FE Overberg (RF) (Pty) Ltd – Executive Summary: Climate Change Risk Assessment

Introduction

Red Rocket South Africa (Pty) Ltd is proposing the development of the Overberg Wind Energy Facility (WEF) in the Swellendam Local Municipality, Western Cape. The facility will comprise up to 40 wind turbines with a total generation capacity of approximately 260 megawatts. This executive summary presents key insights from a Climate Change Risk Assessment (CCRA) undertaken to evaluate how climate change may affect the project now and in the future. The objective is to identify potential risks to people, infrastructure, and operations, and to inform resilience planning throughout the project lifecycle.

Climate change, and the broader political and societal response to it, is already generating material risks and opportunities for businesses globally. These risks have gained momentum over the past five to ten years and are expected to increase exponentially in scope and severity in the coming decades. Physical impacts from extreme weather events such as storms, floods, and droughts can disrupt business operations, damage assets, and present health and safety risks to workers. Proactively understanding and addressing these risks enables both companies and communities to build resilience in the face of a changing climate.

The CCRA was aligned with international best practice, including the Equator Principles (EP4, 2020) and the International Finance Corporation (IFC) Performance Standards on Environmental and Social Sustainability (2012), which require the identification of climate-related physical risks as part of project due diligence.

Methodology

A desk-based assessment was conducted using publicly available climate datasets and predictive models. Climate change specialists consulted authoritative sources such as the World Bank Climate

Change Knowledge Portal and the World Resources Institute Aqueduct Tool, along with ERM's proprietary Climate Impact Platform (CIP) and Climate Data Tool (CDT).

The study considered a high-emissions scenario (RCP8.5), assuming continued growth in greenhouse gas emissions, and evaluated projected climate hazards across three timeframes:

1. **Baseline (present day)** – to assess current risks and early-stage project impacts
2. **2030** – for medium-term operational resilience
3. **2050** – to inform long-term planning and decommissioning

ERM Southern Africa (Pty) Ltd (ERM) was commissioned to carry out the climate screening for the site. The CIP model provided site-specific data on key climate hazards, including extreme heat, flooding, storms, and drought.

Findings

The proposed WEF site is located on a relatively flat coastal plain, approximately 30–40 km from the Indian Ocean and 20 km from nearby mountain ranges. The terrain is mildly undulating, with an average annual rainfall of 362 mm, mostly occurring during the winter months (April–September). The region experiences high wind speeds, with an average of 9.4 km/h, and remains frost-free year-round.

Rising temperatures present a tangible risk to construction and operational activities. Equipment efficiency may decline due to overheating, particularly generators and electrical components. Prolonged heat may also compromise transport infrastructure, potentially damaging roads and vehicles. Additionally, high temperatures pose health and safety risks to site personnel, increasing the likelihood of fatigue, heat stress, or illness, which may lead to work delays or limited working hours.

Flooding:

The site faces high levels of water stress and significant riverine flood risk. Extreme precipitation and flooding could impede site access, delay equipment and material deliveries, and damage infrastructure. Machinery and materials are vulnerable to being washed away or rendered inoperable,

while unsafe conditions may halt work entirely. Flooding can also degrade surface water quality, elevate the risk of waterborne diseases among workers, and cause ground instability or subsidence if drainage systems are overwhelmed.

Drought:

Although onshore wind generation has a low water footprint during operation, the construction phase relies on a stable water supply. Any scarcity may delay construction activities and raise project costs. Inadequate access to potable water could also pose health risks to workers. Prolonged drought and extreme heat reduce soil moisture, heightening the risk of erosion in both active construction areas and on rehabilitated or vegetated slopes.

Mitigation Measures

To address temperature-related risks, temperature-sensitive electrical infrastructure will be identified and assessed for heat vulnerability. Regular inspections and maintenance will be implemented to reduce the risk of overheating and associated operational disruptions. A comprehensive Occupational Health and Safety (OHS) policy will be enforced, and staff will receive targeted training for working under extreme temperature conditions. Work schedules will be adapted to ensure worker wellbeing during heatwaves.

Flood risks will be managed through a site-specific assessment and implementation of flood protection measures. These will include raised platforms for critical equipment, enhanced drainage systems, sandbags, and diversion barriers. An emergency evacuation policy will be established, and personnel will be trained through regular drills to ensure preparedness and quick response.

To mitigate water stress and drought-related impacts, water usage during construction will be minimised through efficient resource management. Collaboration with local authorities will support the development of a sustainable, long-term water supply strategy. This proactive planning will enhance resilience under conditions of limited water availability.

Conclusion

The Climate Change Risk Assessment has identified key climate-related hazards that could affect the Overberg Wind Energy Facility throughout its lifecycle. The most significant risks include extreme heat, high riverine flood potential, and chronic water stress — particularly during construction. While the operational phase is relatively low risk in terms of water demand, temperature extremes and flooding could still disrupt systems and compromise worker safety if not adequately managed.

The project team has committed to a range of mitigation measures that will reduce vulnerability and increase site resilience. These measures are aligned with international standards and reflect a proactive, integrated approach to climate risk management. By embedding climate adaptation into the planning, design, and operation of the Overberg WEF, Red Rocket demonstrates its commitment to long-term environmental stewardship and responsible infrastructure development in the face of a changing climate.