

Appendix 7.4

Background Information Document (BID)

Background Information Document
Scoping and Environmental Impact Assessment of the proposed
Kerrie Fontein and Darling Wind Farm

JUNE 2010



Introduction

Following the successful installation of the Darling Wind Demonstration Farm, it is proposed to develop the remaining potential of the site as well as an adjacent 13-15 MW wind farm on Kerrie Fontein Farm. Collectively these two components consisting of 16 wind turbines are the subject of this study and referred to as 'the Project' hereafter (See Figure 1).

The Environmental Evaluation Unit (EEU) based at the University of Cape Town has been appointed as independent consultants who will be responsible for conducting the Scoping and EIA of this proposed development.

The purpose of this Background Information Document (BID) is to inform interested and affected parties (I&APs) of the proposed Project and provide them with the opportunity to comment, receive information and raise issues in relation to the environmental authorisation process.

Prepared by the EEU
For the Oelsner Group (Pty) Ltd



Need for the Project

The Project assists South Africa in maintaining a balance between securing a reliable supply of electricity and fulfilling commitments to the United Nations Framework Convention on Climate Change (UNFCCC, 1992) and their requirements for carbon neutral fuels. At present, more than 90% of South Africa's electricity comes from burning coal in the Mpumalanga Province and the Western Cape imports more than 70% of its electricity from this Province. This process results in transmission losses and the burning of fossil fuels that release greenhouse gases such as carbon dioxide. The diversification of electricity generation and supply, with an emphasis on green technologies, is now part of the Government's energy policy. This project will contribute to South Africa's efforts to meet its 2013 renewable energy targets and in doing so it will accord with international initiatives.

Project Overview

The Darling Demonstration Wind Farm was conceptualised by the Oelsner Group (Pty) Ltd and the development was constructed by the Darling Independent Power Producer (Pty) Ltd, Central Energy Fund (CEF) and the Development Bank of Southern Africa (DBSA). This was following environmental authorisation and establishing favourable power purchase agreements with the City of Cape Town. The Demonstration Project has been in operation since 2008 and consists of 4 turbines generating a maximum of 5.2 MW of electricity.

There are two components to the Project. These comprise 6 wind turbines on the existing Darling Wind Farm (Slangkop Farm 552) and 10 turbines on the adjacent farm Kerrie Fontein 555, bringing the total number of new turbines to 16 with a generation capacity of 20.8MW.

Technical Summary

Electricity is produced when wind blows over the turbine blades, causing them to lift and rotate. The rotation of the rotor, which includes the blades and the hub, spins a shaft, which connects to a generator to make electricity. Kinetic “movement” energy is converted to electrical energy. The generators are connected to transformers that change the voltage for distribution purposes. The electricity produced can be fed into the local electricity grid.

Nordex N60 wind turbine generators will be installed, each of these with a hub height of 60m (the maximum height restriction for the landscape) and a nominal power of 1.3 MW each (Figure 2). The turbines will be imported while the intention is for other components to be manufactured locally where possible.

The Darling Demonstration Wind Farm has an existing substation and access to the site from the R315 via Windhoek Farm (as part of Slangkop 552).

The infrastructure which forms part of this Project is as follows:

Darling:

- 6 Nordex N60 turbines
- Underground cabling linking turbines to (existing) substation
- Internal roads - stabilised dirt tracks to access each turbine

Kerrie Fontein:

- 10 Nordex N60 turbines
- New 66/11kV substation
- Underground cabling linking turbines to substation
- Overhead power lines linking substation to national electricity grid
- Access to site off R27
- Internal roads – stabilised dirt tracks to access each turbine

The Project is planned for construction commencing mid-2011, and is expected to take approximately 9 months. Commissioning will require 1 month and operation will commence thereafter from approximately mid-2012. The Project has an estimated lifespan of 25 years.



Figure 2: A Nordex N60 wind turbine system

Legislative Framework

EIA Regulations published in Government Notice (GN) R385 of April 21 2006 in terms of Section 24(5) of the National Environmental Management Act (NEMA)(Act No. 107 of 1998) require that certain activities listed in GN R386 of April 21 2006 will require a 'Basic Assessment', and those in and GN R387 of April 21 2006 will require a 'Scoping and EIA' respectively before they can proceed. As the Project will be related to electricity generation where (i) *the electricity output is 20 megawatts or more;* and (ii) *the elements of the facility cover a combined area in excess of 1 hectare,* under GN R387 a Scoping and EIA are triggered. This Project also includes a number of activities listed under R386 which collectively form part of the proposal. All listed activities are set out in the Table below.

<ul style="list-style-type: none"> • Government Notice 387, 1 (a) The construction of facilities or infrastructure, including associated structures or infrastructure, for– (a) the generation of electricity where – (i) the electricity output is 20 megawatts or more; or (ii) the elements of the facility cover a combined area in excess of 1 hectare;
<ul style="list-style-type: none"> • Government Notice 386, 1 (l) The transmission and distribution of electricity above ground with a capacity of more than 33 kilovolts and less than 120 kilovolts;
<ul style="list-style-type: none"> • Government Notice 386, 14 The construction of masts of any material or type and of any height, including those used for telecommunication broadcasting and radio transmission, but excluding - (a) masts of 15 metres and lower exclusively used (i) by radio amateurs; or (ii) for lighting purposes (b) flag poles; and (c) lightning conductor poles.
<ul style="list-style-type: none"> • Government Notice 386, 15 The construction of a road that is wider than 4 metres or that has a reserve wider than 6 metres, excluding roads that fall within the ambit of another listed activity or which are access roads of less than 30 metres long.

This Project has the potential to qualify for the renewable energy feed-in tariff (REFIT) as set out in the National Energy Regulator of South Africa (NERSA) guidelines under the Electricity Regulation Act (Act 4 of 2006). In addition, there is the potential to qualify as a Clean Development Mechanism (CDM)¹ project under the Kyoto Protocol.

¹ The CDM allows an industrialised country to implement an emission-reduction project in developing countries to earn saleable certified emission reduction (CER) credits, which can be counted towards meeting Kyoto targets (*UNFCCC website, 2010*).



Environmental Authorisation Process

The listed activities require authorisation from the Department of Environmental Affairs (DEA) as the decision-making or 'competent' authority. The authority is required to review and make a decision on both Scoping and EIA reports submitted during the two main phases of the environmental assessment process (See Figure 3 overleaf). Both processes should adhere to NEMA (1998) and GN R385 of 2006, as amended.

The **Scoping Phase** involves documentation of a profile of the existing study area, identification and investigation of alternatives, identifying potential impacts on the environment, and setting out a methodology for assessment of these potential impacts. A plan of study (PoS) outlining how the EIA will be conducted will be produced and this will prescribe roles and responsibilities of individuals involved/selected. Specialist studies for the various environmental disciplines relating to the Project include the following:

- Visual Assessment
- Botanical Assessment
- Avifaunal Assessment
- Heritage Assessment
- Baseline Geotechnical Study
- Noise Assessment
- Socio-economic Assessment
- Traffic Assessment

In parallel, a Public Participation Process (PPP) will be undertaken to inform all scoping activities. I&APs will be engaged during the Scoping Phase to identify issues and impacts, and inform the preliminary specialist investigations. Comments are invited during the Open Day which will be held during the initial notification period. The Draft Scoping Report will also be available for written comment for a 30 day period. Thereafter, a Final Scoping Report incorporating all written comments will be submitted to the authority for approval. The timeframe for this Scoping Phase is June - July 2010.

Once the Scoping Report has been accepted by DEA, the **EIA Phase** will commence. This will involve the specialists through the detailed assessment of all impacts and alternatives. Mitigation measures and recommendations will be proposed to reduce any significant impacts. An Environmental Management Plan (EMP) for the construction and operation phases will also be produced based on these studies. The PPP process will continue in parallel to inform the assessment, and similarly I&APs will have an opportunity to comment on the Draft EIA Report and Draft EMP before they are submitted. Hereafter Environmental Authorisation would follow and the authority will notify the Oelsner Group (Pty) Ltd on the decision. I&APs will then be notified of the outcome.

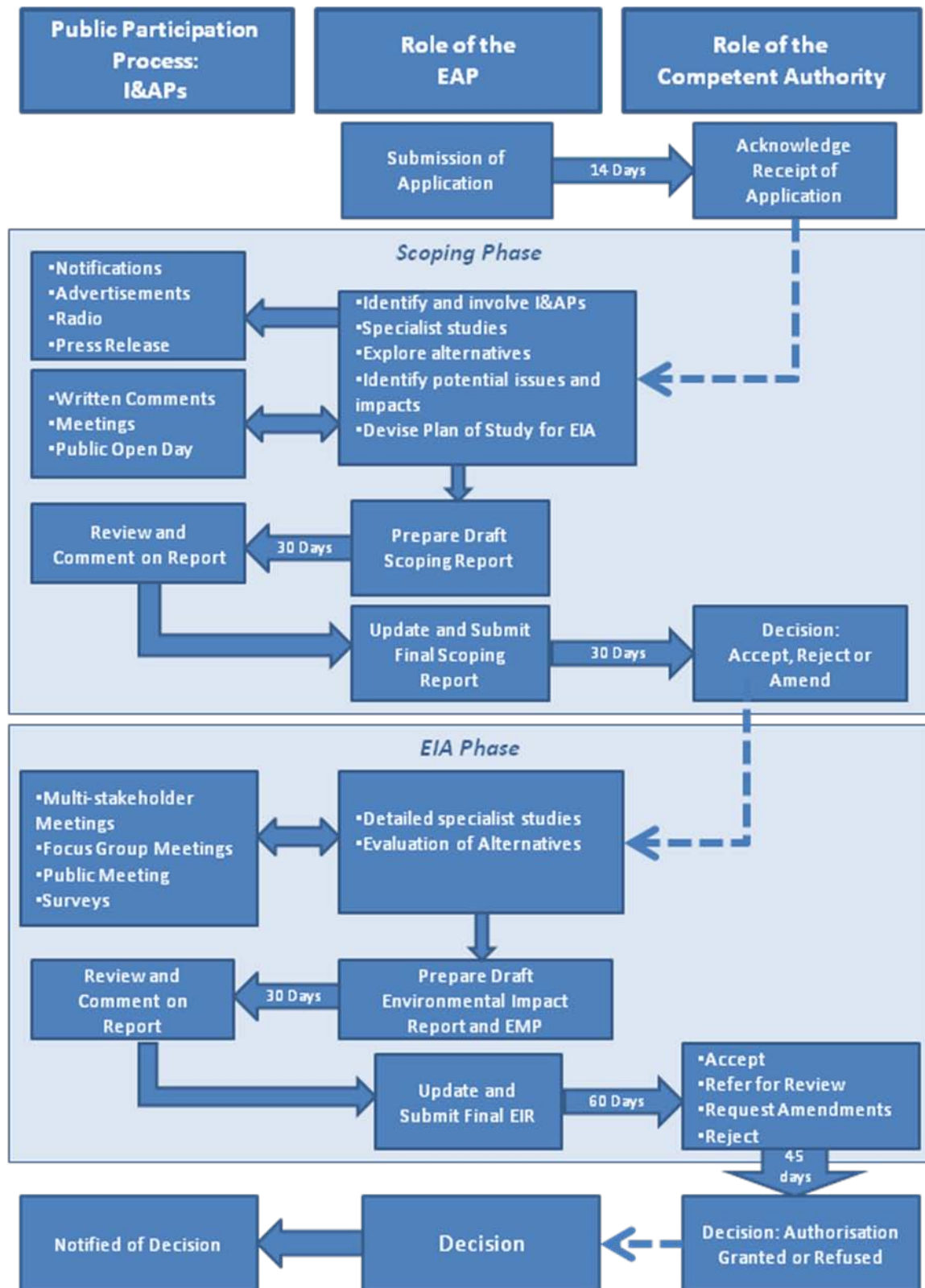


Figure 3: Diagrammatic summary of EIA process



Timeline

This BID signifies the start of the Scoping Phase. The timeframe for Scoping is June-July 2010 and includes an Open Day. The Draft Scoping Report is expected to be submitted during July and there will be a 30 day review period during which the report will be available for written comment. The Final Scoping Report should be submitted by approximately October 2010.

Should the Final Scoping Report be accepted by DEA, the EIA is planned to commence in towards the end of 2010.

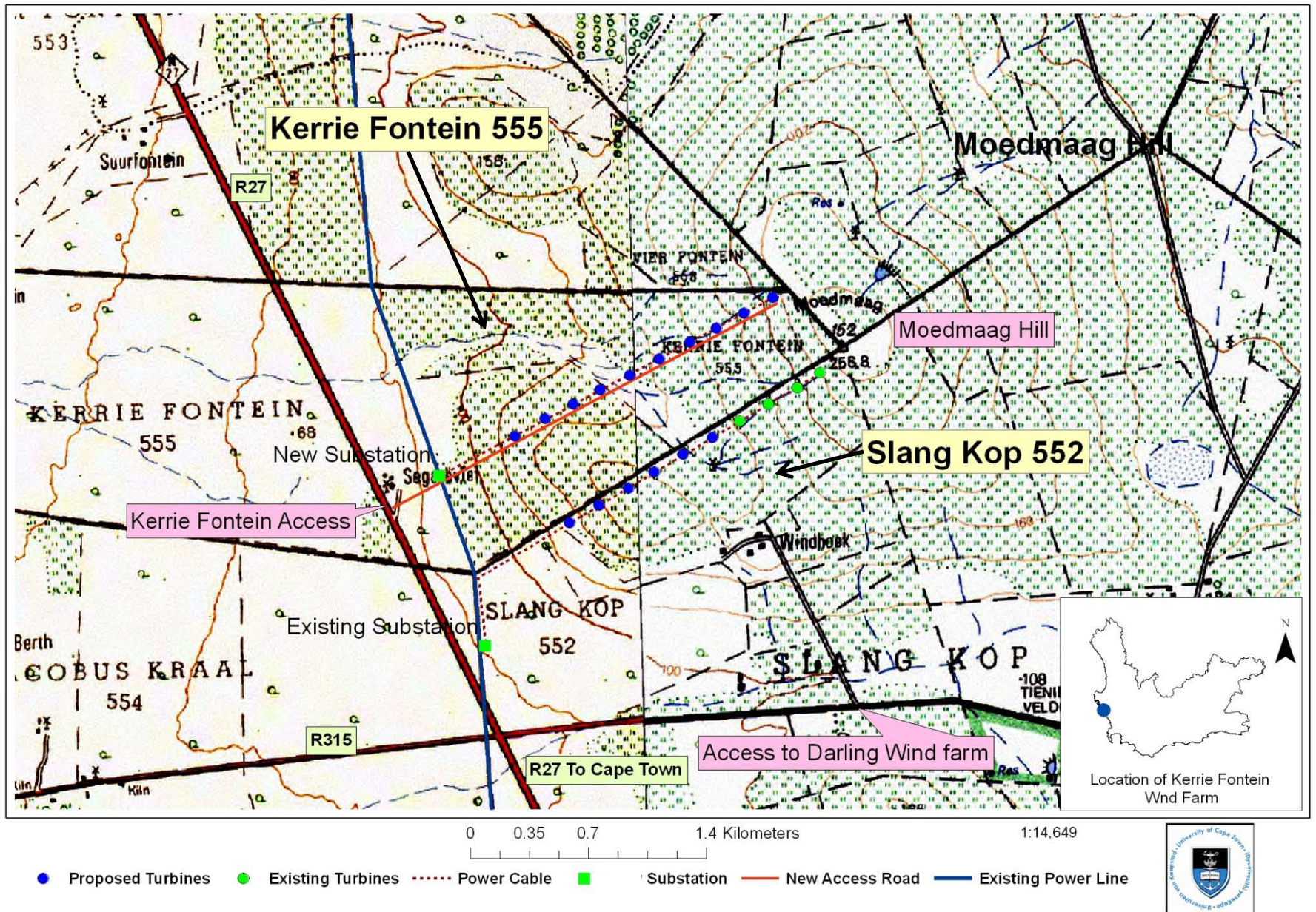
You can get involved in the PPP of the Scoping and EIA process by:

Your Involvement

- Registering as an I&AP;
- Submitting your issues, concerns and questions in writing using the attached form;
- Providing contact details of other potential I&APs;
- Attendance at the Open Day; and
- Reviewing the Scoping Reports, the Environmental Impact Reports (EIRs) and Environmental Management Plan (EMP).

Comments should be sent in writing to Kirsten Scott at the EEU, see comment form below.





**Figure 1: Locality Plan
Kerrie Fontein and Darling Wind Farm**

Agtergrondinligtingsdokument
Omvangsbepaling en Omgewingsimpak Evalueringsproses vir die
voorgestelde Kerrie Fontein en Darling Windplaas

JUNIE 2010



Inleiding

Na die suksesvolle installering van die Darling Demonstrasiewindplaas, is daar voorgestel dat die oorblywende potensiaal van die terrein, sowel as 'n 13-15 megawatt (MW) windplaas op die naburige plaas - Kerrie Fontein, ontwikkel word. Gesamentlik sal hierdie twee komponente 16 wind turbines behels – die onderwerp van hierdie studie - wat verder bekend sal staan as 'die Projek' (Sien Figuur 1).

Die *Environmental Evaluation Unit* (EEU) gebaseer by die Universiteit van Kaapstad, is aangestel as onafhanklike konsultante wat verantwoordelik sal wees vir die uitvoer van die Omvangsbepaling (OB) (*Scoping*) en Omgewingsimpak Evalueringsproses (OIE) (*Environmental Impact Assessment*) van die ontwikkeling.

Die doel van hierdie Agtergrondinligtingsdokument is om Belanghebbende en Geaffekteerde partye (B&GPe) van die

voorgestelde projek in te lig en 'n geleentheid te skep waarby kommentaar gelewer kan word asook kwessies rakende die omgewings evalueringsproses bespreek kan word.

Behoeftes aan die projek

Die Projek ondersteun Suid Afrika om 'n balaans te handhaaf tussen die beveiliging van 'n betroubare toevoer van elektrisiteit en om die land se ondernemings teenoor die Verenigde Nasies se Raamwerk Konvensie oor Klimaatsverandering (UNFCCC, 1992) se vereistes vir koolstof-neutrale brandstof gestand te doen. Tans is meer as 90% van Suid-Afrika se elektrisiteit afkomstig van steenkool verbranding in die Mpumalanga Provinsie. Sowat 70% van die Wes Kaap Provinsie se elektrisiteit word ingevoer vanaf Mpumalanga. Hierdie proses lei tot transmissie verliese en die verbranding van fossielbrandstowwe wat koolstofdioxide vrystel.

Diversifisering van elektrisiteitsopwekking en verskaffing, met 'n klem op 'groen tegnologie' is nou deel van die Staat se energiebeleid. Hierdie projek sal bydra tot Suid Afrika se pogings om 2013 hernubare energie doelwitte te bereik en sodoende in ooreenstemming te kom met internasionale inisiatiewe.

Projek Oorsig

Die Darling Demonstrasiewindplaas is gekonseptualiseer deur die Oelsner Group (Edms) Bpk en die ontwikkeling is gebou deur die *Darling Independent Power Producer (Pty) Ltd*, *Central Energy Fund (CEF)* en die *Development Bank of Southern Africa (DBSA)*. Dit het gevolg na omgewingsmagtiging verkry is en nadat gunstige aankoop ooreenkomste aangegaan is met die Munisipaliteit van Kaapstad. Die Demonstrasie Projek het in 2008 in werking getree en bestaan uit 4 turbines wat 'n maksimum van 5.2 MW energie opwek.

Die Projek beslaan twee komponente. Dit bestaan uit 6 wind turbines op die bestaande Darling Windplaas (Slangkop Plaas 552) en 10 turbines op die naburige plaas, Kerrie Fontein 555 - dus in totaal 16 turbines wat tot 20.8 MW energie kan genereer.

Tegniese Inligting

Elektrisiteit word geproduseer wanneer wind oor die lemme van die turbine waai, wat veroorsaak dat hulle oplig en roteer. Die rotasie van die lemme draai 'n as wat gekonnekteer is aan 'n kragopwekker wat dan elektrisiteit genereer. Kinetiese "bewegings" energie word dus oorgeskakel na elektriese energie. Die kragopwekkers is verbind aan transformators wat die spanning verander of verly vir verspreidings doeleindes. Die elektrisiteit wat sodoende opgewek word kan dan na die plaaslike elektrisiteitnetwerk gevoer word.

Nordex N60 windturbine kragopwekkers sal geïnstalleer word, met 'n toring hoogte van 60m (die maksimum hoogte beperking vir die

landskap) en 'n nominale kragopwek vermoë van 1.3 MW elk (Figuur 2). Die turbines sal ingevoer word terwyl ander komponente so ver moontlik plaaslik vervaardig sal word.

Die Darling Demonstrasiewindplaas het 'n bestaande substasie en toegang tot die terrein geskiet vanaf die R315 via die plaas Windhoek (deel van Slangkop 552).

Infrastruktuur wat deel vorm van die Projek is as volg:

Darling:

- 6 Nordex N60 turbines
- Ondergrondse kables wat die turbines verbind aan die (bestaande) substasie
- Interne paaie – gestabiliseerde grondpaadjies wat toegang tot elk van die turbines verleen

Kerrie Fontein:

- 10 Nordex N60 turbines
- Nuwe 66/11kV substasie
- Ondergrondse kables wat die turbines aan die substasie verbind
- Oorhoofse kraglyne wat die substasie aan die nasionale elektrisiteitnetwerk verbind
- Toegang tot die terrein vanaf die R27
- Interne paaie – gestabiliseerde grondpaadjies wat toegang tot elk van die turbines verleen

Konstruksie van die Projek word beplan vir middel 2011, en hierdie fase sal na verwagting 9 maande duur. Na 'n toets-periode van ongeveer 'n maand sal die turbines in werking tree – rondom middel 2012. Die Projek het 'n geskatte leeftyd van 25 jaar.





Figuur 2: 'n Nordex N60 windturbine

Regsverpligtinge

Die Regulasies soos gepubliseer in Goewermentskennisgewing (GK) R385 van 21 April 2006 kragtens Artikel 24(5) van die Nasionale Omgewingsbestuurswet (NEMA) (Wet 107 van 1998), stipuleer dat sekere bedrywighede soos geïdentifiseer in GK R386 van 21 April 2006 'n 'Basiese Omgewings Ewalueringsproses' moet ondergaan; en die bedrywighede wat genoem word in GK R387 van 21 April 2006 onderwerp moet word aan 'n 'Omvangsbepaling sowel as 'n Omgewingsimpak Ewalueringsproses'. Aangesien die Projek verband hou met elektrisiteitsopwekking waar (i) die elektrisiteits opbrengs 20 MW of meer is; en (ii) die elemente van die fasiliteit en verwante strukture altesame meer as 1 hektaar beslaan, sal daar dus kragtens GK R387 'n Omvangsbepaling sowel as 'n Omgewingsimpak Ewalueringsproses uitgevoer moet word. Hierdie Projek sluit ook 'n aantal bedrywighede in soos gelys

onder GK R386. Alle gelyste bedrywighede is uiteengesit in die Tabel hieronder.

- **GK R387, 1 (a)**

Die bou van fasiliteite of infrastruktuur, met inbegrip van verwante strukture of -infrastruktuur, vir
(a) die opwekking van krag waar –
(i) die kragopbrengs 20 megawatts of meer is; of
(ii) the elemente van die fasiliteit 'n gekombineerde gebied groter as 1 hektaar dek;

- **GK R386, 1 (I)**

Die leiding en verspreiding van bgrondse krag met 'n kapasiteit van meer as 33 kilovolt en minder as 120 kilovolt;

- **GK R386, 14**

Die bou van maste van enige materiaal of soort, en van enige hoogte, met inbegrip van dié gebruik vir telekommunikasieuitsending en radiouitsending, maar uitsluitende -
(a) maste van 15 meter en laer wat uitsluitlik gebruik word
(i) deur radioamateurs; of
(ii) vir beligtingdoeleindes
(b) vlagpale; en
(c) weerligafleierpale.

- **GK R 386, 15**

Die bou van 'n pad wat breër is as vier meter of wat 'n reserve het wat breër is as ses meter, uitsluitende paaie wat binne die strekking val van 'n ander gelyste bedrywighede, of wat toegangspaaie van minder as 30 meter in lengte is.

Hierdie Projek kan potensieel kwalifiseer vir die '*renewable energy feed-in tariff (REFIT)*' soos uiteengesit in die Nasionale Energie Reguleerder van Suid Afrika (NERSA) se riglyne kragtens die Wet op Elektrisiteits Regulering (Wet 4 van 2006). Verder kan dit moontlik kwalifiseer as 'n '*Clean Development Mechanism (CDM)*¹' projek onder die Kyoto Protokool.

¹Die CDM laat geïndustrialiseerde lande toe om emissie-verlagings projekte te implimenteer in ontwikkelende lande en sodoende verkoopbare gesertifiseerde emissie-verlagings krediete te werf, wat getel kan word jeens Kyoto teikens (*UNFCCC webtuiste, 2010*).

Die Omgewingsimpak Evalueringsproses

Bogenoemde gelyste bedrywighede moet bemagtig word deur die Departement van Omgewingsake (DEA) – die bevoegde owerheid. Daar word vereis dat die bevoegde owerheid om beide die OB sowel as die OIE-verslae te hersien en 'n besluit te neem tydens die twee hoof-fases van die omgewings evalueringsproses (Sien Figuur 3 op die keersy). Albei prosesse moet voldoen aan die NEMA (1998) en GK R385 van 2006, soos gewysig.

Die **Omvangsbepalingsfase** behels dokumentering van 'n profiel van die studie gebied, identifisering van moontlike impakte op die omgewing, en die instelling van 'n metodologie vir die evaluering van hierdie potensiele impakte. 'n Studieplan sal geproduseer word wat die rolle en verantwoordelikhede van die betrokke individue voorskryf. Spesialis-studies vir die verskillende omgewingsdissiplines met betrekking tot die projek, sluit die volgende in:

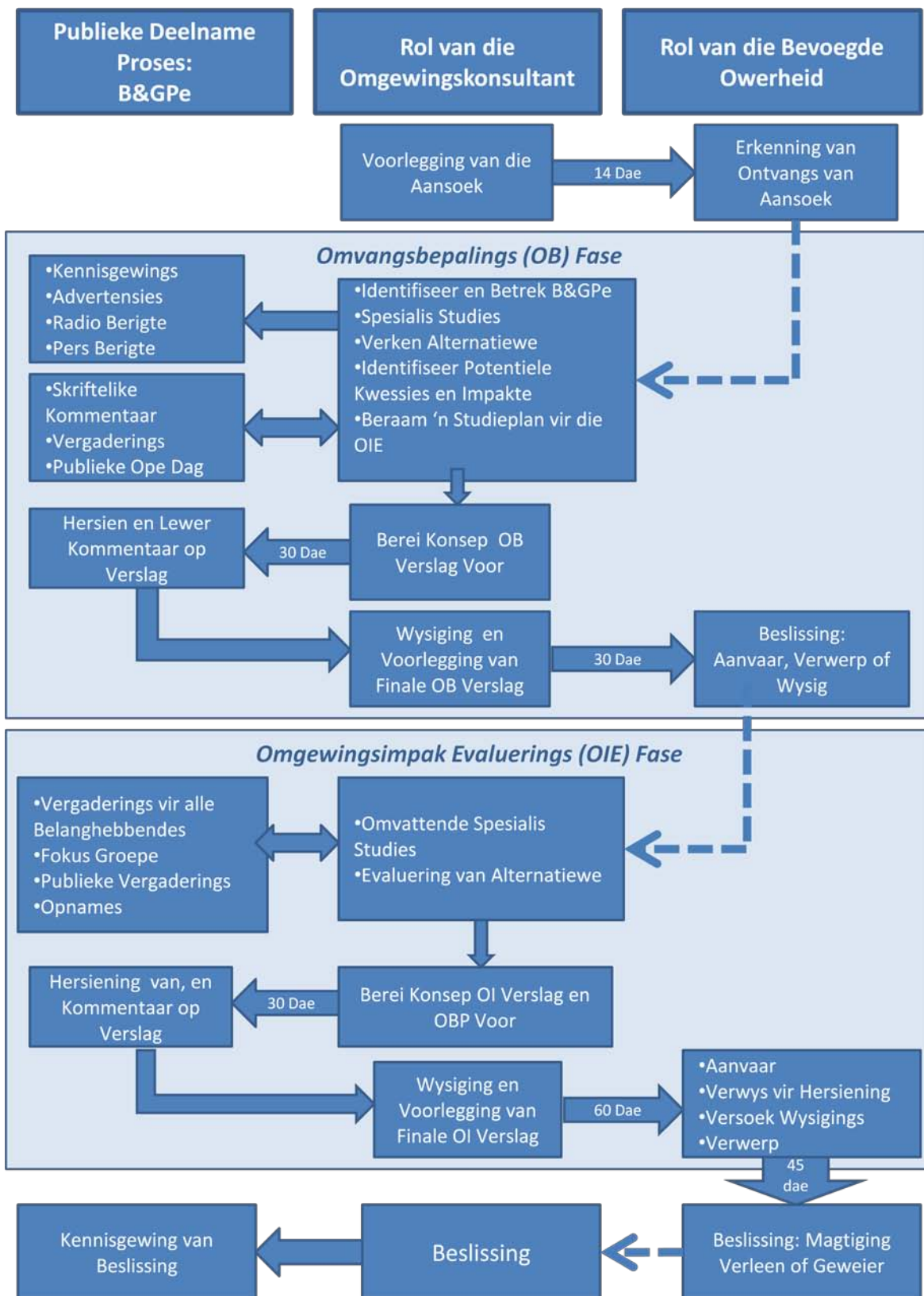
- Visuele Impak Bepaling
- Botaniese Impak Bepaling
- Avi-fauna Impak Bepaling
- Erfenis Impak Bepaling
- Basiese Geotegniese Studie
- Geraas Impak Bepaling
- Sosio-ekonomiese Studie
- Verkeer Impak Bepaling

'n **Publieke Deelnameproses** (PPP) sal in parallel onderneem word om al die Omvangsbepalings bedrywighede te bepaal.

Die B&GPe sal gedurende die Omvangsbepalingsfase betrek word om kwessies en impakte te identifiseer en om die voorlopige spesialis studies te bepaal. Tydens die Ope Dag wat gedurende die aanvanklike aanmeldings tydperk gehou word, word kommentaar verwelkom. Die Konsep Omvangsbepalingsverslag (*Draft Scoping Report*) sal beskikbaar wees vir skriftelike kommentaar vir 'n tydperk van 30 dae. Daarna sal n Finale Omvangsbepalingsverslag (*Final Scoping Report*) – waarin alle geskrewe kommentaar opgeneem is, voorgelê word aan die bevoegde owerheid vir goedkeuring. Die tydsraamwerk vir hierdie fase is Junie/Julie 2010.

Sodra die Omvangsbepalingsverslag aanvaar is deur die DEA, sal die OIE Fase begin. Dit sal die spesialiste betrek deur middel van 'n omvattende evaluering van alle impakte en alternatiewe. Versagte mateëls en aanbevelings sal voorgestel word om enige beduidende impakte te verminder. 'n Omgewingsbestuursplan (OBP) (*Environmental Management Plan*) vir die konstruksie en bedryf fases sal ook geproduseer word op grond van hierdie studies. Die PPP proses sal voortdurend voortgaan en sodoende die evalueringsproses inlig. Op 'n soortgelyke wyse sal B&GPe 'n geleentheid kry om kommentaar te lewer op die Konsep OIB Verslag (*Draft EIA Report*) en Konsep OBP voordat dit voorgelê word. Hierna sal Omgewingsmagtiging volg - die owerheid sal die Oelsner Groep (Edms) Bpk in kennis stel oor die besluit. B&GPe sal dan in kennis gestel word van die uitslag.





Figuur 3: Diagrammatiese opsomming van die OIE proses



Tydlyn

Hierdie Agtergrondinligtingsdokument dui die begin van die Omvangsbepalingsfase aan. Die tyd uiteengesit vir Omvangsbepaling is Junie-Julie 2010 wat die Ope Dag insluit. Daar word verwag dat die Konsep Omgewingsbepalingsverslag gedurende Julie voorgelê sal word en daar sal 'n 30-dag hersieningsperiode wees waartydens die verslag beskikbaar sal wees vir kommentaar. Die Finale Omvangsbepalingsverslag behoort teen Oktober 2010 voorgelê te word.

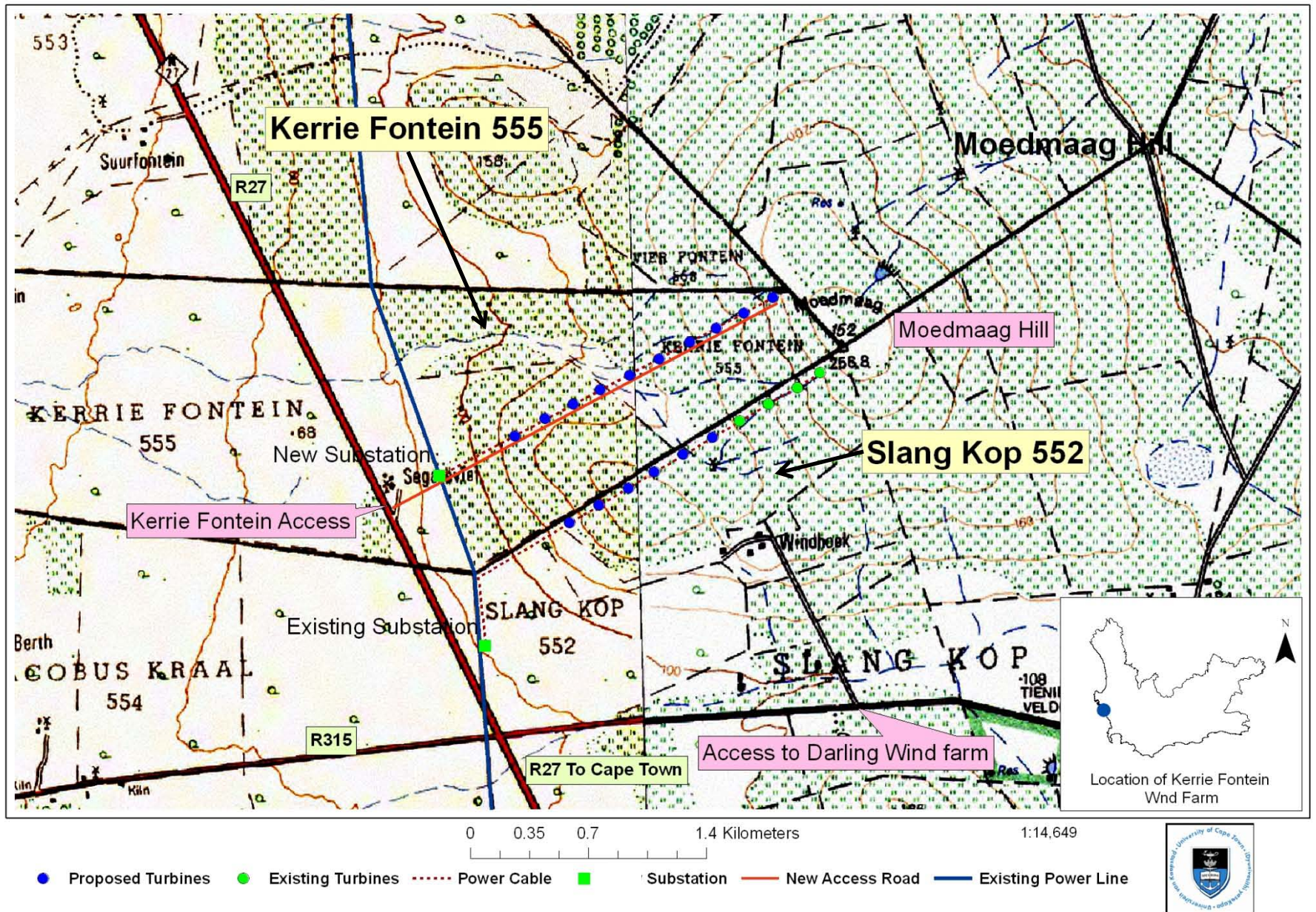
Indien die Finale Omvangsbepalingsverslag aanvaar word deur die DEA, word verwag dat die Omgewingsimpak Evalueringproses teen die einde van 2010 sal begin.

Hoe om betrokke te raak

- Registreer as 'n B&GP;
- Lig u mening oor enige kwessies of bekommernisse en stel vrae in die aangehegte vorm;
- Verskaf kontak besonderhede van ander potensiele B&GPe;
- Woon die Ope Dag by; en
- Gaan die Omvangsbepalingsverslag, die Omgewingsimpak verslae, en die Omgewingsbestuursplan na.

Kommentaar moet asseblief in geskrewe vorm gestuur word aan Kirsten Scott by die EEU - sien kommentaar vorm hieronder.





**Figure 1: Locality Plan
Kerrie Fontein and Darling Wind Farm**