



Tees Renewable Energy Plant

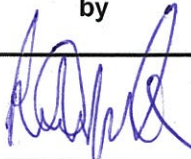
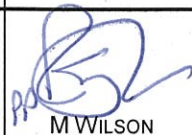
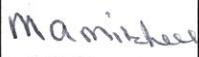
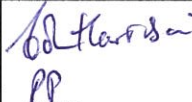
DESIGN ACCESS STATEMENT

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LIST OF ABBREVIATIONS

\$	US dollars
AOD	above ordnance datum
BERR	Department of Business, Enterprise and Regulatory Reform
CO ₂	carbon dioxide
DFO	distillate fuel oil
EIA	Environmental Impact Assessment
ES	Environmental Statement
ha	hectares
HGVs	Heavy Good Vehicle
kV	kilovolt
LDF	Local Development Framework
m	metre
MGT	MGT Teesside Limited
MW	megawatt
SCADA	supervisory control and data acquisition
Tees REP	Tees Renewable Energy Plant
UK	United Kingdom

1. DESIGN AND ACCESS STATEMENT

1.1 Introduction to the project

MGT Teesside Limited (MGT) proposes to construct and operate a new 300 MW biomass fired renewable energy power station on land adjacent to the Teesport site on the south bank of the River Tees in the Borough of Redcar and Cleveland.

The new plant will be constructed on a flat area of land on the south bank of the River Tees immediately adjacent to Teesport.

To ensure that the project has taken in to consideration the potential environmental and social issues associated with the development MGT commissioned PB Power to undertake an Environmental Impact Assessment (EIA) for the project, the findings of which have been summarized in an Environmental Statement (ES). The ES has been prepared to accompany an application to the Secretary of State at the Department of Business, Enterprise and Regulatory Reform (BERR) for consent to construct the plant under Section 36 of the Electricity Act 1989.

1.2 The reason for the design access report

This design access report has been prepared to accompany the Section 36 application for the proposed Tees Renewable Energy Plant (Tees REP) to demonstrate that the applicant has fully considered the design behind the planning application in accordance with the Government circular 'Guidance on changes to the development control system', which became effective as of 10th August 2006.

The government advises in the circular that if an applicant does not submit a design access statement then the planning application should not be registered by the competent authority and that the statement submitted should cover the following:

"The design element – which should show the process that has been gone through and explain the scheme in terms of its:

- *Amount - how much would be built on the site.*
- *Use - what buildings and spaces will be used for.*
- *Layout - how the buildings and public and private spaces will be arranged on the site and the relationship between them and the buildings and spaces around the site.*
- *Scale - how big the buildings and spaces would be (their height, width and length).*
- *Landscaping - how open spaces will be treated to enhance and protect the character of a place.*

- *Appearance - what the building and spaces will look like, for example, building materials and architectural details.*

The access element - which should include details of consultations.

- *Vehicular and transport links - why the access points and routes have been chosen, and how the site responds to road layout and public transport provision.*
- *Inclusive access - how everyone can get to and move through the place on equal terms regardless of age, disability, ethnicity or social grouping”.*

Much of the above is discussed in great detail in the ES that has been submitted to accompany the Section 36 application such as the project design and vehicular access, this document provides just the information identified as being required for the purposes of a Design Access Report (DAR).

2. THE PROJECT

The project will comprise a single circulating fluidised bed boiler that will burn wood chip to generate steam. The steam will be used to turn a steam turbine that will in turn rotate a generator to produce electricity.

The plant will be cooled using an air cooling process greatly reducing the need for water and minimising the amount of effluent emitted from the site.

Emissions to air will be released through a 95 m stack. Air emissions will be minimised through the use of state of the art emission reduction technologies including Selective Non catalytic Reduction to minimise emission of nitrogen dioxide and fabric filters to reduce emission of dust and sulphur dioxide.

If consented, the proposed plant could be operational by as early as summer 2012. The plant would have an operational lifetime of about 25 years and would directly employ some 150 members of staff throughout this period.

Full details of the project can be found in the project ES which accompanies the Section 36 application for the project.

2.1 Physical context

The proposed site is located on a 14 ha site adjacent to Teesport. The site is a flat area of land roughly rectangular in shape which is covered for the most part by hardstanding.

The terrain surrounding the site is typical of that found in surrounding area, being flat and of an elevation of the order of 5 m above ordnance datum (AOD). The area is dominated visually by the surrounding industry.

There are many advantages of the proposed site that make it an ideal location for power generation. These include amongst others:

- Its long distance from residential receptors;
- Proximity to deep water and available quay facilities for the planned reception of panamax vessels containing 40 000 tonnes of wood chip fuel;
- The close proximity of the high voltage National Grid transmission line which runs directly along the application site boundary;
- Transport infrastructure that will readily accommodate construction traffic including roads and rail;
- Availability of sufficient land in an area zoned for industrial use;
- Ship unloading and fuel transfer facilities;
- Reduced visual impact due to the industrial nature of the area; and
- Proximity of site to potential heat and power off-takers.

It is for the above reasons that the site is considered suitable for the intended use of power generation.

2.2 Social context

MGT has endeavoured to maintain an appropriate level of consultation with statutory and non statutory consultees through out the development process.

This was initially achieved through the preparation of a Scoping Study Report for the Environmental Impact Assessment of the project issued in April 2008. This document described the key environmental issues that initially would require detailed evaluation as part of this Environmental Impact Assessment process. The document was forwarded for information and comment to all parties deemed to have a relevant interest in the development, including statutory and non-statutory consultees and local organizations. This consultation with interested parties has continued throughout the EIA of the proposed project, through a series meetings and exchanges of correspondence.

As part of an on going public consultation programme MGT will, following the application for Consent for Section 36 consent to BERR, hold a number of public exhibitions where interested members of the local community can meet with members of the MGT team to discuss the application and the EIA undertaken for the project as well as the project more generally.

2.3 Economic context

2.3.1 Company information

The developer of the Tees REP is MGT Teesside Limited, a 100 per cent subsidiary of MGT Power Ltd. MGT Power is a renewable energy company comprised of industry experts backed by major UK fund management firms with power industry experience, between them managing investments of over \$6 billion.

MGT's management team also has extensive experience with biomass supply and logistics and power project development.

MGT believes sustainable forestry based biomass has the potential to make a significant contribution to the UK's CO₂ and renewable generation targets.

2.3.2 Project information

Construction of the new plant is expected to commence in 2009 and last for some 32 months. The construction workforce will peak at about 600 with at least 60 per cent of these expected to be from the surrounding area. The target date for full operation is summer 2012.

The plant would have an operational lifetime of about 25 years and would directly employ some 150 members of staff throughout this period.

2.4 Planning policy

The site is located within the administrative boundaries of the Borough of Redcar and Cleveland, a unitary authority in the North east of England.

The project is considered to be supported by the policies contained within the Redcar and Cleveland Local Plan and emerging Local Development Framework (LDF), Regional Policy Guidance for the North East (RPG-1); or Regional Spatial Strategy of the North East of England Regional Assembly.

Further discussion of planning policy relevant to the project can be found in Section 2 of the ES and also in the Planning Policy Discussion included in Appendix A of the same document.

2.5 Appropriateness of use

The application follows site selection and feasibility studies for the landholding which has established that the site would be potentially suitable to house a biomass power station (see Section 4 of the project ES).

In addition the EIA undertaken for the project has shown the project to be full consistent with all relevant planning policy whilst demonstrating that the project will not give rise to any significant environmental impacts.

3. DESIGN

This section details some of the process gone through to ensure that the design of the project has been planned in a rigorous and considered manner.

The Section 36 application prepared for the project has included the undertaking of a full EIA which has informed the design of the plant.

The EIA can be broken down in to three basic components:

1. Collection of baseline data against which the impact of the project should be considered.
2. Impact assessment of the project
3. Suggestion of necessary monitoring and mitigation measures to minimize any impact and ensure that the project is environmentally and socially acceptable.

These are discussed in detail in the ES which also includes discussion on how the EIA has shaped the design of the project.

The project layout and composition has been refined during the EIA process wherever possible incorporating the views of the statutory and non statutory consultees.

MGT has, throughout the development of the proposed plant, sought to minimize the impact of the project especially with regard to the impacts associated with noise and air and water quality which are typically the key impacts with regard to power plant design. This has been achieved through listening to the concerns of interested parties including all statutory and non-statutory consultees as well as members of the general public. Careful consideration has been given to all relevant planning policy in the refinement of the project design.

3.1 Amount of development

The plant will take up approximately 14 ha of land to the west of the Teesport site. The site can effectively be broken down in to 2 areas, those associated with the power station and those associated with the wood chip storage area. Both these areas take up of the order of 50 percent of the landholding as can be seen in Figure 4.4 of the project ES.

3.2 Layout

The proposed Tees REP layout has been designed taking the following factors into consideration:

- access to the river frontage
- avoidance as far as possible of impact on the River Tees
- road access;
- connection to transmission network;
- provisions to minimize noise and visual impact;
- compliance with regulatory requirements;
- plant and personnel safety, particularly with respect to neighbouring tanks and pipework; and
- technical requirements.

A possible layout of the plant is shown in Figure 4.3 of the Project ES. It is important to note that the layout will be subject to some changes as the detailed design process is completed.

The power station buildings including the buildings housing the boiler and steam turbine plant will be located on the western side of the site, with a north-south orientation. The stack will be 95 m high and located on the northern side of the plant facing the River Tees.

The ACC will be located close to the steam turbines on southern side of the new plant to allow for an appropriate air flow to the condenser intakes.

New on-site roads and paved areas will be provided as required. Access will be via the existing access road to the wider Teesport site.

Water and distillate fuel oil (DFO) storage tanks will be located in the north western area of the site with the DFO tanks contained within a concrete bund sized to capture at least 110 per cent of the tanks contents.

The export of electricity from the power station will be via a new dedicated 400 kV underground cable to the existing Lakenby substation approximately 4 km to the south or via a local substation connected to National Grid's 400 kV line running past the west side of the site.

An administration building will be the official reception point of the operational REP and is located to the south of the main power station buildings. Comprising of a three storey, pitched roof building, around 45 m by 12 m in plan and 12 m in height, it will house a control room and office accommodation as well as other auxiliary systems such as workshops and stores.

The control room will house the REP's supervisory control and data acquisition (SCADA) system and will control and monitor the operation of the REP. The office accommodation will include work stations and offices for operational staff, reception area, meeting rooms, canteen, rest rooms, shower rooms, lavatories and storage rooms, as would be expected in a conventional office building.

A steel palisade fence will be constructed around the site for security reasons and the site will be fitted with closed circuit television.

Additional car parking space for maintenance periods will be provided on the southern side of the plant on land adjacent to the administration building.

Full details of the project are included in Section 4 of the project ES including detailed discussion of the project layout and all on site processes.

3.3 Scale

The indicative dimensions of the main items of plant will be of the order of the following:-

**TABLE 3.1
PLANT DIMENSIONS
(m)**

Building or external plant item	Length	Width	Height
Turbine house	57	25	35
Electrical control room	25	15	21
CFB boiler house	45	45	55
Fabric filters	26	40	25
Air cooled condenser	75	65	40
Fin fan cooler	45	23	6
Substation	20	20	5
Demineralization water building	16	15	8
Air compressor building	8	15	5
Fire fighting pump building	14	8	5
Workshop and store building	40	20	12
Office administration building	7	23	5
Covered fuel store 1	284	65	20
Covered fuel stores 2 and 3	235	65	20

Building or external plant item	Height	Diameter
CFB exhaust stack	95	5.1
Fly ash silos	20	12
Bottom ash silos	20	18
Demineralized water storage tank	11	11
Fire fighting water storage tank	19	18
Low sulphur distillate fuel oil storage tanks	4	6

Again it should be noted that full details of the project are included in Section 4 of the project ES including detailed discussion of the project layout and all on site processes.

3.4 Landscaping

The land is brownfield with no ecologically sensitive areas or good quality agricultural land being located within the site. It is considered that locating the plant in an industrial area designated for industrial development respects the general aims of the local authority.

MGT will endeavour to incorporate some form of habitat creation to help encourage biodiversity in the vicinity of the site, where possible, the nature of which will be agreed with Redcar and Cleveland Council.

3.5 Appearance

The proposed development will be modern in appearance, with a clean outline and a simple bold structure with the architectural design of the plant will be sensitive to the suggestions of local planning officers.

The architectural design of the buildings will be carefully considered to provide a high standard of visual amenity, given practical and economic constraints.

The external structures of the buildings will be designed such that there will be no deterioration in the power station's appearance over the 25 years lifetime of the plant.

A limited combination of materials will be used in the construction of the external structures to give a cohesive appearance to the plant. Colour coated profiled aluminium sheeting will be used on upper levels and facing brickwork or dense concrete masonry will be used, where appropriate, at lower levels including low level buildings. A recessive colour scheme will be used in order to break up the impact of the built structures as shown on the photomontages. The final colour scheme will be agreed with Redcar and Cleveland Council.

The REP will include the following lighting systems: site lighting and emergency lighting, road lighting and area floodlighting. Lighting systems and design will be similar to those used on the various surrounding sites. Lighting systems will comply with current best practice and industry standards in order to minimize light spread and glare off site.

Ways of introducing planting, perhaps as part of an ecological mitigation scheme will be investigated and agreed with Redcar and Cleveland Council.

Further information on the appearance of the plant is also provided in Section 10 of the ES, 'Landscape and Visual Impact'.

3.6 Use

The proposed plant will generate electricity from clean wood chips delivered to site by road rail and sea. The plant will be designed to generate up to 300 MW of electricity.

4. ACCESS

The major road links in the area are the A66 that runs east/west approximately 2.5 km south of the site, east of Middlesbrough, and the A174 that runs west from around 5 km approximately south east of the site. The A66 is mainly a two- and three-lane dual carriageway that intersects with the A19 west of Middlesbrough and, beyond Darlington, becomes a motorway for around 3 km before joining

the A1 (M). The A174 is a dual carriageway that runs from Thornaby on Tees to Whitby. The road is of trunk road standard between the A19 and Greystones Roundabout.

Access to the site from the A66 is provided by the A1053 Tees Dock Road that connects to the end of the A66 north of Grangetown.

Access to the site via public transport is poor. Bus route 64, serving Middlesbrough and Redcar provides the best link to site of the current network however the nearest bus stop is approximately 3.5 km to the south, by road, on the eastern exit to the A1053/A1085 junction. South Bank railway station is on the Tees Valley railway line that runs between Saltburn and Bishop Auckland. The station, around 5.5 km south west of the site, is unmanned and trains only stop twice in the morning and twice in the early evening.

The site is served by a dedicated freight railway and includes a disused deep water quay.

The location of the proposed facility is remote in terms of neighbouring residential areas and, as such, there is limited scope for walking to work. Although cycling to work is limited for most residential areas there could still be an opportunity for residential areas in Greater Eston giving the proximity to the site.

4.1 Access during construction

At the height of the construction phase, the on-site workforce will be of the order of 600. Car sharing and the use of minibuses, by the construction contractors, will be encouraged. It is anticipated that there will be approximately 250 vehicles transporting staff to and from the site per day.

Construction work will only take place during daylight hours. Therefore, the bulk of the workforce traffic to and from the site will occur between the hours of 06:00 – 07:00 and 19:00 – 20:00 and outside of the peak hours for the local road network.

In addition, construction traffic consisting of commercial vehicles delivering civil and mechanical works machinery will travel to and from the site. Materials used during the civil works will include ready-mixed concrete and/or raw materials for the on-site manufacture of concrete, reinforcing bars, structural steelwork, cladding and road materials. The items of plant machinery will be delivered to the site for the mechanical works. On average, approximately 45 heavy commercial two way vehicle movements and 15 light commercial two way vehicle movements will be expected to visit the site each day. Deliveries will be spread throughout the day, at a maximum rate of around 5 per hour, a level that is considered to be insignificant.

The number of abnormal loads that would be required will be of the order of 5 over the 32 month construction period. The exact number will depend on the final configuration of the plant and will be defined upon completion of the tendering process.

Redcar and Cleveland Borough Council have published a freight transport map that outlines the preferred routes for such traffic and additional information regarding the transport of abnormal loads in the region. While it is anticipated that all movements will follow these guidelines, the routes and

timings of the transportation of abnormal loads will be discussed fully with the relevant authorities in order to minimize disruption.

Construction contractors will still be required to perform surveys to ensure that any abnormal load can be delivered to site with the least inconvenience to other road users and, if necessary, be responsible for the cost of any route strengthening requirements. The delivery of the abnormal loads to site will be coordinated with guidance from Redcar and Cleveland Borough Council. A police escort may also be used if deemed necessary.

A Traffic Management Plan will be developed, prior to construction, however it is anticipated that all deliveries will be brought to site via the A174, being the preferred strategic route cited by Redcar and Cleveland Borough Council, and Tees Dock Road. Materials will be delivered to site at off peak hours.

Staff traffic will have no prescribed route, and so, will be dispersed over the entire local road network. All vehicle movements will be actively managed, in full consultation with Redcar and Cleveland Borough Council to ensure that any possible inconvenience to other traffic is minimized or eliminated.

To minimise any possible cumulative impact, travel to work options will be actively promoted to the contractors workforce to reduce any conflicts with the other developments in the area that may be proceeding in the same timescale. In addition, MGT will look to integrate the Tees REP and Northern Gateway Transport Management Plans. During the preparation of the Tees REP Transport Management Plan MGT will look to hold discussions with Redcar and Cleveland Borough Council, the Highways Agency, and Northern Gateway representatives to discuss this possibility. One such mitigation measure that MGT would like to introduce in a joint Transport Management Plan is the employment of shuttle buses to service both sites during their construction

4.2 Access during operation

Operation of the proposed plant will naturally result in much fewer traffic movements than those associated with construction, of the order of 150 two way vehicle movements per day. A large proportion of these vehicle movements (approximately 120 vehicles) will be due to the 150 staff operating the plant and the majority of the journeys will therefore be local.

The plant is expected to run under a five shift system (see further discussion in the Project ES Section 11) therefore the number of staff on-site at any one time will be around 30. It is expected that a maximum of around 24 to 30 vehicles would arrive or depart the site at any one time.

The delivery of the biomass fuel to site will be almost entirely by sea to the deep water quay that serves the site and will have no effect on the local infrastructure. The fuel will be offloaded directly at the quayside and transferred to the fuel storage and preparation areas. Ash produced by the process will be removed from site by approximately one covered truck per hour. This equates to 9 two way vehicle movements per day.

MGT hopes that a market will emerge for locally farmed energy crop biomass as a result of the construction of the plant. It is anticipated that locally farmed energy crop biomass may be brought to

site by road. This would be delivered in 30 tonne HGVs, which would result in up to 18 two way vehicle movements per day. It is thought the HGV trucks used to deliver the biomass could also be used to transport the ash produced by the plant, thereby reducing incremental traffic impact by up to 33 per cent. These vehicle movements would be strictly kept to off peak hours and in any case will not exceed a level deemed acceptable for the local traffic infrastructure.

All vehicle movements relating to the proposed development will be required to travel along the A1053 Tees Dock Road. The plant is anticipated to generate a maximum of 150 additional two way vehicle movements per day which represents an increase of around 3 per cent of the current average daily levels for the road. On the wider major road network the figure is lower, at a maximum of 2.1 per cent at all points along routes defining the study area.

It may be the case that biomass material is also brought to site via the railway that links the Teesport site to the wider national rail network. In this instance biomass would be delivered infrequently, perhaps on a daily or weekly basis and would have little to no impact on the wider rail network. The use of trains for such duties will be encouraged wherever possible to minimize the impact to the local road network.

No perceivable impact is expected during the operation of the proposed plant however a travel plan regarding mode share forecasts and targets will be submitted to Redcar and Cleveland Borough Council for formal acceptance.

Measures will be introduced to encourage the use of public transport wherever possible including shuttle buses operating along Tees Dock Road and around the Teesport estate. Cycling to work will also be promoted wherever possible.

Detailed survey work will be undertaken on an annual basis to monitor the effectiveness of the travel plan. The results and details of proposed corrective actions, where necessary, will be made available to the planning authority.

The ash produced from the process will be removed from site during off peak hours to minimize any impact on the local network. If a local supply of biomass becomes available it is thought that the HGV trucks used to deliver the biomass could also be used to transport the ash produced by the plant, thereby reducing incremental traffic impact by up to 33 per cent.

Vehicle movements involving the supply of biomass would be strictly kept to off peak hours and agreed with Redcar and Cleveland Borough Council. Night time deliveries will also be considered if thought to be beneficial by the local authority.

4.3 Inclusive access

The development will not be open to the general public and will be maintained by a team of dedicated engineers. For this reason it is not considered that the requirements of inclusive access for the public are especially relevant to the project, other than the provisions for disabled access for any disabled workers that will be accommodated in the plant design. Given the detailed design of the plant cannot

be identified a contractor is appointed the design specifics of the plant in this regard will be discussed with the Council at a later date.