DENC COMMENTS ON THE DRAFT BASIC ASSESSMENT REPORTS FOR THE PROPOSED VELD PV SOUTH (DEA Reference: 14/12/16/3/3/1/2103) AND NORTH (DEA Reference: 14/12/16/3/3/1/2102) SOLAR ENERGY FACILITIES AND ASSOCIATED INFRASTRUCTURE NEAR AGGENEYS IN THE NORTHERN CAPE

Herewith our responses to the comments dated 24 January 2020 from DENC (received on 31 January 2020). It should be noted that although DENC have been included in the full suite of Public Participation comment opportunities, these comments constitute the first response received, which was received after the closure period for comments on the draft Basic Assessment Report, i.e. the last round of comment opportunities.

1. The farm Haramoep (RE of farm 53 & Portion 53/1) consist of natural vegetation and the area has been determined as a Critical Biodiversity Area (CBA 1 and 2) according to the Northern Cape Critical Biodiversity (CBA) Map. Any further loss of biodiversity in this area is also considered to be highly negative impact especially when taking into consideration the cumulative impacts of all surrounding developments. The sites should therefore be surveyed by a botanical specialist between late February and at the end of March to confirm the presence or absence of Species of Conservation Concern (SCC). Should a significant population of any SCC be found on an area it should be avoided. Search and rescue should only be undertaken for protected species found in low numbers and that have a high chance of surviving transplantation.	1. The botanical specialist has comment as follows: *As the appointed botanical specialist, I disagree with the necessity to carry out the autumn survey as suggested. There has been a long drought and although plants respond quickly to rain, I doubt very much, and I am prepared to stake my reputation on that, that there are any species of conservation concern in the areas earmarked for development of the solar PV installation on farm Haramoep. The PV installation will be on the plain where the vegetation is Bushmanland Arid Grassland which is not a diverse vegetation type. The only species that would need 'Search & Rescue' would be Hoodia gordonii and even that occurs in low numbers in the proposed construction zone. In short, I believe that an autumn survey would be a waste of resources.*
2. Both for clearance and search and rescue activities require a permit from the DENC.	2. The sensitive species were mapped, and their locations recorded. Apart from Hoodia gordonii and relocation of the few plants present, it is unlikely that any Boscia albitrunca trees would be affected so no permits have been applied for. Such permits would only be applied for in the event of it being necessary. a. All the necessary permits will be applied for as appropriate and applicable to the development sites.and application(s) in this regard will be launched to DENC.
3. The cumulative impacts of the other developments (e.g. mining as well as other solar developments) in the surrounding area	3. The Strategic Environmental Assessment (SEA) for Wind and Solar Photovoltaic (PV) Energy in South Africa (CSIR, 2015) has

were not considered in the study. Not to say that the applicants needs to take responsibility for other developers but to assess the impacts of the proposed development on ecosystem function and specific vegetation units and/or protected species status on a local and regional scale is required.	identified 8 Renewable Energy Development Zones (REDZs) that are of strategic importance for large scale wind and solar PV development in terms of Strategic Integrated Project 8: Green Energy in Support of the South African Economy, as well as associated strategic transmission corridors, including the rollout of its supporting transmission and distribution infrastructure, in terms of Strategic Integrated Project 10: Electricity Transmission and Distribution. On 17 February 2016, Cabinet approved the: Renewable Energy Development Zones (REDZs) for large scale wind and solar photovoltaic development; associated Strategic Transmission Corridors which support areas where long term electricity grid will be developed; process of basic assessment to be followed and reduced decision-making timeframe for processing of applications for environmental authorisation in terms of NEMA; and acceptance of routes which have been pre-negotiated with all landowners as part of applications for environmental authorisations for powerlines and substations. a. The proposed development site and projects fall within the REDZ zone and cumulative impacts such as the mining that is referred to in your comment have hence already been assessed in the SEA for the REDZ area. The re- assessment of these does not fall into the scope of the proposed applications. **Please note:** The possible cumulative loss of vegetation due to adjacent mining operations was therefore not considered as it was considered during the SEA. However, given the extensive nature of the vegetation type (Bushmanland Arid Grassland) cumulative impacts would most likely be very low to negligible (Confirmed statement by die Botanical Specialist).
4. The waste management measures should be adequately addressed. What will happen to defective panels during the lifespan of the project? Will they be recycled or disposed of, and where will this be done? Up to 90% of the PV panels' weight (namely aluminum, glass and silicon) can be recycled. Heavy	4. Waste management measures proposed in the amended EMP recommend that waste is avoided, or where it cannot be altogether avoided, minimised and re-used or recycled where possible and otherwise disposed of in a responsible manner. The project shall generate the least amount of waste possible

metals and Cadmium (Cd) used in PV panels are however toxic substances. All toxic or hazardous waste generated during the lifespan (and at the end of its lifespan) of the project`s lifespan must be disposed of on a licensed hazardous waste site.	by properly planning material procurement (ordering, transportation and delivery), ensuring proper material handling and storage to reduce the avoidable generation of wastage (i.e. broken and damaged materials) and reusing potential waste materials on site wherever possible. Of the inevitable waste that is generated (such as PV panels reaching the end of their lifespan), as much of the waste materials as economically feasible shall be recovered and sorted for reuse elsewhere or stored separately for recycling.
5. Water is a vulnerable resource in the Northern Cape. Demand issues such as increased water use, peak use, seasonal variability, poor water use planning, poor conservation and water losses have in the past contributed to water shortages in the Northern Cape (Mukheibir, 2007). It is recommended that the applicant obtains confirmation from the Pella Drift Water Board, whether it is capable to supply the project with the required amount of water during each phase of the project. The proponent is advised to include written confirmation in the EIA from organizations such as Eskom and the Khai Ma Local Municipality which confirms that basic services such as water and electricity provision can be provided for the proposed development during the construction phase	5. Please refer to Annexure C3. The approval letter from Sedibeng Water, a Water Services Provider within the Khai-Ma Local Municipality confirms the availability to supply water for the proposed project during the planned construction and operation phases. Electricity availability confirmation is not needed prior to bid – there is a local HV network that we could in theory draw from if need be. Construction phase power can also be provided via on site generators.
6. Solar energy facilities require large land surface to harness sunlight and convert to electricity. Many of the areas being considered in the Northern Cape for solar development are at present, relatively undisturbed (NBA, 2018). The extend of surface disturbance for CSP`s is related to the cooling technology used. Because of the scarcity of water in the study area, dry-cooling system, which according to EPRI, 2002., consume 90% - 95% less water than wet-cooling systems. Dry-cooling systems are becoming a more viable option for concentrating solar facilities. Although wet-cooling systems are more economical and efficient, they consume larger amounts of water per kilowatt- hour (Torcellini et al., 2003). Unlike wet-cooling systems, dry-cooling systems use ambient air, instead of	6. It is unclear why reference is made to CSP in this context seeing that the proposed applications and activities do not consider CSP. Please refer to the proposed project descriptions. a. *Veld PV North Ltd (Veld PV North) proposes developing a **75 MW Photovoltaic (PV**) solar energy facility on Haramoep (Remainder of Farm 53) in the Namakwa District Municipality approximately 20 km north-west of Aggeneys in the Northern Cape.* b. *Veld PV South (Pty) Ltd (Veld PV South) proposes developing a **75 MW Photovoltaic (PV) solar energy facility** on Haramoep (Remainder of Farm 53) in the Namakwa District Municipality*

water, to cool the exhaust steam from the turbines. However, to achieve a heat-rejection efficiency similar to that in a wet-cooling system, Khalil and colleagues (2006) estimated that a direct dry-cooling system will require a larger footprint and would thus affect more wildlife habitat. As most CSP plants make use of a stream cycle and use of additional water for mirror washing, water use and/or the impacts of consuming water resources is considered to be potentially significant in arid environments (Tsoutus et al., 2005). The calculated amount of water use for cleaning of the panels should be elaborated upon, specifying e.g. the estimated amount of water used per panel, expected number of times panels will be cleaned per year etc. Will the water used for cleaning solar panels be treated, re–used or recycled? Clarity is needed on the management of waste water. This information will inform the water use license application.	*approximately 20 km north-west of Aggeneys in the Northern Cape.* c. Please refer to Annexure C3. The approval letter from Sedibeng Water, a Water Services Provider within the Khai-Ma Local Municipality confirms the availability to supply water for the proposed project during the planned construction and operation phases and to clean the panels. During the operational phase the water requirement would be an estimated 10 kℓ per month for 11 months of the year, increasing to approximately 300 kℓ for 1 month for washing. Bluescience (Aquatic specialist) will be doing this but the WUL will not be relevant to the cleaning of panels unless water is specifically abstracted for this purpose. The requirement should still fit within the allocation form the service provider.
7. The freshwater specialist study recommends that the stormwater management plan has taken into consideration the freshwater constraints and is supported from the aquatic ecosystem perspective.	7. Noted.
8. Clarity is needed on the chemicals used for dust suppression. The proponent is thus advised to put measures in place to control chemically treated water for dust suppression during the construction phase.	8. Noted. The exact product that will be used for dust suppression will be finalised when construction takes place. Dust suppression is likely not to be chemical and will probably rely only on water dust suppression where needed.
9. The dominant land use on the property is livestock farming. Customarily livestock requires large areas for grazing. Literature has revealed that solar energy facilities require substantial site preparation (including removal of vegetation) that alters topography and thus, drainage patterns to divert the surface flow associated with the rainfall away from plant communities. Channeling runoff away from plant communities can have effects on habitat quality (Scheisinger, et al., 2000). The proponent should be aware of the destruction and modification of habitats as well as impacts on surrounding livestock	9. Please refer to the mitigation measures contained in both EMPs (PV North and PV South): Section 4.1 (Agriculture), 4.2 (Aquatic ecology) ,4.3 (Avifauna),4.4 (Botany) and 4.6 (Hydrology).

grazing, hence appropriate mitigation measures should be implemented.	
10. The method of vegetation control below PV panels was not clearly described in the EIA report. A clear description of flora removal should be provided (e.g. removal by hand or chemically controlled). Only legally registered herbicides may be used for appropriate plant groups	10. The sensitive species were mapped, and their locations recorded. Apart from *Hoodia gordonii* and relocation of the few plants present, it is unlikely that any *Boscia albitrunca* trees would be affected so no permits have been applied for. It is likely that there will be minimal physical disturbance of vegetation during construction and that the panels themselves may shade local vegetation to the extent that it withers and dies. a. Please refer to the mitigation measure contained in both EMPs (PV North and PV South): 4.4 (Botany)
11. Above–ground electrical cables and lighting deterrent devices will have an impact on the local as well as migratory avifauna. It is recommended that below–ground electrical cabling is used if a comparative analysis of the advantages and disadvantages of aerial vs underground cabling reflect that underground cabling will have a lower environmental impact.	11. Noted. Above-ground cabling will only be used from the substations to the grid connection and below–ground cabling will be used on site. Apart from the overhead HV lines at the substation, the bulk of the cabling is run underground.
12. The management actions for Noise and Heritage Resources have to be strictly implemented. Furthermore, the management actions for the construction and waste generation also have to be implemented very strictly, but it has to include that waste containers must have lids to prevent the scattering of waste due to wind distribution. The proponent has to be informed that he needs to check the conditions of his Waste Site License again to ensure that they comply with the addition of more general waste taken into account.	12. Please refer to the EMP Section 4.5 (Heritage and Palaeontology). a. It is unclear why reference is made to Noise mitigations as the proposals entail an PV development. b. Please refer to Section 5.12 of the EMP which contains the mitigation measures in reference to Noise control during the construction phase of the proposed projects. c. Please note that the proposed applications do not include a Waste Site Licence and the reference made to this is unclear and not applicable.

13. **Avifauna impacts** The primary concern with the proposed development relates to the cumulative impacts on avifauna, particular the Kori Bustard (*Ardeotis kori*). The farm Haramoep is centrally located within a BirdLife Important Bird Area (Haramoep-Black Mountain Mine Nature Reserve) (Figure 7). **The farm Haramoep (Remainder of Farm no. 53) development of large-scale solar energy facilities in Important Bird Areas (IBA`s) is of a particular concern. Biodiversity offset should be considered should the development occur within the proposed alternative sites. Future biodiversity offsets discussions with DENC will have to take place before an Environmental Authorisation may be issued**. BirdLife South Africa has drafted Guidelines to Minimize the Impact on Birds of Solar Facilities and Associated Infrastructure in South Africa. These guidelines should be followed in conjunctions with the EMPR for the proposed development. Approximately six threatened of the 64 bird species listed is of particular concern. Of these, 20 species are classified as priority solar species, 13 as powerline priority species, and 20 as IBA trigger species. These species included Red Lark *(Callendulauda burra*); Sclaters`s Lark (*Spizocorys sclateri*); Ludwig`s Bustard (*Neotis ludwigii*); Martial Eagle (*Polemaetus bellicosus*) and Black Harrier (*Circus maurus*). The distribution of Red Larks was associated with the red sand dunes of the Bushmanland Sandy Grassland vegetation type (Mucina and Rutherford, 2006), specifically the taller dunes. The washes and drainage lines in the study area are important features for the Important Bird Area (IBA) and even ephemeral pans should be given consideration in the ecological impact assessment.	13. The avifauna specialist has commented as follows: *It is not clear why the Kori Bustard specifically singled out, nor does the comment explain which impact, or combination of impacts of the five potential impacts discussed in the specialist report, the comment refers to.* *The avifauna specialist's report found that all the pre-mitigation impacts (except the powerline collisions) are Low to Very Low, and could be mitigated to Very Low, and thus it can be concluded that an offset is not an appropriate mitigation measure. In the case of powerline collisions, the pre-mitigation impact will be High but can be reduced to Low with mitigation. Biodiversity off-sets should be considered only if all the on-site options have been exhausted and the residual impacts remain high.* As clearly stated in the avifauna specialist's report, the specialist used the BLSA Solar Guidelines to inform the study and recommendations. *There are no ephemeral pans at either of the two sites that were assessed.*
14. **Botanical Assessments** While the botanical assessment gives a good general description of the area, more site-specific information should be provided such as location of protected plant species (e.g. *Pachypodium namaquanum, Aloidendron dichotomumBoschia albitrunca,*	14. The botanical specialist has commented as follows: *In terms of the landscape that constitutes the receiving environment, the requirement of more site-specific information and location of species is not necessary. The three species mentioned, for example, DO NOT occur*

and the smaller succulents protected under the NCNCA), sizes of important habitats, conditions and context of the potential habitat impacted, conditions and context of proposed areas to be conserved for ecological connectivity and ecosystem services in the landscape. Appropriate buffers must be determined by a suitably qualified specialist to avoid impacting on these habitats and particular attention should be paid to avoiding the loss of intact habitat, maximizing connectivity at a landscape scale, maximizing habitat heterogeneity and reducing fragmentation at a local and regional scale.	*within or anywhere near the solar PV construction areas. There are also no smaller succulents in these areas. The important habitats are the 'rocky inselbergs' where Aggeneys Vygieveld is found and these are not affected in any way by the proposed renewable energy development. No further isolation of these rocky islands would result from the proposed solar PV development. Buffers have been considered and no habitat of special importance would be impacted negatively, nor would the development impede connectivity at a local or regional scale.* *The suggestion that habitat heterogeneity should be maximised and fragmentation reduced in the context of the receiving environment is ill-considered. This area has extremely large open spaces of low heterogeneity and where connectivity would not be fragmented.* *My opinion is that the author of the comments does not have first-hand knowledge of the sites in question otherwise these comments would not have been made.*
15. Overall, the development cannot be supported due to the location within CBA, PAES and PSDF environmental integration principles. Lastly, it falls within a property already committed for declaration under the Protected Areas Act (details of the latter are confidential and should further information be needed the process under the Access to Information Act procedures will have to be followed).	15. The proposed site falls within the Springbok Renewable Energy Development Zone (REDZ) which was identified as part of a Strategic Environmental Assessment (SEA). The purpose of this 'zone' was to identify the most suitable areas from both an environmental and socio-economic perspective where large scale wind and solar PV energy facilities should be developed. In addition, an Electricity Grid Infrastructure (EGI) SEA was commissioned in 2014 to identify power corridors that will enable the efficient and effective expansion of key strategic transmission infrastructure designed to satisfy national transmission requirements up to 2040. The gazetting of the outputs of these two SEAs was approved by Cabinet on 17 February 2016 (CSIR, 2016). These areas would direct future grid expansion and allow for regulatory processes therein to be streamlined. a. In reference to PV South: Desmet & Marsh (2008) mapped the Critical

	Biodiversity Areas (CBAs) for the Namaqua District Municipality Biodiversity Sector Plan. Their work has subsequently been extended to the entire Northern Cape Province and shapefiles for the relevant map that covers the Veld PV South focus area was obtained (E. Oosthuysen pers. comm.) The map designates the Veld PV South 'focus area' as falling within a Critical Biodiversity Area 2 (CBA2 – Figure 21). The definition and parameters of CBA2 according to Desmet & Marsh (2008) are given in Appendix 1. CBA2 includes important areas that have endangered vegetation types, important habitat types and threatened species. The Veld PV South 'focus area' has none of these attributes except for *Hoodia gordonii* and marginally *Boscia albitrunca*. The rationale for assigning this area to CBA2 is not clear and no documentation is currently available that explains this designation. Based on field observations the Botanical Specialist believes that the Veld PV South area should be assigned Ecological Support Area (ESA) status which still points to its ecological value but does not assign a 'critical' status to the area. The rationale for assigning this area to CBA1 and CBA2 is not clear and no documentation is currently available that explains this designation. It is the Botanical Specialist's contention, based on observations, that the Veld PV South focus area should be assigned Ecological Support Area (ESA) status which still points to its ecological value but does not assign a 'critical' status to the area (Refer to the Botanical Impact Assessment, 2019)
16. The impact of these proposed developments on a landscape and ecological function scale on species and their habitats are insufficiently addressed. Further contextualization is needed of other environmental impacts in the area within the local, district and landscape contexts, taking into consideration the cumulative impacts of all other developments within this landscape	16. Please refer to Annexures D1-D9 which contains in depth assessments of the various specialists for the proposed developments which provides contextualization is needed of other environmental impacts in the area within the local, district and landscape contexts, taking into consideration the cumulative impacts of all other developments within this landscape (including e.g. mining,

(including e.g. mining, prospecting, Protected Area Expansions Plans, CBA map, Centers of Endemism, threatened species ranges and conservation status, etc.). Then, these need to be interpreted in terms of their impact on not only species alone, but also ecosystem function and connectivity, and lastly ecosystem services.	prospecting, Protected Area Expansions Plans, CBA map, Centers of Endemism, threatened species ranges and conservation status, etc.). Broader scale cumulative impacts have been addressed in the SEA for the identification and establishment of the REDZ. Furthermore, please refer to the Draft BARs: Section 7 which contain the description of the environment, study methods that were applied assessment of impact and conclusion of each.
17. The impacts of these developments on avifauna has insufficiently being addressed.	17. The avifauna specialist has commented as follows: *No motivation is given for this statement. The avifauna specialist disagrees with the statement as the BLSA best practice guidelines have been used in the preparation of the report.*
18. It is strongly recommended that the CSP is not pursued and that only the PV technology may be considered. However, this can only be considered if the location is moved to less sensitive sections of the property, i.e. the western to south wester corner. This is based on the extent of environmental impacts of the different technologies and its potential 'compatibility' with a current process underway and to secure connectivity on a landscape level.	18. It is unclear why reference is made to CSP in this context seeing that the proposed applications and activities do not consider CSP. Please refer to the proposed project descriptions in the Basic Assessment Reports. a. *Veld PV North Ltd (Veld PV North) proposes developing a **75 MW Photovoltaic (PV**) solar energy facility on Haramoep (Remainder of Farm 53) in the Namakwa District Municipality approximately 20 km north-west of Aggeneys in the Northern Cape.* b. *Veld PV South (Pty) Ltd (Veld PV South) proposes developing a **75 MW Photovoltaic (PV) solar energy facility** on Haramoep (Remainder of Farm 53) in the Namakwa District Municipality approximately 20 km north-west of Aggeneys in the Northern Cape.*
19. The PV development can only be considered if it is towards the western tip of the farm on the plains, as close as possible to the western border fence of the property	19. The proposed development, as set out in the application forms and basic assessment reports, is for Solar PV infrastructure located on the plains on the western side of the affected properties.
20. It is suggested that a Biodiversity Offset Assessment would be appropriate and necessary for *both development sites* before environmental authorisation is considered.	20. The avifauna specialist's report found that *all the pre-mitigation impacts (except the powerline collisions) are Low to Very Low, and could be mitigated to Very Low, and thus*

Although the specialist reports do not propose biodiversity offset, nothing precludes the option of exploring an *off-site* offset and we strongly encourage that this be considered and investigated	*it can be concluded that an offset is not an appropriate mitigation measure. In the case of powerline collisions, the pre-mitigation impact will be High but can be reduced to Low with mitigation. Biodiversity off-sets should be considered only if all the on-site options have been exhausted and the residual impacts remain high.*
21. Proposed conditions and monitoring that must be included if the PV development is considered: a. Amphibian and reptile movement on the facility, with specific focus on sexual ratios present (to determine the impact of the PV heat island effect on cold blooded species); b. Bird injuries and mortalities to be monitored. c. Insect monitoring to determine if the plant attracts more insects and if there is a change in insect composition and movement (e.g. attracting night activities and insect seasonality shifts). d. PV heat island monitoring to determine the extent of the heat island generated and associated climate / wind pattern impacts (e.g. twirl wind incidence and strength increase or decrease). PV heat islands research is inconclusive, but due to public pressure being received, blaming solar developments for such climatic changes, it must be monitored. It has been found in the Sonoran Desert that these developments do create heat islands and they regard is as a concern for arid environments. e. No footprint impacts may occur on sensitive habitats and/or threatened species (especially also not range restricted species). f. No footprint impacts within the washes / drainage lines should occur. g. The development must be fenced off and localized to limit its impacts on the remainder part of the property optimally.	21. Noted, these mitigation measures will be included in the Final EMPs a. Amphibian and reptile movement monitoring will be included in the EMPR. b. It is not clear if the recommended monitoring refers to the powerline or the PV sites. While there is some merit in such a recommendation for the powerline, it will have little value for the PV site given the low risk of collisions happening. c. Insect monitoring will be included in the EMPR. d. Temperature monitoring will be included in the EMPR to confirm whether the heat island effect is present. Sensitive sites have been buffered by 30m which the research indicates is the extent of the heat island effect. Heat islands would influence all Solar PV installations (and possibly any development that changes the surface configuration of the site) and thus should be addressed through a review of the REDZ and associated SEA. e. The development footprints have been informed by site sensitivities determined by the specialists. f. Washes and draining lines have been avoided in the site layout. g. The development will be fenced.