# FRAMEWORK EMP (fEMP) FOR OPEN CYCLE GAS TURBINE POWER STATION AND ASSOCIATED INFRASTRUCTURE NEAR MOSSEL BAY

| ACTIVITY | ASPECT | IMPACT | MITIGATION MEASURE: (objective and mechanism) | PERFORMANCE INDICATOR | RESPONSIBILITY | RESOURCES | SCHEDULE | VERIFICATION |
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| ***1. COMPLIANCE WITH ENVIRONMENTAL LEGISLATION*** | | | | | | | | |
| All Activities (OCGT and substation, access road, fuel pipeline, water supply and conveyance, transmission infrastructure and Proteus substation) | Compliance with Regulation 1182 and 1183 of Environment Conservation Act | Delay in onset of activity<br><br>Suspension of construction phase<br><br>Prosecution | **Objective:** To ensure that requisite authorisation has been received<br><br>**Mechanism:**<br><br>1) Complete the statutory EIA[i] process | RoD[ii] (and appeal adjudication if relevant) received from DEAT[iii] | EIA Consultant | EIA process and documentation | Prior to site establishment | ESKOM |
| | Compliance with Sections 38(1) and 38(8) of National Heritage Resources Act. | Delay in issuing of ECA[iv] RoD<br><br>Delay in onset of activity<br><br>Suspension of construction phase<br><br>Prosecution | **Objective:** To ensure that the requisite heritage inputs have been integrated into the EIA process<br><br>**Mechanism:**<br><br>1) Solicit comment from HWC[v]/ SAHRA[vi] as part of the EIA consultation process<br>2) Complete permit application process if required | Comment from HWC/ SAHRA<br><br>Permit(s) to destroy identified resources (if required) received from HWC/ SAHRA | EIA Consultant | EIA process and documentation | Prior to submission of EIA (for comment)<br><br>Prior to site establishment (for any permits) | ESKOM |
| OCGT and substation | Compliance with NEM[vii] Air Quality Act and Air Pollution Prevention Act | Suspension of operational phase<br><br>Prosecution | **Objective:** To ensure that requisite authorisation has been received<br><br>**Mechanism:**<br><br>1) Complete permit application process. | Permit received from DEAT: Air Quality Control | Air Quality Specialist | EIA process and documentation<br><br>APPA[viii]/ NEMAQA[ix] permit Applications | Prior to site establishment | ESKOM |
| Water source and conveyance | Compliance with Sections 40 & 41 of National Water Act | Delay in issuing of the ECA RoD<br><br>Delay in onset of activity<br><br>Suspension of construction phase<br><br>Prosecution | **Objective:** To ensure that the requisite authorisation has been received<br><br>**Mechanism:**<br><br>1) Solicit comment from DWAF[x] as part of the EIA consultation process<br>2) Complete water use licence application if required | Comment from DWAF<br><br>Requisite water use licence received from DWAF (if existing PetroSA supply not acceptable) | EIA Consultant | EIA process and documentation<br><br>Water use licence application | Prior to submission of EIA (for comment)<br><br>Prior to site establishment (for any permits) | ESKOM |

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| ***2. ENVIRONMENTAL INPUT INTO TENDER DRAFTING AND ADJUDICATION*** | | | | | | | | |
| All Activities (OCGT and substation, access road, fuel pipeline, water supply and conveyance, transmission infrastructure and Proteus substation) | Engineering Design of identified infrastructure | Design incompatible with environment. | **Objective:** To ensure the design takes into account the environment<br><br>**Mechanism:**<br>1) Assimilate environmental requirements into the design | Design meets objectives and does not degrade the environment | Engineering Design Consultant/ in-house staff<br><br>Environmental Consultant/ in-house staff | EIA documentation<br><br>Specialist studies<br><br>Framework EMP | Tender Design & Design Review Stage | ESKOM |
| | Compile tender documentation and Specifications | Negative impacts on environment during construction | **Objective:** To ensure acceptable management of environmental issues during construction<br><br>**Mechanism:**<br>1) Incorporate relevant environmental management specifications (both general and project specific) into the Tender and Contract documentation[xi]<br>2) Incorporate relevant payment items into the Bill of Quantities | Tender documentation and Contract Documentation include environmental management requirements | Engineering Design Consultant/ in-house technical staff<br><br>Environmental Consultant/ in-house environmental staff | EIA documentation<br><br>Specialist studies<br><br>Framework EMP<br><br>In-house EMPs (*i.e.* for Line Construction and Substation Construction/ Refurbishment Work) | Tender Design & Design Review Stage | Review by ESKOM |
| | Tender Adjudication | Negative impacts on environment during construction | **Objective:** To ensure acceptable management of environmental issues during construction<br><br>**Mechanism:**<br>1) Assess ability of Tenderers to adequately manage the environmental issues | Tender evaluation report contain reference to environmental ability of tenderers<br><br>Successful Contractor show clear commitment to and capacity for meeting the environmental management obligations | Engineering Design Consultant/ in-house technical staff<br><br>Environmental Consultant/ in-house environmental staff | In-house Environmental Agreement and Tenderer Questionnaire (*i.e.* for Line Construction and Substation Construction/ Refurbishment Work) | Tender Design & Design Review Stage | Review by ESKOM |

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| ***3. ENVIRONMENTAL INPUT INTO DESIGN*** | | | | | | | | |
| All Activities (OCGT and substation, access road, fuel pipeline, water supply and conveyance, transmission infrastructure and Proteus substation) | Detailed design of infrastructure | Design fails to respond optimally to the environmental considerations | **Objective:** To ensure that the design responds to the identified environmental constraints and opportunities<br><br>**Mechanism:**<br>1) Carefully consider the design level mitigation measures recommended by the various specialists, especially with respect to visual aesthetics, noise, air quality and flora.<br>2) Balance technical and financial considerations against environmental constraints and opportunities in finalising the design of key elements<br>3) Incorporate in-house procedures, especially with respect to bird collisions and perching, into the design | Design meets objectives and does not degrade the environment | Engineering Design Consultant/ in-house technical staff<br><br>Environmental Consultant/ in-house environmental staff | EIA documentation<br><br>Specialist studies<br><br>Framework EMP<br><br>In-house procedures (*e.g.* for bird collisions and bird perching) | Tender Design & Design Review Stage | ESKOM |
| | Negotiation with landowners | Landowners unfairly prejudiced by proposed siting, routing or tower configuration | **Objective:** To ensure adequate regard has been taken of landowner concerns and that these are appropriately addressed<br><br>**Mechanism:**<br>1) Initiate negotiations with landowners timeously<br>2) Address reasonable expectations/ requests were possible<br>3) In event of impasse follow legal expropriation route, but ensure that extent of expropriation is minimised, restrictions on land use are minimised and reasonable costs are paid | Location of infrastructure does not prejudice any landowners.<br><br>Ideally, landowners should be satisfied with outcome of negotiations process. In event of impasse requiring expropriation, landowners should be afforded reasonable and appropriate rights/ access | ESKOM (in-house staff) | EIA process<br><br>In-house procedures for landowner negotiations and expropriation | Ideally initiated prior to submission of final EIA (which indicates preferred options)<br><br>Finalised prior to site establishment | ESKOM |
| Fuel pipeline | Selection of preferred route | Route that degrades environment unnecessarily and poses heightened health and safety risk | **Objective:** To ensure selection of BPEO[xii] for fuel pipeline route<br><br>**Mechanism:**<br>1) Select route that curtails environmental impacts and enhances environmental benefits, whilst being technically feasible and affordable<br>2) In adjudicating the preferred routing, careful consideration must be given to in particular the risks associated with the pipeline. | Routing meets objective.<br><br>Selected route minimises any negative environmental impacts, maximises any benefits and minimise health and safety risks | ESKOM (due to schedule) | EIA documentation<br><br>Specialist studies<br><br>Framework EMP | Prior to submission of EIA | ESKOM |

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| Water source and conveyance | Finalisation of conveyance type and route[xiii] | Route that degrades environment unnecessarily and does not guarantee surety of supply for OCGT | **Objective:** To ensure selection of BPEO for water conveyance type and routing<br><br>**Mechanism:**<br>1) Select route that curtails environmental impacts and enhances environmental benefits, whilst being technical feasible and affordable | Alignment meets objective.<br><br>Selected alignment minimises any negative environmental impacts, maximises any benefits and ensures a reliable supply of water to the OCGT on the long-term | ESKOM (due to schedule) | EIA documentation<br><br>Specialist studies<br><br>Framework EMP | Prior to submission of EIA | ESKOM |
| Access road | Selection of preferred route | Route that degrades environment unnecessarily, particularly with respect to visual aesthetics and loss of indigenous flora | **Objective:** To ensure selection of BPEO for alignment for the access road<br><br>**Mechanism:**<br>1) Select alignment that curtails environmental impacts and enhances environmental benefits, whilst being technical feasible and affordable | Alignment meets objective. Selected alignment minimises any negative environmental impacts and maximises any benefits | ESKOM (due to schedule) | EIA documentation<br><br>Specialist studies<br><br>Framework EMP | Prior to submission of EIA | ESKOM |
| Transmission lines | Selection of preferred route | Route that degrades visual aesthetics of area and has unacceptable impact on landowners with respect to land-use | **Objective:** To ensure selection of BPEO for transmission line route<br><br>**Mechanism:**<br>1) Select route that curtails environmental impacts and enhances environmental benefits, whilst being technical feasible and affordable<br>2) In adjudicating the preferred routing careful consideration must be given to in particular the impacts on visual aesthetics and landowners (especially with respect to continued land-use) | Routing meets objective. Selected route minimises any negative environmental impacts and maximises any benefits. | ESKOM (due to schedule) | EIA documentation<br><br>Specialist studies<br><br>Framework EMP | Prior to submission of EIA | ESKOM |
| | Selection of preferred tower configuration | Tower configuration that degrades visual aesthetics of the area | **Objective:** To ensure selection of BPEO for transmission tower configuration<br><br>**Mechanism:**<br>1) Select tower configuration that curtails environmental impacts and enhances environmental benefits, whilst being technical feasible and affordable.<br>2) In adjudicating the preferred tower configuration, careful consideration must be given to in particular the impacts on visual aesthetics | Tower configuration meets objective. Selected tower design(s) minimises any negative environmental impacts and maximises any benefits. | ESKOM (due to schedule) | EIA documentation<br><br>Specialist studies<br><br>Framework EMP | Prior to submission of EIA | ESKOM |

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| ***4. ENVIRONMENTAL MANAGEMENT OF THE CONSTRUCTION PHASE[xiv]*** | | | | | | | | |
| OCGT[xv] and associated infrastructure (including substation, fuel pipeline, water source and conveyance and access road) | Monitoring and enforcement of specified environmental management requirements | Negative impacts on environment during construction of OCGT and associated infrastructure | **Objective:** To ensure that the construction of the OCGT and associated infrastructure does not result in avoidable impacts on the environment, and that any impacts that do occur are anticipated and managed<br><br>**Mechanism:**<br>1) Appoint an Environmental Control Officer is (either independent or in-house)<br>2) Develop and implement an environmental auditing system for the construction phase<br>3) Audit the Contractor compliance with the requirements of the environmental specification contained within the relevant Contract Document | Environmental impacts effectively monitored and managed during the construction phase with no residual impacts on the environment<br><br>Comprehensive record of compliance and remedial actions available to ESKOM and the authorities | Site Engineer<br><br>Environmental consultant/ in-house environmental staff<br><br>ESKOM | Contract Document | During Construction Phase (from site establishment to Contract Completion) | ESKOM<br><br>DEAT/ DEA&DP[xvi] |
| | Communication with Contractor and his staff | Inability to communicate effectively with the Contractor regarding their environmental obligations | **Objective:** To ensure that there is effective communication with the Contractor on environmental issues<br><br>**Mechanism:**<br>1) Include environmental considerations as an item on the agenda of the monthly site meetings for each Contractor<br>2) Include environmental considerations in the Contractors programme (where relevant)<br>3) Appoint a senior manager on the Contractors staff as the designated Environmental Officer, empowered to managed compliance with the environmental requirements on behalf of the Contractor<br>4) Compile and implement the necessary Method Statements<br>5) Undertake environmental awareness training of all site staff | Environmental management requirements are proactively communicated with the Contractor and reflected in a more responsible approach to construction | Contractor<br><br>Site Engineer<br><br>Environmental consultant/ in-house environmental staff | Contract Document<br><br>Programme<br><br>Meetings | During Construction Phase (from site establishment to Contract Completion) | Site Engineer<br><br>Environmental Consultant/ in-house environmental staff<br><br>ESKOM |

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| | Communication with public | Inability to deal with public queries and complaints | **Objective:** To ensure that the public has a mechanism to contact a responsible individual in order to obtain information or report complaints<br><br>**Mechanism**<br>1) Provide a contact number of someone responsible for the site on the site signage<br>2) Maintain a complaints register on site to allow public complaints to be recorded. Complaints should be noted and signed off at site meetings | Public are able to communicate effectively with the relevant members of the project team either to obtain information or lodge complaints | Contractor | Contract Document<br><br>[Note: costs covered within contract price] | During Construction Phase (from site establishment to Contract Completion) | Site Engineer<br><br>Environmental Consultant/ in-house environmental staff<br><br>ESKOM |
| | Site establishment ~ *Access* | Hazards to landowners and public, and security of materials | **Objective:** To secure the Site against unauthorised entry and to protect members of the public/ landowners<br><br>**Mechanism:**<br>1) Secure Site in an appropriate manner<br>2) Where necessary to control access, fence and secure Contractor's camp<br>3) Provide alternative access/ detours for public/ landowners | Site is secure and there is no unauthorised entry<br><br>No members of the public/ landowners injured | Contractor | Contract Document<br><br>[Note: costs covered within contract price] | During site establishment | Site Engineer<br><br>Environmental Consultant/ in-house environmental staff<br><br>ESKOM |
| | Site establishment ~ *Site structures* | Site infrastructure that degrades the visual aesthetics of the area, unnecessarily exacerbates environmental consequences of construction and leads to public complaint | **Objective:** To minimise the environmental consequences associated with the establishment of the site infrastructure<br><br>**Mechanism:**<br>1) Locate key site infrastructure in environmentally acceptable area and limit its extent<br>2) Position site infrastructure so as to limit visual intrusion on neighbours or greater environment<br>3) Select materials for site infrastructure that limit reflection and blend in with the environment<br>4) Accommodate temporary services underground and within the same trench were possible | Site infrastructure has limited impact on the visual aesthetics of the area and does not result in unnecessary environmental degradation | Contractor | Contract Document<br><br>[Note: costs covered within contract price] | During site establishment | Site Engineer<br><br>Environmental Consultant/ in-house environmental staff<br><br>ESKOM |

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| | Site establishment ~ *Protection or topsoil and sensitive areas/ artefacts* | Destruction or loss of topsoil, and sensitive areas/ artefacts (which could include indigenous vegetation, fauna or heritage resources) | **Objective:** To retain topsoil for later use in closure and to ensure that disturbance to sensitive areas or artefacts is minimised<br><br>**Mechanism:**<br>1) Locate key site infrastructure in environmentally acceptable area and limit its extent<br>2) Remove topsoil approximately 150 mm deep from establishment, working area and stockpile areas, and stockpile for later use<br>3) Protect topsoil stockpiles against erosion and contamination<br>4) Provide containment and settlement facilities for effluents from concrete mixing facilities<br>5) Provide spill containment facilities for hazardous materials like fuel and oil<br>6) Minimise the extent of areas cleared<br>7) Identify sensitive areas or artefacts and demarcate these as no-go areas<br>8) Develop contingency plans to address heritage resource discoveries during construction | Limited extent of vegetation destroyed during construction activities<br><br>Sufficient topsoil for closure available<br><br>No topsoil contaminated with cement materials, fuel, oil or other undesirable compounds<br><br>No sensitive sites or artefacts damaged or destroyed | Contractor | Contract Document<br><br>[Note: costs covered within contract price] | During Construction Phase (from site establishment to Contract Completion) | Site Engineer<br><br>Environmental Consultant/ in-house environmental staff<br><br>ESKOM |
| | Site establishment ~ *Surface and groundwater* | Pollution of water resources by effluents | **Objective:** To avoid pollution of water resources<br><br>**Mechanism:**<br>1) Establish contaminated water management system<br>2) Provide suitable and sufficient ablution facilities that are serviced regularly<br>3) Provide containment and settlement facilities for effluents from concrete mixing facilities<br>4) Provide spill containment facilities for hazardous materials like fuel and oil | Effluents managed effectively<br><br>No pollution of water resources | Contractor | Contract Document<br><br>[Note: costs covered within contract price] | During site establishment | Site Engineer<br><br>Environmental Consultant/ in-house environmental staff<br><br>ESKOM |
| | Site establishment ~ *Solid waste* | Pollution of environment with solid waste materials | **Objective:** To avoid pollution of environment with solid waste materials<br><br>**Mechanism:**<br>1) Provide adequate waste bins<br>2) Set up system for regular waste removal to approved facility<br>3) Minimise waste by sorting wastes into recyclable and non recyclable wastes<br>4) Prohibit burying or burning of waste on Site | Appropriate management of solid wastes<br><br>No complaints from public | Contractor | Contract Document<br><br>[Note: costs covered within contract price] | During Construction Phase (from site establishment to Contract Completion) | Site Engineer<br><br>Environmental Consultant/ in-house environmental staff<br><br>ESKOM |

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| | Site establishment ~ *Fire* | Increased fire risk to surrounding areas | **Objective:** To decrease fire risk<br><br>**Mechanism:**<br>1) Provide adequate cooking and heating facilities for staff<br>2) Prohibit open fires<br>3) Develop emergency protocols for dealing with fires | No occurrence of fires on site or on surrounding areas | Contractor | Contract Document<br><br>[Note: costs covered within contract price] | During Construction Phase (from site establishment to Contract Completion) | Site Engineer<br><br>Environmental Consultant/ in-house environmental staff<br><br>ESKOM |
| | Site management ~ *Materials* | Risk of environmental contamination or safety incident to public/ site staff resulting from inappropriate treatment of materials | **Objective:** To ensure that materials are handled, used and stored in a manner that limits the risk of environmental contamination or a safety hazard<br><br>**Mechanism:**<br>1) Inform delivery drivers re requirements of the specifications<br>2) Secure materials during transport<br>3) Identify appropriate storage areas for stockpiling of materials, storage of hydrocarbons and storage of hazardous substances and ensure that these areas are appropriately prepared for their purpose<br>4) Dispose of hazardous substances in terms of the relevant legal requirements<br>5) Limit spillage of hazardous substances or substances with the potential to cause contamination of the environment<br>6) Develop emergency protocols for dealing with spillages particularly where these pose a pollution risk or involve hazardous substances<br>7) Compile and implement the necessary Method Statements<br>8) Undertake environmental awareness training of all site staff | Correct handling, use and storage of materials, including hazardous materials<br><br>No incidents of environmental contamination<br><br>No accidents or incidents related to the handling of materials<br><br>No public complaints | Contractor | Contract Document<br><br>[Note: costs covered within contract price] | During Construction Phase (from site establishment to Contract Completion) | Site Engineer<br><br>Environmental Consultant/ in-house environmental staff<br><br>ESKOM |

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| | Site management ~ *Equipment maintenance and storage* | Present of plant on site which exacerbates environmental impact including pollution and nuisance | **Objective:** Ensure that all plant on site is well maintained and serviced in the appropriate manner<br><br>**Mechanism:**<br>1) Ensure that all plant is in good working order<br>2) Undertake maintenance within specified area (workshop)<br>3) Use drip trays for all stationary or parked plant and when servicing equipment away from designated areas | All plant in good working order<br><br>Maintenance of plant does not result in environmental degradation<br><br>No public complaints | Contractor | Contract Document<br><br>[Note: costs covered within contract price] | During Construction Phase (from site establishment to Contract Completion) | Site Engineer<br><br>Environmental Consultant/ in-house environmental staff<br><br>ESKOM |
| | Site management ~ *Surface water and/or existing stormwater systems* | Contamination of stormwater runoff with suspended solids | **Objective:** Contain soils and materials within defined areas and prevent contamination of stormwater runoff<br><br>**Mechanism:**<br>1) Identify predetermined stockpile areas for topsoil, construction materials and excavated material<br>2) Dispose of waste excavated material at appropriate waste disposal sites<br>3) Rehabilitate site to prevent soil erosion, including temporary revegetation of areas that will remain exposed for extended periods<br>4) Undertake concrete mixing away from sensitive areas and on impermeable surfaces<br>5) Store fuels in storage area that is appropriately bunded and drains to a sump<br>6) Ensure that substances that pose a risk of water contamination are appropriately stored and disposed of<br>7) Develop and implement water monitoring programme where work abuts aquatic systems | Correct stockpiling of excavated material on site<br><br>No waste material left on site<br><br>No erosion on site<br><br>No pollution of water courses | Contractor | Contract Document<br><br>[Note: costs covered within contract price] | During Construction Phase (from site establishment to Contract Completion) | Site Engineer<br><br>Environmental Consultant/ in-house environmental staff<br><br>ESKOM |
| | Site management ~ *Dust* | Dust nuisance from the excavated and stockpiled materials | **Objective:** To avoid dust nuisance from excavated materials or construction materials<br><br>**Mechanism:**<br>1) Implement dust suppression measures e.g. regular watering<br>2) Concrete mixing to be carried out away from sensitive areas<br>3) Develop and implement dust monitoring programme | Appropriate management of dust<br><br>No complaints from public<br><br>No complaints from site staff | Contractor | Contract Document<br><br>[Note: costs covered within contract price] | During Construction Phase (from site establishment to Contract Completion) | Site Engineer<br><br>Environmental Consultant/ in-house environmental staff<br><br>ESKOM |

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| | Site management ~ *Noise* | Noise nuisance from construction equipment | **Objective:** To avoid noise nuisance from construction equipment<br><br>**Mechanism:**<br>1) Limit working hours of noisy equipment to daylight hours<br>2) Fit silencers to equipments<br>3) Develop and implement noise monitoring programme | Appropriate management of noisy activities<br><br>No complaints from public<br><br>No complaints from site staff | Contractor | Contract Document<br><br>[Note: costs covered within contract price] | During Construction Phase (from site establishment to Contract Completion) | Site Engineer<br><br>Environmental Consultant/ in-house environmental staff<br><br>ESKOM |
| | Site management ~ *Public health and safety* | Hazardous conditions to landowners and members of the public | **Objective:** Provide adequate warning to landowners/ public regarding potential hazards and ensure safe access where required<br><br>**Mechanism:**<br>1) Ensure adequate signboards to landowners/ public about the work, particularly where work abuts major public thoroughfares like the N2<br>2) Implement requisite traffic safety measures were abutting roads<br>3) Ensure adequate accessibility to landowners/ public where required for safe access | Safe conditions for public<br><br>No members of the public/ landowners injured<br><br>Signboards put up before construction commences<br><br>Provision of safe access routes for landowners/ public, which are clearly demarcated and visible | Contractor | Contract Document<br><br>[Note: costs covered within contract price] | During Construction Phase (from site establishment to Contract Completion) | Site Engineer<br><br>Environmental Consultant/ in-house environmental staff<br><br>ESKOM |
| | Closure ~ *Environmental integrity* | Environmental integrity of site undermined resulting in reduced visual aesthetics, erosion, compromised land capability and on-going management intervention | **Objective:** To ensure that the site is appropriate rehabilitated following the execution of the works, such that residual environmental impacts are remediated or curtailed<br><br>**Mechanism:**<br>1) Remove all temporary facilities and waste materials<br>2) Replace stockpiled topsoil<br>3) Install necessary drainage works and anti-erosion measures<br>4) Landscape and revegetate disturbed areas with appropriate vegetation<br>5) Ensure that the Contractor is required to maintain revegetated areas until an acceptable cover has been achieved | All portions of site, including construction camp and working areas, cleared of equipment and temporary facilities<br><br>Topsoil replaced on all areas, and stabilised<br><br>Disturbed areas rehabilitated<br><br>Acceptable cover achieved on closed site<br><br>Closed site free of erosion | Contractor | Contract Document<br><br>[Note: costs covered within contract price] | Following execution of the works | Site Engineer<br><br>Environmental consultant/ in house environmental staff<br><br>ESKOM<br><br>DEAT/ DEA&DP |

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| Transmission line and substation[xvii] | Implementation of general environmental management requirements, and monitoring/ enforcement of said implementation | Negative impacts on environment during construction of transmission line and substation | **Objective:** To ensure that the construction of the transmission line and substation do not result in avoidable impacts on the environment, and that any impacts that do occur are anticipated and managed<br><br>**Mechanism:**<br>1) Appoint an Environmental Control Officer (either independent or in-house)<br>2) Develop and implement an environmental auditing system for the construction phase<br>3) Audit the Contractor compliance with the requirements of the in-house EMPs for Line Construction and Substation Construction/ Refurbishment Work | Environmental impacts effectively monitored and managed during the construction phase with no residual impacts on the environment<br><br>Comprehensive record of compliance available to authorities and proponent | Contractor (implementation)<br><br>Site Engineer & Environmental consultant/ in-house environmental staff (monitoring and enforcement) | Contract document<br><br>In-house EMPs (*i.e.* for Line Construction and Substation Construction/ Refurbishment Work)<br><br>[Note: costs covered within contract price] | During Construction Phase (from site establishment to Contract Completion) | Site Engineer<br><br>Environmental consultant/ in house environmental staff<br><br>ESKOM<br><br>DEAT/ DEA&DP |
| | Implementation of project specific environmental management requirements, and monitoring/ enforcement of said implementation | Negative impacts on environment during construction of transmission line and substation | **Objective:** To ensure that the construction transmission line and substation do not result in avoidable impacts on the environment, and that any impacts that do occur are anticipated and managed<br><br>**Mechanism:**<br>1) Appoint an Environmental Control Officer (either independent or in-house)<br>2) Develop and implement an environmental auditing system for the construction phase<br>3) Audit the Contractor compliance with the project specifications produced to augment the in-house EMPs | Environmental impacts effectively monitored and managed during the construction phase with no residual impacts on the environment<br><br>Comprehensive record of compliance available to authorities and proponent | Contractor (implementation)<br><br>Site Engineer & Environmental consultant/ in-house environmental staff (monitoring and enforcement) | Contract Document<br><br>[Note: costs covered within contract price] | During Construction Phase (from site establishment to Contract Completion) | Site Engineer<br><br>Environmental consultant/ in house environmental staff<br><br>ESKOM<br><br>DEAT/ DEA&DP |

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| | Communication with Contractor and his staff | Inability to communicate effectively with the Contractor regarding their environmental obligations | **Objective:** To ensure that there is effective communication with the Contractor on environmental issues<br><br>**Mechanism:**<br>1) Include environmental considerations as an item on the agenda of the monthly site meetings for each Contractor<br>2) Include environmental considerations in the Contractors programme (where relevant)<br>3) Appoint a senior manager on the Contractors staff as the designated Environmental Officer, empowered to managed compliance with the environmental requirements on behalf of the Contractor<br>4) Compile and implement the necessary Method Statements<br>5) Undertake environmental awareness training of all site staff | Environmental management requirements are proactively communicated with the Contractor and reflected in a more responsible approach to construction | Contractor<br><br>Site Engineer<br><br>Environmental consultant/ in-house environmental staff | Contract Document<br><br>Programme<br><br>Meetings | During Construction Phase (from site establishment to Contract Completion) | Site Engineer<br><br>Environmental Consultant/ in-house environmental staff<br><br>ESKOM |
| | Communication with public | Inability to deal with public queries and complaints | **Objective:** To ensure that the public has a mechanism to contact a responsible individual in order to obtain information or report complaints<br><br>**Mechanism**<br>1) Provide a contact number of someone responsible for the site on the site signage<br>2) Maintain a complaints register on site to allow public complaints to be recorded. Complaints should be noted and signed off at site meetings. | Public are able to communicate effectively with the relevant members of the project team either to obtain information or lodge complaints | Contractor | Contract Document<br><br>[Note: costs covered within contract price] | During Construction Phase (from site establishment to Contract Completion) | Site Engineer<br><br>Environmental Consultant/ in-house environmental staff<br><br>ESKOM |

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| ***5. ENVIRONMENTAL MANAGEMENT OF THE OPERATIONAL AND DECOMMISSIONING[xviii] PHASES*** | | | | | | | | |
| OCGT[xix] and associated infrastructure (including substation, fuel pipeline, water source and conveyance and access road) | Environmental management documentation and procedures | No framework within which to locate the management of the operational and decom. phases<br><br>No procedures against which to assess environmental performance during the operational and decom. phases and thus no measure of compliance | **Objective:** To develop environmental management documentation and procedures which are consistent with the existing Environmental Management Procedures and will ensure the effective and proactive management of the operational and decom. phases<br><br>**Mechanism:**<br>1) Use the Peaking Business Unit Environmental Management Procedure as the basis to develop site specific environmental documentation and procedures for the Mossel Bay OCGT and its associated infrastructure<br>2) Ensure that Environmental Management Procedures provide site specific environmental policies and management plans that comply with ESKOM's EMS<br>3) Ensure that the procedures are practical and implementable on the site | Environmental Management Procedure for the MB OCGT and associated infrastructure which is consistent with the Business Units existing documents, complies with ESKOM's EMS requirements and will ensure effective management of the operational and decom. phases | Environmental Consultant/ in-house environmental staff | EIA documentation<br><br>Specialist studies<br><br>Framework EMP<br><br>In-house procedures (*i.e.* Peaking Business Unit Environmental Management Procedure)<br><br>ESKOM EMS | Prior to the onset of operation | ESKOM |
| | Environmental management of the operational phase | Negative impacts on environment during operation | **Objective:** To ensure that the operation of the OCGT and associated infrastructure does not result in avoidable impacts on the environment, and that any impacts that do occur are anticipated and managed<br><br>**Mechanism:**<br>1) Implement the operational phase management procedures outlined in the Environmental Management Procedure | Environmental impacts effectively monitored and managed during the operational phase with no residual impacts on the environment<br><br>Comprehensive record of compliance and remedial actions available to ESKOM and the authorities | ESKOM (in-house environmental staff) | Environmental Management Procedure<br><br>ESKOM EMS | During operation | ESKOM |
| | Environmental management of the decom. phase | Negative impacts on environment during decom. | **Objective:** To ensure that the decom. of the OCGT and associated infrastructure does not result in avoidable impacts on the environment, and that any impacts that do occur are anticipated and managed<br><br>**Mechanism:**<br>1) Implement the decom. phase management procedures outlined in the Environmental Management Procedure | Environmental impacts effectively monitored and managed during the decom. phase with no residual impacts on the environment<br><br>Comprehensive record of compliance and remedial actions available to ESKOM and the authorities | ESKOM (in-house environmental staff) | Environmental Management Procedure<br><br>ESKOM EMS | During decom. | ESKOM |

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|---|---|---|---|---|---|---|---|---|
| Transmission line and substation | Environmental management documentation | No policies or procedures to guide environmental management of activities associated with the maintenance, and decom. of the transmission lines and substation | **Objective:** To ensure that the requisite policies and procedures are implemented to ensure the effective and proactive management of the maintenance, operation and decom. of the transmission lines and associated substation<br><br>**Mechanism:**<br>1) Revise the existing transmission policies and procedures (were necessary) to ensure that they adequately cater for the specific environmental issues associated with the current infrastructure<br>2) Ensure that Environmental Management Procedures provide site specific environmental policies and management plans that comply with ESKOM's EMS<br>3) Ensure that the procedures are practical and implementable on the site | Environmental management policies and procedure for the transmission line that complies with ESKOM's EMS requirements and will ensure effective management of the operational and decom. phases | Environmental Consultant/ in-house environmental staff | EIA documentation<br><br>Specialist studies<br><br>Framework EMP<br><br>In-house procedures (*i.e.* those developed by transmission, including access to farms, bird collision, nesting and perching, erosion management, fire protection, gate management, vegetation management *etc.*)<br><br>ESKOM EMS | Prior to the onset of operation | ESKOM |
| | Environmental management of the operational phase | Negative impacts on environment during maintenance and operation | **Objective:** To ensure that the maintenance and operation of the transmission infrastructure does not result in avoidable impacts on the environment, and that any impacts that do occur are anticipated and managed<br><br>**Mechanism:**<br>1) Implement the maintenance and operation environmental management procedures | Environmental impacts effectively monitored and managed during maintenance and operation with no residual impacts on the environment<br><br>Comprehensive record of compliance and remedial actions available to ESKOM and the authorities | ESKOM (in-house environmental staff) | Transmission environmental policies and procedure<br><br>ESKOM EMS | During maintenance and operation | ESKOM |

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|---|---|---|---|---|---|---|---|---|
| | Environmental management of the decom. phase | Negative impacts on environment during decom. | **Objective:** To ensure that the decom. of the transmission infrastructure does not result in avoidable impacts on the environment, and that any impacts that do occur are anticipated and managed.<br><br>**Mechanism:**<br><br>1) Implement the decom. environmental management procedures | Environmental impacts effectively monitored and managed during decom. with no residual impacts on the environment<br><br>Comprehensive record of compliance and remedial actions available to ESKOM and the authorities | ESKOM (in-house environmental staff) | Transmission environmental policies and procedure<br><br>ESKOM EMS | During decom. | ESKOM |

[i] EIA = Environmental Impact Assessment
[ii] RoD = Record of Decision
[iii] DEAT = Department of Environmental Affairs and Tourism
[iv] ECA = Environmental Conservation Act
[v] HWC = Heritage Western Cape
[vi] SAHRA = South African Heritage Resources Agency
[vii] NEM = National Environmental Management (as is National Environmental Management Act, the umbrella Act under which the Air Quality Act is promulgated)
[viii] APPA = Air Pollution Prevention Act
[ix] NEMAQA = National Environmental Management Air Quality Act
[x] DWAF = Department of Water Affairs and Forestry
[xi] The in-house EMPs may need to be augmented with project specific "project specifications" to ensure that the environmental issues are comprehensively addressed in the Tender Document.
[xii] Within this context BPEO, or Best Practicable Environmental Option, is defined as "for a given set of objectives, the option that provides the most benefits or least damage to the environment as a whole, at acceptabl cost, in the long term as well as in the short term" (Royal Commission on Environmental Pollution, 1988). Here environment includes both the social and biophysical components.
[xiii] It is assumed that the source of water would have been resolved as part of the EIA process as highlighted under Section 1 of the fEMP
[xiv] It is understood that effect will be given to the requirements listed here by ensure that they are integrated as specifications (where appropriate) in the Tender Document, as highlighted under Section 2.
[xv] More detail is provided on the OCGT and related infrastructure since ESKOM has no standard in-house environmental management procedures in this regard.
[xvi] DEA&DP = Department of Environmental Affairs and Development Planning
[xvii] This section is intentionally less detail than the preceding section as ESKOM has in-house EMPs to address the transmission line construction aspects of this project and these should be implemented during the construction phase.
[xviii] Abbreviated to decom.
[xix] More detail is provided on the OCGT and related infrastructure since ESKOM has no standard in-house environmental management procedures in this regard.