1. **Project Results Framework**
   1. **Project objectives, indicators, risks and assumptions**

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| **This project will contribute to achieving the following Country Programme Outcome as defined in CPAP or CPD:** Stabilisation and reduction of carbon emissions, and climate change mitigation and adaptation strategies fully operational. By 2016, the governance systems, use of technologies and practices and financing mechanisms that promote environmental, energy and climate adaptation have been mainstreamed into national development plans. | | | | | | |
| **Country Programme Outputs:** Design of scaling-up programmes for energy technologies, financing options for PPs ; design and implementation of capacity development programmes/integrated energy policy; implementation of scaling-up technologies | | | | | | |
| **Primary applicable Key Environment and Sustainable Development Key Result Area:**  **1. Mainstreaming environment and energy** OR 2. Catalyzing environmental finance OR 3. Promote climate change adaptation OR 4. Expanding access to environmental and energy services for the poor. | | | | | | |
| **Applicable GEF Strategic Objective and Programme:** GEF Focal Area Objective #3 to “Promote Investment in Renewable Energy Technologies” of the GEF-5 Climate Change Strategy. | | | | | | |
| **Applicable GEF Expected Outcomes:**   * Favourable policy and regulatory environment created for renewable energy investments * Investment in renewable energy technologies increased * GHG emissions avoided | | | | | | |
| **Applicable GEF Outcome Indicators:**   * Extent to which policies and regulations for decentralized RE are adopted and enforced; * Volume of investment mobilized; and * Tonnes of CO2-equivalent avoided. | | | | | | |
| **Objectives/Outcomes** | | **Indicators** | **Baseline (Year 0)** | **Target** | **Sources of Verification** | **Assumptions** |
| **Project Objective:** |  | Generation from wind farms (GWh) - produced or contracted by Year 4 of project implementation.  Number of individuals benefiting from wind- generated electricity by | 1,983 MW from W1 to W3 of REIPPPP.  980,990 individuals benefit per year from wind- generated electricity | 1,367 GWh cumulative by end- 2018.  74,230 individuals will benefit annually from project-supported  new wind-generated | DoE IPP Unit reports Eskom System Operations | Production estimate based on Bidding Windows 1, 2 and 3 (BW1, BW2 and BW3)  capacity and average capacity factor of 26%. |
| To assist the Government and industry stakeholders overcome strategic barriers to the successful attainment of South Africa’s Integrated Resource Plan target of 3,320 MW of wind power | |

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| generation online by 2018/19. | Year 4 of project implementation.  Incremental tonnes of CO2 emissions reduction due to wind energy capacity contracted by Year 4. | installed under W1-W3 of REIPPPP.43  102,423,216 tCO2 over 20  years, as at 2017 | electricity.44  Direct greenhouse gas reductions of 70,378 tCO2 cumulative by end-2018 (using a conservative 5% project causality factor). |  |  |
| **Component 1: Monitoring and verification of the implementation of local content requirements for wind energy procurement mechanisms** | | | | | |
| **Objectives/Outcomes** | **Indicators** | **Baseline (Year 0)** | **Target** | **Sources of Verification** | **Assumptions** |
| Mechanisms in place for objective, evidence-based assessment and verification of progress in implementing localisation initiatives, taking into account any correlations between local content requirements, investment metrics (e.g. generation capacity, financial returns, costs, prices, etc) and socio-economic development (e.g. employment creation). | * 1. Detailed assessment on economic, socio- economic and enterprise development impacts of REIPPP | * 1. GIZ-supported reporting system in place at DoE IPP Unit. Quarterly reports filed by IPPs but no verification. No systematic review and consolidation of lessons learned.   2. Implementation of a Climate Change Mitigation M&E system by DEA, expected to become operation mid- July 201545. | * 1. 1.1 Enhanced capacity of DoE IPPP Office to strengthen M&V system   2. 1.2 Quarterly reports since 2015 on REIPPP progress in RE, including wind, localisation and socio-economic development (SED) published. | At least one report containing assessment, analysis, and recommendations  REIPPPP reports / discussions with DoE IPP Unit; | M&V system will be compatible with GIZ- sponsored Reporting System used by DoE IPP Unit and DEA’s Climate Change Mitigation M&E (CCM M&E) system that is expected to become operational in 2015. It is also expected that the CCM M&E system will be used to assess the CO2 emissions effects of localisation.  M&V system to focus on at least: (i) additional investments (ZAR billions) in wind farms by Year 4 of project implementation; (ii) trends in share of procurement |

43 Estimated as follows: 1,983 MW of wind to be installed under Windows 1-3 of the REIPPPP. With an average capacity factor of 26%, this implies 4,516 GWh of wind- generated electricity per year. Annual per capita electricity consumption in South Africa (2011) is 4,604 kWh (i.e. 0.004604 GWh). This implies the electricity generated by wind is sufficient to provide the equivalent of 980,990 individuals with their annual electricity needs.

44 Using a similar estimation methodology: 1,367 GWh to be generated cumulatively by project-supported new wind capacity, implying an annual average of 342 GWh – equivalent to the average annual electricity consumption of 74,230 South Africans.

45 This will be complemented by a process to determine Desired Emission Reduction Objectives (DEROs), which is expected to be completed by end-2014, as well as the planned update of South Africa’s GHG inventory.

46 For the benefit of at least DoE, DTI, SAWEA and participating local manufacturers.

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|  |  |  |  |  | spend attributed to locally- produced components and related services, taking into account DTI’s Localisation Roadmap; (iii) trends in REIPPPP prices correlated with requirements for local procurement of components; and, (iv) trends in socio- economic development, job- creation, and enterprise development. |
| **Component 2: Resource-mapping and wind corridor development support for policy-makers** | | | | | |
| **Objectives/Outcomes** | **Indicators** | **Baseline (Year 0)** | **Target** | **Sources of Verification** | **Assumptions** |
| Expanded verified wind atlas (WASA47) completed for additional provinces in support of future wind power project development and procurement mechanisms. | 2.1 Four masts and related equipment installed in the Northern Cape in WASA 3 bringing total WASA masts to 19 | 2.1 The installation of 5 masts and related equipment and systems required for the DANIDA- sponsored phase two of WASA (WASA II) underway from mid-2014. Focus on Eastern Cape, KZN and Free State provinces. | 2.1 Geographical extension of verified Wind Atlas (WASA) developed for Northern Cape | WASA 3 PIU reports; WASA website. | WASA 3 PIU established at SANEDI will coordinate the implementation of SAWEP II- sponsored WASA 3 sites. |
| Strategic wind corridors/areas identified and formally approved for all WASA sites. | 2.2: Completed and validated high- resolution wind resource map and database  Wind energy development focus areas defined in SEA Phase 2 | 2.2 DEA, CSIR and Eskom scheduled to complete development of WASA I (REDZs) during second half of 2014. | 2.2. WASA data processed to produce high- resolution wind resource map covering the whole nation  2.3 Enhanced capacity within Government to use wind atlas data for energy planning at policy and strategic level | Project reports from DEA. Relevant website(s).  IRP 2019 | Methodologies similar to those used in the development of WASA I REDZs will be applicable. |
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47 Wind Atlas of South Africa.

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| **Component 3: Support for the development of the small-scale wind sector** | | | | | |
| **Objectives/Outcomes** | **Indicators** | **Baseline (Year 0)** | **Target** | **Sources of Verification** | **Assumptions** |
| Capacity developed among relevant stakeholders on technical, financial, regulatory and socio- economic aspects of small- scale wind projects. | * 1. At least two small- scale wind farm demonstration projects developed in Eastern Cape and monitored | * 1. No small-scale wind farms installed.   2. GIZ support for SALGA and AMEU50 towards integration of small-scale solar PV in municipal distribution systems, as well as DTI’s study on small-scale RE. | * 1. 3.1 Establishment of small- scale wind demonstration projects (electric, water pumping)   2. 3.2 Publicly available Monitoring and Evaluation (M&E) Report on demonstration small-scale wind farm project. | SAWEP II project reports. | SAWEP II’s role will be limited to technical assistance only. |
| **Component 4: Training and human capital development for the wind energy sector** | | | | | |
| **Objectives/Outcomes** | **Indicators** | **Baseline (Year 0)** | **Target** | **Sources of Verification** | **Assumptions** |
| Enhanced local stakeholders’ capacity to manage, operate and maintain wind farms in a given area based on best practice models developed in other countries. | Increased number of Tertiary Institutions e.g. Technical and Vocational Education and Training (TVET) colleges participating in wind energy vocational apprenticeship programme.  Receiving training in technical, management, operation and maintenance of wind technology | TVET college actively pursuing participation in wind energy vocational skills development. | 4.1 Number of Tertiary institutions e.g. TVETs = maximum 5.  4.2 Number of WTST students supported and graduated 24 (30% female)  4.3 Number of graduate and post graduate students wind energy training sponsorships (60) | Project reports.  DHET reports/ publications.  SARETEC reports.  Support to SAWEA WindAc event  Support of wind energy courses at tertiary institutions | Close collaboration with DHET, SARETEC, GIZ and  SAWEA members with operations in the Eastern Cape in place. |

49 This will result in a cumulative total of 9 masts being installed for phase two WASA.

48 Includes selected staff members and officials from relevant state-owned agencies and the local government sphere.

50 South African Local Government Association and Association of Municipal Electricity Utilities, respectively.