New Earth is proposing the development of a low-carbon energy facility at the company’s Canford site in Poole. The waste derived fuel created at the composting site is currently transported off site for use elsewhere. The proposed development would not only reduce transport movements but contribute to local renewable energy generation.

New Earth is a waste treatment and renewable energy specialist, delivering robust technical and environmental solutions. The company provides sustainable waste treatment services to local authority and commercial customers across the UK, helping them enhance recycling and reduce impacts on the environment by diverting waste from landfill. New Earth is also at the forefront of developing local, low-carbon renewable energy recovery plants.
The proposed application site has undergone various guises, initially being shaped by gravel extraction and a subsequent period as a water storage lagoon used for fighting heath land fires. The lagoon later formed part of the surface water management system for Whites Pit landfill, acting as an attenuation and settlement pond, prior to discharge.

In 2008/09 the main part of the lagoon was drained to facilitate de-silting and allow stabilisation works to be completed. The timing of the de-silting works coincided with the closure of the landfill site. The approved landfill restoration scheme included a new ‘on-site’ surface water management system negating the need for the full extent of the lagoon. Planning permission was granted for the extension of the existing composting facility across the area of the former lagoon.

The Canford site is a considerable distance from local residents, sitting behind the events arena on the edge of Canford Heath.

The footprint of the proposed development shown outlined in orange
The Need for Low-carbon and Renewable Energy Generation

The scale of the challenge in Dorset
Dorset’s total energy demand is estimated to be 15,904GWh by 2020. For Dorset to generate 15% of this total energy demand from renewable sources will require an estimated 2,386GWh to be generated in the area from renewable electricity or heat installations by 2020.

Current generation in Dorset is estimated at 146GWh, or only 0.95% of total energy demand, a third of the UK national average of 3% in 2010. For the area to play its part in meeting national renewable energy targets, a significant step change is required, with generation needing to increase by over 16 times in just 8 years.

Installed renewable energy capacity across the south west
(Regen SW Renewable Energy Report - South West 2012 Annual Survey)

Renewable energy generation in Dorset has been, and is still, heavily based on landfill gas (100GWh), which is a declining resource and likely to have reduced significantly by 2020, increasing the challenge.

Renewable energy generation at Canford
In 2011 Regen South West determined that 87% of renewable energy generation in Dorset originated from Bournemouth Water’s AD plant and Canford’s landfill gas power plant.

What is Bournemouth, Dorset and Poole’s level of ambition?
Through Bournemouth, Dorset and Poole’s consultation process local people and organisations were asked how ambitious Dorset should be on renewable energy and in contributing to the national 15% target. Overall there was strong support (over 80%) for adopting an ambitious target for Dorset to generate 15% or more of its total energy needs from renewable sources by 2020. There was a clear preference for utilisation of local biomass resources to maximise the delivery of local, environmental, social and economic benefits from local, affordable and secure energy supplies.

Bournemouth, Dorset and Poole’s vision for renewable energy:
‘For the community of Dorset to play our part in mitigating climate change by using energy more efficiently and harnessing our viable renewable energy resources. We wish to maximise the local economic, environmental and community benefits that doing this can bring’.

Renewable energy generation in Dorset
The strategy sets a target of 7.5% of Dorset’s energy needs to be met from local renewable energy resources, equating to 1200GWh per year – enough to power about 250,000 homes.

The remaining 7.5% needed to meet the target will be fulfilled by national schemes such as offshore wind.
The Technology and Process

The proposed facility will utilise Advanced Thermal Conversion (ATC) technology to recover low-carbon renewable energy from waste-derived fuels.

ATC covers a multitude of technologies, including those employing pyrolysis and gasification processes. These processes are not new, with early examples including charcoal manufacture, but their application to waste is more recent.

Pyrolysis involves heating a feedstock material, in this instance a fuel derived from household waste that cannot be recycled, to a very high temperature in the absence of air. This causes the incoming feedstock to break down into a gas, known as pyrogas, and a solid carbon char. Gasification similarly involves heating a feedstock to a very high temperature, but with a limited supply of air. This causes the incoming feedstock to break down into gas, known as syngas, and solid ash.

Pyrogas and syngas can be used as a fuel to generate electricity and/or heat. Once cleaned, pyrogas lends itself to use in a combined heat and power gas engine. Syngas lends itself to use in a boiler based steam turbine system for electricity generation or straight combustion for heat generation.

New Earth has developed its own technology, known as NEAT. A 1MWe demonstration plant has been operating at Canford for more than 3000 hours. The proposed plant will operate 24 hours a day, seven days a week and be capable of generating 10MWe enough to meet the needs of nearly 23,000 homes and contribute to Dorset’s renewable energy generation.
What will the facility look like?

The proposed facility is illustrated below - with the exception of the two proposed exhaust stacks the structures will be no higher than the existing composting buildings. A proposed 5000sqm+ feedstock preparation building and buffer store will provide full enclosure of all waste processing and storage activities.
Technical Assessments

New Earth has appointed environmental consultancy RPS to undertake a number of technical assessments. The technical assessments will cover issues such as:

**Air quality**
The potential for dust during construction, as well as odours and bio-aerosol emissions during the operation of the proposed facility, will be considered. Dust is unlikely to be a significant factor owing to the fact that the development platform is already in place. All waste processing and storage will take place within a fully-enclosed building and sealed plant. The proposed building will have a dedicated air handling system, with air extracted from the headspace of the building being treated prior to release to atmosphere. As such the propensity for odours is limited. Gaseous emissions from the two proposed stacks will also be looked at. Air dispersion modelling will be undertaken to ascertain levels at nearby sensitive receptors, most notably the Canford Heath which is a habitat of international importance and bestowed European designation. It is important to stress that cumulative emissions will also be taken into account.

**Noise**
Noise emanating from the operation of mechanical and electrical plant will be considered and levels at sensitive receptors, which include nearby residential properties and business, considered.

**Ecology**
A Phase 1 extended habitats survey has been undertaken, which indicated that the application site is of low ecological interest. Consideration will therefore focus on potential indirect effects upon the nearby heath land habitat and the species therein, as well as a local site of nature conservation interest lying to the immediate south. It is important to highlight that the facility would help to reduce emissions of green house gasses and address climate change; climate change posing one of the biggest threats to ecology.

**Landscape and visual impact**
This will look at the effect of the proposed development within the wider landscape and also visual impact from key viewpoints, which may include residential properties and footpaths.

**Drainage and flood risk**
Whilst the site is at a low risk of flooding, the site size necessitates a flood risk assessment to demonstrate that surface water can be adequately managed and that the risk of flooding elsewhere is not exacerbated.

**Transportation**
Owing to the fact that the proposed facility will lead to a net decrease in HGV movements, when considered in combination with the adjacent fully enclosed composting facility, means traffic movements is unlikely to be a significant issue. A transportation statement will nonetheless be submitted alongside the planning application.

The planning application will be accompanied by an Environmental Statement and a non-technical summary that draws all of the technical assessments together. The findings of the technical assessments, together with the outcome of the community engagement will help to shape the final proposal.
The proposed Low-Carbon Energy Facility will utilise a feedstock derived from waste, that cannot readily be recovered for recycling or composted in the available time frame. New Earth currently treat waste arising from local households under contracts with Bournemouth Borough and Dorset County Council. The proposed facility will therefore complete the treatment loop enabling the sub-region to (i) become more self-sufficient, (ii) retain the value arising from energy generation in terms of job creation, investment, business rates and local economic resilience.

- The proposed technology will complement the established enclosed composting facility and the recycling activities undertaken there
- The modular nature of the proposed technology means that it can adapt to meet the future changes in waste arisings and waste composition

The proposed facility would reduce HGV movements in combination with the existing enclosed composting facility, saving over 9.94t of CO₂ per every 1,000t of feedstock processed

- The application site enjoys a high degree of enclosure, with the proposed facility being built on previously developed land which already benefits from planning permission for additional composting halls
- The proposed facility will generate up to 10MW of electricity for export to the local distribution grid, enough to power nearly 23,000 homes*
- At least 50% of the electricity will be classified as renewable, displacing over 32,000t of CO₂ per annum** and contributing towards local renewable energy targets
- Heat is also generated and recovered for re-use in the process
- The process can generate heat for re-use in the process, as well as offering potential for future heat supplies to suitable heat consumers
- The proposed facility will generate electricity and heat 24/7, complementing more intermittent forms of renewable energy such as wind and tidal

*based on average UK domestic electricity consumption of 3,300KWhrs per annum as advised by Ofgem in 2011
** Based upon 50% being ‘renewable’ energy and in comparison to CCGT power generation with a carbon equivalent emission of 0.43kg of CO₂ per kWhr

---

**Case Study - Avonmouth**

New Earth’s first commercial energy recovery facility is currently being installed (left) in Avonmouth, Bristol, and sits adjacent to the existing MBT facility (see right). Phase 1 is a steam system generating 6.4MW of electricity; the second wave of installation will mirror the first. Initial generation of electricity is scheduled for early 2013 with full completion later in the year.
Your chance to shape our proposals

The public exhibitions will introduce our proposals before the planning application is submitted and provide you with an opportunity to shape our proposals. Your views can influence the content and format of the application.

Members of the New Earth team will be on hand at two local exhibitions to answer your questions about the proposals. Exhibitions are being held in Canford Magna and Bearwood - please see details below.

Next Steps

You can make your comments to the Borough Council and ourselves by contacting:

**Borough of Poole**
Planning and Buildings
Civic Centre
Poole
BH15 2RU

**Brett Spiller**
Group Planning Manager
New Earth Solutions Group
Key House
35 Black Moor Road
Ebblake Industrial Estate
Verwood
Dorset
BH31 6AT

Or contact us by email: canford@newearthgroup.co.uk

You can also find out information about the proposals on the website dedicated to this project:

www.newearthsolutions.co.uk/canford

What happens next?
The next stage will be the formulation of a planning application, taking into account the findings of the technical studies and feedback from community engagement.

Once the application is submitted we can provide copies to interested parties for further comment and a link will be provided on our website.

The application will be submitted to the Borough of Poole at the end of October and a decision regarding determination of the application is expected in mid February 2013. Borough of Poole will hold a formal consultation at this time.

We thank you for attending this exhibition event. If you have any questions please do not hesitate to ask one of the New Earth team.