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NON-TECHNICAL EXECUTIVE SUMMARY OF THE ENVIRONMENTAL IMPACT ASSESSMENT REPORT

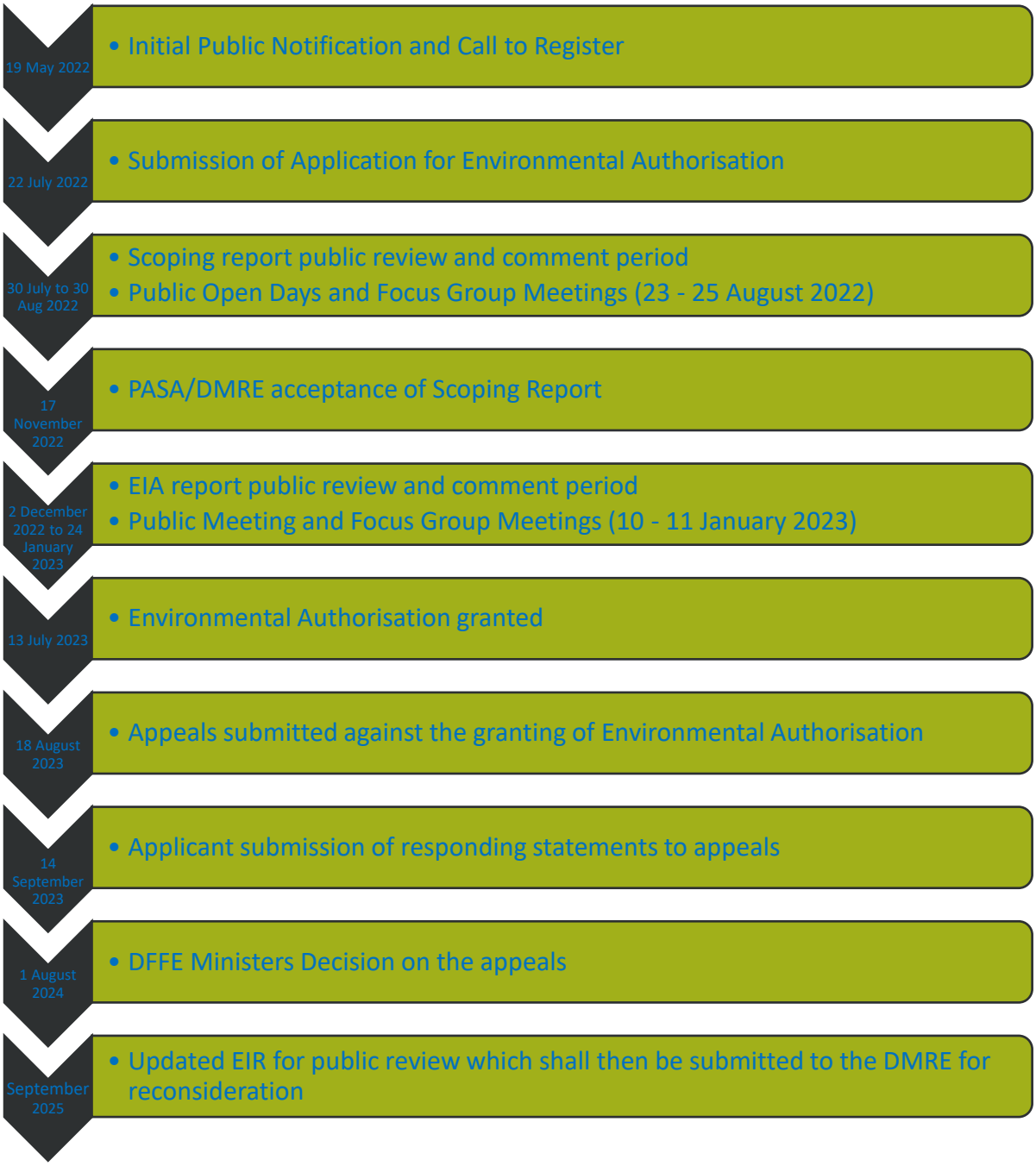
TETRA4 CLUSTER 2 VIRGINIA GAS PRODUCTION PROJECT

PASA Ref: 12/4/007

SEPTEMBER 2025

1 EXECUTIVE SUMMARY (NON-TECHNICAL)

In 2022, Tetra4 (the applicant) commenced with an application for Environmental Authorisation for the Cluster 2 gas production activities which would form an extension to the existing Cluster 1 gas production being undertaken near Virginia in the Free State Province. The application followed a full Scoping and Environmental Impact Assessment process which culminated in a positive Environmental Authorisation being issued which was subsequently appealed. The timelines and related aspects of the application process are detailed below.



As indicated above, appeals were subsequently lodged against the decision which included new information that was not submitted during the previous EIA phase public consultation period (i.e. independent Expert Critique of certain specialist studies at the appeal phase). Seven grounds of appeal were raised by the appellants. Based on the DFFE Ministers consideration of the grounds appeal the DFFE Minister issued an Appeal decision dated 1

August 2024. Within the DFFE Ministers Decision, 5 grounds of appeal were dismissed while 2 grounds of appeal were upheld with recommendations that the Applicant undertake further investigations, update the EIA Report, undertake a further 30-day public review of the updated EIA Report, and submit the updated EIA Report for reconsideration to the Competent Authority (in this case the Department of Mineral Resources and Energy). This updated EIA Report has been prepared to address the recommendations and shortcomings identified in the Ministers decision and includes updates to the following:

1. Updated Climate Change Specialist Study to include the following:
    a. Address the issues raised by the Expert Critique relating to the GHG emissions calculations;
    b. Provide a more detailed analysis of the impacts of climate change on the various activities associated with the construction and operation of the project, and on the environment and affected communities; and
    c. Expand further on more recent information relating to LNG as a viable "bridging fuel" for reducing GHG emissions;
2. Consideration of climate change impacts in the delineation of the 1:100-year floodline and how the climate change predicted floodlines may impact the proposed development.
3. Updated Geohydrological (groundwater) Impact Specialist Study following additional baseline aquifer characterisation, detail on deep confined aquifer and associated water quality, discussions on the gas well stratigraphy, construction methods and associated hydrogeology impacts and potential source terms of the proposed activities is clearly defined.

Following incorporation and reconsideration of the additional information, there are no material changes to the identified impacts, the relevant impact assessment significance levels, or the mitigation measures previously put forward in the original EIA Report. The additional information gathered and considered in the updated specialist studies reinforces / supports the outcomes presented in the original EIA Report.

Changes to the original EIA Report and EMPr are reflected in blue text for ease of reference.

This non-technical executive summary provides a high-level overview of this updated Environmental Impact Assessment Report. The reader is urged to consult later sections of this report should more specific information or detail be required on various aspects.

1.1 PROJECT OVERVIEW

Tetra4 (Pty) Ltd (a wholly owned subsidiary of Renergen) holds a Gas Production Right (Ref: 12/4/1/07/2/2) that was granted in 2012 which spans approximately 187 000 hectares for the development of natural gas production operations near the town of Virginia in the Free State Province. Within the approval of the Production Right, the 2010 Environmental Management Programme (EMPr) was approved which was applicable to a large portion of the Production Right area.

On 21 September 2017, the Department of Mineral Resources and Energy (DMRE) issued an integrated environmental authorisation ("Cluster 1 EA" – reference number 12/04/07) to Tetra4 in terms of the National Environmental Management Act (Act 107 of 1998 – NEMA) and the National Environmental Management Waste Act (Act 59 of 2008 – NEMWA). The Cluster 1 EA authorises the development of "Cluster 1" of the Project. In this EA approval, various new wells and pipelines, booster and compressor stations, a Helium and Liquid Natural Gas (LNG) Facility and associated infrastructure was approved which comprises the first gas field for development within the approved Production Right area.

Following the successful commencement of Cluster 1, Tetra4 wishes to expand the natural gas operations, to be located within the approved production right area and overlapping with the Cluster 1 project. The Cluster 2 application area covers a total of ~27 500 hectares. This planned expansion to the existing approved production

activities will involve up to 300 new production wells, ~480km of gas transmission pipelines and associated infrastructure, 3 compressor stations and an additional new combined LNG and Liquid Helium (LHe) plant ("LNG/LHe Plant") and associated infrastructure as part of the "Cluster 2" expansion of the Project to meet the future production requirements. This updated Environmental Impact Assessment Report follows on from the Scoping Report and previous EIA Report and is prepared as part of an integrated environmental authorisation and waste management licence for the Cluster 2 development.

The proposed development infrastructure triggers various listed activities in terms of the NEMA Listing Notices 1, 2 and 3 as well as the National Environmental Management Waste Act (Act 59 of 2008 – NEMWA) and a full Scoping and Environmental Impact Assessment process is being undertaken. The relevant WUL and AEL applications are being / will be submitted for the licencing requirements under the NWA and NEMAQA respectively. As part of this EIA Report, certain amendments have been made to the approved EMPr existing approved Environmental Management Programme (EMPr) to include the Cluster 2 project as well as required amendments to mitigation measures that were identified during this assessment process. This amended EMPr would replace the current approved EMPr for the Production Right and Cluster 1.

1.2 NEED FOR THE PROJECT

Tetra4 has successfully commenced operation of the Cluster 1 Helium and Methane gas production operations with proven resources gas (Helium and Methane). Helium is one of the most sought-after products to be produced and processed by the proposed Cluster 2 gas production development. Helium has numerous uses other than making balloons float which includes medical applications, manufacturing and cryogenics as well as space travel. Liquid Natural Gas (LNG - Methane) is produced both worldwide and domestically at relatively low cost and is cleaner burning with lower CO_2 emissions than coal, petrol, diesel or propane fuels which currently dominate the energy production sector in South Africa and many other countries. As Helium and Methane occur together in the underground reserves, the project will produce both products simultaneously and therefore it is not possible to target either gas individually.

1.3 PROJECT DESCRIPTION AND INFRASTRUCTURE

The Tetra4 Production Right is located within the Virginia Gas Field. Within the Virginia Gas Field geological profile, fault systems associated with closely spaced zones of fractures and joints provide for preferential pathways for gas to reach the surface. Once the gas target areas are intersected by drilling the feed gas will flow passively out of the wells at a low pressure of ~0.4 psi (pounds per square inch) and with a temperature in the range between 10 º and 30 ºC. For comparison, the atmospheric pressure at sea level is 14.7 psi which is far greater than the gas being passively released from this gas field. Due to the very low gas pressure in the wells, a group of ~10 wells will be linked via underground pipelines to a surface booster station which provides a suction pressure on the wells to enhance flow. The booster stations then boost the pressure in main underground transmission pipelines to the compressor stations where the pressure is again increased to transfer the gas via underground trunklines to the gas processing, storage and distribution plant (LNG/LHe Plant).

1.3.1 DRILLING

Exploration wells will be drilled and, if successful, converted into production wells. As the exact location of exploration well drilling cannot be identified at this stage owing to the nature of exploration models being continually refined, this study has followed the approach of assessing well corridors (600 m wide or 300 m on either side of known target fault lines). Exploration drilling entails the use of a truck, trailer or skid mounted drill rig to drill to varying depths (~380 m to ~880 m) along known fault lines in order to strike the gas reserve.

Drill rigs typically require temporary clearance or disturbance of an area of 50 m x 50 m to set up the rig and begin drilling activities which take approximately 3 to 4 months per well. Immediately after the drilling, testing of the gas volumes and compositions is undertaken which takes approximately 7 to 14 days. All exploration boreholes must be drilled and cased in accordance with applicable international standards and best practice guidelines and will be sealed with a combination of steel casing and grouting (cement) to ensure there is no mixing of gas or deep saline water with the shallower freshwater aquifers.

The drilling of exploration boreholes is a temporary and short-lived activity and the equipment to be used during drilling activities includes a truck/trailer or skid mounted drill rig, excavator, dozer, grader, water cart, light motor vehicle for transport of personnel and chemical toilets. Exploration boreholes that are successful (gas producing) will be turned into production wells by installing a valve within an underground concrete bunker with a manhole surface area of ~1.5 m^2. Unsuccessful exploration wells will be safely decommissioned and rehabilitated. All wells that are drilled and used for production purposes are strengthened with a combination of casing and grouting to average depths of 300 m to prevent any interplay between deep and shallow groundwater resources.

1.3.2 PIPELINES

~480 km of underground gas pipelines will be constructed to link the ~300 production wells to the compressor stations and LNG/LHe Plant. Pipelines will be a combination of high-pressure steel as well as low-pressure high-density polyethylene (HDPE) and will be installed at a minimum depth of 1.5 m below surface level. The pipeline will be installed using a back-actor and TLB. Pipeline servitude corridors (10 m wide) will be maintained free of woody plants to prevent disturbance of the pipeline by root growth and ensure access by Tetra4 personnel for regular inspection and infrequent maintenance. Pipelines will be marked with concrete markers and adhere to industry standards and will have low point drains at strategic locations for testing and pipeline maintenance.

1.3.3 GAS INLINE STATIONS

To transport gas via pipelines from the production wells to the LNG/LHe Plant, various inline infrastructure is required to monitor, measure and control gas flow through the pipelines and this includes booster stations, pigging stations, low point drains and compressor stations.

The booster stations will occupy an area of ~10 m x 14 m and a total of 28 booster stations may be constructed. Inline pigging stations are installed to allow for regular cleaning and inspection of the pipelines near river crossings. The pigging stations allow for insertion of probes or cleaning “pigs” (plugs) at regular intervals to perform regular maintenance and in total approximately 14 pig launcher/receiver pairs may be constructed.

Raw gas received at the compressor stations will be filtered to remove dust and moisture. Once filtered, the gas from the compressors will be piped for final processing to the LNG/LHe Plant. A total of 3 compressor stations will be constructed and the footprint for a compressor station will be approximately 60 m x 60 m.

1.3.4 LNG AND HELIUM PLANT

The LNG/LHe facility is a facility to convert the Helium and Methane into a liquid form for storage before being transported by road tankers to offtake suppliers. The Cluster 2 LNG/LHe Plant will be constructed directly adjacent to the existing Cluster 1 plant which is currently under construction on the remaining extent of the farm Mond Van Doornrivier 38 and adjacent to the R30 Road and the Sandrivier bridge. A Major Hazardous Installation (MHI) study has been undertaken on the pipelines and plant which concluded that an accidental release of methane will not impact on any residential area or sensitive receptor.

The LNG/LHe plant comprises of the following process units:

- Gas Treatment and Boosting System;
- Helium Separation Unit;
- Gas Liquefaction System;
- LHe Storage (~2x100 m^3);
- LNG Storage (~11x300 m^3); and
- LHe and LNG road tanker loading bays.

The area to be occupied by the proposed Cluster 2 LNG/LHe plant in the operational phase is ~9.6 hectares while an additional ~15.8 hectare area directly adjacent to the Plant will be cleared during the construction phase for

various contractor laydown areas, offices, parking, waste storage, etc. This latter area will be rehabilitated following construction.

1.4 SPECIALIST STUDIES

Several specialist studies have been commissioned to investigate key issues and impacts and findings from these studies are included in this report. The specialist study reports are included in Appendix 4 of the complete EIAr. A list of the specialist studies conducted to inform this EIA process is included below:

- Soils and Agriculture
- Air Quality and Health Risk
- Climate Change and Green House Gas (updated following Ministers Appeal Decision)
- Economic
- Financial Provision for Rehabilitation, Decommissioning and Closure
- Geohydrology / Groundwater (updated following Ministers Appeal Decision)
- Heritage and Palaeontology
- Hydrology / Surface Water (updated following Ministers Appeal Decision)
- Noise
- Social
- Terrestrial Biodiversity
- Visual
- Wetland and Aquatic

1.5 IMPACTS IDENTIFIED AND SUMMARY OF IMPACT ASSESSMENT

A list of biophysical and socio-economic impacts that have been identified and assessed as well as the pre-mitigation environmental risk, post mitigation environmental risk and final significance when applying a priority factor is presented below.

Discipline	Impact	Phase	Pre-mitigation ER	Post-mitigation ER	Final Significance
Air Quality	Air Quality - Increase in air quality impacts due to construction of the road/pipeline	Construction	-9	-6.8	-8
	Air Quality - Increase in air quality impacts due to construction of the wells and booster stations	Construction	-10	-6.8	-8
	Air Quality - Increase in air quality impacts due to construction of the plant and compressor stations	Construction	-11	-7.5	-8
	Air Quality - Increase in air quality impacts due to the operation of vehicles on unpaved roads	Operation	-12	-7.5	-8
	Air Quality - Increase in air quality impacts due to operation of the booster stations	Operation	-12	-8.3	-8
	Air Quality - Increase in air quality impacts due to operation of the plant	Operation	-7.5	-7.5	-8
	Air Quality - Increase in air quality impacts due to decommissioning and closure	Decommissioning	-11	-7.5	-8

Discipline	Impact	Phase	Pre-mitigation ER	Post-mitigation ER	Final Significance
Climate Change	Climate Change risk due to Scope 1 & 2 construction	Construction	-8	-7	-9
	Climate Change risk due to Scope 1 & 2 construction	Operation	-12	-11	-15
Noise	Noise - Increase in noise levels due to construction of the pipeline	Construction	-11	-7.5	-8
	Noise - Increase in noise levels due to construction of the wells and Blower Stations	Construction	-12	-8.3	-8
	Noise - Increase in noise levels due to construction of the Plant and Compressor Stations	Construction	-8.3	-7.5	-8
	Noise - Increase in noise levels due to Blower Station operation	Operation	-9	-6	-6
	Noise - Increase in noise levels due to Plant and Compressor Station operation	Operation	-9	-6	-6
	Noise - Increase in noise levels	Decommissioning	-11	-7.5	-8
Geohydrology	Groundwater deterioration and siltation due to contaminated stormwater run-off from the construction area.	Construction	-4	-1.8	-2
	Poor quality leachate may emanate from the construction camp which may have a negative impact on groundwater quality.	Construction	-8.3	-4.5	-6
	Mobilisation and maintenance of heavy vehicle and machinery on-site may cause hydrocarbon contamination of groundwater resources.	Construction	-12	-7.5	-9
	Poor storage and management of hazardous chemical substances on-site may cause groundwater pollution.	Construction	-8.3	-4.5	-6
	Migration of saline groundwater from the deep, fractured aquifer to the overlying, potable aquifer(s) during the gas production phase.	Operation	-18	-12	-15
	Migration of stray gas from the deep, fractured aquifer to the overlying, potable aquifer(s) during the gas production phase.	Operation	-18	-12	-15
	Groundwater pollution as a result of wastewater spills and seepage from the evaporation dams.	Operation	-12	-7.5	-9
	Poor quality leachate may emanate from the plant footprint area which may have a negative impact on groundwater quality.	Operation	-12	-7.5	-9
	Mobilisation and maintenance of heavy vehicle and machinery on-site may cause hydrocarbon contamination of groundwater resources.	Operation	-8.3	-4.5	-6
	Poor storage and management of hazardous chemical substances on-site	Operation	-12	-7.5	-9

Discipline	Impact	Phase	Pre-mitigation ER	Post-mitigation ER	Final Significance
	may cause groundwater pollution.				
	Leakage of harmful substances from tanks, pipelines or other equipment may cause groundwater pollution.	Operation	-12	-7.5	-9
	Migration of saline groundwater from the deep, fractured aquifer to the overlying, potable aquifer(s) during the borehole closure and decommissioning phase.	Decommissioning	-16	-9	-11
	Migration of stray gas from the deep, fractured aquifer to the overlying, potable aquifer(s) borehole closure and decommissioning phase.	Decommissioning	-16	-9	-11
	Groundwater pollution as a result of wastewater spills and seepage from the evaporation dams.	Decommissioning	-6.5	-2.3	-3
	Poor quality leachate may emanate from the plant footprint area which may have a negative impact on groundwater quality.	Decommissioning	-6.5	-2.3	-3
	De-mobilisation of heavy vehicle and machinery as part of the decommissioning phase on-site may cause hydrocarbon contamination of groundwater resources.	Decommissioning	-6.5	-2.3	-3
Hydrology	Hydrology - Loss of watercourse vegetation	Construction	-3	-1.5	-2
	Erosion	Construction	-6	-3	-3
	Stormwater contamination	Construction	-7	-3	-3
	Alien and/or Invasive Vegetation	Construction	-6.5	-1.8	-2
	Alterations of the river banks and river bed	Construction	-6.8	-3.5	-4
	Erosion	Operation	-5.5	-2.8	-3
	Stormwater contamination	Operation	-9	-3.5	-4
	Alien and/or Invasive Vegetation	Operation	-9.8	-4	-5
	Erosion	Decommissioning	-5	-2.5	-3
	Stromwater contamination	Decommissioning	-9	-3.5	-4
	Alien and/or Invasive Vegetation	Decommissioning	-6.5	-1.8	-2
Heritage & Palaeontology	Impact on unidentified heritage resources	Construction	-3	-5.5	-8
	Impact on burial grounds and graves	Construction	-16	-6	-8
	Impact on historic to recent sites with possible graves	Construction	-11	-6	-8
	Impact on structures of medium heritage significance	Construction	10.5	-5	-6
	Impact on palaeontology	Construction	-18	-8	-11
Social	Impact on livelihoods	Construction	-15	-11	-14
	Impact on livelihoods	Operation	-18	-15	-21
	Impact of servitudes on land values	Operation	-21	-15	-21
	Uncertainty in terms of land tenure, access control, etc.	Planning	-16	-8.3	-10
	Nuisance factor due to increase in ambient dust and noise levels	Construction	-13	-10	-11
	Changes in travel patterns	Construction	-13	-9	-10

Discipline	Impact	Phase	Pre-mitigation ER	Post-mitigation ER	Final Significance
	Damage to farm roads, existing services, and infrastructure	Construction	-15	-10	-11
	Damage to farm roads, existing services, and infrastructure	Operation	-14	-13	-16
	Impacts on livelihoods due to behaviour of contractors	Construction	-11	-6.8	-8
	Impacts on safety and security of local residents	Construction	-13	-11	-17
	Impacts on safety and security of local residents	Operation	-19	-14	-18
	impacts on sense and spirit of place	Construction	-15	-10	-14
	impacts on sense and spirit of place	Operation	-20	-20	-28
	Impacts on the social licence to operate	Construction	-12	11	14
	Impacts on the social licence to operate	Operation	-15	13	16
	Increase in social pathologies	Construction	-11	-10	-11
	Public perceptions about safety associated with gas production	Operation	-12	-6.8	-7
	Contribution to economy of South Africa	Operation	22.5	23.8	27
	Secondary economic opportunities	Construction	11	17.5	20
	Secondary economic opportunities	Operation	13	18.8	21
	Potential opportunity for education, skills development, and training	Operation	13	18.8	21
Visual	Impact on Existing Agricultural Landscape Character	Construction	-8	-8	-9
	Impact on Existing Agricultural Landscape Character	Operation	-4	-4	-5
	Impact on Existing Agricultural Landscape Character	Decommissioning	-10	-1	-1
	Impact on Existing Natural Landscape Character	Construction	-8	-3	-3
	Impact on Existing Natural Landscape Character	Operation	-7.5	-3.5	-4
	Impact on Existing Natural Landscape Character	Decommissioning	-5.3	-2	-2
	The visual impact on views from local roads	Construction	-8	-5.3	-6
	The visual impact on views from local roads	Operation	-11	-7.5	-8
	The visual impact on views from local roads	Decommissioning	-10	-1	-1
	Change of Natural of Views from Homesteads	Construction	-12	-4.5	-5
	Change of Natural of Views from Homesteads	Operation	-6	-4	-5
	Change of Natural of Views from Homesteads	Decommissioning	-10	-1	-1
	The visual impact on views from local homesteads due to Lighting	Construction	-8	-1	-1
	The visual impact on views from local homesteads due to Lighting	Operation	-11	-1.8	-2
	The visual impact on views from local homesteads due to Lighting	Decommissioning	-8	-1	-1
Terrestrial	Temporary disturbance of wildlife due to increased	Planning	-3.5	-2	-2

Discipline	Impact	Phase	Pre-mitigation ER	Post-mitigation ER	Final Significance
	human presence and possible use of machinery and/or vehicles.				
	Destruction, further loss and fragmentation of the vegetation community	Construction	-11	-9	-11
	Introduction of alien species, especially plants	Construction	-7.5	-6	-7
	Erosion due to storm water runoff and wind	Construction	-7.5	-6.8	-8
	Displacement of faunal community due to habitat loss, direct mortalities and disturbance (road collisions, noise, light, dust, vibration and poaching).	Construction	-9	-7.5	-8
	Environmental pollution due to potential leaks, discharges, pollutant leaching into the surrounding environment	Operation	-9	-5.5	-6
	Continued fragmentation, further loss and fragmentation of the vegetation community	Operation	-11	-8.3	-10
	Vegetation loss due to erosion and encroachment by alien invasive plant species	Operation	-8.3	-4.5	-5
	Potential leaks, discharges, pollutant from activities leaching into the surrounding environment	Operation	-9	-7.5	-8
	Continued displacement and fragmentation of the faunal community (including threatened or protected species) due to ongoing anthropogenic disturbances (noise, dust and vibrations) and habitat degradation/loss (litter, road mortalities and/or poaching).	Operation	-12	-5.5	-6
	Continued encroachment of vegetation community by alien invasive plant species as well as erosion due to disturbed soils	Decommissioning	-7.5	-4.5	-5
	Continued displacement and fragmentation of the faunal community (including potential threatened or protected species) due to ongoing habitat degradation/loss (infringement, litter, road mortalities and/or poaching).	Decommissioning	-7.5	-4.5	-5
Hydropedology	Construction of compressors and wells	Construction	-7.5	-7.5	-8
	Construction of pipelines and transmission loop	Construction	-6	-6	-7
	Operation of Compressor and Wells	Operation	-8.3	-5.5	-6
	Operation of pipelines and transmission loop	Operation	-7.5	-5	-6
	Decommissioning of Compressors and Wells	Decommissioning	-6	-6	-7
	Decommissioning of pipelines and transmission loop	Decommissioning	-4	-4	-5
Wetlands	Exploration Wells - Habitat	Planning	-4	-2.3	-3

Discipline	Impact	Phase	Pre-mitigation ER	Post-mitigation ER	Final Significance
	Exploration Wells - Water Quality	Planning	-4	-2.3	-2
	Exploration Wells - Flow	Planning	-3	-1.5	-2
	Pipelines and Transmission loop - Habitat	Construction	-7.5	-4	-5
	Pipelines and Transmission loop - Water Quality	Construction	-3.5	-3.5	-4
	Pipelines and Transmission loop - Flow	Construction	-3	-3	-3
	Compressors Station CS1 - Habitat	Construction	-8.3	-5	-6
	Compressors Station CS1 - Water Quality	Construction	-3.5	-3.5	-4
	Compressors Station CS1 - Flow	Construction	-3	-3	-3
	Compressors Station CS1 - Habitat	Construction	-3	-3	-3
	Compressors Station CS1 - Water Quality	Construction	-3	-3	-3
	Compressors Station CS1 - Flow	Construction	-3	-2.5	-3
	Compressors CS2 - Habitat	Construction	-4	-4	-5
	Compressors CS2 - Water Quality	Construction	-3.5	-3.5	-4
	Compressors CS2 - Flow	Construction	-3	-3	-3
	Compressors CS3 - Habitat	Construction	-3.8	-3	-3
	Compressors CS3 - Water Quality	Construction	-3.5	-3.5	-4
	Compressors CS3 - Flow	Construction	-3	-3	-3
	Compressors CS3 - Habitat	Construction	-4	-4	-5
	Compressors CS3 - Water Quality	Construction	-3.5	-3.5	-4
	Compressors CS3 - Flow	Construction	-3	-3	-3
	Powerlines - Habitat	Construction	-5.5	-3	-3
	Powerlines - Water Quality	Construction	-2	-1.3	-1
	Powerlines - Flow	Construction	-2.5	-1.3	-1
	Access Roads - Habitat	Construction	-4.5	-3	-3
	Access Roads - Water Quality	Construction	-6.8	-4	-4
	Access Roads - Flow	Construction	-3.5	-2	-2
	LNG/LHe Plant - Habitat	Construction	-4	-3	-3
	LNG/LHe Plant - Water Quality	Construction	-3.5	-2.5	-3
	LNG/LHe Plant - Flow	Construction	-3	-2.5	-3
	Pipelines and Transmission loop - Habitat	Operation	-4	-2.5	-3
	Pipelines and Transmission loop - Water Quality	Operation	-3.5	-2	-2
	Pipelines and Transmission loop - Flow	Operation	-3	-1	-1
	Compressors Station CS1 - Habitat	Operation	-9.8	-6	-7
	Compressors Station CS1 - Water Quality	Operation	-3.5	-3.5	-4
	Compressors Station CS1 - Flow	Operation	-4	-4	-4
	Compressors Station CS1 - Habitat	Operation	-6.8	-3.5	-4
	Compressors Station CS1 - Water Quality	Operation	-3.5	-3.5	-4
	Compressors Station CS1 - Flow	Operation	-3	-1	-1
	Compressors CS2 - Habitat	Operation	-8.3	-3	-3
	Compressors CS2 - Water Quality	Operation	-3	-2	-2
	Compressors CS2 - Flow	Operation	-4.5	-2	-2
	Compressors CS3 - Habitat	Operation	-7.5	-4	-5
	Compressors CS3 - Water Quality	Operation	-3.5	-3.5	-4
	Compressors CS3 - Flow	Operation	-4	-4	-4

Discipline	Impact	Phase	Pre-mitigation ER	Post-mitigation ER	Final Significance
	Compressors CS3 - Habitat	Operation	-7.5	-4	-5
	Compressors CS3 - Water Quality	Operation	-3.5	-3.5	-4
	Compressors CS3 - Flow	Operation	-4	-4	-4
	Powerlines - Habitat	Operation	-5	-3.5	-4
	Powerlines - Water Quality	Operation	-1	-1	-1
	Powerlines - Flow	Operation	-1	-1.3	-1
	Access Roads - Habitat	Operation	-9	-4.5	-5
	Access Roads - Water Quality	Operation	-5	-4	-4
	Access Roads - Flow	Operation	-5	-3.5	-4
	LNG/LHe Plant - Habitat	Operation	-4.5	-4	-4
	LNG/LHe Plant - Water Quality	Operation	-3.5	-3.5	-4
	LNG/LHe Plant - Flow	Operation	-3	-3.5	-4
	Pipelines and Transmission loop - Habitat	Decommissioning	-7.5	-4	-5
	Pipelines and Transmission loop - Water Quality	Decommissioning	-3.5	-3.5	-4
	Pipelines and Transmission loop - Flow	Decommissioning	-3	-3	-3
	Compressors Station CS1 - Habitat	Decommissioning	-8.3	-5	-6
	Compressors Station CS1 - Water Quality	Decommissioning	-3.5	-3.5	-4
	Compressors Station CS1 - Flow	Decommissioning	-3	-3	-3
	Compressors Station CS1 - Habitat	Decommissioning	-3	-3	-3
	Compressors Station CS1 - Water Quality	Decommissioning	-3	-3	-3
	Compressors Station CS1 - Flow	Decommissioning	-3	-2.5	-3
	Compressors CS2 - Habitat	Decommissioning	-4	-4	-5
	Compressors CS2 - Water Quality	Decommissioning	-3.5	-3.5	-4
	Compressors CS2 - Flow	Decommissioning	-3	-3	-3
	Compressors CS3 - Habitat	Decommissioning	-3.8	-3	-3
	Compressors CS3 - Water Quality	Decommissioning	-3.5	-3.5	-4
	Compressors CS3 - Flow	Decommissioning	-3	-3	-3
	Compressors CS3 - Habitat	Decommissioning	-4	-4	-5
	Compressors CS3 - Water Quality	Decommissioning	-3.5	-3.5	-4
	Compressors CS3 - Flow	Decommissioning	-3	-3	-3
	Powerlines - Habitat	Decommissioning	-5	-3	-3
	Powerlines - Water Quality	Decommissioning	-2	-1.3	-1
	Powerlines - Flow	Decommissioning	-2.5	-1.3	-1
	Access Roads - Habitat	Decommissioning	-4.5	-3	-3
	Access Roads - Water Quality	Decommissioning	-6	-4	-4
	Access Roads - Flow	Decommissioning	-3.5	-2	-2
	LNG/LHe Plant - Habitat	Decommissioning	-4	-3	-3
	LNG/LHe Plant - Water Quality	Decommissioning	-3.5	-2.5	-3
	LNG/LHe Plant - Flow	Decommissioning	-3	-2.5	-3
Economic	GGP Impact	Construction	16	16	18
	Employment Impacts	Construction	13	13	15
	Forex savings	Construction	-9.8	-9.8	-11
	Fiscal Income	Construction	12	12	14
	Economic development per capita	Construction	15	15	17
	Country and Industry Competitiveness	Construction	16	16	18
	Black Economic Transformation	Construction	14	14	16
	Alternative Land-use	Construction	8.75	8.75	10
	Need and Desirability	Construction	15	15	17
	Impact on individual farmland values	Construction	-7.5	-7.5	-8
	GGP Impact	Operation	23.8	23.8	33

Discipline	Impact	Phase	Pre-mitigation ER	Post-mitigation ER	Final Significance
	Employment Impacts	Operation	17	17	23
	Forex savings	Operation	18	18	25
	Fiscal Income	Operation	17	17	23
	Economic development per capita	Operation	17	17	23
	Country and Industry Competitiveness	Operation	20	20	28
	Black Economic Transformation	Operation	16	16	22
	Alternative Land-use	Operation	11.3	11.3	15
	Need and Desirability	Operation	20	20	28
	Impact on individual farmland values	Operation	-9	-9	-12
	GGP Impact	Decommissioning	-13	-13	-13
	Employment Impacts	Decommissioning	-13	-13	-13
	Forex savings	Decommissioning	-23	-23	-23
	Fiscal Income	Decommissioning	-23	-23	-23
	Economic development per capita	Decommissioning	-13	-13	-13
	Country and Industry Competitiveness	Decommissioning	-18	-18	-18
	Black Economic Transformation	Decommissioning	-16	-16	-16
	Alternative Land-use	Decommissioning	-15	-15	-15
	Need and Desirability	Decommissioning	-15	-15	-15
	Impact on individual farmland values	Decommissioning	8.25	8.25	8
	GGP Impact	Rehab and closure	-23	-23	-23
	Employment Impacts	Rehab and closure	-23	-23	-23
	Forex savings	Rehab and closure	-23	-23	-23
	Fiscal Income	Rehab and closure	-23	-23	-23
	Economic development per capita	Rehab and closure	-23	-23	-23
	Country and Industry Competitiveness	Rehab and closure	-15	-15	-15
	Black Economic Transformation	Rehab and closure	-16	-16	-16
	Alternative Land-use	Rehab and closure	-19	-19	-19
	Need and Desirability	Rehab and closure	-18	-18	-18
	Impact on individual farmland values	Rehab and closure	8.25	8.25	8

1.6 PUBLIC PARTICIPATION

The public participation process for this application has been undertaken in accordance with the requirements of the NEMA EIA Regulations, and in line with the principles of Integrated Environmental Management (IEM). IEM implies an open and transparent participatory process, whereby stakeholders and other I&APs are afforded an opportunity to comment on the project and have their views considered and included as part of project planning.

The PPP commenced on 20 May 2022 with an initial notification and call to register for a minimum period of 30 days. The initial notification was undertaken in English, Afrikaans and Sesotho and was given in the following manner:

- Registered letters, faxes, emails and sms's: Notification were distributed to all pre-identified I&APs including government organisations, NGOs, relevant municipalities, ward councillors, landowners and other organisations that may be interested or affected.
- Advertisements describing the proposed project and EIA process were published in the Vista Newspaper with circulation in the vicinity of the study area. The initial advertisements were placed in the Vista newspaper in English, Afrikaans and Sesotho on the 19 May 2022 with a government gazette published (also in 3 languages) on 1 July 2022.

- A1 Correx site notices in English, Afrikaans and Sesotho were placed at 78 locations within and around the application area from 16 May 2022 to 19 May 2022.
- A3 posters in English, Afrikaans and Sesotho were placed at local public gathering places in Welkom, Theunissen and Virginia (Welkom Public Library, Retail Spar, Retail Pick n Pay, Virginia Public Library, Theunissen Magistrates Court and Masilo (Theunissen) Public Library).

Subsequent to the call to register notification, the scoping report was made available to registered I&APs in the following manner:

- Registered letters with details on where the scoping report can be obtained and/or reviewed, public meeting date and time, EIMS contact details as well as the public review comment period;
- Facsimile notifications with information similar to that in the registered letter described above;
- Email notifications with a letter attachment containing the information described above; and/or
- SMS notifications to inform I&APs of the Scoping Report availability and where additional information could be obtained in order to participate.

The scoping report was made available for public review from 29 July 2022 to 30 August 2022 for a period of at least 30 days. During the Scoping Report public review period open days and meetings were held with I&AP's as follows:

- Tuesday 23 August 2022: Community Meeting (Stilte Primary School) 12H00-14H00
- Tuesday 23 August 2022: Community Meeting (Adamsons Vley Primary School) 16H00-18H00
- Wednesday 24 August 2022: Farmers Focus Group Open Day (Goldfields Game Ranch) 10H00-16H00
- Wednesday 24 August 2022: Farmers Focus Group Meeting (Goldfields Game Ranch) 17H00-19H00
- Thursday 25 August 2022: Public Open Day (NG Church Virginia) 10H00-17H00

The EIA report was made available for public review from 6 December 2022 to 24 January 2023 for a period of at least 30 days. During the EIA Report public review period open days and meetings were held with I&AP's as follows:

- 10 January 2023: Community Meeting (Stilte Primary School) 12H00-14H00
- 10 January 2023: Community Meeting (Adamsons Vley Primary School) 16H00-18H00
- 10 January 2023: Farmers Focus Group Meeting (Goldfields Game Ranch) 17H00-19H00
- 10 January 2023: Public Meeting (NG Church Virginia) 12H00-14H00

This updated EIA Report will be made available for a period of at least 30 days and focus group, and public meetings will be undertaken during this period.

A summary of the comments received to date as well as how these comments were addressed is provided below.

Table 1: Summary of comments received to date and how comments were addressed.

Comment Summary	How comment was addressed
Concerns of water availability and quality to farmers and air quality impacts of the proposed project.	The geohydrological specialist and air quality specialist reports have assessed the impact on water quality and availability as well as the air quality impacts (including health risks).
I&AP deregistration requests.	I&APs who formally requested to be registered were removed from the database.

Comment Summary	How comment was addressed
I&AP registration requests.	I&APs who formally requested to be registered were added to the database for further notifications during upcoming application comment periods.
Eskom Holdings SOC Limited (Transmission) requested a Google Earth (.kmz) file.	The requested information was shared with Eskom.
Notification of ongoing Oryx Solar Power Plant PV Authorization application from another EAP (Environamics) within Cluster 2 project area, locality map sharing and BID documents, Scoping Report and recently EIA report for comment.	Tetra4 and EIMS have taken note of this application for a PV project within the Cluster 2 application area and note that there is minimal impact on the project as a whole.
Some individuals as well as contractors have expressed their interest in potential employment and business opportunities from the proposed development.	Work seekers (be it individual jobs or contractors) have been directed to the Tetra4 website which contains a link for interested vendors etc. Community members seeking employment (jobs) were informed of the Tetra4 personnel who are responsible for collecting CV's, ID's etc to ensure that their interest is captured. All job or contract seekers were informed that the application is still underway and that the project commencement is dependent on the final decision from the PASA/DMRE.
Transnet commented that the proposed development does not affect their pipeline servitudes in the region.	No further actions required.
SAHRA provided formal comment indicating that the project is supported based on the information submitted.	No further actions required.
Query regarding website document accessibility.	EIMS provided the needed assistance with obtaining the relevant documentation which was resolved satisfactorily.
Requests by certain members of the local community for jobs as well as other specific services such as electricity, skills upliftment, etc.	These comments were raised during the community focus group meeting with the Adamsons Vley community. The community was informed that Tetra4 is currently in the process of providing certain basic services such as water and electricity to the community as part of the Social and Labour Plan commitments. This is an ongoing process throughout the project implementation and would be extended to other communities in due course. The community acknowledged that the water and solar electricity project was currently underway in their community.
Concerns by a local NGOs - Vaal Environmental Justice Alliance (VEJA) and Gold and Uranium Belt Impact Sensoring Organisation – GUBICO about the living standards of the community members.	It was confirmed that Tetra4 was aware of the poor living standards of some communities and therefore as part of the SLP commitments, certain upliftment programs had been initiated and are ongoing.

Comment Summary	How comment was addressed
NGO - Vaal Environmental Justice Alliance (VEJA) highlighted the possible confusion regarding Tetra4 vs Renergen and how the two companies relate to this project as the sign outside the existing plant says Renergen however the applicant in the application is Tetra4.	Clarification was provided that Tetra4 is a wholly owned subsidiary of Renergen and whilst the applicant in this application is Tetra4, this does not pose any legal constraints on the project. This report includes a clear statement that Tetra4 is a wholly owned subsidiary of Renergen.
Concerns that impact on landowners seem to have been underestimated.	All specialists have been provided with this comment and have considered this comment in light of their preliminary impact assessment findings. This has been thoroughly considered and assessed by the relevant specialists as well as the EAP in this EIA Report with minor amendments to certain impacts. Additional mitigation measures have been put forward to fully address the impact findings.
Concerns regarding the project's impacts on the safety, livelihoods and land value for landowners.	These safety, livelihoods and land value concerns have been given specific attention in the EIA report and detailed mitigation measures to address these concerns have been included. In addition, specific conditions have been put forward for inclusion in the decision to ensure that priority is given to impacts on safety, livelihoods and land value. Lastly, Tetra4 has revised the landowner contract terms to provide more specific attention to these concerns including annual compensation for the life of the project (per hectare rate), commitments to hold specific negotiations with each affected landowner to ensure infrastructure is sited in such a manner so as to minimise impacts on existing land use and lastly to ensure that all reasonable safety measures are continually in place.
Access road degradation concerns from landowners.	Degradation of access roads has been thoroughly considered and mitigated in this report and associated EMPr. This includes a pre-construction survey by the landowner and Tetra4 of all private access roads to be utilised by the project including photographic and video documentation of the pre-construction state. A similar post construction survey will be undertaken to document any degradation of access roads which if identified, will be to Tetra4s account. It is acknowledged that each landowner has a specific access road construction methodology, and this will be documented and complied with if any repairs are required.
Request by a landowner for more detail on infrastructure specific location and timing of the project aspects.	Where possible, infrastructure specific locations or at least limitations to where infrastructure will not be located has been provided in the Scoping Report and this EIA Report. The project description has been reviewed and updated where possible to include

Comment Summary	How comment was addressed
	more information on location and timing of certain activities.
Request by a landowner for more detail on logistics regarding access and maintenance of Tetra4 infrastructure on farmlands as well as contractual concerns.	Following this concern relating to the initial landowner contract, Tetra4 have undertaken a revision of the contract to be more specific in addressing the various landowner concerns. Tetra4 shall share a copy of the revised contract with the relevant landowners. In terms of access for inspections and maintenance during the operational phase, the expected frequency is as follows: • Production wells: Monthly (worst case) • Pipeline Servitude: Annually for inspections unless landowner raises concerns or there is an emergency (leak detected). • Booster Station: Monthly • Low Point Drains: Monthly • Pigging Stations: Six monthly (bi-annually) • Compressor Stations: Daily security inspections.
Concerns from a landowner that this project would negatively impact on his farm which is his primary investment for his future as well as his descendants. This landowner did not wish to discuss anything and wished to state that he is opposed to the project.	The landowner's objection to the project has been formally recorded in the PPR (Appendix 3 of the complete EIAr) and no further comments were received during the EIA phase.
The Department of Water and Sanitation provided comments on the EIA and EMPr which focussed on the need to obtain approval under the National Water Act for any Section 21 activities.	The DWS was thanked for their comments and the necessary water use licence application has been submitted for consideration by the DWS.
The landowner of the farm Blaauwdrift 188 (Portion 3) shared a township registration dated 12 October 1956 which covers this farm portion and the landowner indicated that he was in the process of negotiating the sale of his farm along with the township rights and therefore the landowner is objecting to the drilling of wells on this farm portion.	It is recommended that Tetra4 refrains from drilling any Cluster 2 wells on this property until such time as the legal status of the township and rights of the landowner are adequately addressed. A condition of authorisation has been recommended to this effect (refer to Section 13.4 of the complete EIAr) and this restrictive condition has been included in the EMPr (Sections 5.3.1 and 5.3.2 of the EMPr).
Concern from the landowner and Managing Director of a commercial agricultural operation (Optavit Boerdery) that the application does not contain specific location, extent and/or routing detail of project infrastructure on each property. This concern is elaborated upon in a written submission and the overall conclusion by the landowner is that the application is premature without including such	All comments were responded to individually and are included in the PPR (Appendix 3 of the complete EIAr).

Comment Summary	How comment was addressed
detailed information and should only be undertaken once this information is available.	
African Carbon Energy (Pty) Ltd submitted various comments during the public meeting, landowner meeting and a written submission.	All comments were responded to individually and are included in the PPR (Appendix 3 of the complete EIAr).

1.7 IMPACT STATEMENT

The findings of the specialist studies (including the relevant updated specialist studies) conclude that there are no environmental fatal flaws that should prevent the proposed project from proceeding, provided that the recommended mitigation and management measures are implemented. Based on the nature and extent of the proposed project, the limited level of disturbance predicted as a result of the production activities, the findings of the specialist studies, and the understanding of the significance level of potential environmental impacts, it is the opinion of the EIA project team and the EAP that the significance levels of the identified negative impacts can generally be reduced to an acceptable level by implementing the recommended mitigation measures and the project should be authorized and that compliance with the EMPr must be strictly adhered to.