

DUNDEE RENEWABLE ENERGY PLANT

What does this mean for Dundee?

Forth Energy proposes to develop a Renewable Energy Plant fuelled by biomass at the Port of Dundee. This will generate 100MW of electricity and heat, using a sustainable fuel. The renewable electricity and heat will benefit Dundee and the wider area.

- Dundee has the potential to become a **centre for the renewable energy industry**;
- The **port** has been identified by Scottish Enterprise as a **suitable location** to support the expanding off-shore power generation sector;
- The plant can contribute to meeting **Scottish Government targets** to provide **50% of Scotland's electricity and 11% of Scotland's heat from renewable sources by 2020**;
- The port is a suitable location for biomass power generation which will **save 89% of the carbon emitted from the current generation of grid electricity**;
- Dundee will have a greatly **reduced carbon footprint** and be powered by renewable energy;
- The plant will provide **300 construction jobs and 40 permanent operational jobs**;
- There is potential for **education and training opportunities**;
- There will be **contracting opportunities** for local suppliers;
- There is an opportunity to supply **renewable electricity and heat to existing and potential future customers** such as at the proposed new developments at **Dundee Waterfront** including the Victoria and Albert Museum; and
- The plant is amongst the **largest infrastructure developments planned in Scotland** in the next ten years.



What is this exhibition about?

Many people will have seen our introduction to this project at the previous exhibition held in January. This exhibition is the second in a series of three public events being held to engage with the public on the proposals. The purpose of this exhibition is to:

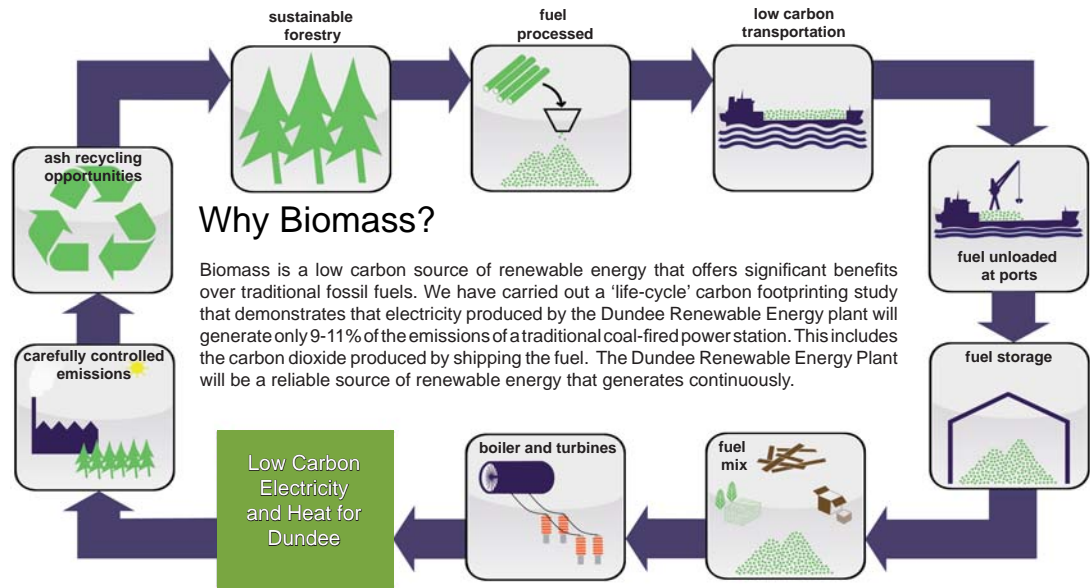
- Answer the questions asked when we introduced the proposals;
- Provide further information as we assess the project in more detail;
- Listen to your ideas and record and review feedback; and
- Clarify the application process and advise how you can comment on the project as it goes forward.

What is Biomass?

Sustainably sourced biomass is a recognised source of renewable energy. Fuel stock for Dundee Renewable Energy Plant will include a mix of virgin wood chips or pellets supplemented by energy crops, residues from agriculture and recovered biomass material, such as paper and cardboard.

Where will we get the fuel from?

The majority of the fuel will be imported from sustainable sources overseas including Scandinavia and North America. There is not enough fuel available in the UK market to service the plant. Over time there may be more opportunities to use UK sourced fuel in the future, if energy crops are planted and managed.



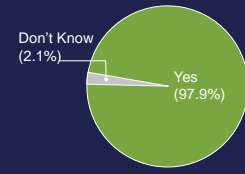
Forth Energy is a joint venture between Forth Ports and Scottish and Southern Energy



WHAT YOU ASKED US IN JANUARY

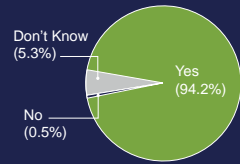
At the public exhibition held in January, 191 people completed questionnaires providing feedback on their views. Visitors to the exhibition were substantially in favour of renewable energy generation, in favour of biomass as a source of renewable energy and supportive of the positive benefits that such a development will bring to Dundee.

Do you support the principle of renewable energy generation?



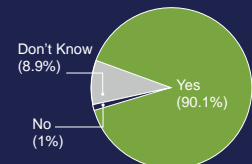
Total: 191 Questionnaires

Do you support the use of Biomass as a source of renewable energy?



Total: 191 Questionnaires

Do you believe this proposed renewable energy plant will bring positive benefits to Dundee?



Total: 191 Questionnaires

In addition to the support provided for the proposal, you also raised a number of key issues that you felt were important to the development of the proposed Dundee Renewable Energy Plant. A summary of the main comments raised at the previous exhibition, including environmental, transport and design issues, and the relevant responses to these issues are set out in this exhibition.

We have been undertaking a full Environmental Impact Assessment (EIA) of the proposal. The purpose of the EIA process is to identify any significant impacts which the development could have on the environment and propose mitigation measures. This process has allowed us to carry out a detailed assessment of the issues raised during the first stage of engagement earlier this year.

ENVIRONMENT

Key Comments

Will the plant affect air quality?

Response

The proposed Dundee Renewable Energy Plant must demonstrate that it will comply with strict air quality guidelines in order for the Scottish Government to grant consent for the project. Forth Energy can confirm that the proposed plant will have no significant effects on local air quality in Dundee. The scale and height of the plant and flue have been designed to ensure that strict European and Scottish standards are met and that emissions from the plant will have no negative impacts on the local area. The plant will be regulated in operation by the Scottish Environment Protection Agency (SEPA).

Will the operation of the plant affect nearby homes?

The Environmental Impact Assessment we have undertaken gives careful consideration to issues of noise, dust and vibration. The plant will be designed to ensure that residents are not disadvantaged by the proposed development. Fuel will be stored undercover.

Will the plant have an impact on pollution in the Firth of Tay?

Measures will be put in place to prevent pollution during construction, operation and decommissioning of the plant. These will include procedures for the safe storage, handling and use of potentially polluting materials, such as oils and chemicals, based on guidelines produced by the Scottish Environment Protection Agency to prevent the release of pollutants into the water environment.

To maximise the thermal efficiency of the plant, water used to cool the plant will be abstracted from and returned to the Firth of Tay. The heat contained in the discharged water will be rapidly mixed with the large flows of water in the Tay, resulting in no significant impact on aquatic ecology.

Will the plant generate any noise and could this affect nearby residents?

Existing noise levels have been monitored and modelling has been undertaken for the plant. The results show that there will not be a significant effect from operational noise in the surrounding area. This is achieved through early consideration of outline noise mitigation measures tailored to the development site and will be detailed, along with full data on the noise model, within the Environmental Statement that will be submitted with the application.



WHAT YOU ASKED US IN JANUARY

LOCAL BENEFITS

Key Comments

Will the plant create job opportunities for local people?

Response

Yes. The plant will create around 300 jobs during the construction period and 40 full time operational jobs. The Dundee area has a large labour pool, and it is likely that many of the staff for these new jobs will be local. Forth Energy will work in partnership with Dundee City Council to encourage local employment opportunities. There will also be ongoing contracting opportunities to supply the plant in the future.

Is there an opportunity to engage with local schools and universities to provide training opportunities?

Yes. Discussions are underway with further education providers including the University of Dundee, to promote opportunities that may arise from working together. There will be training opportunities associated with the plant.

How is electricity generated and is there an opportunity to provide renewable heat in the local area?

The heat from the combustion of the biomass produces steam to drive a steam turbine which in turn generates electrical energy for supplying into the National Grid. There is potential for combined heat and power to be used across the Dundee Waterfront and in new developments in the wider Dundee city area. A heat plan will take account of the requirements of identified renewable heat users.



Initially Identified Locations of Potential Heat Customers in Dundee

There is an opportunity to provide renewable heat from the Dundee Renewable Energy Plant to serve the local area. We have undertaken heat mapping, and are looking at the dynamics of heat use and the benefits that this may bring, including the economic benefits for new businesses locating in the area.

Forth Energy is currently contacting potential customers to raise awareness of the opportunity that the Dundee Renewable Energy Plant could provide locally. Potential customers identified initially include local authority users, education providers, and commercial and industrial organisations.

TRANSPORT



Key Comments

Will the plant affect the local road network?

Response

The proposed plant will result in a small impact on the local road network. During operation, it is estimated that there will be a total of 25 HGVs visiting the plant on a daily basis, with a further 23 cars required for staff transport. These traffic volumes are considered to be very low and unlikely to be detectable within the day to day variation in traffic flow on the local road network.

Is there an opportunity for the existing rail network to transport fuel to the plant?

The majority of the fuel will be transported to the plant by ship and there are no plans to use rail. There is currently no link from the main line into the Port.

WHAT YOU ASKED US IN JANUARY

FUEL SUPPLY



Typical fuel stocks

Key Comments

Will Forth Energy investigate the potential to burn Dundee's waste as fuel for the plant?

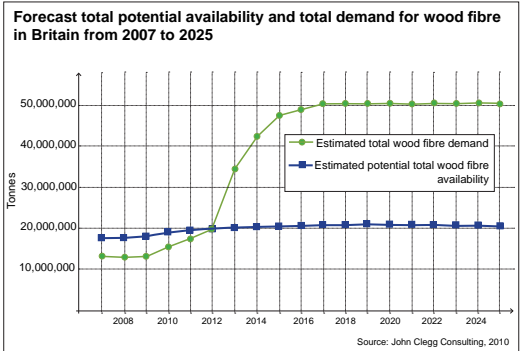
Response

No. The Dundee Renewable Energy plant has been designed to generate energy by burning wood based biomass fuel only.

The fuel type forms part of the operating licence granted by the Scottish Environment Protection Agency. The plant will be designed to burn a specific range of biomass types – wood chips or pellets and recovered biomass materials like used wood, paper and cardboard. Dundee's waste streams are already processed at an energy from waste scheme at Baldovie.

Will UK sourced biomass fuel be used in the plant?

A recent report suggests that the volume of biomass available in the UK is not sufficient to supply the fuel requirements of our plants.

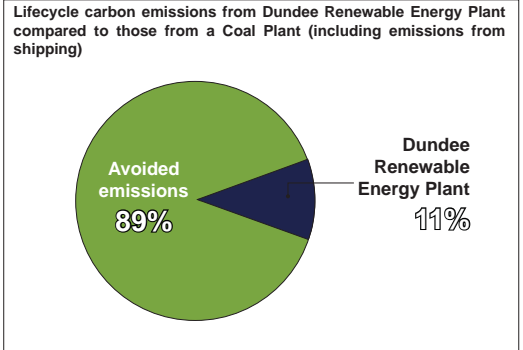


Due to the limited availability of biomass fuel in Scotland and the UK on the scale required for the plants, we expect to use predominantly imported, sustainably harvested wood. A small proportion may consist of recovered timber construction waste, paper and cardboard. As the majority of wood will be imported from abroad, there will be limited effects on the Scottish timber market.

Forth Energy will however seek to develop local supply chains, and work with the Scottish Government and Forestry Commission to promote an increased proportion of material sourced from Scotland and the UK during the lifetime of the plant.

How sustainable is it to import fuel from overseas?

Sustainable biomass generation offers an opportunity to move away from electricity and heat generated from fossil fuels to a lower carbon source.



Forth Energy proposes to use only sustainably sourced forestry. All fuel will be sourced from forestry activities which have been certified as sustainable by an internationally recognised third party such as the Forest Stewardship Council (FSC). This means that as a minimum, any trees harvested will be replaced. In so doing, Forth Energy shall ensure that the fuel procurement process maintains high standards on environmental, social and economic grounds.

We have carried out a 'life-cycle' carbon footprinting study of the proposed plant, taking into account the production and processing of the fuels, and transport of the fuels from Europe and North America to the port location. The study demonstrates that the electricity produced at the plants will generate only 9-11% of the emissions associated with a traditional base-load coal-fired power station.



WHAT YOU ASKED US IN JANUARY

VISUAL IMPACT

Key Comments

Will the plant affect views in the local and wider area?



View of the outline shape of the plant from Dundee Law



View of the outline shape of the plant from Kenilworth Avenue



View of the outline shape of the plant from the Apex Hotel



View of the outline shape of the plant from the Tay Road Bridge Roundabout picnic area



View of the outline shape of the plant from Graham Place

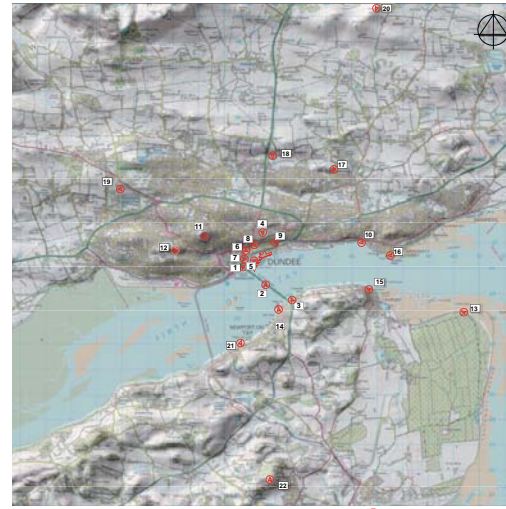
Response

The plant will include large buildings which will be visible from a range of locations. Forth Energy has modelled the visual impact of the key components of the plant using a technique called Landscape and Visual Impact Assessment (LVIA). This considers the visual impact of the proposed plant from a range of viewpoints identified on the plan below.

It is very important to note that these views just show the untreated outline of the proposed plant. Architects will be appointed to design the appearance of the plant, and to consider appropriate materials for its construction.

The impacts on five of these viewpoints have been assessed as significant and architectural measures are proposed to lessen or change the nature of these impacts.

Viewpoint locations included in the LVIA



Viewpoint locations

Viewpoints

- | | |
|---------------------------------|--|
| 1. Tay Road Bridge, Dundee | 12. Balgay Park |
| 2. Tay Road Bridge, Central | 13. Tentsmuir Sands |
| 3. Tay Road Bridge, Picnic Area | 14. Newport on Tay |
| 4. Baxter Park | 15. West Shore, Tayport |
| 5. Marine Parade, City Quay | 16. Broughty Castle, Broughty Ferry |
| 6. Gallagher Retail Park | 17. Ballumbie View |
| 7. Apex Hotel, City Quay | 18. Black Watch Memorial, Fintry |
| 8. Graham Place, Dundee | 19. Camperdown Country Park |
| 9. Kenilworth Road, Dundee | 20. Carrot Hill |
| 10. Grassy Beach | 21. Wormit Boating Club/ Whithorn Pier |
| 11. Dundee Law | 22. Lucklaw Hill |

The architecture of the plant should be carefully considered

Forth Energy recognises that the design of the renewable energy plant is very important to local people and have entered into a dialogue with Dundee City Council to develop ideas about how the plant may look. Once Forth Energy has consent for the principle of the plant from Scottish Ministers, the detailed design will require to be agreed with Dundee City Council before development can commence.



WHAT MIGHT DUNDEE RENEWABLE ENERGY PLANT LOOK LIKE?

Gordon Murray Architects

Forth Energy is working with **gordon murray architects** to ensure that design is at the forefront of their proposals for Dundee Renewable Energy Plant. Forth Energy is carrying out initial design investigations into the form and appearance of the proposed plant.

gordon murray architects are experienced in the design of renewable energy plants and other industrial buildings. They supported Scottish Power in securing planning consent for the biomass plant at Longannet, designed and constructed the Caledonian Paper Mills in Irvine and the award winning John Knox St workshops in Clydebank.

Design Concept

Dundee Renewable Energy Plant could create a new landmark on the Dundee skyline and within the Tay estuary that could be symbolic of a sustainable future for the city. The images below give an indication of how the proposed Dundee Renewable Energy Plant could look.

The indicative design concept for the plant draws upon the waterside location of the site. It uses the form of a long ship to house the main elements of the plant, including the boiler house and other operational aspects. An A-frame storage area continues the linear form of the structure and provides covered storage for fuel.



Artist Impression: View from Kenilworth Avenue

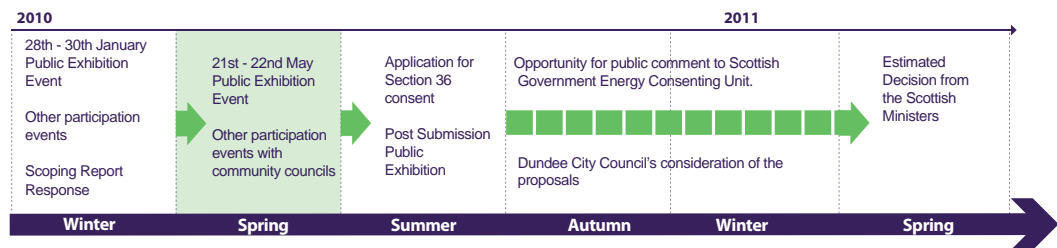


Artist Impression: View from Marine Parade



Artist Impression: View from Tay Road Bridge

Next Steps



Forth Energy will submit an application for consent to Scottish Government in summer 2010. At this stage there will be an opportunity for you to submit your comments on the proposals to Scottish Government directly. There will be another public exhibition that summarises the application and provides information on how to make your comments.

In the meantime, please give us your thoughts and let us know if you want to find out more. If you would like further information please leave contact details with a member of our team. Alternatively feel free to contact us.

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