WILSON POWER SOLUTIONS

WARWICK
THE UNIVERSITY OF WARWICK

REDUCING THE CARBON FOOTPRINT OF THE INTERDISCIPLINARY BIOMEDICAL RESEARCH BUILDING

CLIENT
UNIVERSITY OF WARWICK

LOCATION
WARWICK, UK

SECTOR
EDUCATION

1250 kVA	472 MWh	109 tCO2
TRANSFORMER RATING	TOTAL ENERGY SAVINGS	TOTAL CARBON REDUCTION

WILSON E3 ULTRA LOW LOSS AMORPHOUS TRANSFORMER

THE UK'S MOST ENERGY EFFICIENT DISTRIBUTION TRANSFORMER

THE UPGRADE'S PAYBACK PERIOD IS THREE YEARS

ENERGY SAVINGS WILL HELP THE IBRB BUILDING SAVE £86K OVER 30 YEARS

SUSTAINABILITY AT "WORLD CLASS" RESEARCH CENTRE, IBRB

The Interdisciplinary Biomedical Research Building at the University of Warwick was inaugurated in March 2021 on the university's Gibbet Hill Campus. A multi-million investment was put into this building to equip it with state-of-the-art laboratories and equipment to investigate the mechanistic origins of diseases in cells and tissues in order to enhance wellbeing and extend healthy life spans. IBRB is one of the most environmentally sustainable buildings on campus acting as the epitome of the university's net zero plans and pledges set to act on the climate emergency. The centre has Solar Photovoltaics panels and it installed Wilson e3 Ultra Low Loss transformer which will help mitigate 109 tCO2 of emissions over 30 years of operation.

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16 INSTALLATIONS ACROSS THE UNIVERSITY OF WARWICK, SAVING OVER £38K P/A

HOW WE HELPED THE SAVINGS

Utilising the amorphous core technology, low loss transformers have lower hysteresis losses resulting in less energy wasted as heat during the magnetisation and de-magnetisation of the core of transformers. IBRB's Ultra Low Loss transformer which goes above and beyond EU Ecodesign regulations Tier 2 for transformer losses is hermetically sealed to avoid oil leakage and it is coupled with an RN2d switchgear. The transformer is equipped with a few ancillaries to improve the monitoring, safety and maintenance such as an oil level indicator, marshalling box, oil temperature indicator and pressure relief device with alarms and trip conacts for both. The transformer comes with a manual HV off-load tap changer with 7 settings allowing ratio adjustment to the LV side for more energy optimisation and savings.

THE BIGGER CLIMATE EMERGENCY RESPONSE!

Wilson e3 Ultra Low Loss Transformers provide energy, carbon and financial savings allowing the IBRB building and other university substations (some of which have the older Wilson e2 model) to help meet the carbon reduction targets and pledges made by the university to reach net zero from direct emissions by 2030. The estates team is looking at existing assets to identify transformers and other grid equipment that act as energy guzzlers which could curb the university's efforts towards responding to the climate emergency. Replacing old inefficient transformers and opting for the market's most efficient options increase resilience and guarantee a future-proof infrastructure.

TECHNICAL DATA

No. of Transformers: 16 Low Loss Amorphous

Transformer Ratings: 500kVA to 2000MVA

Annual Energy Savings: 213 MWh

Lifetime Energy Savings: 6,404 MWh

Lifetime Financial Savings: £1,163,779

Lifetime Carbon Savings: 1,480 tCO2

DATA OVERVIEW

Over the years, Wilson Power Solutions supplied 21 transformers to the University of Warwick, 16 of these were ultra and super low loss amorphous transformers in the following ratings; 500, 800, 1000, 1250, 1500, 1600 and 2000kVA. Upgrading to Wilson e2 and Wilson e3 meant that the university decided to install transformers that go beyond the Ecodesign specifications. Comparing between the regulated industry standard transformers and the Wilson lower loss transformers, the University of Warwick saves annually 213MWh. Over the lifetime of these transformers (30 years), they will have saved the university 6.4GWh of electricity, 1,480 tonnes of CO2 emissions and over a million pounds of financial savings.

"As one of the University's approved Suppliers, Wilson Power Solutions were challenged with providing a MV power solution that is low energy, low maintenance and which meets the smart building and sustainability aspirations of the project. Wilson were able to achieve this by offering their E3 ultra low loss transformer which offered a lifecycle payback of circa 3 years compared to Wilson e1, Tier 1 compliant and market standard at the time. Wilson and also helped secure additional Salix funding."

PAUL HOLLAND
Estates Office
University of Warwick