

Case Study

Merrigong Theatre Company

Benchmarking Energy Performance

Greener Live Performances
through energy efficiency

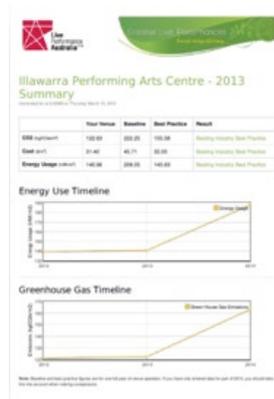


About Merrigong Theatre Company

Merrigong Theatre Company manages one of Australia's busiest, most dynamic regional venues - Illawarra Performing Arts Centre in Wollongong, about an hour south of Sydney. In June 2014, the company also took over management of the city's key civic and community venue, the Wollongong Town Hall.

Illawarra Performing Arts Centre (IPAC) was opened in 1988 and consists of 3 performance spaces: the 515 seat IMB Theatre, the 234 seat Bruce Gordon Theatre and the 80 seat Bob Peete Studio. In addition to being the home of Merrigong Theatre Company, IPAC also operates as a venue for hire, hosting numerous commercial and community performing arts events throughout the year. The recently refurbished Wollongong Town Hall comprises four meeting and performance spaces, including the 800 seat main auditorium. Smaller rooms are able to accommodate 30 to 270 people. The IPAC hosts about 240 performances a year attracting an annual 100,000 visitors.

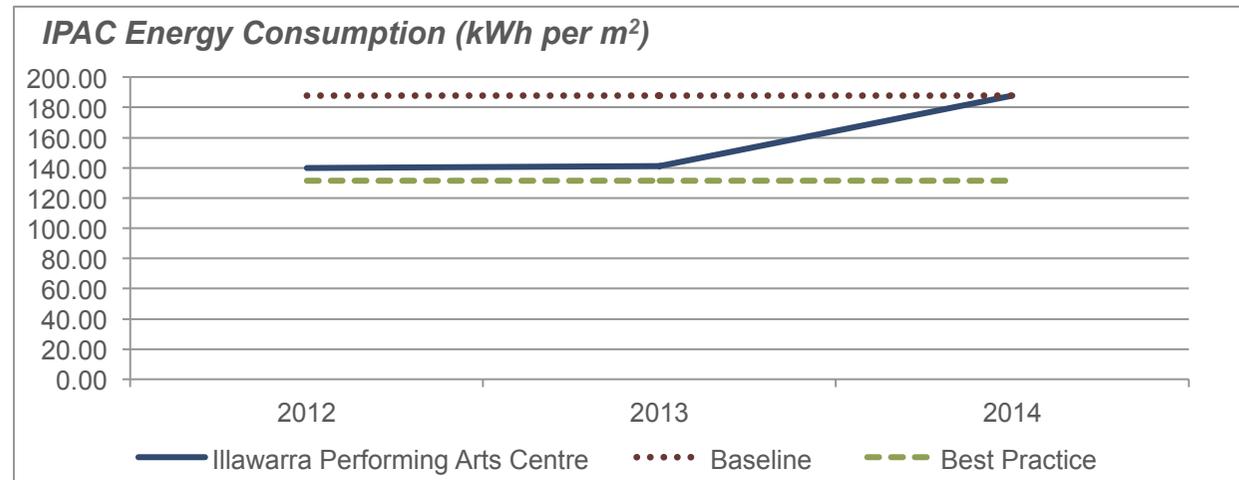
Benchmarking Energy Performance



Merrigong Theatre Company has been using the [LPA Greenhouse Gas Estimator](#) to review the IPAC's energy performance. The tool shows venues how they perform in terms of their energy usage (kWh) and cost (\$) in relation to the venue's size (m²) and calculates the associated greenhouse gas emissions (CO₂ kg). The tool displays the results in an interactive dashboard and a succinct pdf summary can be downloaded (see image above left).

The results showed that the IPAC sits between baseline and best practice level and gave the Director of Operations confidence that the way the building and air-conditioning system are managed is delivering good results.

Looking at the usage pattern of the last three years, the IPAC can directly relate the increase in energy consumption to the opening of a new café and bar onsite in December 2013. While January and February are traditionally a quiet period for the IPAC, the usage for this period went up from around 9000kWh per month in 2012 and 2013 to around 17,000kWh in 2014. The graph below shows the venue's energy consumption over the last three years in relation to baseline and best practice levels of the LPA Greenhouse Gas Estimator.



Looking at the IPAC's greenhouse gas emissions in relation to industry benchmarks (see graph below), the IPAC has been sitting above best practice level until the opening of the new café and bar. While venue greenhouse gas emissions are calculated based on the respective State's emission factor, the current benchmarks in the system are Australia wide benchmarks and will be refined once more venues have entered data into the tool.

Over time, the benchmarking data in the LPA Greenhouse Gas Estimator will become more robust and allow comparison of venue energy consumption, greenhouse gas emissions and energy cost in relation to the venue's size, the climate zone it operates in, and the amount of ancillary facilities (e.g. cafés, car parks, etc.) it has onsite.

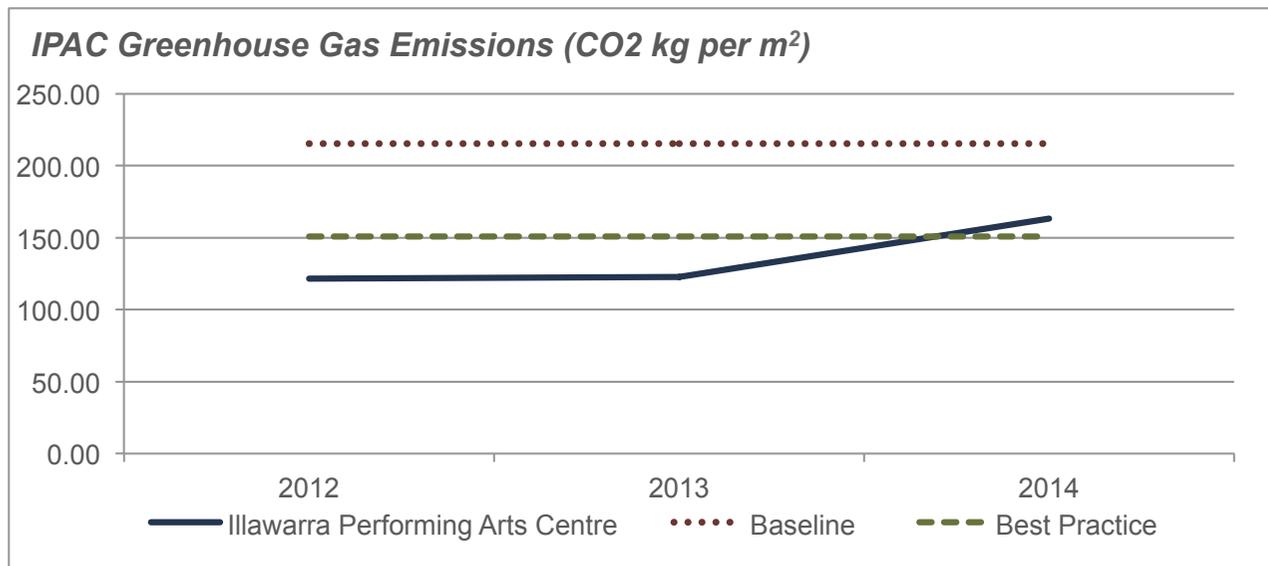
Measures Implemented

Gradual Replacements

Rather than investing in major retrofits, Merrigong Theatre Company is gradually replacing equipment once it reaches the end of its lifecycle with equipment that uses less power.

For example, since 2011 Merrigong Theatre Company has been replacing halogen downlights in the foyer and box office and fluoro tubes around the Back of House area with LED lights. Once a bulb reaches the end of its lifespan, the Facilities Coordinator exchanges the current light fittings with new LED fittings and 12W LED bulbs, reducing the wattage per lamp by just under 40W.

The replacements are taking place almost on a weekly basis with recent replacements in the bar area of the IPAC and the balcony of the Wollongong Town Hall. The difference in lighting between the halogen and LED lights is barely noticeable.



Management of BMS and Air-Conditioning

The Building Management System (BMS) for the IPAC is managed on a weekly basis. The Facilities Coordinator programs the system according to the office hours and the scheduled activity in the theatres.

With the opening of the new café and bar at the venue, energy and gas consumption has increased. As the café includes an outdoor area, the management of the air-conditioning had to be adjusted. Sensors at the door of the café trigger the air-conditioning to turn off if the doors are open to avoid pouring cool air into an area that is open to the outside. The IPAC recently discovered a faulty reed switch in the café area, which was not connected to the BMS. This meant the heating and cooling did not turn off while the café doors were open, with the result that air-conditioned air was unknowingly pouring into a part of the building that was open to the outside for months. The IPAC has noted an increase in energy consumption for the beginning of the year from 17,000kWh per month in 2014 to 22,000kWh in 2015 and the leap in energy consumption is likely to be lead back to the faulty switch. Now the switch has been fixed, IPAC is waiting for the next energy bill to assess whether energy consumption has decreased.

In the Wollongong Town Hall Merrigong Theatre Company has a simpler but readily available BMS, which is altered as required on a daily basis rather than advance scheduling. The Merrigong Theatre Company seeks to ensure that their energy use is as efficient as possible by regularly reviewing and monitoring their energy consumption and comparing the results to industry benchmarks.

