



PROJECT SUMMARY:



CLIENT

Wates Living Space and East Thames Group

PROJECT

CHP

TIMESCALE:

September 2011 - July 2013

CONTRACT VALUE:

£2.5 million

OVERVIEW

Before its transformation, Ocean Estate in Stepney, East London used to be a stark example of urban decay with its graffiti-strewn walls, boarded up shops and crumbling overcrowded housing.

One of London's few remaining 'sink' estates, Ocean Estate was once known as the cheapest place in Europe to buy heroin and was renowned for high levels of economic and social deprivation. The three-year renovation of the estate was carried

out by The East Thames Consortium, comprising East Thames Group and Spitalfields Housing Associations, Wates, Bellway, and First Base.

Vital Energi worked in partnership with Wates Living Space, and its client the East Thames Group, to design and build a CHP Energy Centre, install district heating mains, internal pipework, HIUs and metering to initially serve 462 new build apartments.

CHALLENGE

Ocean Estate, one of the UK's largest schemes of its kind at the time, was designed in consultation with residents with the aim of improving the quality of housing and living and making it more attractive to potential and existing residents. At its heart would be a low carbon energy centre, producing more affordable and environmentally friendly energy.

The project included the £38m refurbishment and modernisation

of 1,200 existing homes with new kitchens, bathrooms, windows and roofs and a £47m new build programme to build 800 more homes.

Vital Energi were charged with the task of designing and delivering a full energy system which will ensure the safe, reliable and cost efficient delivery of heat and hot water and will help prevent fuel poverty by protecting residents from huge hikes in energy costs.

THE BENEFITS:

- > Regeneration of a deprived area
- > Flexible solution that met the residents' and consortium's needs
- > Heat meters ensure occupants only pay for the heat they use
- > Award-winning project
- > Design improvements resulting in capital savings

▶ The regeneration of Ocean Estate offered the opportunity to transform one of London's most deprived estates into a thriving, cohesive, multi cultural society.



“What is being created in Stepney will set the tone for the community for the next half century, so it is essential to get it right first time and we are extremely proud to be producing the energy centre at the heart of the development which will contribute towards lower fuel bills, lower emissions and lower rates of fuel poverty. This is a massive project with an admirable ambition... To improve the housing stock and give people homes they can be excited about in a community they can be truly proud of.”

IAN WHITELOCK, JOINT MANAGING DIRECTOR
OF VITAL ENERGI

▶ THE SOLUTION

Vital Energi designed, installed and commissioned a high-efficiency communal CHP Energy Centre to provide heat and hot water to 462 apartments spread between 12 new buildings. With a maximum heat energy output of 2,250kW the energy centre is accessed from the external ground floor façade of the new build Sketch Apartments on White Horse Lane in Stepney. Building such a compact energy centre provided issues with layout and installation. The energy centre is lower than the outside ground level which made it difficult to manoeuvre large plant items into it.

The heating base load for the development is provided by a 245kW_e CHP engine with extra capacity and back-up provided by nine high-efficiency 250kW_{th} modular gas boilers during periods of increased demand. One of the benefits of this design is that the boilers have a higher turn down ratio, allowing greater control. This reduces the number of on and off cycles when the boiler is at its least efficient and also reduces the need to purge the system with cold air, which expels the existing heat and flue gasses. Over the course of a project's life cycle this can produce significant financial and CO₂ savings.

We also installed a combined thermal storage capacity of 27,000 litres and 500 meters of pre-insulated district heating pipework reaching out across the development and rising in each of the 12 buildings to feed the HIUs within each flat. Each of the 462 apartments have been fitted with Vital Energi's market leading Vital Aqua Varm Hydraulic Interface Unit (HIU) which incorporates separate plate heat exchangers for the heat and hot water services in each apartment with thermostatically-sensitive regulating valves to ensure consistent water temperatures. The HIUs are connected to a heat meter which remotely records the energy consumed in each flat so that Vital Energi can produce quarterly energy bills on behalf of East Thames Housing. There is a fixed network metering system which provides daily readings of energy usage, resulting in accurate bills.

Instead of installing a dry air cooler located on the roof of an eight storey building, causing a potential maintenance and health and safety risk, return water is used to cool the intercooler. This solution reduced the cost of the project, removing the need for a dry air cooler and installation of pipework up 8 stories and resulted in a reduced working area on the roof.

THE CONCLUSION:

The £200 million investment has delivered better homes and new homes which have made a huge difference to the area. The Energy Centre, designed, built and installed by Vital Energi, will now power this development, providing more affordable, greener energy which can contribute to helping people out of fuel poverty.

HELPING
6,500
RESIDENTS OUT OF
FUEL POVERTY

The Ocean Estate project has been recognised in a number of ways, winning the British Homes Quality Awards and it also beat out 2,000 other national projects to be named the multi-storey development of the year by housing warranty provider Premier Guarantee.