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| **Submission for the Creation of a New Activity or Amendment of an Existing Activity under the ESI Scheme** |
| **Applicant details** |
| Date of submission | 29th November 2015 |
| Company name(if applicable) | Thermoshield Australia Pty Ltd |
| ABN/ACN(if applicable) | 37 079 666 774 |
| Address | Factory 11, 42 mills road, Dandenong VIC |
| **Contact person details** |
| Name and position | Charles Rendigs |
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| **Summary of proposal**Please provide evidence, data or references to justify all claims made.The suggested elements of a response are provided in italics. The text in italics may be deleted in the submission. |
| Liquid Thermal (ceramic based) - Building Insulation | *Provide generic category, not the name of a particular product.Example: Thermally efficient windows, rather than a proprietary product.For proposed amendments to existing activities, identify the current activity within the Regulations.* |
| Not confidential | *The Department will list on its website (at minimum) the category of all activities submitted and the name of the submitting party.**If any part of this submission should be treated as confidential then please provide two versions of the submission, one with the confidential* *information* ***removed*** *for publication.**Clearly identify all confidential components of submission or state that the submission is not confidential.*  |
| **Briefly describe new or amended activity**Thermoshield liquid thermal insulation is applied is power washed surface & has two coats applied to a building at 500 micron WFT drying to 350 micron. Then a 10 year warranty is given. The coating repels solar radiation which greatly reduces the requirements for cooling during warm months. The coating also increases electricity generation to solar PV panels (if present) by up to 6% per day. In addition, since this is an insulating technology, heat is retained during the cooler months. |  |
| Applied (Sprayed on) to any type of building; domestic, commercial, industrial, Thermoshield may reduce the heating requirement by a small amount, but the energy required to cool can be reduced 30% - 40%.White certificates should be generated based on the savings on energy throughout the life expectancy of the product. A ten year warranty is provided, but this coating technology will remain applied for up to 20 years.This activity would fit into a deeming approach. cid:6886B5B7-DD82-4B70-A86A-26E4F7741CF4Estimates on annual savings vary greatly on geographic location, building design, size & function. Appendix A – Maroondah Council Leisure centre Yielding 20% of total site electricity usage, or approx.. $50,000 annually. This would indicate a greater that 50% reduction in HVAC running costs.Appendix B – KingPin bowling alley (Townsville)Yielding 20% off total site electricity use. With multiple sources of high electricity consuming equipment internally, a 20% off the full site use would indication a HVAC reduction in up to 50%. Appendix C – Heritage chocolatesWith a un-usable baseline of energy use due to site operations moving from double shifts to triple shifts, energy reduction is difficult to ascertain. The report is excellent however for demonstrating lowered surface temperatures & lower internal temperatures. Greatly reducing the need for HVAC cooling.Appendix D – Solar PV efficiency excerptFrom Dr Dominque Hes – studies found solar PV panels become less efficient when exposed to soaring heat. With the Thermoshield coating beneath, electricity generation was increased by up to 6% per day.  | *Submissions should establish the basis for the claimed savings:** *describe the average installation, including applicability to residential and/or business sectors.*
* *explain how this activity should be rewarded through the proposed calculation under a deeming or project based approach.*
* *Provide supporting evidence that the proposed savings are likely to be achieved in an average installation.*

*An example is included below.* |
| For a roof coating, the implementation (or application) would have little to no effect on BAU in terms of an operational level. The one key factor is that the thermostat on the HVAC be set on the same level. If the coating is working & the decision is made to lower the internal temperature further, then the baseline is being compromised. Ie 22 degree thermostat must remain at 22 – not adjusted down to 20 following the effectiveness of the coating. | *Consider the BAU* *uptake of the activity and how the savings are additional to the BAU uptake (eg through a correction factor if required).**Consider whether the energy savings proposed are likely to be reduced by behavioural factors such as potential for removal of the product or increased use of other devices.* |
| Weather is a factor when using this technology as is building orientation. Best performance is achieved in direct sunlight in maximising the emissivity properties of the coating. However, great thermal resistance is achieved in any circumstance (please see attached Fricker reports where testing was done under different scenarios). | *Variables may include fuel type, relative product efficiency against similar products, product life,  climate zone, type of business activity, usage of products, or human behaviour.* |
| Solar Load Reduction Reports by James Fricker (3 Attached)Thermoshield Insulating Value Document (P. 8 of Attached Technical Info)Case Studies (Pages 18-21 and 33-35 of Attached Technical Information document)Additional testing has been completed by AWTA in Flemington VIC in partnership with Thermoshield and a major building products company around interior application of the technology.DSE has contributed to an extension of the University of Melbourne study (FINAL) on cool roofs for the City of Melbourne 1200 Building Retrofit Program. Live data is available.Monash University is also studying our coating with results due out in 2012. | *Describe existing standards that underpin quality assurance and/or performance. These could be Australian Standards, recognised or widely used international standards, or standards and tests used as the basis of certification schemes in Australia or other countries.**Where defined standards do not exist, discuss how quality/performance expectations can be validated, e.g. provide a proposed outline of a standard approach for assessing the energy performance of the activity.* |
| Project based assessment can be verified using aCertified Measurement & Verification Professional (CMVP) | *Consider how installation of the activity can be verified and how a robust compliance regime can be assured, whilst minimising red tape and administrative burden.* |
| Coatings to be applied by contractors with appropriate working at heights training, appropriate health & safety tickets & experienced in coatings applications. SWMS, insurances & health & safety management plans required. | *Note any safety or occupational health and safety issues generated by the activity.**Identify any options to address these issues, e.g. consider relevant training, qualifications, licensing or certification relevant to the proposed activity including any (proposed or existing) mandatory requirements.* |
| In addition to energy savings – the coating prolongs the life of the roof. Rather than replacing steel which is later taken to a smelter (heavy carbon pollution) & minerals for new metal are mined & refined… the metal life is extended & our finite resources can last longer into the future. | *Evaluation will consider the demonstrated potential for significant uptake of the activity in Victoria and broader benefits. Supporting evidence of benefits should be provided such as:** *The estimated cost of implementing the activity (capital and installation costs).*
* *The estimated total number of installations possible in Victoria annually.*
* *Potential for product or service innovation, or industry development, including likely investment or employment creation.*
* *Consistency with similar schemes in other jurisdictions*
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