaken based on the Canberra climate zone (NatHERS 24)³ using a housing stock profile based on the ACT.⁴

Cooling stock/load assumptions

Many current EEIS factors are based on modelling that assumed that 100% of ACT households own cooling equipment. But ABS 4602⁵ on Environmental Issues: Energy Use and Conservation indicates an ownership of closer to 70% in 2011. The current modelling for the ACT also applies a discount factor to cooling loads of 71% based on an approach used by VEET. VEET has subsequently removed this discounting from its calculations and the current proposals bring ACT modelling in line with VEET.

Rebound assumptions

For many activities under the current EEIS scheme (except those updated in 2016) there is an assumption that rebound⁶ will occur and will continue to increase over the life of the product (effectively a compounding rate of rebound has been applied). Effectively, this significantly discounts the assumed lifetime savings from many activities. This approach is not undertaken in any other jurisdictions, which typically assume a one-off rebound event following installation of the activity. In the interests of better harmonisation, rebound assumptions have generally been aligned with those applied under the VEET scheme in this update.

5. PROPOSED NEW INSULATION ACTIVITIES

This section summarises the proposed draft activity definitions, abatement values, eligibility, product and installer requirements for the new EEIS ceiling and under-floor insulation activities. These recommendations, which are supported by detailed modelling and analysis, include questions to prompt stakeholder feedback.

As discussed in the executive summary, the new EEIS insulation activities will be developed through a phased approach involving ongoing consultation, with this initial consultation focusing issues relevant to inform the development of draft notifiable instruments as part of the legislative requirements. Subsequent consultations will be held about the development of draft EEIS insulation activity codes of practice (i.e. covering installer competency and detailed requirements for safe insulation delivery and record keeping and reporting).

5.1 Background – Building on Lessons from the Home Insulation Program Royal Commission

The EEIS's work to develop draft insulation activities is informed by lessons from other current and previous government insulation programs. Risks associated with these programs were outlined in the Home Insulation Program Royal Commission (HIPRC)⁷ and included;

- » permitting a product to be used that was manifestly unsafe i.e. reflective aluminium foil sheeting
- » program design flaws, such as the tension between the programs stated goal of delivering insulation installation 15 times faster than trend and its impacts on training and competency standards of installers
- » the decision to relax insulation installer training standards and requirements and substitute them for supervision, which was ill-defined
- » failures to ensure that only experienced insulation installers participated in the scheme, and
- » failure to undertake adequate risk identification, management and communication with installers and accredited providers in program administration, especially around electrical and heat stress issues.

The outcomes of the HIPRC have shown that rigorous procedures are needed for governments to bring in new government insulation programs. These must ensure the safety of householders, tenants, insulation installers, electricians and the general public. In response to the HIPRC, the proposed EEIS insulation activity development will incorporate:

- » best practice risk management processes building on all the lessons from previous government work on government insulation programs, such as:
 - the South Australian Retailer Energy Efficiency Scheme's ([REES](#)⁸) ceiling, top-up and underfloor insulation activities
 - the Victorian Energy Efficiency Target Scheme's ([VEET](#)⁹) current proposals for new and improved insulation activities.
 - the NSW Energy Savings Scheme's ([ESS](#)¹⁰) pilot of insulation in the Home Energy Action Program
 - the New Zealand Government [insulation scheme](#)¹¹
 - insulation schemes for public housing.
- » insulation installer training requirements that addresses the HIPRC findings.



EEIS welcomes your feedback on what insulation products should or shouldn't be eligible for the proposed new EEIS insulation activities. (Image Source: ICANZ Insulation Handbook 2016¹² Used with permission)

5.2 Ceiling Insulation

Activity description

The activity involves the installation of ceiling insulation to previously uninsulated ceiling spaces. Insulation fundamentally acts to reduce the rate of heat flow from areas of higher temperature (e.g. the heated interior of a dwelling) to areas of lower temperature (e.g. the exterior of a dwelling during a cold winter's day). By limiting such heat flows, either out of a building in the winter or into the building in the summer, it is possible to reduce the need for space conditioning (i.e. energy) as a means of maintaining acceptable internal comfort conditions for the dwellings occupants.

Ceiling insulation is particularly effective in limiting heat flow from inside a dwelling to outside, as natural convective currents mean the highest internal temperatures (and hence the site for potentially the greatest heat flows) are at the ceiling. Furthermore, because roof spaces can become exceedingly hot in the summer (over 50°C), ceiling insulation is also effective in limiting heat flow from the roof space down into the dwelling in summer.

Note that households may be eligible for both ceiling insulation and underfloor insulation activities.

Activity Definition

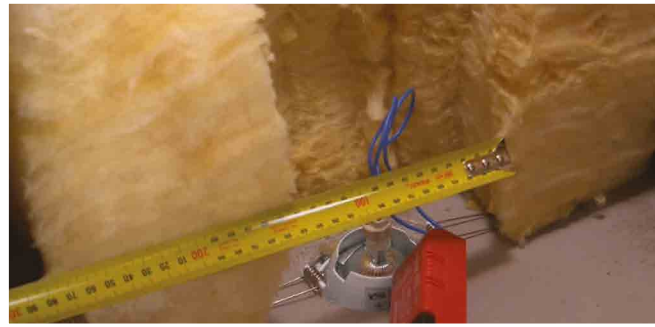
Different jurisdictions apply slightly different definitions to this activity (although the main differences relate to eligibility requirements and performance specifications which are dealt with later in this section). Generally, the approach is to align as far as possible with the VEET scheme but, where considered beneficial, the most robust provisions from the other schemes have been included.

PROPOSED DRAFT ACTIVITY DEFINITION:

In accordance with the prescribed minimum activity performance specifications in section 2 of this Part, installing a ceiling insulation product in accordance with AS3999—2015 in a ceiling area above a room not previously insulated within a residential premises.

Note1: Ceiling spaces with single sheet reflective foil insulation hung below the roofing material are deemed to be uninsulated ceiling spaces.

Note2: Attached garages, sheds or the like are ineligible.



Installer competency requirements will be developed as part of the next phase of work to develop EEIS insulation activity codes of practice. (Image Source: ICANZ Insulation Handbook 2016¹³ used with permission)

Eligibility Requirement

The spaces that are eligible for treatment under this activity vary from jurisdiction to jurisdiction. While the VEET scheme only refers to ‘ceiling spaces’, REES and ESS make it clear that eligible ceiling spaces are only those with a roof space immediately above (i.e. a ceiling space that separates a ground floor and a first floor are ineligible). This is a sensible inclusion within the specification.

The REES scheme also limits the activity to ‘habitable’ rooms only i.e. spaces such as bathrooms, laundries and attached garages are excluded. While this limitation is not recommended in relation to the EEIS scheme, the exclusion of attached garages and sheds is warranted.

Each of the three existing schemes set a minimum area that must be treated. In the ESS and REES schemes, the minimum is 95% of the eligible ceiling space; in the VEET scheme the minimum area is 20 m². While these provisions may serve to ensure relatively large areas are treated in individual dwellings, these restrictions may also serve to limit the applicability of the activity. Such restrictions are not proposed for the EEIS scheme.

PROPOSED DRAFT ELIGIBILITY REQUIREMENTS

To be an eligible activity the activity must:

- A. be undertaken at an eligible residential premises in uninsulated ceiling spaces located immediately below an exposed roof and
- B. the installation of ceiling insulation must not be otherwise required by law, for example under the National Construction Code
- C. be undertaken using a product or products meeting the installed product requirements and
- D. be undertaken by a qualified, experienced and licenced insulation installer that meets code of practice competency and training requirements.
- E. be completed and certified in accordance with the relevant code or codes of practice and other relevant legislation applying to the activity, including any licensing, registration, statutory approval, activity certification, health, safety, environmental or waste disposal requirements and
- F. be recorded in accordance with any relevant code of practice for the activity.

Note: All activities are subject to independent inspection or audit to confirm compliance with prescribed activity requirements. The specifics of which will be outlined in the next phase of EEIS work/consultation through future draft EEIS insulation activity codes of practice.

Installed Product Requirements

Apart from the minimum performance standards applied, the other three jurisdictions include similar installed product requirements as follows:

Minimum performance standards:

Minimum performance standards range from R3.0 in parts of NSW to R5.0 in parts of SA and NSW. Generally, the harsher the climate, the higher the performance standard requirement. The ACT climate is considered to be relatively harsh. For similar climates in NSW and SA the minimum requirement is for R5.0 insulation. This level is also the level recommended by Actsmart¹⁴ and, as such, is proposed for the EEIS scheme. As per the Building Code of Australia, where roof spaces are not sufficiently large enough to allow R5 level insulation to be achieved, R4.0 levels of insulation will need to be achieved at least.

Types of insulation:

All other schemes specify that foil type insulations are ineligible. As this is largely in response to safety issues identified during the HIP program, it is therefore a provision proposed for inclusion in the EEIS scheme. The REES scheme also prohibits the use of blow-in cellulose type insulation. The ACT EEIS also proposes to prohibit the use of blow-in cellulose type insulation.

Product Warranty:

The ESS scheme requires a minimum product warranty of 25 years, the REES scheme requires a minimum of 5 years and the VEET scheme makes no specific requirement. The minimum product warranty of 25 years, as applied in the ESS scheme, appears to be reasonable (typically suppliers offer product warranty periods in excess of 50 years) and is proposed for application in the EEIS scheme.

PROPOSED DRAFT INSTALLED PRODUCT REQUIREMENTS:

An installed product must be an insulation product that:

- A. complies with the relevant performance requirements of AS/NZS 4859.1 and
- B. achieves a minimum winter R value, when measured in accordance with the effective version of AS/NZS 4859.1, of R5.0 unless there is a physical barrier to installing R5.0 thickness insulation, in which case R4.0 may be used as a minimum and
- C. is not a foil insulation type product or blow-in cellulose type insulation and
- D. is fit for the purpose for which it is intended to be used and
- E. comes with a minimum 25 year product warranty and
- F. complies with any product safety or other product performance requirements in a relevant code of practice or other relevant legislation applying to the activity.

Consultation questions

Do you support the proposed EEIS activity to install insulation to previously un-insulated ceiling spaces?

Calculation of Abatement Factor

The estimate of energy savings that are expected to be realised from this activity are based on simulated (AccuRate) thermal load reductions associated with an average household with and without the insulation activity applied. Those thermal load reductions are then applied to a space conditioning stock model for the ACT in order that end use energy savings by fuel type can be derived. Finally, the estimated state average household input energy saving is discounted by almost 50% to take account of various limiting factors including:

- » additionality and free riders
- » rebound
- » thermal bridging.

The discounting factors applied along with the assumed longevity of the activity (25 years) have been aligned with those used under the VEET scheme.

The proposed formula for calculating abatement from this activity is in the following box.

PROPOSED DRAFT DEEMED SAVINGS FORMULA:

Abatement Factor (t CO₂-e)= AAV × A

Where — AAV is the relevant activity abatement value prescribed for the activity item in Table 1.1; and
A is the area in m² of ceiling space to which insulation has been applied

Table 1: Activity abatement values for ceiling insulation

Activity item	Activity abatement value (tCO ₂ -e)
For each m ² of ceiling space that R5.0 insulation has been applied.	0.228
For each m ² of ceiling space that R4.0 insulation has been applied.	0.225

Harmonisation with other schemes

Ceiling insulation activities are proposed to generally align with the requirements in other jurisdictions with some minor divergences in relation to eligibility criteria as described above.

Codes of Practice

It is proposed that the EEIS Codes of Practice for ceiling insulation will be developed in the next phase of work and be consulted upon separately to this initial round of consultation. EEIS Codes of Practice for ceiling insulation will:

- » address and respond to findings of the HIPRC
- » incorporate lessons from recent work on insulation activities by EEIS sister schemes such as VEET/ESC and REES
- » ensure installers have all necessary competencies and their training courses are up to date and have incorporated the lessons from the HIPRC. That is, installers will be required to have successfully and recently completed updated versions of relevant training courses (CPCCPB3027A – Install ceiling insulation and CPCCPB3014A – Install batt insulation products).

More detailed competency requirements will be developed as part of the next phase of work to develop codes of practice.

Issues and Risks

Recommendations from the HIPRC will be used to ensure that risks of installing insulation are addressed properly through appropriate and effective regulation, training and awareness of roof space safety.

Since this ceiling insulation activity is only available for households with no ceiling insulation there are two main issues:

- » This EEIS activity may be relevant for less than 10% of ACT households as the majority of ACT households have some form of ceiling insulation.
- » Houses with old, ineffective existing insulation that needs upgrading would not be eligible. This creates the risk of household owners/tenants choosing to climb into their ceiling to remove any existing poor insulation so as to become eligible for this activity. This could inadvertently result in accidents from unqualified householders removing insulation in their roof cavities.

Risk Management Options

EEIS proposes to address these risks by exploring additional EEIS insulation activities in the next phase of work:

- » A 'Top up' Ceiling Insulation Activity aligned with the existing South Australian REES activity BS1B – Installation of Top Up Insulation in a Ceiling Space (Residential Only). This allows insulation top ups to households with existing ceiling insulation that is $< R = 1.5$. The REES top up ceiling insulation activity code of practice is downloadable [here](#)¹⁵.
- » This potential additional ceiling insulation activity, if adopted, would broaden the eligibility of EEIS ceiling insulation activities to more ACT homes while also removing the incentive for householders to try to remove their own existing insulation to be eligible.

In principle, would you support an additional activity to provide 'top-up insulation' in situations where there is no effective insulation, or where existing insulation has an 'R value' under 1.5?

In principle, would you support EEIS also in the longer term considering including a "wall insulation" activity, for households where there is no wall insulation?

To help ensure engagement of the householder with the quality of the installation and the details of the paperwork they must sign, do you think the EEIS insulation activities should have a mandatory co-payment?

If you agree that a co-payment should be required, should the co-payment be less for low-income priority households?

www.surveymonkey.com/r/EEIS_insulation_etc

Installing underfloor insulation



5.3 Under Floor Insulation

Activity description

The activity involves the installation of insulation to a previously uninsulated suspended timber ground floor. This activity can involve either:

- » installation of insulation below the floor (in the subfloor crawl space) where the insulation can be installed without need to remove flooring.
- » installation of underfloor insulation as part of renovation works in circumstances where the ground floor boards are removed and subsequently replaced.

Insulation fundamentally acts to reduce the rate of heat flow from areas of higher temperature (e.g. the heated interior of a dwelling) to areas of lower temperature (e.g. the exterior of a dwelling during a cold winter's day). By limiting such heat flows, either out of a building in the winter or into the building in the summer, it is possible to reduce the need for space conditioning (i.e. energy) as a means of maintaining acceptable internal comfort conditions for the dwelling's occupants.

Activity definition

Different jurisdictions apply slightly different definitions to this activity, although the main differences relate to eligibility requirements and performance specifications which are dealt with later in this section. Generally, the approach is to align as far as possible with the VEET scheme but, where considered beneficial, the most robust provisions from the other schemes have been included.

The VEET scheme differentiates credits according to whether or not the subfloor space being treated is 'enclosed' or 'unenclosed'. Un-enclosed floor spaces are more exposed to the weather and, as such, treatment of these spaces yields greater energy savings. Neither the VEET scheme, nor any other scheme for that matter, includes a definition of 'enclosed' or 'un-enclosed' subfloors. To address this deficiency a definition for enclosed and un-enclosed has been proposed for inclusion in the activity definition under EEIS.

PROPOSED DRAFT ACTIVITY DEFINITION:

In accordance with the prescribed minimum activity performance specifications for installing an underfloor insulation product in accordance with AS3999—2015 to the underside of a suspended timber floor of a room within a residential premises that sits immediately above a subfloor space that is either:

- A. enclosed, that is, where the area of open ventilation in the subfloor walling to the underfloor space averages less than 25,000 mm² per lineal metre of subfloor walling
- B. un-enclosed, that is, where the area of open ventilation in the subfloor walling to the underfloor space averages 25,000 mm² or more per lineal metre of subfloor walling.

Note 1: Ground floors do not include concrete floors or floors that separate habitable rooms.

Note 2: Attached garages, sheds or the like are ineligible.

Eligibility Requirement

Eligibility requirements do vary to some degree between the various jurisdictions that currently offer this type of activity. The main area of difference relates to the minimum areas to be treated. Both the ESS and VEET schemes set a minimum area that must be treated. In the ESS scheme the minimum is 95% of the eligible floor area; in the VEET scheme the minimum area is 20 m². While these provisions may serve to ensure relatively large areas are treated in individual dwellings, these restrictions may also serve to limit the applicability of the activity. Such a limitation on area to be treated is not proposed for inclusion in the EEIS scheme. The REES scheme sets no minimum treatment area but does note that:

- » *Where only part of an uninsulated ground floor is to be insulated then living areas must be insulated as a priority, followed by bedrooms.*

This is considered to be a sensible inclusion for the EEIS scheme.

PROPOSED DRAFT ELIGIBILITY REQUIREMENTS

To be an eligible activity the activity must:

- A. be undertaken at an eligible residential premises in uninsulated suspended timber floors located immediately above a subfloor space and
- B. the installation of underfloor insulation must not be otherwise required by law, for example under the National Construction Code
- C. be undertaken using a product or products meeting the installed product requirements in and
- D. be completed and certified in accordance with the relevant code or codes of practice and other relevant legislation applying to the activity, including any licensing, registration, statutory approval, activity certification, health, safety, environmental or waste disposal requirements and
- E. be recorded in accordance with any relevant code of practice for the activity.

Note 1: All activities are subject to independent inspection or audit to confirm compliance with prescribed activity requirements.

Note 2: Where only part of an uninsulated ground floor is to be insulated then living areas must be insulated as a priority, followed by bedrooms.

Installed Product Requirements

Apart from the minimum performance standards applied, each of the other three jurisdictions includes similar installed product requirements as follows:

Minimum performance standards:

Minimum performance standards are all currently set at R2.5. Notably, however, the VEET scheme is proposing to reduce this to R1.5 on the grounds this activity has very poor uptake (which is also the case in other jurisdictions) and the relatively high insulation standard of R2.5 is seen as a disincentive both on the grounds of cost and practicality; the larger R2.5 batts can be difficult to fit into the existing structure. It is proposed to follow the VEET scheme and adopt the lower performance standard. The reduction in credit between R2.5 and R1.5 is very small in absolute terms in any case.

Types of insulation:

The ESS scheme specifies that foil type insulations are ineligible. This is largely in response to safety issues identified during the HIP program and is therefore a provision proposed for inclusion in the EEIS scheme.

Product Warranty:

The ESS scheme requires a minimum product warranty of 25 years, the REES scheme requires a minimum of 5 years and the VEET scheme makes no specific requirement. The minimum product warranty of 25 years as applied in the ESS scheme appears to be reasonable (typically suppliers offer product warranty periods in excess of 50 years) and is proposed for application in the EEIS scheme.

PROPOSED DRAFT INSTALLED PRODUCT REQUIREMENTS:

An installed product must be a insulation product that:

- A. complies with the relevant performance requirements of AS/NZS 4859.1 and
- B. achieves a minimum winter R value, when measured in accordance with the effective version of AS/NZS 4859.1 of R1.5 and
- C. is not a foil insulation type product and
- D. is fit for the purpose for which it is intended to be used and
- E. comes with a minimum 25 year product warranty and
- F. complies with any product safety or other product performance requirements in a relevant code of practice or other relevant legislation applying to the activity.

Do you agree with activity description, definition, eligibility requirements, installed product requirements, abatement calculation and harmonisation proposals for the proposed EEIS underfloor insulation activity?

Do you agree with the proposal to limit eligible products and exclude insulation with Aluminium foil?

www.surveymonkey.com/r/EEIS_insulation_etc

Calculation of Abatement Factor

The estimate of energy savings that are expected to be realised from this activity are based on simulated (AccuRate) thermal load reductions associated with an average household with and without the insulation activity applied. Those thermal load reductions are then applied to a space conditioning stock model for the ACT so end use energy savings by fuel type can be derived. Finally, the estimated state average household input energy saving is discounted by approximately 40% to take account of various limiting factors including:

- » additionality and free riders
- » rebound
- » thermal bridging.

The discounting factors applied along with the assumed longevity of the activity (25 years) have generally been aligned with those used under the VEET scheme.

The proposed formula for calculating abatement from this activity is in the following box.

RECOMMENDATION (DEEMED SAVINGS FORMULA):

Abatement Factor (t CO₂-e)= AAV × A

Where— AAV is the relevant activity abatement value prescribed for the activity item in Table 1.1; and
A is the area in m² of underfloor space to which insulation has been applied

Table 2: Activity abatement values for underfloor insulation

Activity item	Activity abatement value (tCO ₂ -e)
Item 1 (a) For each m ² of enclosed underfloor space that R1.5 insulation has been applied.	0.044
Item 1 (b) For each m ² of unenclosed underfloor space that R1.5 insulation has been applied.	0.103

Harmonisation with other schemes

Underfloor insulation activities are proposed to generally align with the requirements in other jurisdictions (in particular VEET) with some minor divergences in relation to eligibility criteria, as described above.

Codes of Practice

In December 2016, the Victorian Essential Services Commission (ESC) released a consultation paper about proposed administrative requirements for the re-introduction of ceiling and underfloor insulation activities under the Victorian Energy Efficiency Target (VEET) Scheme. Submissions closed on 3 Feb 2017 and are currently being considered.

Please refer to the following VEET consultation documents for more information
www.esc.vic.gov.au/veet-insulation-consultation/ and [www.veet.vic.gov.au/Public Consultations](http://www.veet.vic.gov.au/Public%20Consultations)

It is proposed that the EEIS Codes of Practice for underfloor insulation will build on the lessons learnt from the development of similar codes of practice by VEET and by REES. This, for instance, will require installers to have successfully and recently completed updated versions of training courses (CPCCPB3027A – Install ceiling insulation and CPCCPB3014A – Install batt insulation products)

More detailed competency requirements will be developed as part of the next phase of work to develop codes of practice. Consultation will be undertaken with stakeholders on these codes of practice at the appropriate time.

Are the definitions of 'enclosed' and 'unenclosed' subfloor spaces sensible and practical?

Should the EEIS underfloor insulation activity have a mandatory co-payment?

www.surveymonkey.com/r/EEIS_insulation_etc

5.4 Further Resources – Insulation

Details on the Home Insulation Program Royal Commission Findings are available at:

- » www.homeinsulationroyalcommission.gov.au/Pages/default.html.

Details on South Australian Retailer Energy Efficiency Scheme (REES) Insulation Activities are available at:

- » www.statedevelopment.sa.gov.au/resources/energy-efficiency/retailer-energy-efficiency-scheme?q=REES, and include:
 - [BS1A – Installation of Insulation in an Uninsulated Ceiling Space.](#)
 - [BS1B – Installation of Top Up Insulation in a Ceiling Space.](#)
 - [BS1C – Installation of Insulation to an External Wall.](#)
 - [BS1D – Installation of Insulation to Floors.](#)

The REES residential insulation activities were developed based on advice from the 2014 report Review of Residential Energy Efficiency Activities Under the REES scheme details available at:

- » www.statedevelopment.sa.gov.au/upload/energy/rees/rees-consultation-appendix-consultants-report.pdf?t=1488821232992.

Details on the Victorian Energy Efficiency Target Scheme (VEET) and Essential Services Commission Insulation Administrative Requirements, Consultation Report are available at the following links:

- » www.statedevelopment.sa.gov.au/upload/energy/rees/rees-consultation-appendix-consultants-report.pdf?t=1488821232992.
- » www.esc.vic.gov.au/wp-content/uploads/2016/12/VEET-Insulation-Administrative-Requirements-consultation-paper.html.

6. PROPOSED UPDATES TO EXISTING EEIS BUILDING SEALING AND EXHAUST FAN SEALING ACTIVITIES

6.1 Building Sealing Activities

This section summarises the proposed draft activity definitions, abatement values, eligibility, product and installer requirements for the existing EEIS building sealing activities and new activity to fit evaporative cooler covers. These recommendations are supported by detailed modelling and analysis and include questions to prompt stakeholder feedback.

Activity Definition and Eligibility Requirement Updates

Currently this activity includes six sub-categories of sealing activity:

- A. an unsealed door frame in an external wall or
- B. an unsealed door frame in a part of an internal wall that divides a conditioned zone or zones from an unconditioned zone or zones or
- C. each unsealed edge of an external door or
- D. each unsealed edge of a door in a part of an internal wall that divides a conditioned zone or zones from an unconditioned zone or zones or
- E. an unsealed window frame in an external wall or
- F. each unsealed edge of an openable window.

It is proposed that these six activities be rationalised into just two types of activity:

- » door sealing activities
- » window sealing activities.

Sealing of internal doors (b) and (c) are to be removed as the savings in practice from the sealing of an internal door are significantly less than for the sealing of an external door. Other jurisdictions provide credits only for doors on external walls and not for internal doors.

Sealing of external door frames (a) and window frames (e) are also to be removed because the types of seals specified are only suitable for the sealing of door leafs (single doors) (c) or window sashes (f) and not the sealing between door/window frames and the abutting wall surfaces. Other jurisdictions provide credits only for the sealing of the junction between a door leaf or window sash and its frame and not the door/window frame and the surrounding wall.

PROPOSED DRAFT REVISED ACTIVITY DEFINITION:

1. Activity Definition

In accordance with the prescribed minimum activity performance specifications in section 2 of this Part, restrict pre-existing air infiltration into, or air leakage out of, a premises by installation of fixed sealing to one or more of:

- A. the gaps between an external door leaf and the door frame and floor when the door is closed or
- B. the gaps between an openable window sash and the window frame when the window is closed.

Installed Product Requirement Updates

It is proposed that the installed product requirements generally align with those contained in the VEET scheme and to incorporate warranties as a mechanism to improve the likelihood that the assumed lifetime for the product's installation is met. The key changes being:

- » specific reference to the sealing of gaps between doors and their frames or openable windows and their frames
- » a requirement to seal the entire perimeter of doors or window sashes to the extent that such sealing is required to obtain an effective seal
- » a minimum warranty period of two years (assumed to persist for five years) with an option to install products with a minimum warranty period of five years (assumed to persist for 10 years) which then attract increased activity abatement values (AAVs).

PROPOSED DRAFT REVISED INSTALLED PRODUCT REQUIREMENTS:

1.1 (a) Door Sealing

A door sealing product or weather stripping product, or a kit comprising several such products, that:

- A. is designed to restrict the airflow into or out of the premises through gaps between an external door and the door frame and floor
- B. is installed on an external door or the door frame so as to restrict airflow around the entire perimeter of the external door
- C. the installation of which does not impair the normal operation of the door
- D. is installed in accordance with the manufacturer's instructions;
- E. has a minimum warranty of:
 - two years or
 - five years and
- F. is listed in the register of products for the activity.

1.1 (b) Window Sealing

A window sealing product or weather stripping product, or a kit comprising several such products, that:

- A. is designed to restrict the airflow into or out of premises through an openable window and the window frame when the window is closed
- B. is installed on an external window or the window frame so as to restrict airflow through the window
- C. the installation of which does not impair the normal operation of the window
- D. is installed in accordance with the manufacturer's instructions
- E. has a minimum warranty of:
 - two years or
 - five years and
- F. is listed in the register of products for the activity.

Calculation of Abatement Factor Updates

The basis for credits is proposed to remain unchanged. That is:

- » per door treated or
- » per m² of window sash treated.

For this activity, the basis for calculating credits relied to a large degree on a recently completed (but unpublished) study by TI Consulting, Review of VEET Energy Saving Allowances for Air Leakage, including Addition of Evaporative Cooling Cover and Inclusion of ACT Climate. The study took into account updates to the AccuRate thermal rating program and also, notably, field measurements of the impact of a range of draught sealing measures undertaken as part of a Sustainability Victoria Comprehensive Draught Sealing Retrofit Trial. As a result of this review, TI Consulting recommended changes to the base heating and cooling load savings for VEET activities 15A (sealing a door) and 15D (cover for an exhaust fan). No changes were proposed in respect of VEET activity 15B (sealing a window). This was due to the limited data available from the field on this activity and because the data that was available suggested the observed performance was ‘in the same ballpark’ as that determined via NatHERS modelling that currently supports the VEET credit values for the window sealing activity.

PROPOSED DRAFT REVISED DEEMED SAVINGS FORMULA:

Doors

Abatement Factor (t CO₂-e)= AAV ×N

Where—AAV is the relevant activity abatement value prescribed for the activity item in Table 1.1 and N is the number of doors, in the premises to which sealing has been installed.

Windows

Abatement factor (t CO₂-e)= AAV ×m²

Where—AAV is the relevant activity abatement value prescribed for the activity in Table 1.1 and m₂ is the area of glazing in square metres, rounded to the nearest square centimetre, of all the window sashes in the premises to which sealing has been installed and each window sash is counted once only.

Table 3: Activity abatement values for building sealing activities

Activity Item	Activity abatement value (tCO ₂ -e)
For each door sealed with a product, or a kit comprising several such products, that has a two year warranty	0.230
For each door sealed with a product, or a kit comprising several such products, that has a five year warranty	0.439
For each m2 of openable window, the frame of which is sealed against the opening part using a product, or a kit comprising several such products, that has a two year warranty	0.057
For each m2 of openable window, the frame of which is sealed against the opening part using a product, or a kit comprising several such products, that has a five year warranty	0.107

Harmonisation with Other Schemes

Door and window sealing activities are now generally aligned with the requirements in other jurisdictions, in particular with those of VEET (Schedule 15A and 15B) with AAV values now based on ACT specific data.

Skilled Installer Requirements

Door and window seals may be replaced by any person who has had the specified training for this activity as set out in the code of practice.

Rationale for Changes—Summary

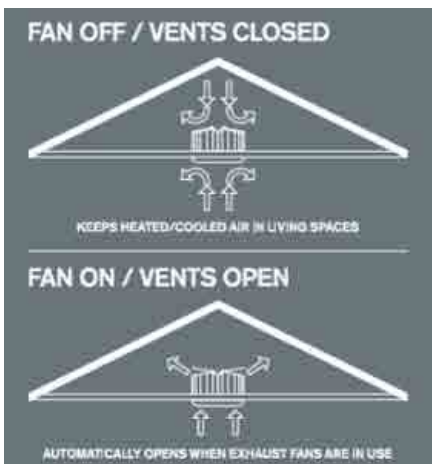
The changes noted in the preceding sections have been undertaken to:

- » rationalise the set of six sub-activities down to just two activities and remove the inherent ambiguities associated with the current options
- » provide improved harmonisation, particularly with the VEET scheme
- » provide greater scope for innovation by providing enhanced credits for products that have extended lifetimes
- » provide greater accuracy in the estimates of AAV values by undertaking calculations on the basis of the best available current data and, in particular, by ensuring those values are applicable to the ACT context.

Proposed updates to the door and window sealing components of EEIS building sealing activities mean that associated sealing products can be installed with two year or five year warranties, with higher abatement available where there is a five-year warranty. Do you support these changes?

Can industry deliver on the proposed two and five year minimum warranty periods for door and window sealing activities?

www.surveymonkey.com/r/EEIS_insulation_etc



6.2 Exhaust Fan Sealing Activities

Activity Definition and Eligibility Requirement Updates

Currently this activity includes two sub-categories of sealing activity:

- A. Removing and decommissioning an exhaust fan that is not fitted with a self-closing sealing device and is installed in a ceiling or wall and installing a replacement exhaust fan with an exhaust fan fitted with a self-closing sealing device.
- B. Fitting a self-closing sealing device on an existing exhaust fan that is not fitted with a self-closing sealing device.

This activity type description aligns reasonably well with that used under the VEET and REES schemes (ESS scheme does not offer this activity). However, in the interests of improved harmonisation, in particular with the VEET scheme, it is recommended that the new definition proposed for the VEET scheme also be adopted in the ACT.

PROPOSED DRAFT REVISED ACTIVITY DEFINITION:

1. Activity Definition

In accordance with the prescribed minimum activity performance specifications in section 2 of this Part, restrict the air infiltration into, or air leakage out of, a premises by carrying out one or more of:

- A. removing and decommissioning an exhaust fan that is not fitted with a self-closing sealing device and is installed in a ceiling or wall and replacing the removed exhaust fan with a ceiling or wall exhaust fan that is fitted with a self-closing damper, flap, filter or other sealing product that allows airflow through the exhaust of the fan when the fan is operating, but restricts airflow when the fan is not operating or
- B. fitting a product, being a self-closing damper, flap, filter or other sealing product that is designed to be fitted to an existing ceiling or wall exhaust fan so as to allow airflow through the exhaust of the fan when the fan is operating, but restrict airflow when the fan is not operating.

Installed Product Requirement Updates

It is proposed to generally align the installed product requirements with those contained in the VEET scheme and to incorporate warranties as a mechanism to improve the likelihood that the assumed lifetime for the product's installation is met. The key change being the application of a minimum warranty period of two years (product assumed to persist for five years) with an option to install products with a minimum warranty period of five years (product assumed to persist for 10 years) which then attract increased AAVs.

PROPOSED DRAFT REVISED INSTALLED PRODUCT REQUIREMENTS

1. For the activity item in subsection (1) (a), an installed product must be a ceiling or wall exhaust fan, that:
 - A. expels air either outside or into the roof space of the premises
 - B. is fitted with a self-closing damper, flap, filter or other sealing product that allows airflow through the exhaust of the fan when the fan is operating, but restricts airflow when the fan is not operating
 - C. has a minimum warranty of:
 - two years or
 - five years.
2. For the activity item in subsection (1) (b), an installed product must be a product that is a self-closing damper, flap, filter or other sealing product that:
 - A. is designed to be fitted to an existing ceiling or wall exhaust fan so as to allow airflow through the exhaust of the fan when the fan is operating, but restrict airflow when the fan is not operating
 - B. has a minimum warranty of:
 - two years or
 - five years.
3. For all products, an installed product must comply with any product safety or other product performance requirements in a relevant code of practice or other relevant legislation applying to the activity or product such as prescribed articles of electrical equipment.
4. If the product is a self-closing sealing device to be fitted to an existing exhaust fan, it must:
 - A. not interfere with the normal operation of the exhaust fan and
 - B. be compatible with the existing exhaust fan in accordance with the exhaust fan and sealing device manufacturer's specifications.
5. For all products, the product must be listed in the register of products.

Calculation of Abatement Factor Updates

The basis for credits is proposed to remain unchanged. That is:

- » per fan replaced or
- » per self-closing sealing device fitted.

For this activity, at the direction of EPSDD, the basis for calculating credits relied to a large degree on a recently completed (but unpublished) study by TI Consulting entitled Review of VEET Energy Saving Allowances for Air Leakage, including Addition of Evaporative Cooling Cover and Inclusion of ACT Climate (TIConsult 2016).

The study took into account updates to the AccuRate thermal rating program and also, notably, field measurements of the impact of a range of draught sealing measures undertaken as part of a Sustainability Victoria Comprehensive Draught Sealing Retrofit Trial (SV 2016).

The analysis undertaken by TI consulting notes that exhaust fan sealing activities are averaged across five room types as follows:

- » kitchen
- » ensuite
- » bathroom
- » laundry
- » WC

This means that the credits available represent an average level of saving irrespective of the particular application or location of the fan. In reality, savings from fans located in space conditioned rooms (e.g. kitchens) would be greater than for those in rooms that are not generally space conditioned, or conditioned only infrequently (e.g. bathrooms). However, the averaging approach used in VEET simplifies the delivery of this activity and encourages whole of house upgrades rather than upgrades targeted at particular applications that might otherwise attract higher credits.

PROPOSED DRAFT REVISED DEEMED SAVINGS FORMULA:

The abatement factor is calculated as:

$$\text{Abatement Factor (t CO}_2\text{-e)} = \text{AAV} \times \text{N}$$

Where—AAV is the relevant activity abatement value prescribed for the activity item in Table 1.2 and N is the number of activity items undertaken in the premises.

Table 4: Activity abatement values for exhaust fan sealing activities

Activity Item	Activity abatement value (tCO ₂ -e)
For each exhaust fan fitted with a self-closing damper that has a two year warranty	0.15
For each exhaust fan fitted with a self-closing damper that has a five year warranty	0.29
For each exhaust fan sealed with a product that has a two year warranty	0.29
For each exhaust fan sealed with a product that has a five year warranty	0.56

Harmonisation with Other Schemes

Exhaust fan sealing activities are now generally aligned with the requirements in other jurisdictions (where they exist), in particular with those of VEET (Schedule 15C and 15D) with AAV values now based on ACT specific data.

Skilled Installer Requirements

In general, the current key requirements are as follows:

- » The installer must have an unrestricted ACT electrician licence issued under the *Construction Occupations (Licensing) Act 2004*; and have completed all required training prescribed in Part 4 of the code of practice code; and
- » If the activity requires working at heights, the authorised installer must have completed RIIWHS204D “Work safely at heights” or equivalent.; and
- » If the activity requires entering the ceiling cavity, the authorised installer must also have completed RIIWHS202D “Enter and work in confined spaces” or equivalent; and
- » If the activity requires construction work, the authorised installer must be the holder of a General Construction Induction Card and must have completed 10314NAT “Asbestos awareness” or an equivalent.

Rationale for Changes - Summary

The changes noted in the preceding sections have been undertaken to:

- » Provide improved harmonisation, particularly with the VEET scheme
- » Provide greater scope for innovation by providing enhanced credits for products that have extended lifetimes.
- » Provide greater accuracy in the estimates of AAV values by undertaking calculations on the basis of the best available current data and in particular by ensuring those values are applicable to the ACT context.

Proposed updates to the EEIS fan sealing activities mean that dampers and fan seals can be installed in both conditioned and unconditioned spaces, with higher abatement available where there is a 5-year warranty. Do you support these changes?

Can industry deliver on the proposed two and five year minimum warranty periods for fan sealing activities?

www.surveymonkey.com/r/EEIS_insulation_etc



Proposed new measure – evaporative cooler cover seal
Source: <http://www.sustainability.vic.gov.au/services-and-advice/households/energy-efficiency/toolbox/how-to/stop-draughts-through-evaporative-cooling-outlets>

6.3 Fit Evaporative Cooler Covers

Activity description

The proposed activity involves the fitting of a product (evaporative cooling outlet cover) that is designed and manufactured so that it can be fitted easily and securely to cover the ceiling outlet of a ducted evaporative cooling system during the heating season so that it substantially restricts the otherwise significant airflow from inside the dwelling into the evaporative cooling ductwork (see 2).

To be effective the product must be installed on the ceiling outlet of a ducted evaporative cooling system located in a heated area of the dwelling. The product must be accompanied by clear instructions regarding the installation of the cover at the start of the winter heating season and the removal of the cover at the end of the winter heating season.

At present no other jurisdiction offers this activity, however draft regulations have been prepared for the inclusion of this activity into the VEET scheme.

Because this is a building sealing activity, it is proposed that this activity be integrated into the existing activity 1.1 – Building Sealing Activities. This would become activity 1(c) following the proposed rationalisation of the suite of activities available under 1.1 (see section 6.1)

Activity Definition

As noted above, the activity is proposed to be incorporated into the existing activity 1.1 and activity 1.1 (c) and include for the supply of a product (and associated user guide) designed to be fitted to cover the ceiling outlet of a ducted evaporative cooling system on a temporary or seasonal basis, so as to restrict airflow from inside the residential premises into the evaporative cooling ductwork.

PROPOSED DRAFT ACTIVITY DEFINITION:

In accordance with the prescribed minimum activity performance specifications in section 2 of this Part, restrict pre-existing air infiltration into, or air leakage out of, a premises by installation of fixed sealing to one or more of:

- C. the gaps between an external door and the door frame and floor when the door is closed; or
- D. the gaps between an openable window and the window frame when the window is closed
- E. the outlet of a ducted evaporative cooling system located in a heated area of the dwelling on a temporary or seasonal basis in the form of a product designed to cover the ceiling outlet.

Eligibility Requirement

The following eligibility requirements are proposed.

PROPOSED DRAFT ELIGIBILITY REQUIREMENTS

Any residential premises fitted with a ducted evaporative cooling system that does not already have covers available for restricting airflow from inside the residential premises into the evaporative cooling ductwork.

Only outlets located in heated areas of the dwelling are eligible

Installed Product Requirements

The current draft new regulations under the VEET scheme specify the product requirements as follows:

“A product that—

- A. is designed to be fitted to cover the ceiling outlet of a ducted evaporative cooling system on a temporary or seasonal basis, so as to restrict airflow from inside the residential premises into the evaporative cooling ductwork;
- B. includes instructions on the installation and removal of the product and the time of year that the product should be installed and removed; and
- C. is installed in accordance with the manufacturer’s instructions; and
- D. is listed on the ESC register”.

It is proposed to generally align the installed product requirements with those contained in the VEET scheme and to incorporate warranties as a mechanism to improve the likelihood that the assumed lifetime for the product’s installation is met.

PROPOSED DRAFT INSTALLED PRODUCT REQUIREMENTS:

A product that—

- A. is designed to be fitted to cover the ceiling outlet of a ducted evaporative cooling system on a temporary or seasonal basis, so as to restrict airflow from inside the residential premises into the evaporative cooling ductwork;
- B. has a minimum warranty of—
 - 2 years or
 - 5 years and
- C. includes instructions on the installation and removal of the product and the time of year that the product should be installed and removed; and
- D. is installed in accordance with the manufacturer’s instructions; and
- E. is listed in the register of products for the activity

Calculation of Abatement Factor

For this activity, the basis for calculating credits relied to a large degree on a recently completed (but unpublished) study by TI Consulting entitled Review of VEET Energy Saving Allowances for Air Leakage,

including Addition of Evaporative Cooling Cover and Inclusion of ACT Climate (TIconult 2016).

The TI Consulting study took into account updates to the AccuRate thermal rating program and also, notably, field measurements of the impact of a range of draught sealing measures undertaken as part of a Sustainability Victoria Comprehensive Draught Sealing Retrofit Trial.

The estimate of energy savings that are expected to be realised from this activity are based on simulated (AccuRate) thermal load reductions associated with an average household with and without the sealing activity applied. Those thermal load reductions are then applied to a space conditioning stock model for the ACT) in order that end use energy savings by fuel type can be derived. Finally the estimated state average household input energy saving is discounted by approximately 10% to take account of various limiting factors including:

- » Additionality and free riders
- » Rebound
- » Other factors

The proposed formula for calculating abatement from this activity is in the following box.

RECOMMENDATION (DEEMED SAVINGS FORMULA):

Abatement Factor (t CO₂-e)= AAV ×N

Where—AAV is the relevant activity abatement value prescribed for the activity item in Table 1.1; and
N is the number of activity items undertaken in the premises.

Table 5: Activity abatement values for building sealing activities

Activity Item	Activity abatement value (tCO ₂ -e)
For each ducted evaporative cooler cover that has a two year warranty	0.13
For each ducted evaporative cooler cover that has a five year warranty	0.26

Harmonisation with other schemes

At present no other jurisdiction offers this activity. Victoria is however in the process of considering incorporation of this activity into their VEET scheme. Harmonisation with the proposed VEET Evaporative cooler cover activity is therefore proposed. Codes of practice will be developed later.

Skilled installer requirements

The skilled installer requirements are yet to be finalised for this activity but are expected to include the following:

- » Evaporative cooler covers may be fitted by any person who has had the specified training for this activity as set out in the code of conduct.
- » The installer must be capable of effectively communicating to the homeowner instructions on the installation and removal of the product and the time of year that the product should be installed.
- » If the activity requires working at heights, the authorised installer must have completed RIIWHS204D “Work safely at heights” or equivalent.

Five year minimum warranty periods?

Householders will need to remove the cooler covers each year, before evaporative coolers are switched on, and replace them again in cooler months. Can industry train householders in the effective use of the covers?

www.surveymonkey.com/r/EEIS_insulation_etc

6.4 Further Reading on Current EEIS Building Sealing and Exhaust Fan Seal Codes of Practice

Current EEIS Building Sealing and Exhaust Fan activities can be found in the following instruments.

EEIS Notifiable Instrument – Schedule 1 – Building Sealing Activities

<http://www.legislation.act.gov.au/ni/2016-692/current/pdf/2016-692.pdf>

EEIS Eligible Activities Codes of Practice - Part 6 and Part 7 – Building Sealing and Exhaust Fan Seal Activities

<http://www.legislation.act.gov.au/di/2016-302/current/pdf/2016-302.pdf>

EEIS Reporting and Record Keeping Code of Practice – Activity 1.1 and Activity 1.2 Building Sealing and Exhaust Fan Sealing - <http://www.legislation.act.gov.au/di/2016-303/current/pdf/2016-303.pdf>

7. INVITATION FOR INPUT ON NEW POTENTIAL EEIS ACTIVITIES

EEIS activities are regularly expanded to increase the range of abatement opportunities. A summary of current activities is at: http://www.environment.act.gov.au/_data/assets/pdf_file/0008/1043954/20161220-NI-summary-activities-and-AAVs-with-heating-matrix-A13174855.pdf

Please rank the following potential new activities to show which ones you consider to be the highest priority for EEIS to bring in.

Activity	Ranking
Installation of Top Up Insulation in a Ceiling Space (residential)	
Controlled 'smart' natural ventilation system methods	
Install a specified high efficiency central electric space heater (business)	
Install a specified high efficiency electric room heater (business)	
Expand current heating and cooling activities to new homes	
Solar heater activity	
Commercial lighting activities, integrated with the NSW Energy Savings Scheme	
High efficiency refrigeration fan motor installation	
High efficiency appliances for business method, integrated with the NSW Energy Savings Scheme	
In-home display unit activity(residential)	
Induction cook-stove activity	
Combined washer-dryer with heat pump dryer activity	
Project Impact Assessment with Measurement and Verification methods	
NABERS rating system methods	
Aggregated metered baseline methods	
Power Factor Correction methods	

Thank you for taking the time to provide your feedback.
It is greatly appreciated and will inform EEIS activity development.

8. FOOTNOTES

1. icanz.org.au/wp-content/uploads/2013/04/The-Value-of-Insulation-Based-Residential-Energy-Savings-Measures.pdf, p.51.
2. ICANZ (2012) The Value of Insulation Based Residential Energy Savings Measures. Energy Efficient Strategies. <http://icanz.org.au/wp-content/uploads/2013/04/The-Value-of-Insulation-Based-Residential-Energy-Savings-Measures.pdf>www.statedevelopment.sa.gov.au/upload/energy/rees/REES-activities-3-Installation-of-Insulation-to-an-External-Wall.pdf?t=1487721600023
3. ACT has a similar temperature profile to Ballarat but receives significantly more direct solar radiation, particularly during the winter months.
4. The mix of housing types in the ACT is somewhat different to that in Victoria with less lightweight construction and somewhat better insulation levels due to mandatory performance requirements for new homes since the early 1990s.
5. www.abs.gov.au/ausstats/abs@.nsf/mf/4602.0.55.001
6. Typically, when estimating the benefits of a proposed energy efficiency program, there are concerns that the expected savings may not be fully realised due to the fact that consumers may choose to take part of the potentially available savings in the form of a higher level of service this is known as the 'rebound' effect. This effect pre-supposes that service levels are less than optimal at the time of the particular intervention, which in a first world country such as Australia has somewhat limited applicability.
7. www.homeinsulationroyalcommission.gov.au/Documentation/Documents/ReportoftheRoyalCommissionintotheHomeInsulationProgram.pdf
8. www.statedevelopment.sa.gov.au/resources/energy-efficiency/retailer-energy-efficiency-scheme?q=REES
9. www.veet.vic.gov.au/Public/Public.aspx?id=Home
10. www.ess.nsw.gov.au/Home
11. www.energywise.govt.nz/funding-and-support/funding-for-insulation/
12. www.actsmart.act.gov.au/quick-tips/energy_saving/insulation
13. Insulation Council of Australia and New Zealand, 2016. Insulation Handbook: Part 2: Professional Installation Guide – Version 4. Insulation installation for ceilings, walls and floors. Available at: icanz.org.au/wp-content/uploads/2013/12/ICANZ-HandBook-PART-2-Professional-Installation-Guide-V2-November-2013.pdf
14. Insulation Council of Australia and New Zealand, 2016. Insulation Handbook: Part 2: Professional Installation Guide – Version 4. Insulation installation for ceilings, walls and floors. Available at: icanz.org.au/wp-content/uploads/2013/12/ICANZ-HandBook-PART-2-Professional-Installation-Guide-V2-November-2013.pdf
15. www.statedevelopment.sa.gov.au/upload/energy/rees/REES-activities-2-Installation-of-Top-Up-Insulation-in-a-Ceiling-Space.pdf?t=1486598400023

