WIND ENERGY FACILITY AND ASSOCIATED INFRASTRUCTURE

COMMENTS AND RESPONSE REPORT: I&APs & STAKEHOLDERS

EIA Phase: comments received during the review period of the Draft EIA Report

No.	Issue	Raised by	Response
	Local business opportunities		
1	What are the possibilities for local businesses and black empowerment, both at the short and long term?	Edward Mostert, Lutzville Public Meeting, 24 January 2008	Eskom will consider international supplies for the equipment (i.e. the provision of a portion of the tower as well as the turbine itself) and some civils work. Local companies will have the opportunity to provide input and skills other aspects of the project – 30% of the budget is allocated for AsgiSA initiatives. It is anticipated that small teams of will be required to work on the site. Local suppliers will be considered where possible. Where civils work is required on roads, Eskom intends to work with the municipalities and provincial departments to identify possible local parties to assist. Any supplier to Eskom must be registered on the Eskom vendor database. A Supplier Forum will be held closer to the start of the construction date. Capacity building sessions will be held with the community and the suppliers appointed will also be required to mentor local suppliers where appropriate.
2	Will a stakeholders meeting be arranged for these discussions (regarding job opportunities) with Eskom?	Edward Mostert, Lutzville Public Meeting, 24 January 2008	Eskom will call for a Local Community Forum closer to construction. Local business should focus on registering on the Eskom Service Provider database to indicate what type of skills and expertise they have.

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3	What is the input from local suppliers, and will local components be used?	Herman Oelsner, Key Stakeholder Workshop, Koeberg Visitor Centre, 25 January 2008	Eskom have specific performance requirements which must be met. Where it is possible, local participation will be encouraged – specifically for the road/access construction and power line construction. Eskom are guided by AsgiSA. It is also acknowledged parts of the facility would be produced abroad due to technology, skills and turn around time during the production cycle of parts.
Wind Energy Facility: Design, Construction & Operation			
4	Is a technical reason for the turbines to be painted white in colour?	Paul Herselman, Land Care, Lutzville Public Meeting, 24 January 2008	The proposed colour to be used on the turbines is off-white, and this is in line with international standards. This colour is also the most preferred colour for aviation safety purposes. Appendix T of the report provides detailed information on windfarms and civil aviation procedures.
	What about the 'unpopulated' top apex of the triangle – that is with the site being roughly triangular in shape. Will turbines be established here at a later stage?	Wouter Roggen, Key Stakeholder Workshop, Koeberg Visitor Centre, 25 January 2008	It is difficult to quantify the optimum number of turbines on a site. From assessments of other facilities, it is known that with increased numbers of rows of turbines, plants lose up to 20% of their efficiency due to wind-shade effects. For this site, it is not anticipated that more than 100 turbines will be constructed in order to not lose efficiency.
	What outputs are expected from each turbine?	Wouter Roggen, Key Stakeholder Workshop, Koeberg Visistor Centre, 25 January 2008	It is anticipated that 2MW turbines will be installed, but is dependant on the suppliers and their technical specifications. Eskom is looking at the best and latest product and the best return on its investment. The type of turbine, the size and efficiency will be further explored with suppliers and as part of the tender process.

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	He enquired about: » the number of blades per turbine and the reason for only 3 blades instead of perhaps 5, which would improve the turbine's efficiency. » the types of drive systems to be used on the wind generators. He wanted to know whether they would be gearbox or direct drive systems. How would this affect noise quality? » How can the lifespan of the entire wind energy facility be prolonged to over 20 years? He would not support that the site be decommissioned, and that the turbines rather be replaced at the end of their useful life	Mike L-Thurgood, Key Stakeholder Workshop, Koeberg Visitor Centre, 25 January 2008	It is expected that suppliers will, in response to Eskom's enquiry document, provide guidance with regards to the turbine for optimum performance. This is also based on the wind speeds at the site. Noise levels which are considered to be acceptable have been specified, and the supplier would be required to provide guarantees in this regard. The lifespan of the wind energy facility would be explored beyond 20 years at the time when this is required. Wind technology improves constantly and that Eskom would devise a strategy for enhancing the lifespan of such facilities. This would include the replacement of nacelles and ensuring the integrity of the structure.
	What will happen with the excavated material i.e. where will the topsoil and the spoil material be stored after excavation, and how much spoil material is anticipated?	Mark Gentle, WBHO, Lutzville Public Meeting, 24 Janua 2008	Topsoil would be stored separately on-site and re-used during rehabilitation. Spoil material (e.g. from foundation excavations) would be used for filling purposes, where required on-site. It is unlikely that excess spoil material would need to be transported off-site. The project Environmental Management Plan (EMP) addresses soil management. Where required, method statements will support the EMP and provide specific methodologies. The value of topsoil is acknowledged, and must be retained for rehabilitation of the site.

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		Project Timeframe	
	What is the project timeframe?	Mark Gentle, WBHO, Lutzville Public Meeting, 24 January 2008	Eskom is committed to the project, and the project has been approved at Board level. The required permits/permissions/authorisations are required to be obtained before any construction can commence. The first phase (i.e. 50 turbines) is proposed to be completed by 31 March 2010.
		Economics and Financial Value Project	
	What is the financial value of the project?	Edward Mostert, Lutzville Public Meeting, 24 January 2008	The first phase (approx 50 turbines) is estimated at R1,2 billion. The full 100 turbines is estimated at R2 billion.
	Analysis of accurate costing with regard to economics and finances is important to consider as it will give the private sector the same opportunities.	Andre Otto, Key Stakeholders Workshop, Koeberg Visitor Centre, 25 January 2008	The costing and performance of the proposed facility is guided by the Klipheuwel pilot/demonstration project. In addition, all markets have been scanned for the best costings and best returns on investments. Eskom expenditure is governed by the PFMA. The AsgiSA guidelines are used for the international and local companies participation/return in this process. Eskom's tender process is intended to be as wide as possible to ensure competitiveness.
	What is the cost per kilowatt hour sent out of the facility?	Wouter Roggen, Key Stakeholder Workshop, Koeberg Visitor Centre, 25 January 2008	The cost will be in the order of 68c per kilowatt hour.
		Resources and Agricultural Potential of Land	
	Where would Eskom source water from for the construction phase of the project, as water on-site is limited.	Paul Herselman, Land Care, Lutzville Public Meeting, 24 January 2008	With regards to water supply, Eskom will consider all available water sources. Should a landowner have a licence for water use, and may be in a position to assist with water supply, they could contact Eskom. The logistics regarding the sourcing of potable water will be addressed as part of the final design and tender process.

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	The negotiation process with the landowners must include an evaluation by an agricultural economist to ensure equitable negotiations. The negotiations must consider the loss of grazing land and production.	Paul Herselman, Land Care, Lutzville Public Meeting, 24 January 2008	An evaluator has been appointed by Eskom to evaluate the properties and discussions with an agricultural economist are being pursued. The principle of willing seller-willing buyer will be observed.
	Tourism		
	The best view of the wind farm is from the seaward side. The view from the seaward side of the site could be attractive for tourism purposes provided that an alternative access road is provided.	Francois Swartbooi, Lutzville Public Meeting, 24 January 2008	Comment noted.
	It is requested that Eskom consider the active involvement of local people utilising the Visitors Centre as a long-term point for tourism – that a tourism corridor is created. He would not like to see a small building in the corner as the Visitors Centre.	Francois Swartbooi, Lutzville Public Meeting, 24 January 2008	There are no final plans with regard to the Visitors Centre at this time. Approximately 400m^2 is proposed to be under roof.
	Site Rehabilitation		
	The rehabilitation requirements in the area are not the same as the rehabilitation in the rest of the Western Cape. He suggested that specialists be brought to assist and that indigenous knowledge be applied.	Mark Gentle, WBHO, Lutzville Public Meeting, 24 January 2008	The EMP addresses rehabilitation of the site. It is acknowledged that rehabilitation specialists will be required to be part of the rehabilitation process. The Namaqualand Restoration Institute has been approached for advice and input into the EMP, and information regarding best practice models (to be used in conjunction with local knowledge of the vegetation in the area) has been provided.
	Site rehabilitation is considered crucial, and requested that the best expertise are used and that the EMP address site rehabilitation as a crucial aspect of how the site would look after construction is complete.	Francois Swartbooi, Lutzville Public Meeting, 24 January 2008	Rehabilitation will take place as the project progresses, and so phased rehabilitation efforts can be anticipated on the site.

No.	Issue	Raised by	Response
		General	
	Part of the land allocated for the wind farm is in a natural depression and it might be more suitable to build a dam in the area. The storage of water in this areas would have long-term benefits.	Mr T Turner, Inventor, Lutzville Public Meeting, 24 January 2008; and written submission received 05 February 2008	Comment noted. Eskom's specific mandate as received from the Department of Public Enterprises (DPE) and the Department of Mineral and Energy (DME) is for the construction and operation of power stations with the view to supply electricity. The construction and operation of dams, unless specifically for power generation purposes, falls outside of this mandate. The particular property that is being assessed if for the construction of power station consisting of at most 100 turbines, which may have the result of restricting the property for other developmental, bearing in mind that power stations are national key points. Department of Water and Forestry (DWAF) has the mandate to construct and operate dams for purposes of water provision, and as such, should be approached directly for the development of dams in the other area. Mr Turner's comments and submission for his suggested dam site was first raised the Lutzville Public Meeting and his comments were noted. A formal written submission was also received (refer included letter).

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	The site is outside the original study area that was assessed through the DEA&DP guideline/study. He raised a concern about the construction of 100 turbines and noted that the size of this facility might have negative consequences for other independent power producers in the future as too many turbines in one area will drive people away from wind energy. He argued for small wind energy facilities and mentioned that large-scale wind energy facilities like those in the USA have proven to be ineffective. He would like to see 10 turbines in one facility as the optimum number.	Herman Oelsner, Key Stakeholder Workshop, Koeberg Visitor Centre, 25 January 2008	The proposed site does lies outside of DEA&DP pilot area used for developing its wind energy facility guidelines. The DEA&DP guidelines was used for the new study area. Eskom selected a site that met their criteria in terms of technical needs and wind resource, and complies with the DEA&DP environmental criteria. The guideline also makes mention of small facilities and larger facilities – this facility would be categorised as a large-scale facility.
	It is interesting to note that Eskom are also involved in a pilot project for the use of solar energy. This is over an area of 4km^2. If this technology was required to be used for baseload, this area would be required to increase 10-fold to over 40km^2. This area of disturbance is larger than any wind energy facility.	Mike L-Thurgood, Key Stakeholder Workshop, Koeberg Visitor Centre, 25 January 2008	Comment noted.
	The attendee from the Denmark organisation who manufacture wind turbines was concerned that a standard which has been prepared for Europe and, I believe, the States as well, should be considered for South Africa. I indicated that I didn't agree, and although I still do not agree, none-the-less it is a subject which perhaps the DME should have investigated by a relevant specialist to see in what way constraints may need to be imposed – or recommended? - for wind generator site development in South Africa.	Mike L-Thurgood, comments received on DEIA, 26 January 2008	Comment noted.

No.	Issue	Raised by	Response
	Obviously, if some organisation wanted to suggest sites across the Cape Flats (I mean the Cape Flats, not the apartheid designation of them, because they stretch right across from Table Bay to False Bay - therefore I live on the Cape Flats in Milnerton, if anyone wishes to argue the point!) then most definitely there would have to be very tough restrictions. But there certainly could be justification for the situation I saw in various places in Britain during a short visit in 2006 where some commercial buildings had their own wind generator. For example, dare I suggest that Century City wouldn't do so badly if they had just a single 2 MW wind generator! Tyger Valley would probably require two, and one for N1 City.	Mike L-Thurgood, comments received on DEIA, 26 January 2008	Comment noted.
	However, there's always the confounding problem with wind turnine's effective availability, which is dependent on the wind falling between a specific speed range. No more than 16% efficiency at Klipheuwel - that's really terrible. And even 26% at the proposed site isn't at all brilliant. Also, the capacity can't even be doubled up to store the excess spare wind generated power during that 26% availability because there's no means that's been invented, yet, to electronically store 1000s of MW of electricity. (I would imagine that there would be few locations where a suitable site for a wind generator power station could be close to where a pumped storage facility could be constructed).	Mike L-Thurgood, comments received on DEIA, 26 January 2008	Comment noted.

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	What I consider to be a very curious comment in this report about these bat strikes is their incidence against the tower supporting cables. Although these cables will reach from the ground to around 60 metres up (please note that a tower can only have supporting cables below the propeller blades, which rotate through 360 degrees) and I would have thought that the danger to birds - but surely not bats with their sonar detecting capability against a static structure? - would be minimal compared to the hazard from tens of thousands of km of high overhead high voltage cable transmitting lines? Exactly who is trying to make an issue of this out of what?	Mike L-Thurgood, Comments received on DEIA, 26 January 2008	Where 'towers' are referred to in the report, this is in the discussion of the power line towers, and the conductors between towers – it is not making reference to any supporting cables. These would not be required for the turbine towers. Therefore, your comment is in line with what was referred to in the fauna report.
	In response to my comment about the wind generator facilities up the coast being at least 50 km from nowhere, therefore does it matter how many towers are erected, another attendee mentioned that California sites are just as far from areas of dense habitation, and they have come in for lots of criticism. However, I would suggest that, in contrast to the current proposed South African site, those in California use valleys with considerable environmental beauty, which has been spoilt by the hundreds of old type wind generator towers, rather old technology with outputs barely 500 kW. The owners didn't even bother to repair those which became inoperable, for whatever reason. (I believe that some types were even noted for their propellers falling off!).	Mike L-Thurgood, Comments received on DEIA, 26 January 2008	Eskom is looking at appointing a reputable wind turbine supply with an excellent track record. The tender evaluation will ensure that the successful supplier has safety, quality and an excellent reputation.

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	Some of the websites I have found about these California sites indicate that, with 20 years of more modern technology, the large numbers of existing towers can be replaced with a few as 25% of the original numbers to provide the same electrical output.	Mike L-Thurgood, Comments received on DEIA, 26 January 2008	Comment noted.
	Renewable Energy Collaboration		
	This is a good opportunity for all organisations interested in renewable energy to come together, share ideas and ensure the industry is at its optimum.	Andre Otto, Key Stakeholder Workshop, Eskom Visitor Centre, 25 January 2008	Eskom has put out an enquiry document in order to receive the best input possible from worldwide sources. Eskom give their assurance to the industry that they are doing the best they can for the introduction of renewable energy into the country. Eskom are also applying lessons learnt from their demonstration facility at Klipheuwel.
	Technical Data		
	The comment about an unacceptable noise from the direct drive type of wind generator needs further explanation because I can't imagine in my mind what makes the sound quality unacceptable. This is a typical situation where our electronic means of communications would be ideal, if someone has recorded the two types of sound - ie from direct and indirect drive – which can be downloaded from a website. I am unable to envisage what it is about the quality of the sound from a direct drive generator which makes it unacceptable. Research data has indicated that some of the wind turbines have unbearable screeching noise.	Mike L-Thurgood, Comments received on DEIA, 26 January 2008	The suppliers are trying to improve the technology to reduce the noise levels from the wind turbines.

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	How much electricity is generated at different wind speeds? Say at the minimum wind of 10-15 km/h required and at the full capacity of 60 km/h? And can you put the electricity to be generated in perspective, e.g. “electricity generated by wind farm will be enough to supply the towns of Lutzville and Vredendal and the surrounding farms and mines”?	Amelia Genis, Journalist, Landbouweekblad, comments received by e-mail, 15 January 2008	For a 2 MW class wind turbine, the wind turbine will operate optimally at 15 m/s. Most of the 2MW class wind turbines will only start generating electricity from approximately average 4 m/s under ideal conditions. Some of the indicative power output vs wind speed indicate the following performance data: 1. At ~6 m/s power output is approximately 200 kW 2. At ~10 m/s power output is ~ 1200 kW (1.2 MW) 3. At ~ 15 m/s power output is ~2000 kW (2 MW) - Full capacity. Note that the above is based on the 2 MW class wind turbine and the performance could differ slightly based on different supplier's designs and wind farm layout. It is estimated that one (1) 2 MW turbine can supply electricity for a small town like Lutzville or approximately 500 standard households. If the wind is blowing at average speed of 15 m/s, the electricity generated will be enough to supply Lutzville, Vredendal and surrounding households &farms. Note that Wind Turbines needs 'wind to blow' to generate electricity.

No.	Issue	Raised by	Response
	Objection to Development of Wind Energy Facility		
	I am the land owner of portion 617 and of portion 615 of Olifants River Settlement, each with their own title deed. Although only portion 617 is affected as described in your Draft Environmental Scoping Report, these two portions must be seen as one unit. I am currently investigating and researching the idea to develop this land or to have it developed and the proposed Wind Energy Facility on one portion will affect both. Having these 135 meter (90 meter hub plus 45 meter rotor blade) giant windmills on the property will certainly be an aesthetic problem for development. The view will be altered. Bringing in wildlife will be influenced. Designing tranquil trails to escape industrialism will be a major issue. I can carry on and on and feel in a social impact way, that this will no longer present a viable proposition. I am therefore against these windmills, not to mention the overhead powerlines feeding electricity into the network, on the property or for that matter, near or close to this property. I don't want to stand in the way of developing South Africa's electricity supply and renewable energy contribution, but I also don't want ESCOM to stand in the way of my developing this portion of land. Bearing this all in mind I would rather consider selling.	Nakkie Pienaar, Landowner – Olifantsrivier Nedersetting, Lutzville – comment received by e-mail and by telephone call to Shawn Johnston	Mr Nakkie Pienaar's letter was acknowldeged by e-mail and per telephone call and noted as part of his apology at the Lutzville Public Meeting on 24 January 2008. Mr Nakkie Pienaar was also provided with a CD copy of the Draft Environmental Impact Assessment Report. In the EIA phase of this project, the specialist studies that have been undertaken have included the potential visual impacts. As part of this visual impact study, the specialist considered the view from a number of different perspectives. One of these included The Toring. With the closest distance being 4.6km away, and Die Toring being approximately 20m above sea level, the specialist has indicated that the closer towards the ocean an observed travels, more turbines will be hidden. Conversely the further way from the ocean an observer travels, more turbines become visible. Therefore it is indicative that the lands marks such as Die Toring will not be unduly affected by the presence of these turbines. The visual impact of the turbines will be most concentrated in the areas directly accessing the wind turbine facility.

No.	Issue	Raised by	Response
	Civil Aviation Requirements		
	The main concern for aviation is from a safety perspective - the rotation of the blades could display as false targets on an aircraft's radar. There could be other interference with aviation, landing or surveillance equipment, and therefore the following is important: • The turbine should not be closer than 35km to a major airport; • The obstacle is difficult to clearly define as it is of varying geometry (as the turbine rotates); • Commercial aviation – minimal impact, as long as sufficient distance from airport; • Sports aviation of greater concern – fly slow and low; • Radio beacons and the associated network of equipment is most critical to not be interfered with. White is preferred as a visible colour from airborne aircraft. Lighting of the facility requires a unique method of marking, and this is detailed in the Regulations of Act No. 39 of 1962. The normal standard includes 2 lights side by side (to avoid shading by a blade), where the outline/extremities of the facility of marked. The lighting would not affect the man on the ground.	Koos Pretorius, Civil Aviation, Key Stakeholder Workshop, Koeberg Visitor Centre, 25 January 2008	Comments noted and to be consider in the design of the facility.

No.	Issue	Raised by	Response
Western Cape Department of Environmental Affairs & Development Planning Guidelines for Wind Energy Facilities			
	The DEA&DP Guideline for siting wind energy facilities in the Western Cape were used for the siting process for this project. The Guidelines is very specific on environmental issues. He pointed out that it is vital to consider the social and economic issues, as well the environmental issues in a regional/strategic assessment.	Andre Otto, Key Stakeholders Workshop, Koeberg Visitor Centre, 25 January 2008	The Regional Assessment conducted did consider the Western Cape Department of Environmental Affairs and Development Planning's (DEA&DP) guideline. It was acknowledged that the guideline pointed to areas for development, and the criteria relevant to a wind energy facility were overlain to provide reasonable/workable results.