## Key Issues:

**Air quality** - Operational impacts of the scheme on air quality, odour and bioaerosol conditions for local receptors was a key issue. The scheme is located off Dunlop Way in the Castle Bromwich area of Birmingham and is heavily industrialised, with numerous point sources of emissions to air, as well as having a very busy and congested road network. Local monitoring showed roadside concentrations of nitrogen dioxide to be above the annual mean objective.

**Visual / design** – The proposals included replacement of the existing industrial buildings with a number of other, slightly larger industrial buildings, together with a 55m tall stack. Owing to results of the air quality assessment the stack height needed to increase from 45m to 55m to mitigate possible air quality issues. In addition, the stack had to move from its initial design location to the eastern side of the building to avoid any overhang issues with the adjacent railway.

**Technology** – Shortly after the grant of planning permission, the proposed technology providers went into administration. It was essential to investigate a range of Process Technology Companies to find a solution to incorporate an alternative plant solution into the building for which planning permission had been granted. The replacement process plant was a more efficient steam boiler than previous, which meant higher output capacity from 8.6MW to 12MW which is achieved with the same level of throughput of feedstock but requiring a modest increase in height to a small section of the roof area of the building.

## Purpose of the project:
The development was for a community sized Renewable Energy Plant to convert non-recyclable, non-hazardous waste into renewable energy, displacing landfill and fossil fuels.

Pegasus worked with clients Rolton Kilbride to prepare the planning application for the proposed Renewable Energy Centre (REC) to ensure successful determination of the project. Pegasus were also involved with master-planning; townscape and visual; socio economics; and environmental project management and co-ordination.

## Description of the project:

The REC employs an Advanced Conversion Technology (ACT) – a form of gasification process to generate power and heat from Refuse Derived Fuel (RDF) together with other non-recyclable wastes. RDF is a product derived from non-recyclable industrial and commercial waste and when heated to very high temperatures breaks down to create energy. It is a clean, modern and hi-tech approach to producing energy, with a proven track record.

The proposals include generation of up to 12 megawatts gross of electricity. The plant is capable of accepting 105,000 tonnes of waste per annum which would otherwise go to landfill. The main building is approximately 23 metres tall and will have a single, taller chimney stack. Demolition of existing buildings and new warehousing / offices will be rebuilt to the north of the site. Landscaping proposals will enhance the existing environment by planting additional shrubs and trees.
Lessons learnt:

Technology
Energy from waste plants are complex and exist in many different configurations. ACT is constantly evolving and can therefore bring about instability and unpredictability within the industry as discovered during the collapse of the original technology provider, this requires adaptability during the planning stage. Following the technology providers going into administration a meeting was held with Birmingham City Council to discuss the proposed changes as a result of the new process system and how the changes might affect the ES. Following the meeting BCC wrote to Pegasus to advise a material minor amendment application under Section 73 would be the most appropriate way of addressing the changes. The correspondence advised certain environmental information would require an update with reference specifically to Air Quality and Noise chapters which should be updated to reflect the change in technology of the plant. The Townscape and Visual chapter of the ES also needed to be updated.

Visual / design
Minimising the massing of the building and the height of the chimney stack was a challenge, it was therefore important to understand throughout the design and assessment stages that mitigation measures would be a fundamental part of the iterative design process. Measures such as minimising the height of the main building, and the use of variable coloured and shaded cladding to minimise the perceived massing of the buildings were incorporated into the design. The proposed stack was designed to be as narrow as possible, the height at 55m, is the minimum in order to meet the relevant emissions targets as set by the Environment Agency. The stack is lower than the nearby electricity pylons, and approximately 5m lower and less than half the diameter of the existing stack at the Rolls Royce peaking plant gas turbine power station.

Lessons learnt continued:

Air quality
The odour risk assessment and bioaerosol assessment demonstrated effects on all local receptors as negligible and insignificant. The assessment of emissions from the facility’s stack demonstrated an insignificant change in concentrations at all local sensitive receptor locations for all pollutants and all averaging periods, with the exception of annual mean nitrogen dioxide. Following Environment Agency guidance, the process contribution to annual mean nitrogen dioxide could be screened out as insignificant, but EPUK and IAQM guidance employs a stricter screening criterion. Following this stricter guidance, the development had a negligible impact on annual mean nitrogen dioxide concentrations at most local receptors, but had a slight adverse impact at 10 to 15 properties and a moderate adverse impact at 15 to 20 properties close to the A452. This is less than 1 % of the properties within Castle Vale. As a result of air quality being a key issue early consultation with the Council and a robust public consultation strategy was fundamental and an integral process of the application. A well thought out strategy to engage with local stakeholders was carefully delivered from the outset and comprised a press release; residents and press briefings; residents group meetings; a leaflet drop and invitation to a public exhibition. From experience at the earlier residents meetings it was established that at the public exhibition key members of the design team should be on hand to answer queries related to key topics fundamental to the EIA, this included the air quality and transport consultants to respond to any technical questions which required a lay persons response to.

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