

Radio City, Kilbirnie

Solar Photovoltaic and Solar Thermal systems

Introduction

Radio City is a large community facility housed in a former art deco cinema (1920s) in the centre of Kilbirnie. Incorporated in 1999 as a company limited by guarantee, the building was extensively refurbished and opened as a Healthy Living Centre in 2004.

The primary objectives of Radio City are to provide the residents of the Garnock Valley with opportunities to learn new skills, participate in a wide range of social activities and to adopt healthier lifestyles. Radio City acts as a community hub facility within the area, for the delivery of services designed to target those individuals with low levels of educational attainment, qualification and poor levels of health and wellbeing. During 2009/10 Radio City hosted in excess of 40,000 user visits, with groups meeting and classes running throughout the year.

The range of facilities within Radio City include a gym and fitness suite, large sports and events hall, self contained offices for let, IT suites, recording studios, crèche and café.

As a community owned facility, funding is always at the forefront of decision making at Radio City. Energy bills account for a large proportion of Radio City's operating costs so management was keen to look at renewable technologies which would help secure the long term sustainability of Radio City for the local community. In addition to reducing costs, Radio City was also keen to reduce its carbon footprint. By doing this it is in the ideal position to help spread the message of using sustainable energy resources through the various users and into the wider community.



Equipment

**10kWp Solar Photovoltaic System,
34m² Solar Thermal System with accumulator storage tanks.**

A 10kW PV array matched the base load electricity demand of Radio City, with almost all electricity generated being used on site. The system was sized at 9.46kW (44 x Kyocera 215W panels) and fell into the <10kW Feed-in Tariff category at the time of installation.

The solar thermal system was sized with consideration of the hot water demand at Radio City, using the Kingspan Solar T*SOL Simulation - a 34m² array comprising of 8 no. Thermomax HP200 panels, feeding 2 x 600 litres preheat cylinders, which were housed in the loft space.

Cost and Grant Funding

| | | |
|------------------------|-------------|---|
| Total project cost | £ 76,562.00 | The remaining funding was obtained through: Third Sector grant funding Radio City own funds |
| CARES grant | £68,905.80 | |
| CARES grant percentage | 90% | |

Fuel Bill Savings

The solar PV system was estimated to provide an annual saving of £776, with an additional £2,801 being possible from Feed-in Tariffs. The solar thermal system was expected to provide savings in the region of £500 per year.

Emission Savings

| | |
|--|--------|
| PV System - Estimated kWh savings p.a. | 7,760 |
| PV System - Annual CO ₂ savings (kg) | 3,337 |
| Solar Thermal System – Estimated kWh savings p.a. | 12,980 |
| Solar Thermal System – Annual CO ₂ savings (kg) | 6,011 |

Project Monitoring

Project monitoring has been put in place.

Local Impact

This project has provided local residents with an example of how renewable energy sources can be implemented into retrofit projects.

Lessons Learned

Complex systems involving different technologies require good planning. A smooth progression through the project can be achieved by employing professional advisors such as architects and engineers to provide the necessary technical backup to the installer, and this can significantly improve the process of gaining statutory approvals.

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