

EolMed – Gruissan, Floating Offshore Windfarm

Non-technical Summary – Climate Change Impact Analysis

Technical Note (TN)

Date 23/03/2022

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STRICTLY CONFIDENTIAL

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Through its activities, the Qair Group and Eolmed have been fully committed to actively participating in the ecological transition and the fight against climate change since its inception.

Adaptation to climate change is integrated from the beginning of development and throughout the procurement, construction, operation and maintenance phases of its facilities worldwide.

The facilities have a positive impact on climate change, thanks to the greenhouse gas emissions avoided by the production of renewable energy. This energy is a substitute for conventional energies, the production of which generates the consumption of raw materials and polluting emissions. The project as a whole is consistent with, and forms part of France, and the Occitanie regions response to climate change and its commitment to the Paris Agreement and the energy transition.

The review was undertaken with a view of evaluating the risks posed to the Eolmed Project by the effects of climate change. It pays particular attention to the physical climate risks to the project with the broader socio-economical impacts falling outside of scope.

It should be noted that the vulnerability to climate change of floating wind power plants in operation remains limited.

The production of our facilities can be positively and negatively affected by climatic variations. In addition, wind power plants are relatively robust and easy to dismantle and are planned to be operated over relatively short periods of time (about 30 years).

Key Factors

Effects due to climate change	Identified potential risks	Risk rating
Extreme temperatures (very cold)	Decrease in temperature / freezing impacting turbines and production	N/A
	Decrease in temperature / freezing resulting in unsafe work conditions for workers	N/A
Extreme temperatures (high heat / heat waves)	Increased temperature during construction and operations interventions on site.	Low
	Hot works impacted by increased heatwaves	Low
	deratings depending on power factor, wind speed (thus power) and ambient temperature.	Low
	General increase in temperatures affecting equipement	Low
Hurricanes / Storms / Extreme winds	Increase in extreme weather events due to climate change	Medium
	Delays in construction due to extreme weather	Low
Lightning Strike	Turbine struck by lightning	Low
Floods / Heavy rains	Submerged / hard-to-reach installations resulting in a drop or stop in production and/or the non-completion of maintenance operations.	N/A
	Coastal assets impacted by marine flooding	Low
	Flooding of construction site	Low
	Flooding of operation offices	Low
Rise in sea level	Sea level rise impacts construction phase	N/A

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	Future maintenance offices location at Port-La-Nouvelle	Low
	Projected rise in levels of less than 50cm by 2050 impacting wind farm	Low
Low rainfall / Drought / Water stress	Decrease in production efficiency and/or increase in water consumption.	Low
	Decrease in the availability of waterresources.	N/A
Wild Fires	Affecting Turbines	N/A
	Affecting Worksite	N/A
	Affecting Substation	Low
	Affecting Operational Offices	Low
Landslide / earthquakes	The zone is in a moderate seismic zone,	Low

Key Controls

1. Recommendations

Physical risk assessments are integrated throughout the life cycle of projects, from the upstream phase by the project risk assessment, and risk assessment studies associated with the project, to the downstream phase through the implementation and monitoring of the measures defined in order to mitigate the impacts and risks identified during the study phases.

Given the relatively minor impact anticipated as a result of climate change in the projects time frame, it is recommended that the project keeps to, and implements the mitigations measures prescribed in the impact assessment to resist external environmental activities.

2. Climate Resilience Measures

To mitigate the albeit relatively minor impact of climate change on the project, and the forecast slight increase in environmental events such as storms, reduction and prevention measures have been and will be implemented.

They consist of :

Designing for resilience

- designing of the wind turbines, floaters etc. to be compliant with the recommendations of approved certification institutes so as to effectively resist and withstand the effects of wind, storm, and wave damage;
- Review of design by specialist organisations
- Integration of wind, wave, storm modelling into the design phase

Planning for climatic/environmental events and implementing associated safety management

The implementation of a global coordination plan and a specific safety and health protection plan to ensure that the impact remains limited on both human and physical assets;

- The implementation of a maritime intervention plan;
- The implementation of trained personnel;
- The regular checking of equipment;
- The coordination of operations with the actors concerned;
- The installation of safety and surveillance equipment (lightning protection, alarm system, restricted areas, etc.).