

BEATRICE WIND FARM DEMONSTRATOR PROJECT

FREQUENTLY ASKED QUESTIONS

Socio economic

Q1. How many people will be involved?

A1. An independent study commissioned by Highlands and Islands Enterprise concluded that a 24 month project would provide employment for 100 people in the UK. In addition the project would also support 130 indirect jobs. The majority of employment for the project would be involved in the design, development and construction phase.

Q2. As the studies of DOWNViND progress, how will the information be disseminated?

A2. Under the terms of the EU development programme we are required to disseminate study findings to all interested parties. During the early stages of the project this information will be posted on the dedicated website, www.beatricewind.co.uk. In addition, we are currently drawing up a list of major international conferences at which regular update presentations will be made.

Q3. What benefit will there be to Highland jobs?

A3. Talisman Energy and Scottish and Southern Energy are committed to using Highland resources whenever possible and practical.

Q4. What benefit will there be to the Scottish supply chain?

A4. The Demonstrator Project will be at the cutting edge of wind farm development. The involvement of Scottish companies at this early stage should position them to take advantage of the growing recognition, both nationally and internationally, of the importance of renewables and the opportunities that presents.

Q5. How will additional studies that are identified be funded and completed before December 2005?

A5. The project team is continuing to work with Europe and the UK to ensure that learnings are maximised, and with stakeholders to identify any further research needs. The scoping report has been published and has identified the studies currently underway. If additional work is required we are committed to look for further funding sought jointly from our current sponsors, the public sector and others within the existing European guidelines.

Q6. Will any jobs be created/lost as a result of the Demonstrator?

A6. The Demonstrator will create a number of jobs in Scotland and the UK. These will mainly be in the areas of engineering design, fabrication and support to operations. The oil and gas industry is without question the most appropriate area from which to source such skilled professionals. We hope that this project will demonstrate to the oil and gas industry that our existing skills are readily transferable. Such a transfer of skills would have a positive impact on employment.

Q7. What activities have been undertaken to date? What progress has already been achieved?

A7. To date, Talisman and Scottish and Southern Energy have expended more than £2 million in pursuit of the project. Four feasibility studies have been completed and funding for the Demonstrator has been secured. The results of the initial studies have been submitted to the DTI and the Scottish Executive. A summary of the results is in the public domain.

Q8. How long is the trial Demonstrator period?

A8. The Demonstrator is part of the EU-sponsored DOWNViND project and will last for around five years. However, the Demonstrator's prototype turbines could remain operational after the end of the project, even up to final decommissioning of the offshore platforms. This will provide further data, experience and opportunity for the UK to learn about the operations of remote deepwater offshore wind farms.

Q9. Who are Talisman's partners in this project?

A9. Talisman's principal partner in the Demonstrator Project is Scottish and Southern Energy (SSE). However, the Demonstrator is incorporated in the larger DOWNViND Project, which currently involves 15 different participants from six countries selected to combine disparate and leading expertise across Europe.

Q10. What exactly is "DOWNViND"?

A10. Distant Offshore Windfarms with No Visual Impact in Deepwater. DOWNViND is Europe's largest renewable energy research and technology development programme.

Q11. Will the Demonstrator require outside contractors?

A11. Yes.

Q12. Will the results (costs, operating data, etc.) from the Demonstrator be available to other interested parties?

A12. The ongoing results will be available to all participants in the DOWNViND programme. Talisman and SSE have committed to the European Commission to disseminate widely the summarised results of the project once completed.

Environment

Q13. How do you define 'off-shore' in the context of a deepwater wind farm?

A13. Offshore is taken to assume beyond the 12 mile (25km) territorial limit on the UK continental shelf in water depths of approx 50 metres.

Q14. Where exactly will the turbines be?

A14. Approximately 1.6km and 2.3km SSE of the Beatrice Alpha platform.

Q15. Could one of the two turbines have anti-fouling on it and the other not – to see the difference?

A15. We do not use any active anti-fouling on our oil platforms and do not intend to use anti-fouling on the wind turbine generating (WTG) units. All steel surfaces will be protected from corrosion by a glass flake-epoxy based coating with zero added biocide activity.

Q16. Is it true to say that wind farms do not save on carbon dioxide emissions, because other power stations are always on stand-by, and therefore provide very little net environmental benefit?

A16. It is important to adopt a long term view when considering this implication. Within the electricity sector there has always been a requirement for back up generation - 'spinning reserve' - to be available in the event of a failure of a major generating unit or because of a surge in customer demand. Generally speaking power stations can vary output in response to changes in demand, and wind turbines are now designed to be able to assist in coping with system fluctuations. The national grid balances supply and demand and if an increasing proportion of demand is met from renewables, power stations will ultimately reduce their output and as a result require less carbon fuel. This in turn will lead to reduced emissions.

Q17. What impact will the two turbines have on bird migration?

A17. We do not know at this stage. Our environmental study programme will address this and includes evaluation studies run from the Beatrice platform. These results, together with complementary research being carried out by the Swedish participants in DOWNViND, will be publicly available.

Q18. What are the environmental implications?

A18. The Demonstrator Project will have minimal impact on the environment, although it will undergo a detailed Environmental Impact Assessment (EIA). The full project would also be subject to a dedicated EIA.

Q19. Will there be any risk to dolphins, birds, fish?

A19. The DOWNViND Project will undertake comprehensive studies of the effect of offshore wind farms in the Moray Firth on birds, fish and cetaceans. The impact on these and their environment will be fully addressed in the environmental impact statement. The DTI and its statutory consultees and others will provide expert advice during the environmental impact assessment process. Talisman will work with these organisations to ensure that only techniques which pose no threat to wildlife are used or effective management and mitigation measures are developed.

Q20. What about noise pollution during construction/operation phases?

A20. The noise generated during construction will be fully described in the environmental impact statement. Talisman will minimise the noise generated from the project and mitigate the impact on the environment by adhering at all times to the procedures agreed with the UK Regulatory Authorities. Given the distance of the Demonstrator from the shore, about 25km, there will be no impact on the local population.

During operation of the turbines, the noise generated will not be significant and given the distance from shore will have no impact on the local population. The design of the structures will minimise any transfer of noise to the marine environment.

Q21. Do you see wind power as a viable alternative to oil?

A21 It depends on where and when. The era of \$20/barrel oil may be coming to an end. Therefore at some point in time, electricity generated from the wind may make more economical sense than burning oil.

Q22. How visible from the shore both at night (lights) and during daytime will the Demonstrator be?

A22. The distance from shore, about 25km, will minimise the visual impact of the Demonstrator. The Government consultation "Future Offshore" stated that developments located more than 15km from shore would have negligible visual impact. There will be statutory navigational lights on the turbines, however, given the current lighting in the Beatrice field there will be minimal incremental effect.

Fishing/Navigation

Q23. Will there be an Exclusion Zone around the turbines?

A23. It is assumed that there will be a requirement for a safety zone around the structures. How extensive this will need to be will be part of the consultation process with regulatory authorities and fishing organisations.

Q24. Will the turbines be lit?

A24. The level of lighting will be determined by a standard being developed to ensure marine and aviation safety whilst selecting appropriate lights to mitigate visual impacts onshore.

Q25. What is the height of the turbines? Will that impact on the interests of the MOD?

A25. The hub of the turbine will be 88m above sea-level. The blades are 63m long. The MOD is aware of the project and has acknowledged that it has no concerns with the proposal.

Q26. Has there been any consultation with fisheries bodies with regard to this project? Is there any danger to fishermen fishing near the Demonstrator?

A26. Full consultation will continue with statutory consultees and all other interested parties including fisheries bodies.

Technical

Q27. Why are the turbines not in the area of the existing development (Beatrice)?

A27. The proposed location for the Demonstrator turbines is within the existing oilfield development and would form an intrinsic part of the Beatrice oil production operations ensuring sustained production from the field.

Q28. What exactly is the Demonstrator Project?

A28. The Demonstrator Project consists of two turbines located on the UK continental shelf approximately 1.6km and 2.3km SSE of Beatrice Alpha. Each turbine will have a capacity of five megawatts and will be located in water depths of approximately 50m about 25km from shore. The two structures will be approximately 500m apart and will be tied back by a subsea cable to Beatrice ALPHA.

The turbines will be maintained and operated from Beatrice Alpha. They will be connected to the platform power systems and initially the output from the turbines will displace power already used in the Beatrice field.

Q29. When is the Demonstrator likely to commence?

A29. Assuming successful design and approval, installation will take place during summer 2006. First generation of electricity should occur by the end of the third quarter of 2006.

Q30. Can the Beatrice facilities operate the Demonstrator and the oil field simultaneously?

A30. Yes.

Q31. What proportion of Beatrice's electricity needs will the Demonstrator provide?

A31. The prototype turbines have a nominal output of around 10MW and this capacity could displace up to 70% of Beatrice's current needs.

Q32. Does the technology exist to do what you are proposing?

A32. Yes. We have conducted several feasibility studies. These have shown that the technologies needed for a successful Demonstrator do exist although they remain unproven at the proposed water depths.

Q33. How similar in design will the Demonstrator be to onshore wind farms?

A33. Although the concept is very similar, the turbines and the structures will be specifically designed for the offshore environment. The installation and operating methodologies will also be specific to the offshore environment. The Demonstrator will incorporate lessons learned from both onshore wind farms and offshore oil and gas developments and will address demanding technological challenges.

Q34. Why has Beatrice been chosen as an appropriate location for the Demonstrator?

A34. The Beatrice oilfield is approaching the end of its lifespan. The Demonstrator Project has the potential to test technology, utilise the power generated to run the Beatrice platforms while at the same time displacing the power supplied by the national grid. It could ultimately lead to a reuse opportunity for the Beatrice infrastructure. The Moray Firth offers weather conditions that are close to ideal for an offshore wind farm.

Commerciality

Q35. What are the long term plans after five years?

A35. The two Demonstrator turbines will displace power supplied to the Beatrice platform from the national grid for the duration of the Demonstrator Project or the commercial life of Beatrice, whichever is the longer. After this time the turbines would either be decommissioned with the Beatrice platform or incorporated into a commercial development as described below.

Q36. How many units make up a commercial deepwater wind farm? What area would this cover and what would be the size of the machines?

A36. The simple fact is we don't know at this stage and that this is the very essence of the Demonstrator learning process. A two turbine Demonstrator Project is clearly not a commercial wind farm but will help us determine what one might constitute.

The commerciality of a larger wind farm will be determined by many factors such as turbine size and fabrication and tie-in costs. Depending on what we learn from operating the Demonstrator, we may be able to define what will constitute a commercial wind farm.

Q37. Will the turbines be removed at the end of five years?

A37. While the turbines are prototype machines, assuming they are still operational at the end of the Demonstrator Project they will form part of the oilfield infrastructure and remain there until the field is decommissioned. If the Demonstrator proves successful the turbines could remain in situ and form part of a commercial wind farm development.

Q38. How much public sector funding has been awarded?

A38. €6 million has been secured from the European Commission, £3 million from the Department of Trade and Industry (DTI) and £3 million from the Scottish Executive.

Q39. What investment is Talisman and SSE making?

A39. Talisman and its partner, Scottish and Southern Energy, (SSE) will contribute more than £7million each to the Demonstrator element of the DOWNVIND project. DOWNVIND is Europe's largest renewable energy research and technology development project and involves 15 companies from six countries in Europe, many of whom will contribute to the funding of their activities by provision of resources and equipment.

Q40. How confident is Talisman that the Demonstrator will result in a full-scale development?

A40. The Demonstrator is an essential pre-cursor to a commercial development of a full-scale wind farm. At this time it is not clear that such a development would be viable. The purpose of the Demonstrator is to test the technologies and to develop solutions that will make a full-scale development economically viable in deeper water distant from shore and minimise the visual impact of wind power generation.

Q41. If the Demonstrator is unsuccessful, what then?

A41. Talisman would follow its decommissioning programme for Beatrice, approved by the DTI, unless other reuse options are implemented.

Q42. What electricity price does it need to be economic?

A42. Current forecasts for electricity prices will never render the Demonstrator Project economic. It is an R&D project, not a commercial one, and as such requires public sector funding in order to proceed.

Q43. How much do you anticipate it will cost to develop a fully operational offshore wind farm?

A43. The full development would cost in the region of £1 billion.

Q44. How confident are you that the commercial project will go ahead?

A44. The commercial project depends on many things including the future price of electricity and the performance and learning associated with the Demonstrator Project. It is impossible at this stage to give any definitive answer, but it certainly should not be regarded as an inevitability.

Q45. How important were the external sources of funding in going ahead with the project?

A45. Absolutely essential. This is not a commercial project and would not be going ahead without the support we have had from the European Commission, Scottish Executive and DTI.

Consenting process

Q46. How committed is Talisman to the development of renewable energy?

A46. Talisman is one of the largest operators on the UK Continental Shelf and first became interested in offshore wind in 2001 following a review of the £45 million Beatrice redevelopment plan. As part of the programme, Talisman screened a range of future options to identify how it could reduce operating costs, increase production and extend operating life. The studies revealed that finding re-use opportunities for the existing field infrastructure would contribute to these goals and indicated that there was potential for wind energy generation at Beatrice.

Q47. What are the next steps to delivery of the Demonstrator?

A47. Securing public and private sector funding for the development was the first step and it is now complete. The next stage is to complete the detailed design, select the contractors to implement the project and seek consent from the UK Regulatory Authorities. Such consent will require submission and approval of an environmental impact statement.

Q48. How long has Talisman and its partners been progressing the concept of offshore wind farms?

A48. In 2001 Talisman redeveloped the Beatrice Platform and installed a major new pipeline section. The concept of an offshore wind farm was first discussed at this stage. In 2002 Talisman became partners with SSE and we have jointly advanced the project since then.