This activity received funding from the Australian Government as part of the Community Energy Efficiency Program.
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Executive Summary

The Illawarra Sports Stadium (ISS) is a four court multi-purpose indoor sport and recreation complex that is run by a not-for-profit community group. We successfully applied for Community Energy Efficiency Program (CEEP) grant funding with the aim to:

- Increase the energy efficiency of the Illawarra Sports Stadium by installing LED court and amenities lighting, sky lighting and a solar thermal hot water system – saving money and reducing our energy costs and greenhouse gas emissions
- Utilise the money saved through installing the energy efficiency technology to prevent drastic price rises for stadium hire, and to provide discounted hire for disadvantaged users.
- Educate the local community, stadium users, not for profit organisations and other stadium organisers about energy efficient technology, as well as the possible savings.

Following the installation of this technology, the ISS is using 57% less electricity and saving over $13,000 a year. The new energy efficiency technologies have created a better facility for our users, and the savings are being passed to these users, especially low socio-economic and disadvantaged groups.

The ISS actively sought to educate our users and the wider community on the issue of energy efficiency throughout our project. This was achieved through informative posters, a community open day, the distribution of information to stadium owners and the distribution of this report.

The ISS was able to achieve all of our objectives, in line with the CEEP objectives, increasing the energy efficiency of our facility and educating the community on energy efficient technology while passing on savings to our users.

The views expressed herein are not necessarily the views of the Commonwealth of Australia, and the Commonwealth does not accept responsibility for any information or advice contained herein.
Project Objectives

Our project was designed to comply with the CEEP objectives, increasing the energy efficiency of the ISS through new lighting and hot water solutions, as well as demonstrating and encouraging others to adopt energy efficiency technology.

Specifically, our objectives were to:

- Increase the energy efficiency of the Illawarra Sports Stadium by installing LED court and amenities lighting, sky lighting and a solar thermal hot water system – saving money and reducing our energy costs and greenhouse gas emissions
- Utilise the money saved through installing the energy efficiency technology to prevent drastic price rises for stadium hire, and to provide discounted hire for disadvantaged users.
- Educate the local community, stadium users, not for profit organisations and other stadium organisers about energy efficient technology, as well as the possible savings.

These objectives relate directly to those of CEEP; to increase energy efficiency in a way that would benefit low socio-economic and other disadvantaged communities, and to demonstrate and encourage the adoption of improved energy management practices.
Project Energy Efficiency Activities

The Illawarra Sports Stadium (ISS) is a four court multi-purpose indoor sport and recreation complex, 2990 square metres in size. It is a concrete slab building, with colorbond sheets and sky lighting sheets.

To increase the energy efficiency of the building and to reduce the environmental impact as well as the electricity costs, new energy efficient technologies were installed in the ISS. The lighting and hot water systems were replaced as these two were the highest users of electricity in the stadium.

Initially it was proposed to replace the metal halide lights with T5 high bay lights, after a consultant advised us to read the Energy Saver, Energy Efficient Lighting Technology Report produced by the NSW Government, Office of Environment & Heritage. According to this report from July 2012, the most recent available, LED lighting had not undergone enough testing to be recommended and we should instead use the properly tested T5 lighting or 320W metal halide luminaires.

When our accepted funding submission for CEEP underwent a Technical Viability Assessment, however, the assessor requested that we consider LED lighting. Following this recommendation, we requested quotations from suppliers and eventually went with the much more expensive but more energy efficient LED lighting from CREE Australia. This includes the individually designed LED lighting for the Stadium courts that was installed in a new formation to ensure the best distribution of light while also removing the central bank of lighting to improve conditions for basketball players. LED lighting was also installed in the offices, amenities and all other areas.

To complement the new LED court lighting, the old sky lighting panels were replaced as these were degraded and no longer allowing sunlight in. New Alsynite panels now let sunlight on to the courts, which permits the LED court lights to be off during most daytime bookings.

The old hot water system was turned off in 2013, as it was using too much power to justify providing this facility to users. Through the CEEP grant, a solar hot water system was installed so that the ISS could once more provide this facility for users while saving electricity and cost.

While the hot water system and the sky lighting panels were installed as planned, the change in the lighting technology did cause some problems with the budget and timeline. From this experience, we have learnt to investigate new technologies to a greater extent. There will always be problems as new technologies emerge, and community organisations will struggle to keep abreast of these changes – particularly when the information available does not recommend the newer technology. While the cost can be prohibitive for not-for-profit groups, engaging a consultant to assess upcoming energy efficiency technologies could help to avoid this problem.
Project Demonstration and Communications Activities

The Illawarra Sports Stadium actively sought to educate our users and the wider community on the issue of energy efficiency throughout our project.

For this project, our stakeholders were considered to be the users of the stadium (including sports participants and spectators, as well as people coming for community events and programs), other not-for-profit groups, other stadium organisers and the wider community.

Posters

To begin with, posters were put around the stadium to let users know about the changes taking place in the stadium. The posters also contained information on how everyone can be more energy efficient at home, and how that can save money and the environment. Each year approximately 150,000 people visit/use the Stadium. The posters will be kept on display for 2 to 3 years.

These posters have been viewed by users of the stadium for more than 6 months. Unfortunately due to problems with the page counting plug-in we do not have an accurate measure of the number of web-page visits.

Community Open Day

A community open day, called the “Green Living Event”, was held to educate both stadium users and the wider community about the energy efficiency technology that was installed as well as the cost savings. This open day coincided with Saturday netball, meaning that over 5,000 people were present.

Prior to the event, stadium user groups were sent an email containing a flier inviting them to come along. We also put out two press releases dealing with the energy efficiency changes at the stadium, and inviting media along to the opening of the event.

We provided tours of the facility as well as brochures on our projected energy savings and information from Wollongong Council about various energy and environmental saving options. There were also children’s activities showing how to make environmentally friendly cleaners and use recycled objects amongst other things.

The event was opened by Lord Mayor Gordon Bradbury and Stephen Jones MP addressed the audience regarding the energy efficiency upgrades possible through the CEEP grant. This was televised twice on WIN TV news.
Community Open Day Photos
Stadium Manager Information

The Illawarra Sports Stadium compiled documentation regarding our selected energy efficiency technology and the predicted savings. This documentation was then sent out to NSW Basketball for them to distribute to other Stadiums. This documentation has also been provided to visitors who have inquired about the new LED lighting, with Maitland and Shoalhaven stadiums electing to install LED lighting instead of the less efficient T5 lights.

The final poster that is currently being reviewed will be printed in a number of forms for display in the Stadium and for general distribution to the public attending the Stadium. Technical details of all systems installed will be available on request to all interested agencies and parties. After all components of the project have been operational for 12 months a further audit will be undertaken to confirm the long term benefits and outcomes.

Now the Illawarra Sports Stadium is a member the Illawarra Business Chamber technical details of the Stadiums energy efficiency project will be distributed to all some 300 member of the Business Chamber.

Case study documentation

Following the acceptance of this document, the ISS will distribute it to not-for-profit groups and stadium managers, as well as publishing it on our website. This will ensure that the information we have gathered during this project is available to the general public, as well as being provided to specific target groups who would benefit most from what we have learnt.

Poster with simple information on energy efficiency changes

This poster has been developed from the final energy efficiency report, showing the exact benefits to the ISS from the new technology. It will be put up around the stadium itself as well as on our website and distributed to not-for-profit groups and stadium managers so that the information regarding our improved energy efficiency can be easily understood and is available to a wide variety of people.
Example of poster

What is happening?

1. Solar thermal panels heat water for free
2. Sky lighting lets in natural light
3. LEDs provide light while using less power

The Illawarra Sports Stadium has won a Community Energy Efficiency Program grant from the Australian Government.

1 + 2 + 3 =
- Lower power bills
- Less environmental impact
- Reduced greenhouse gas emission
- A stadium with a sustainable future

Why lighting and hot water?

As you can see, lighting and hot water use most of the electricity at the ISS. Using more energy efficient technology will reduce our power bill as well as reducing energy usage and greenhouse gases.

What can I do?

Making some simple changes around your home will allow you to save money and the environment! Consider investing in energy efficient technology such as solar power and compact fluorescent globes.

Turn off appliances and lights at the power point
Reduce, reuse, recycle
Replace your light globes

If you have any questions, please email issinfo@rojan.net. See www.illawarrasportsstadium.com.au for more information.
Outcomes and benefits of the Project

Following the initial energy audit, it was predicted that the Illawarra Sports Stadium would use over 40% less electricity and would save more than 47% in electricity costs. This was estimated to be more than $11,000 in savings per year. The lighting changes and hot water system were predicted use 70% less electricity.

The final energy efficiency audit shows that the Illawarra Sports Stadium is using 57% less electricity, with savings of over $13,000. This equates to a 59% saving in electricity costs, with a 78% reduction in the electrical consumption of the lighting and hot water system, and a 79% reduction in the cost of the running these systems. These results show that the ISS has exceeded our predicted savings, possibly due to the installation of the more expensive and more energy efficient LED lights, as well as the high efficiency of the solar hot water system.

Apart from the reduced electricity costs, installing new technology has reduced the maintenance costs for the Illawarra Sports Stadium. The LED court lighting comes with a 10 year warranty, and the solar thermal hot water system has a 5 year warranty.

Due to the reduced electricity expenses at the ISS, the hire price of the Stadium will increase at a slower rate, and disadvantaged user groups are eligible for a discounted hire price.

The new LED court lights make the Stadium a better location for sporting events, as they are designed to provide a more even spread of light as well as removing direct lighting from the basket or goal area, increasing visibility for players. The new solar hot water system has allowed users access to hot water again, as the aging tanks and constant water heating of the previous system was not economically viable and so this old system was switched off. The sky lights allow natural sunlight into the courts during daylight hours.

Through our posters, community open day and the information distributed to stadium managers, the ISS has reached out to the community to demonstrate how energy efficiency technology can save money and the environment.

All of the stadium users have been informed about the changes at the ISS through our posters, and all of NSW Basketball’s stadiums have received information on the energy efficiency upgrades at the ISS.

During our community open day, members of the wider community were able to hear about the energy efficiency upgrades and receive information on how these changes can be applied to their own homes. This information was able to reach further, as an interview with Stephen Jones MP regarding the energy efficiency changed was televised twice on WIN TV news.

At the recent NSW Country Championships held at the ISS, the company secretary had numerous associations comment on the lighting of the courts, and as a result of this (as mentioned above) Maitland and Shoalhaven have decided to install LED lighting instead of less efficient T5 lights.
As mentioned above, the new energy efficiency technology at the ISS has been viewed by other stadium managers who have decided to install the more energy efficient LED lighting instead of T5 lighting. The ISS have also formed a partnership with NSW Basketball and they are distributing information about the changes at our stadium with the aim to encourage other stadium managers to install energy efficient technology such as the LED lights. This is a more efficient technology than the T5 lighting NSW Basketball was previously promoting.

It is also hoped that the wider community have considered installing energy efficient technology having seen the posters and/or attended the community open day (or watched the segment on WIN TV news).

The Illawarra Sports Stadium has committed to lower hire costs for low socio-economic and disadvantaged groups following the installing of the energy efficient technologies that are saving the Stadium thousands of dollars each year. At this stage, discounted hire prices have been given to wheelchair basketball (KidzWish), Twilight Basketball for disadvantaged youth and Special Olympics basketball.

The new technologies are also providing a better facility for low socio-economic and disadvantaged users. As the ISS is surrounded by suburbs ranked as being in the most disadvantaged 10% of postcodes in Australia (according to the SEIFA index), improvements to the Stadium will have positively impacted a large number of disadvantaged users.
Budget

There was one major change to the budget for this project, as following the Technical Viability Assessment the Illawarra Sports Stadium decided to install LED lighting instead of T5 lighting.

The LED lighting was much more expensive and had initially not been considered as the available information suggested this technology was not tested enough to be recommended. However, the energy efficiency improvements and better warranty for the product convinced the ISS to spend more money than was budgeted on this product.

Initially the lighting for the project was budgeted to cost $47,027. The price of the LED lighting was a much greater $84,459.

The administration costs of the project were also slightly greater than was initially expected. This added some $1,250 to the budget.
Project operation, mechanisms and processes

The CEEP grant was managed internally by the Illawarra Sports Stadium. As a not-for-profit community organisation, this ensured that costs were kept down. The project was managed by the Company Secretary, with an administrative assistant hired to help complete all necessary documentation.

This arrangement worked quite well, though a bigger budget would have helped as we underestimated the time required to complete all necessary paperwork, review quotes and technology specification and to meet with contractors. As a community organisation that had not received a recent grant, we were unaware of the exact time requirements, and would encourage other organisations applying for grants to allocate more funds towards the administration costs – especially as adding extra duties to volunteers can cause them stress and reduce their capacity to complete their normal tasks that allow community organisations to keep running.

The ISS was able to successfully implement all facets of the CEEP grant using internal resources. Following this experience, we are better equipped to undertake similar projects in the future as we have a better understanding of energy efficient technology and the process of applying for and completing a grant.

As a not-for-profit organisation who had not won a recent grant, we would have benefitted from a grant writing information session (online or in person) that informed not-for-profit groups about the grant and how to complete a proposal that would accurately reflect the effort that the ISS has expended in complying with this grant. This includes information on correct budgeting (especially regarding changes in technology, increases in costs in the new financial year and the true administrative expense of complying with a grant) as well as access to the most up to date recommendations regarding energy efficiency technologies, as those available to us were shown to be outdated following the Technical Viability Assessment.

The main difficulties the ISS experienced were, as mentioned above, the change in lighting technology and the underestimation of the time taken to comply with the grant requirements.

When the Technical Viability Assessment suggested that we investigate the possibility of LED lighting, new tenders were required and a lengthy process of investigating the technology and selecting the best tender was completed by the company secretary and the administrative assistant, with the final selection made by the Board of Directors.

Ideally, the ISS would hire a consultant to consider the optimal lighting technology, however as a not for profit this was not a viable possibility due to the added costs. We would also budget more money towards administration, as completing the necessary paperwork as well as dealing with contractors and considering the technologies all took longer than was expected.
As was mentioned above, the ISS has learnt to carefully consider the project timeline and budget. These were given a great deal of thought, but from the perspective of an organisation that had not won a recent grant and so was not well informed on timing constraints. With our experience of complying with this grant, we are better equipped to submit accurate and successful proposals for other grants in order to improve the Stadium.

We have also learnt to consider emerging technologies to a greater degree. While we used the most appropriate and up to date resources when determining the ideal lighting solution, by the time our grant proposal was assessed LED lighting was suggested. Having the recommendation of an experienced consultant convinced the ISS to spend extra money and time on a newer, and in the end better, technology. If it was possible, we would suggest that organisations consult experts on this matter – though as was the case with our organisation it may not be financially viable.

Our initial community open day, while still a success, was not the event that we had hoped for. We contacted many local businesses and organisations in an attempt to create an energy efficiency expo, but most were unreceptive. Without a background in hosting these major events, it is difficult to get support from businesses. This event also helped us to determine the most applicable and receptive audience, and led to the ISS distributing information through NSW basketball to stadium organisers – the people who were most interested and could benefit the most from the information we had gathered and the solutions we had implemented.
Conclusion

The Community Energy Efficiency Program grant has allowed the Illawarra Sports Stadium to implement energy efficient technologies that are saving money as well as reducing our environmental impact. These costs savings are being passed on to the community, and especially to low socio-economic and disadvantaged user groups.

As a not-for-profit community organisation that had not received a recent grant, the ISS was inexperienced and has learnt a lot from the process, all of which is documented here-in. We have completed all grant requirements to the best of our ability and are now better equipped to apply for other grant funding.

The information that we have gathered and the lessons we have learnt during this grant are being distributed to applicable organisations in order to increase their capacity to both apply for grant funding and to install energy efficient technology.

We are very grateful for the funding assistance from the Australian Government.
Declaration

DECLARATION

The Authorised Officer of the organisation makes the following declarations:

☐ I declare that I am authorised to submit this Final Report (including any attachments) on behalf of ________________ (Name of organisation).

☐ I declare that the information provided in this Final Report is true and accurate.

☐ I understand, and acknowledge that giving false or misleading information in this Final Report is an offence under the Criminal Code Act 1995.

☐ I understand that final payment will only be made in accordance with the Funding Agreement including on satisfactory completion of Milestones.

Authorised Officer Signature: ___________________________ Date: ____________ 2014

Name: IAN RICHARDSON

Position: Company Secretary

Organisation: Illawarra Sports Stadium

Witness Signature: ___________________________ Date: ____________ 2014

Name: Karen Agius

Position: Sports Administrator

Organisation: Illawarra District Netball Association

The use and disclosure of information provided in this Final Report is regulated by the relevant provisions and penalties of the Public Service Act 1999, the Privacy Act 1988, the Freedom of Information Act 1982, the Crimes Act 1914 and the general laws of the Commonwealth of Australia.

Information contained in the Final Report may be disclosed by the Department for purposes such as promoting the program and reporting on its operation and policy development. This information may also be used in answering questions in Parliament and its committees. In addition, the selected project information will be made publicly available. Public announcements may include the name of the grant recipient and of any project partners; title and description of the project and its outcomes; and amount of funding awarded.
Checklist

☒ Cover page
☒ Contents page
☒ Executive Summary
☒ Project Objectives
☒ Project Energy Efficiency Activities
☒ Project Demonstration and Communications Activities
☒ Outcomes and benefits of the Project
☒ Budget
☒ Project operation, mechanisms and processes.
☒ Conclusion
☒ Declaration
### Project Title
Greening the ISS: Increasing energy efficiency through smarter lighting and water heating solutions

### Funding Recipient
Illawarra Sports Stadium

### Date
5/08/2014

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<th>Building, Facility or Site 1</th>
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<tr>
<td><strong>Name of Building, Facility or Site 1</strong></td>
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<tr>
<td><strong>Location (address)</strong></td>
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<tr>
<td><strong>Type of building facility or site</strong></td>
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<tr>
<td><strong>Activity Type and Measure</strong></td>
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<tr>
<td><strong>Energy Efficiency Estimate Method</strong></td>
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<td><strong>Baseline Energy Usage</strong></td>
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<td><strong>Baseline Energy Efficiency</strong></td>
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<td><strong>Baseline Efficiency Improvement</strong></td>
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<td><strong>Reporting Data (measuring Energy Efficiency and Additional Data)</strong></td>
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<td><strong>Cost of Activity</strong></td>
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<td><strong>Estimated Cost Savings</strong></td>
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<td>Building, Facility or Site 1</td>
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## Building, Facility or Site 1

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<td>Baseline Energy Efficiency</td>
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<td>Baseline Efficiency Improvement</td>
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