

Embertec Pty Ltd Submission REES Consultation Paper August 2014

Embertec is an Australian developer and manufacturer of energy efficiency products and services. Embertec is an SME which spends more than \$1M annually on research and development in the energy efficiency field. Embertec has extensive experience as an equipment supplier of products for installation under REES and to installers accredited to the Victorian Energy Efficiency Target (VEET) scheme. Embertec welcomes the opportunity to comment on the proposed thresholds, metric and activity specifications.

SPC1 and SPC2 Install Standby Power Controllers

Standby Power Controllers (SPCs) have been shown in the REES and VEET schemes to provide significant power savings.

The Consultation Paper proposes a fixed Default Activity Energy Saving value for all SPCs designed to be used with a defined equipment type, installed in defined situations. This approach provides a disincentive to innovation, since there is no scope for an improved product to be rewarded over an ordinary product.

The Technical Assessment acknowledges that SPCs save energy indirectly and that the amount of energy saved by an SPC is dependent upon the equipment and the user habits of the environment in which it is installed. This means there is scope for competing SPCs to provide different levels of energy saving. More complete data acquisition allows for more intelligent decision making processes which take account of the equipment load characteristics and user behaviour in an individual installation environment. These were the factors which led to the use of field trials under VEET in order to identify the better performing SPCs and provide commensurately higher deemed savings values. Abandoning field trials removes any incentive for innovation to achieve superior outcomes. This will result in the installation of the cheapest SPC products, with the minimum functionality. The outcome of this will be consumer dissatisfaction with the products, and lower retention rates as was evident in the UK energy efficiency program when SPCs were first introduced in that market without appropriate minimum standards or other performance auditing metrics.

The Technical Assessment (at Table 97) sets out a very good assessment of the use of SPCs in light of the REES General Principles. The assessment shows that SPCs are well aligned with the General Principles. As shown in the extract from Table 97 reproduced below, four of the nine principles discussed support the use of field trials in order to differentiate between competing SPCs and to encourage the use of the better performing devices.

It is significant that the Principles support the rewarding of best practice in relation to product performance. Giving the same default savings value to all products, in a category where significant differentiation is possible, does not do this. The evidence of the Victorian field trials was that not all SPCs are equal in performance. Performance in-field showed that not all SPCs are equal in terms of user satisfaction. If investment in innovation is not valued under REES then there will cease to be ongoing product innovation to drive participation and add value to REES.

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Best practice can only be achieved by innovation. Innovation will only occur if it is rewarded. The move away from differentiation of SPCs based on field trial evidence removes any incentive for innovation.

The principles acknowledge the importance of ensuring that default energy savings are evidence based. As noted in Table 97, the basic savings levels in the current scheme are based on field trial evidence. No reasoning is given for the move away from evidence based savings proposed by the Consultation Paper.

The Principles require a credible approach to the calculation of savings. The Technical Assessment acknowledges that the basis for the established savings was field trials, and that this was appropriately credible. Indeed the Assessment suggests that further field work might be appropriate.

The Principles require that participant satisfaction be pursued. For SPCs the acid test for participant satisfaction is the retention rate – how many SPCs installed remain installed for an extended period? The reported Victorian survey data did not differentiate between competing SPCs for fear of VEET being seen to promote one manufacturer over another, but there is strong anecdotal evidence of a difference in retention rates between such SPCs. The Technical Assessment states that field work should be used to establish retention rates; however, no mechanism is suggested for providing such information. The use of blanket default energy savings values for all SPCs does not encourage innovation which would establish or improve retention rates. We would recommend that a mechanism be provided for auditing of retention within a six week period of deployment with corresponding adjustment of the REES savings.

Principle	Assessment
1. Provides evidence based energy savings	<i>The basis for energy savings associated with this activity are usually established via field trials. The energy savings associated with this activity have been adjusted down based on a full appraisal of available data. The devices are suitable for installation in a wide range of households and can save some energy.</i>
3. Reward best practice in relation to product performance	<i>These devices all work using similar principles. Field trials differentiate advanced SPCs through the measured savings achieved in practice and these are rewarded with higher default savings factors.</i>
4. Provides a means for ensuring quality assurance and participant satisfaction	Specifications set performance requirements. Further work is required to establish ongoing participant satisfaction and persistence of the devices in the field.
5. Credible approach for the calculation of energy savings	<i>Field trials establish the basic performance of the devices. Energy savings have been adjusted to be in line with typical configurations across a range of houses. Further research could establish more reliable data in this respect.</i>

Extract from Table 97

In particular for SPC-IT devices, the Technical Assessment states that these devices are unsuitable for use with laptops because laptops need to charge their battery. This need not be true. It is possible to identify when a laptop battery is charging and switch the power off only when that is complete. Without the support of a

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differentiated default savings factor, there is no incentive to deploy such functionality. Embertec has developed such a product and has deployed these in significant volume to date.

The Technical Assessment states that SPC-IT are restricted in that it is not possible to close down the computer itself when it is in a low power mode or otherwise not in use. Accurate identification of such modes is possible. Again, without the support of a differentiated default savings factor, there is no incentive to deploy such functionality.

As a further example of the missed potential for innovation based differentiation, the Technical Assessment states that installation of an SPC AV in an equipment cluster which does not include a master device will be ineffective. This is true of conventional SPCs, but is not true of devices such as the Embertec SmartSwitch AV. The Embertec device is able to determine the case when any appliance in the cluster is in use and to differentiate this from the case when all devices are in standby. Evidence of the effectiveness of this functionality can be established by field trials.

Acting on the assumption that such differentiation is not possible, the Consultation Paper suggests a blanket savings value, without in fact requiring that a master device be identified. This value will be a significant overestimate for some SPCs, while being likely to be an underestimate for other devices. In any case, the requirement for a master device in AV installations leads to a change in user habits due to the requirement to turn on and leave on the master device in order to have power supplied to a controlled device such as a stereo. This can lead to a loss in energy savings when a master device is powered up in order to use a controlled device with no direct operational link with the master. (eg powering and switching on the TV as the master in order to listen to a stereo system in the same environment). Again this is a user case which more intelligent SPC devices developed with significant R&D development are able to better manage. This R&D effort can only occur if the superior performance is valued by REES.

The VEET field trial based results provide an outcome which is in line with the REES principles. The Technical Assessment acknowledges this and does not directly challenge the veracity of those field trials. However, the analysis then proceeds down a path of multiple assumptions to a conclusion vastly at odds with the VEET result. We would recommend that the current, more evidenced based default savings factors be retained.

If innovation is to be supported a mechanism needs to be established to reward this. Mandating a single default savings value for all competing SPCs will have a chilling effect on innovation. If the proposed blanket savings values are implemented, we recommend that a mechanism be established whereby field trial data can be presented allowing individual SPCs to gain a differentiated default savings value. This would allow improvements in the SPC technology to be valued, encouraging the development of SPCs with the greatest possible lifetime savings.

L2 – Install LED Downlight Lamp or LED Downlight Luminaire

The concern that insufficient products may be available that meet the installed product requirements is valid. Energy Star approved products are not widespread in Australia. Accepting ESS approvals goes some way to addressing the problem, but the restriction, until recently, that product approval can only be sought by NSW Accredited Certificate Suppliers, and then only with a specific project nominated, means that the number of ESS approved products is limited. This issue can be addressed by “grandfathering” LED equipment approved under the current VEET scheme into the REES. The VEET approval process is very rigorous, at least equivalent to the ESS standard. It is appreciated that REES does not wish to tie itself to a VEET scheme which is likely to be terminated or become moribund, but this could be addressed by placing an end date on approvals. For example, all equipment approved prior to 1 January 2015 under Schedule 21C and 21D of the VEET scheme

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could be automatically approved for REES. This would ensure a sufficient, timely supply of products to be used for this activity.

The proposed REES rule would exclude the replacement of 50W mains voltage halogen downlights (often referred to as GU10 downlights). This is an unnecessary restriction which reduces available energy savings and increases scheme costs. Table 85 notes that the existing REES rule and the ESS Scheme rules allow for replacement of mains voltage halogen downlights, while the ACT EEIS and the VEET rules do not. No reason is given for the proposed restriction to replacing only ELV lamps.

Excluding GU10s obviously reduces the scope for energy savings under the REES, by reducing the number of high energy use downlights eligible for replacement under the scheme. However, it also increases scheme costs, both for installers and administrators. Few householders are aware of the type of downlights they have installed. It is relatively easy for customer service personnel to guide the customer over the phone or by instructions on a web site to identify whether the lights are halogen downlights. However, unless the customer removes a downlight, or has retained the packaging of the installed downlight, it is impossible to be sure whether the installed downlight is ELV or mains voltage. This leads to an electrician being sent to perform a replacement, but being unable to do so. The cost of these failed calls drives up the overall scheme cost.

There is also an increased audit burden for the scheme administrators. If the Scheme is not to be brought into disrepute it is important that the participants obey the scheme rules and are seen to do so. Having made a rule excluding mains voltage downlights from replacement, the scheme administrators must enforce that rule. Auditing compliance is difficult. Querying the customer is unreliable, since the customer probably did not know what type of downlights were removed and may give false positive and false negative responses. Even physical inspection does not work, since there is no difference between the final result of a compliant and a non-compliant removal.

We would recommend that the required pre-condition be amended to include mains voltage halogen downlights.

Embortec generally supports the proposed Ministerial Protocol. In particular, it is important that the scheme be open to new or modified activities at any time. This must be supported in practice by easy access to the scheme regulators by proponents of such activities. It would be unfortunate if new activity introductions were to happen only at the three yearly reviews.

Embortec supports REES and believes that, with attention to the matters raised above, the new REES scheme will make a significant contribution to energy saving in South Australia.

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