

3. RELEVANT LEGISLATION

According to regulation 29 (1) (e) of the EIA regulations (2006), *A scoping report must include –*

(e) an identification of all legislation and guidelines that have been considered in the preparation of the scoping report

In line with the above-mentioned legislative requirement, the development of the proposed Coega wind energy project described in Chapter 2 above will be subject to the requirements of a number of laws both international and national. These include:

3.1. INTERNATIONAL

3.1.1. *The 1992 United Nations Framework Convention on Climate Change (FCCC)*

The FCCC is a framework convention which was adopted at the 1992 Rio Earth Summit. South Africa signed the FCCC in 1993 and ratified it in August 1997 (Glazwesky, 2005). The stated purpose of the FCCC is to, “*achieve....stabilisation of greenhouse gas concentrations in the atmosphere at concentrations at a level that would prevent dangerous anthropogenic interference with the climate system*”, and to thereby prevent human-induced climate change by reducing the production of greenhouse gases defined as, “*those gaseous constituents of the atmosphere both natural and anthropogenic, that absorb and re-emit infrared radiation*”.

Relevance to the proposed Coega Wind Energy Project:

- The FCCC is relevant in that the proposed project will contribute to a reduction in the production of greenhouse gases by providing an alternative to fossil fuel-derived electricity, and will assist South Africa to begin demonstrating its commitment to meeting international obligations.

3.1.2. *The Kyoto Protocol (2002)*

The Kyoto Protocol is a protocol to the FCCC which was initially adopted for use on 11 December 1997 in Kyoto, Japan, and which entered into force on 16 February 2005 (UNFCCC, 2009). The Kyoto Protocol is the chief instrument for tackling climate change. The major feature of the Protocol is that, “*it sets binding targets for 37 industrialized countries and the European community for reducing greenhouse gas (GHG) emissions. These amount to an average of five per cent against 1990 levels, over the five-year period 2008-2011*” (UNFCCC, 2009). The major distinction between the Protocol and the Convention is that, “*while the Convention **encouraged** industrialised countries to stabilize GHG emissions, the Protocol **commits** them to do so*”.

Relevance to the proposed Coega Wind Energy Project:

- The Kyoto Protocol is relevant in that the the proposed project will contribute to a reduction in the production of greenhouse gases by providing an alternative to fossil fuel-derived electricity, and will assist South Africa to begin demonstrating its commitment to meeting international obligations

3.2. NATIONAL

3.2.1 *The Constitution Act (108 of 1996)*

This is the supreme law of the land. As a result, all laws, including those pertaining to the proposed development, must conform to the Constitution. The Bill of Rights - Chapter 2 of the Constitution, includes an environmental right (Section 24) according to which, everyone has the right:

- a) *To an environment that is not harmful to their health or well-being; and*

- b) *To have the environment protected for the benefit of present and future generations, through reasonable legislative and other measures that:*
- (i) *Prevent pollution and ecological degradation;*
 - (ii) *Promote conservation; and*
 - (iii) *Secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.*

Relevance to the proposed Coega Wind Energy Project:

- Obligation to ensure that the proposed development will not result in pollution and ecological degradation; and
- Obligation to ensure that the proposed development is ecologically sustainable, while demonstrating economic and social development.

3.2.2. The National Environmental Management Act (NEMA) (107 of 1998)

The objective of NEMA is: *“To provide for co-operative environmental governance by establishing principles for decision-making on matters affecting the environment, institutions that will promote co-operative governance and procedures for coordinating environmental functions exercised by organs of state; and to provide for matters connected therewith.”*

A key aspect of NEMA is that it provides a set of environmental management principles that apply throughout the Republic to the actions of all organs of state that may significantly affect the environment. The proposed development has been assessed in terms of possible conflicts or compliance with these principles. Section 2 of NEMA contains principles (see Box 1) relevant to the proposed project, and likely to be utilised in the process of decision making by DWEA.

BOX 1: NEMA ENVIRONMENTAL MANAGEMENT PRINCIPLES

(2)	Environmental management must place people and their needs at the forefront of its concern, and serve their physical, psychological, developmental, cultural and social interests equitably.
(3)	Development must be socially, environmentally and economically sustainable.
(4)(a)	Sustainable development requires the consideration of all relevant factors including the following: <ul style="list-style-type: none"> i. That the disturbance of ecosystems and loss of biological diversity are avoided, or, where they cannot be altogether avoided, are minimised and remedied; ii. That pollution and degradation of the environment are avoided, or, where they cannot be altogether avoided, are minimised and remedied; iii. That waste is avoided, or where it cannot be altogether avoided, minimised and re-used or recycled where possible and otherwise disposed of in a responsible manner.
(4)(e)	Responsibility for the environmental health and safety consequences of a policy, programme, project, product, process, service or activity exists throughout its life cycle.
(4)(i)	The social, economic and environmental impacts of activities, including disadvantages and benefits, must be considered, assessed and evaluated, and decisions must be appropriate in the light of such consideration and assessment.
(4)(j)	The right of workers to refuse work that is harmful to human health or the environment and to be informed of dangers must be respected and protected.
(4)(p)	The costs of remedying pollution, environmental degradation and consequent adverse health effects and of preventing, controlling or minimising further pollution, environmental damage or adverse health effects must be paid for by those responsible for harming the environment.
(4)(r)	Sensitive, vulnerable, highly dynamic or stressed ecosystems, such as coastal shores, estuaries, wetlands, and similar systems require specific attention in management and planning procedures, especially where they are subject to significant human resource usage and development pressure.

As these principles are utilised as a guideline by the competent authority in ensuring the protection of the environment, the proposed development should, where possible, be in accordance with these principles. Where this is not possible, deviation from these principles would have to be very strongly motivated.

NEMA introduces the duty of care concept, which is based on the policy of strict liability. This duty of care extends to the prevention, control and rehabilitation of significant pollution and environmental degradation. It also dictates a duty of care to address emergency incidents of pollution. A failure to perform this duty of care may lead to criminal prosecution, and may lead to the prosecution of managers or directors of companies for the conduct of the legal persons.

Employees who refuse to perform environmentally hazardous work, or whistle blowers, are protected in terms of NEMA.

In addition NEMA introduces a new framework for environmental impact assessments, the EIA Regulations (2006) discussed previously.

Relevance to the proposed Coega Wind Energy Project:

- The developer must be mindful of the principles, broad liability and implications associated with NEMA and must eliminate or mitigate any potential impacts.
- The developer must be mindful of the principles, broad liability and implications of causing damage to the environment.

3.2.3. The National Environment Management: Biodiversity Act (10 of 2004)

This Act provides for the management and conservation of South Africa's biodiversity within the framework of the National Environmental Management Act 107 of 1998 (see Box 2). In terms of the Biodiversity Act, the developer has a responsibility for:

1. The conservation of endangered ecosystems and restriction of activities according to the categorisation of the area (not just by listed activity as specified in the EIA regulations).
2. Application of appropriate environmental management tools in order to ensure integrated environmental management of activities thereby ensuring that all developments within the area are in line with ecological sustainable development and protection of biodiversity.
3. Limit further loss of biodiversity and conserve endangered ecosystems.

The objectives of this Act are:

- To provide, within the framework of the National Environmental Management Act, for –
 - The management and conservation of biological diversity within the Republic;
 - The use of indigenous biological resources in a sustainable manner.

The Act's permit system is further regulated in the Act's Threatened or Protected Species Regulations, which were promulgated in February 2007.

Relevance to the proposed Coega Wind Energy Project:

- The proposed development must conserve endangered ecosystems and protect and promote biodiversity;
- Must assess the impacts of the proposed development on endangered ecosystems;
- No protected species may be removed or damaged without a permit;
- The proposed site must be cleared of alien vegetation using appropriate means

3.2.4. The National Forests Act (84 of 1998)

The objective of this Act is to monitor and manage the sustainable use of forests. In terms of Section 12 (1) (d) of this Act and GN No. 1012 (promulgated under the National Forests Act), no person may, except under licence:

- Cut, disturb, damage or destroy a protected tree; or

- Possess, collect, remove, transport, export, purchase, sell, donate or in any other manner acquire or dispose of any protected tree or any forest product derived from a protected tree.
- of any protected tree or any forest product derived from a protected tree.

Relevance to the proposed Coega Wind Energy Project:

- If any protected trees in terms of this Act occur on site, the developer will require a licence from the DWA to perform any of the above-listed activities.

BOX 2: MANAGEMENT AND CONSERVATION OF SOUTH AFRICA'S BIODIVERSITY WITHIN THE FRAMEWORK OF NEMA

CHAPTER 4	
	Provides for the protection of species that are threatened or in need of national protection to ensure their survival in the wild; <ul style="list-style-type: none"> ○ to give effect to the Republic's obligations under international agreements regulating international trade in specimens of endangered species; and ○ ensure that the commercial utilization of biodiversity is managed in an ecologically sustainable way.
CHAPTER 5 (Part 2)	
Section 73	A person who is the owner of land on which a listed invasive species occurs must: <ul style="list-style-type: none"> a) notify any relevant competent authority, in writing, of the listed invasive species occurring on that land; b) take steps to control and eradicate the listed invasive species and to prevent it from spreading; and c) take all required steps to prevent or minimise harm to biodiversity.
Section 75	<ul style="list-style-type: none"> • Control and eradication of a listed invasive species must be carried out by means of methods that are appropriate for the species concerned and the environment in which it occurs. • Any action taken to control and eradicate a listed invasive species must be executed with caution and in a manner that may cause the least possible harm to biodiversity and damage to the environment. • The methods employed to control and eradicate a listed invasive species must also be directed at the offspring, propagating material and re-growth of such invasive species in order to prevent such species from producing offspring, forming seed, regenerating or re-establishing itself in any manner.

3.2.5. National Heritage Resources Act (25 of 1999)

The protection of archaeological and palaeontological resources is the responsibility of a provincial heritage resources authority and all archaeological objects, palaeontological material and meteorites are the property of the State. *“Any person who discovers archaeological or palaeontological objects or material or a meteorite in the course of development must immediately report the find to the responsible heritage resources authority, or to the nearest local authority offices or museum, which must immediately notify such heritage resources authority”.*

Relevance to the proposed Coega Wind Energy Project:

- An archaeological impact assessment must be undertaken during the detailed EIR phase of the proposed project.
- No person may alter or demolish any structure or part of a structure, which is older than 60 years or disturb any archaeological or palaeontological site or grave older than 60 years without a permit issued by the relevant provincial heritage resources authority.
- No person may, without a permit issued by the responsible heritage resources authority destroy, damage, excavate, alter or deface archaeological or historically significant sites.

3.2.6. Atmospheric Pollution Prevention Act 45 of 1965

This Act is currently the central legislation for the prevention of air pollution. Part IV deals with dust control – *“Whenever dust originating on any land in a dust controlled area is causing a nuisance to persons residing or present in the vicinity of that land, the owner or occupier may be required to take the prescribed steps or adopt the “best practicable means” for the abatement of the dust”*.

This Act will apply until the more recent National Environmental Management: Air Quality Act (see section 3.2.7 below) comes into force.

Relevance to the proposed Coega Wind Energy Project:

- The “best practicable means” for the abatement of dust during construction if approved have to be taken.
- All appliances used for preventing or reducing to a minimum the escape into the atmosphere of noxious or offensive gases have to be properly operated and maintained and the best practice means for achieving this implemented.

3.2.7. National Environmental Management: Air Quality Act (39 of 2004)

As with the Atmospheric Pollution Prevention Act 45 of 1965, the objective of the new Air Quality Act is to protect the environment by providing the necessary legislation for the prevention of air pollution.

3.2.8. The White Paper on Energy Policy for South Africa (Energy White Paper)

The White Paper on the Energy Policy for South Africa (Energy White Paper) is an overarching document which sets out the government’s official policy on the supply and consumption of energy for the next decade. One of the main goals of the White Paper is to create energy security by diversifying the energy supply and energy carriers. Currently, much of South Africa’s energy is derived from extremely expensive imported fuels and coal-powered energy generation, which could be threatened by climate change response measures of developed countries (refer to section 3.1 above). The White Paper points out that, South Africa has abundant energy sources and it stresses that, *“all possible energy carriers should be tapped to ensure economic growth and development”*. Many of the sectors contributing to the Gross Domestic Product (GDP) are practically driven by these energy carriers. In fact, according to Glazwesky (2005), industry as a whole consumes approximately 40% of the total electricity generated, making it the chief energy source for South Africa’s economic growth and development.

In addition to the above the Energy White Paper notes that there is currently insufficient renewable energy data and lack of transparency in publicly sharing the data. Information on renewable energy system applications, system standards, installation and performance guides, technical and economic characteristics, and identifying human training capacity is essential as the government commits to a healthier environment as part of their agenda. The position of the Energy White Paper on renewable energy is based on the integrated resource planning principle of, *“ensuring that an equitable level of national resources is invested in renewable technologies, given their potential and compared to investments in other energy supply options”*, and this has subsequently been elaborated by the White Paper on Renewable Energy (see section 3.2.9 that follows).

Relevance to the proposed Coega Wind Energy Project:

- The proposed Wind Farm project is a direct consequence of the Government’s White Paper on Energy Policy and the requirements therein to improve energy security of supply through diversification, as well as the demonstration and introduction of cleaner energy technologies and the promotion of competition and empowerment in the electricity market.

3.2.9. The White Paper on Renewable Energy Policy (Renewable Energy White Paper)

The White Paper on the Renewable Energy Policy (Renewable Energy White Paper) complements the White Paper on Energy Policy discussed in section 3.2.8 above, by pledging “*Government Support for the development, demonstration and implementation of renewable energy sources for both small and large scale applications*”. It sets out the policy principles, goals and objectives to achieve, “*An energy economy in which modern renewable energy increases its share of energy consumed and provides affordable access to energy throughout South Africa, thus contributing to sustainable development and environmental conservation*”. The Department of Minerals and Energy (DME) (now the Department of Energy) embarked on an Integrated Energy Plan (IEP) to develop the renewable energy resources, while taking safety, health and the environment into consideration. The government set a target of, “*10 000 GWh (0.8Mtoe) renewable energy contribution to final energy consumption by 2013, to be produced mainly from biomass, wind, solar and small-scale hydro*”. Four strategic areas that needed to be addressed to create the appropriate enabling environment for the promotion of renewable energy were identified. These included:

- Financial instruments;
- Legal instruments;
- Technology development, and;
- Awareness raising, capacity building and education.

3.2.10. Integrated Energy Plan for the Republic of South Africa, March 2003

The former Department of Minerals and Energy (DME) commissioned the Integrated Energy Plan (IEP) in response to the requirements of the National Energy Policy in order to provide a framework by which specific energy policies, development decisions and energy supply trade-offs could be made on a project-by-project basis. The framework is intended to create a balance between energy demand and resource availability so as to provide low cost electricity for social and economic development, while taking into account health, safety and environmental parameters.

In addition to the above, the IEP recognised the following:

- South Africa is likely to be reliant on coal for at least the next 20 years as the predominant source of energy;
- New electricity generation will remain predominantly coal based but with the potential for hydro, natural gas and nuclear capacity;
- Need to diversify energy supply through increased use of natural gas and new and renewable energies;
- The promotion of the use of energy efficiency management and technologies;
- The need to ensure environmental considerations in energy supply, transformation and end use;
- The promotion of universal access to clean and affordable energy, with the emphasis on household energy supply being coordinated with provincial and local integrated development programmed;
- The need to introduce policy, legislation and regulations for the promotion of renewable energy and energy efficiency measures and mandatory provision of energy data, and;
- The need to undertake integrated energy planning on an on-going basis.

Relevance to the proposed Coega Wind Energy Project:

- The proposed Wind Farm project is in line with the IEP with regards to diversification of energy supply and the promotion of universal access to clean energy.

3.2.11. Electricity Regulation Act (Act No. 4 of 2006)

The Electricity Regulation Act (Act No. 4 of 2006) became operation on 1 August 2006 and the objectives of this Act are to:

- Facilitate universal access to electricity;
- Promote the use of diverse energy sources and energy efficiencies, and;
- Promote competitiveness and customer and end user choice.

Relevance to the proposed Coega Wind Energy Project:

- The proposed Wind Farm project is in line with the call of the Electricity Regulation Act No. 4 of 2006 as it has the potential to improve energy security of supply through diversification.

3.2.12. Electricity Regulation on New Generation Capacity (Government Gazette No 32378 of 5 August 2009)

On 5 August 2009 the government of the Republic of South Africa promulgated the Electricity Regulations on New Generation Capacity (Government Gazette No 32378) which were made by the Department of Energy in terms of the Electricity Regulation Act 2006 (see 3.2.11 above), and are applicable to:- (a) all types of generation technology including renewable generation and co-generation technology (i.e. landfill gas, small hydro (less than 10 MW), wind and concentrated solar power (with storage)) but excluding nuclear power generation technology; (b) base load, mid-merit and peak generation; and (c) take effect from the date of promulgation, unless otherwise indicated.

The objectives of these regulations are:

- The regulation of entry by a buyer and an Independent Power Producer (IPP) into a power purchase agreement;
- The facilitation of fair treatment and the non-discrimination between IPP generators and the buyer;
- The facilitation of the full recovery by the buyer of all costs incurred by it under or in connection with the power purchase agreement and an appropriate return based on the risks assumed by the buyer there under and, for this purpose to ensure the transparency and cost reflectivity in the determination of electricity tariffs;
- The establishment of rules and guidelines that are applicable in the undertaking of an IPP bid programme and the procurement of an IPP for purposes of new generation capacity;
- The provision of a framework for the reimbursement by the regulator, of costs incurred by the buyer and the system operator in the power purchase agreement, and;
- The regulation of the framework of approving the IPP bid programme, the procurement process, the Renewable Feed in Tariff (REFIT) programme, and the relevant agreements to be concluded.

The Guidelines describe the basic structure of the REFIT programme, including the roles of various parties in the programme, namely National Energy Regulator of South Africa (NERSA), Eskom and renewable energy generators. Pursuant to the Guidelines, Eskom's "Single Buyer Office" is to be appointed as the Renewable Energy Purchasing Agency (REPA), the exclusive buyer of power under the REFIT programme. Generators participating in the REFIT scheme are required to sell power generated by renewable technologies to Eskom as the REPA under a Power Purchase Agreement, and are entitled to receive regulated tariffs, based on the particular generation technology. NERSA is tasked with the administration of the REFIT programme, including setting the tariffs and verifying that generation is genuinely from renewable energy sources.

While the Regulations deal generally with procurement under an IPP bid programme (defined in the Regulations to mean a bidding process for the procurement of new generation capacity and/or ancillary services from IPPs), and specify the use of a bidding process involving requests for prequalification, requests for proposals and negotiations with the preferred bidder, the Regulations set out a special process for the procurement of renewable energy and cogeneration under the REFIT programme, described in Regulation 7. This Regulation states that NERSA is to, “develop rules related to the criteria for the selection of “renewable energy IPPs... that qualify for a licence” and sets out a list of matters that the criteria prescribed by NERSA should take account of. These include:

- Compliance with the integrated resource plan and the preferred technologies;
- Acceptance by the IPP of a standardised power purchase agreement;
- Preference for a plant location that contributes to grid stabilisation and mitigates against transmission losses;
- Preference for a plant technology and location that contributes to local economic development;
- Compliance with legislation in respect of the advancement of historically disadvantaged individuals;
- Preference for projects with viable network integration requirements;
- Preference for projects with advanced environmental approvals;
- Preference for projects demonstrating the ability to raise finance;
- Preference for small distributed generators over centralized generators; and
- Preference for generators that can be commissioned in the shortest time.

According to Dewey & LeBouef (August, 2009), it appears, therefore, that successful REFIT projects may not be selected through a conventional bidding process, but instead, applications will be selected on the basis of prescribed criteria. Just what such criteria are, and how they will be applied and weighted is not yet clear, but it is expected that this will be set out in the rules to be developed by NERSA as required by Regulation 7(2)(a).

Relevance to the proposed Coega Wind Energy Project:

- The proposed Wind Farm project is required to comply with any guidelines relating to the IPP bid programme and the REFIT programme.

3.2.13. Aviation Act (Act No. 74 of 1962): 13th Amendment of the Civil Aviation Regulations 1997

Section 14 of obstacle limitations and marking outside aerodrome or heliport (CAR Part 139.01.33) under this Act specifically deals with wind turbine generators (wind farms). According to this section, “A wind turbine generator is a special type of aviation obstruction due to the fact that at least the top third of the generator is continuously variable and offers a peculiar problem in as much marking by night is concerned. The Act emphasizes that, when wind turbine generators are grouped in numbers of three or more they will be referred to as “wind farms”.

Of particular importance to the proposed project are the following:-

- **Wind farm placement:** Due to the potential of wind turbine generators to interfere on radio navigation equipment, *no wind farm should be built closer than 35km from an aerodrome.* In addition, much care should be taken to consider visual flight rules routes, proximity of known recreational flight activity such as hang gliders, en route navigational facilities etc.
- **Wind farm Markings:** *Wind turbines shall be painted bright white to provide the maximum daytime conspicuousness. The colours grey, blue and darker shades of white should be avoided altogether. If such colours have been used, the wind turbines shall be supplemented with daytime lighting, as required.*

- **Wind farm Lighting:**

- Wind farm (3 or more units) Lighting: *In determining the required lighting of a wind farm, it is important to identify the layout of the wind farm first.* This will allow the proper approach to be taken when identifying which turbines need to be lit. Any special consideration to the site's location in proximity to aerodromes or known corridors, as well as any special terrain considerations, must be identified and addressed at this time. Details are as follows:
 - Not all wind turbine units within an installation or wind farm need to be lit. Definition of the periphery of the installation is essential. Lighting of interior wind turbines is of lesser importance unless they project above the peripheral units. This can be the case when higher ridges or plateaus are present within the wind farm area.
 - Obstruction lights within a group of wind turbines should have unlighted separations or gaps of no more than 800m if the integrity of the group appearance is to be maintained. This is especially critical if the arrangement of objects is essentially linear, as is the case with most wind turbine groups.
 - Any array of flashing or pulsed obstruction lighting, intended to warn of a group of wind turbines forming an entity (i.e., a line, string, or series of units), shall be synchronized to flash simultaneously. If an installation consists of a number of widespread, but obviously separated areas or entities more than 1500m from each other, it is not necessary that all such areas flash synchronously.
 - Night time wind turbine obstruction lighting should consist of medium intensity type B aviation red flashing lights. Minimum intensities of 2000 candela for nighttime red flashing or strobe lights are required. *Note: Steady-burning obstruction lights shall not be used.*
 - White medium intensity type A strobe lights may be used in lieu of the preferred medium intensity type B strobe lights, but must be used alone without any red lights, and must be positioned in the same manner as the red flashing lights.
 - Since the hub of the wind turbine unit is frequently as large as the nacelle (body) itself, a top-mounted obstruction light should be raised well above the surface of the nacelle so that it may be easily seen from directly in front of the turbine. Placement of the light fixtures on the turbine nacelle should be accomplished to ensure that they are visible from 360 degrees, with particular attention being made to ensure that the hub of the turbine rotor in no way blocks the light from an aircraft approaching the windward side of the turbine at the same elevation as the turbine hub.
 - When possible, antennas or towers of heights over 45m that are within the turbine farm area should be incorporated into the lighting plan for the site, as they offer tall, unobstructed platforms on which lighting fixtures can be mounted and should be included in the synchronization and spacing calculations.
 - Each turbine should only require one fixture if the site is monitored, and that *a failed light fixture can be replaced within the next working day.* Failure to replace a failed fixture, which is essential to maintaining the 800m-separation requirement, will result in an unsafe gap in the lighting configuration. *If the facility does not possess the capability to replace fixtures within the next working day, each turbine shall be fitted with two separate fixtures.* A well-balanced lighting plan has all the light fixtures within the wind farm flash at the same time, thus delineating the farm as one large obstruction and navigation between the turbines should be discouraged. The synchronisation function can be accomplished through various means, either by radio frequency devices, hard-wired control cables, or independently mounted global positioning system synchroniser units. The site developer can decide the selection of the units, as long as the end result is that all lights flash perceptibly at the same time. If the developer fails to synchronise

the fixtures, the developer will be required to add additional fixtures at closer spacing. The very basis of the lighting standards for wind farms is centered on the synchronous flashing of the perimeter lighting.

- **Turbine Lighting Assignment:** *The following guidelines should be followed to determine which turbines, need to be equipped with lighting fixtures. Again, the placement of the lights is contingent upon which type of configuration is being used.*
 - Linear: A light should be placed on each turbine positioned at each end of the line or string of turbines. From those end turbines, lights should then be positioned such that the next lit turbine is no more than 800m, from the last lit turbine. This pattern should continue until the end of the string is reached. If the last segment is significantly short, it may be practical to move the lit turbines back one or two turbines towards the starting point to present a nice, well-balanced string of lights. A high concentration of lights, in close proximity, should be avoided.
 - Cluster: A starting point should be selected along the outer perimeter of the cluster. This turbine should be lit, and then, continuing along the outer perimeter of the farm, a light should be placed on the next turbine with the maximum gap between the lit turbines being no more than 800m. This pattern should continue around the perimeter of the cluster, and end at the starting point. If it appears that the lights are crowded at the ending point, the lit turbines may be moved back by one turbine to present a balanced lighting presentation. If it is determined that the distance across the cluster is of a distance greater than 1500m, or the terrain may vary within the cluster (+30m from the perimeter elevations), it may be appropriate to place a few lit turbines at strategic locations throughout the centre of the cluster. This will prevent pilots from believing they may be able to climb over the outer perimeter and descend down into the centre of the cluster. Discretion should be used when placing these lights to maintain a well-balanced, safe lighting configuration.
 - Grid: Initially, each of the defined corners of the grid layout should be selected for lighting, and then, using the same concept of the cluster configuration, lights should be placed on turbines along the outer limits of the farm so that the maximum spacing between lit turbines is no more than 800m. If it appears as though the end of the lighting strings may be crowded, it may be necessary to move the lights back one or two turbines to create an even lighting configuration. If the grid is more than 1500m wide across the centre of the group of turbines, it may be appropriate to position one or two lights within the centre of the configuration to again provide warning to pilots attempting to climb over the outer limits of the grid, and descending into the centre of the grid. Elevation should also be considered.
 - Special Instances: On occasion, if one or two turbines may be positioned at locations that do not lend themselves to the linear, cluster, or grid layouts, the following guidelines should be followed. If the turbine protrudes from the general limits of the wind farm, the turbine should automatically receive a lighting fixture. If another turbine is collocated with the first turbine, it does not require any lighting as long as it is within 150m from the lit turbine and not positioned on the outboard side of the lit turbine. If these requirements cannot be met, both turbines, in this case, would need to be illuminated.

Due to requirements of the Act to ensure the safety of aircrafts, the project proponent will engage directly with the Civil Aviation Authority regarding the structural details of the facility.

3.2.14. Occupational Health and Safety Act (85 of 1993)

The objective of this Act is to provide for the health and safety of persons at work (See Box 3). In addition, the Act requires that, “*as far as reasonably practicable, employers must ensure that their activities do not expose non-employees to health hazards*” (Glazewski, 2005: 575). The importance of the Act lies in its numerous regulations, many of which will be relevant to the proposed wind energy project. These cover, among other issues, noise and lighting.

Relevance to the proposed Coega Wind Energy Project:

- The developer must be mindful of the principles and broad liability and implications contained in the OHS Act and mitigate any potential impacts.

BOX 3: HEALTH AND SAFETY OF PERSONS AT WORK ACCORDING TO THE OCCUPATIONAL HEALTH AND SAFETY ACT

8: GENERAL DUTIES OF THE EMPLOYERS TO THEIR EMPLOYEES	
(1)	Every employer shall provide and maintain, as far as is reasonably practicable, a working environment that is safe and without risk to the health of his employees.
(2)	Without derogating from the generality of an employer's duties under subsection (1), the matters to which those duties refer include in particular- <ul style="list-style-type: none">a) The provision and maintenance of systems of work, plant and machinery that, as far as is reasonably practicable, are safe and without risks to health;b) Taking such steps as may be reasonably practicable to eliminate or mitigate any hazard or potential hazard to the safety or health of employees, before resorting to personal protective equipment;d) Establishing, as far as is reasonably practicable, what hazards to the health or safety of persons are attached to any work which is performed, any article or substance which is produced, processed, used, handled, stored or transported and any plant or machinery which is used in his business, and he shall, as far as is reasonably practicable, further establish what precautionary measures should be taken with respect to such work, article, substance, plant or machinery in order to protect the health and safety of persons, and he shall provide the necessary means to apply such precautionary measures;e) Providing such information, instructions, training and supervision as may be necessary to ensure, as far as is reasonably practicable, the health and safety at work of his employees;f) As far as is reasonably practicable, not permitting any employee to do any work or to produce, process, use, handle, store or transport any article or substance or to operate any plant or machinery, unless the precautionary measures contemplated in paragraphs (b) and (d), or any other precautionary measures which may be prescribed, have been taken;g) Taking all necessary measures to ensure that the requirements of this Act are complied with by every person in his employment or on premises under his control where plant or machinery is used;h) Enforcing such measures as may be necessary in the interest of health and safety;i) Ensuring that work is performed and that plant or machinery is used under the general supervision of a person trained to understand the hazards associated with it and who has the authority to ensure that precautionary measures taken by the employer are implemented; and authority as contemplated in Section 37 (1) (b).
14: GENERAL DUTIES OF EMPLOYEES AT WORK	
Every employee shall at work:-	
(a)	Take reasonable care for the health and safety of himself and of other persons who may be affected by his acts or omissions;
(b)	As regards any duty or requirement imposed on his employer or any other person by this Act, cooperate with such employer or person to enable that duty or requirement to be performed or complied with;
(c)	Carry out any lawful order given to him, and obey the health and safety rules and procedures laid down by his employer or by anyone authorized thereto by his employer, in the interest of health or safety;
(d)	If any situation which is unsafe or unhealthy comes to his attention, as soon as practicable report such situation to his employer or to the health and safety representative for his workplace or section thereof, as the case may be, who shall report it to the employer; and
(e)	If he is involved in any incident which may affect his health or which has caused an injury to himself, report such incident to his employer or to anyone authorized thereto by the employer, or to his health and safety representative, as soon as practicable but not later than the end of the particular shift during which the incident occurred, unless the circumstances were such that the reporting of the incident was not possible, in which case he shall report the incident as soon as practicable thereafter.
15: DUTY NOT TO INTERFERE WITH, DAMAGE OR MISUSE THINGS	
[S. 15 substituted by S. 3 of Act No. 181 of 1993.]	
	No person shall intentionally or recklessly interfere with, damage or misuse anything which is provided in the interest of health or safety.

3.2.15. Other relevant national legislation

Other national legislation that may be relevant to the proposed Coega wind energy project includes:-

- The **Telecommunication Act (1966)** which has certain requirements with regard to potential impacts on signal reception.
- The **Environment Conservation Act No 73 of 1989 (ECA) Noise Control Regulations**, which specifically provide for regulations to be made with regard to the control of noise, vibration and shock, including prevention, acceptable levels, powers of local authorities and related matters.

In addition to the above, aside from the environmental authorisation, there are other permits, contracts and licenses that will need to be obtained by the project proponent for the proposed project some of which fall outside the scope of the EIA. However, for the purposes of completeness, these include:-

- National Energy Regulator of South Africa (NERSA): *Generation License*
- Eskom: *Connection agreement and Power Purchase Agreement (PPA)*

3.3. MUNICIPAL BY-LAWS

Certain activities related to the proposed development may, in addition to National legislation, be subject to control by municipal by-laws. Relevant by-laws will be identified as part of the various specialist studies during the EIA Phase. In addition, because the proposed development will be situated in the Coega IDZ, it will be subject to certain conditions for development specified by the Coega Development Corporation (CDC). Some of these conditions reflect the requirements of the NMBMM and, among others, relate to the noise levels. In addition, there will be certain requirements related to the health and safety within the IDZ during construction and approval of method statements, particularly for excavation work. The CDC also prescribes architectural guidelines to which all developments in the area have to conform.

At this stage in the EIA process this list should not be regarded as definitive or exhaustive, and it is probable that additional legislative requirements will be identified as the process progresses. In this regard, the Terms of Reference for most of the specialist studies include the need for a review of all relevant legislation pertaining to the proposed development.