

# Project : “Offshore Symphony”

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The concept of the “Offshore symphony” was born when I decided to visit the Gedser wind turbine in Denmark, made by the electrician/engineer Johannes Juul in 1957. The Gedser wind turbine, also named “the venerable old lady”, is since considered the mother of modern wind turbines<sup>1</sup>. As such, it needs rehabilitation. The “Offshore Symphony” aims at this objective, both the prototype and its inventor, with a creative intention in an artistic context, makes this experience even more remarkable.

I first used the term “ecosound” with regard to this project based on the rehabilitation of the Danish heritage canons, in this case the Gedser wind turbine from Johannes Juul, to work in favor of its artistic “rebound” against the backdrop of an ecological model. But overall, the term “ecosound” is used in relation to global audio awareness. It concerns protecting the acoustic environment from vibration to elaborate ecological norms, with the help of creative/innovative processes. If the ecosound allows measuring our audio tolerance to sound biodiversity, be it artificial, it also allows nurturing audio creativeness. This would be a response to both actual noise disturbance issued from the wind turbine itself, and its long-time detractors, such as the “Wind of anger” community.

This project unfolds in two parts:

- To launch this mission, the first part takes place in Gedser, at the bottom of the “Old lady” which itself faces the Nysted Wind Farm, as a performance opening a sound installation;
- By using a broadcast system developed as a smartphone application, the second part performs data according to the interactive user’s improvisation. While all wind turbines are connected to a grid, which was the genuine obsession of J. Juul with the “Gedsermøllen”, they provide a stream of data in real time, actually observable at the Elmuseet in Bjerringbro. These data may feed artistic purpose, such as re/composing sounds and create music by converting numbers to acoustic parameters - according to the speed of the wind in different places on different engines, each connected wind turbine is a unique instrument from which a set of transformations would apply. Each of us could perform it by being connected from any location.

As an historical location, the “Gedsermøllen” and the “Nysted Wind Farm” at its horizon are the natural ecological environment to perform such artistic event. J. Juul’s mill links to the past when innovation wasn’t yet driven by required ecological responsiveness, while the Nysted Wind Farm answers to global warming and sustainable energy likely for the near future. This project complies the “venerable old lady” owner’s site who is actively campaigning for its recognition by UNESCO and its inscription in the heritage of humanity. At this stage such a project needs evaluation for further development and an agreement from the parts involved, the actual owner Gitte Arenkiel (who already agreed), the Nysted Wind Farm’s owner and the Danish Ministry of Culture. Finally, “the Offshore Symphony” also needs funding in order to be realized.

<sup>1</sup> For more information, see « L’éolienne de Gedser », Frank Pecquet in « Up Magazine » #2.18, 2018, and a web documentary at this address « <http://www.ariadr.com/les-webdocs/gedser/> » (texts are in French, but videos are in English).

## Technical first stage approach for the Offshore Symphony Project

By using a broadcast system developed as a smartphone application we intend to give the Gedser wind turbines the ability to produce its own sound and also to participate in a more complex real-time symphony. In order to give every turbine its own sound identity we're planning to use the ambient sound of each turbine combined with the information of its real-time speed. While the ambient sound samples of each turbine are fixed, the amount of wind they are facing changes constantly and that information will give us the opportunity to modify the turbines sound in real-time.

While all wind turbines are connected to a grid, which was the genuine obsession of J. Juul with the "Gedsermøllen", they provide a stream of data in real-time. Using this stream of information mixed with an online platform we will be able to modify the sound of each turbine in relationship with its actual wind speed, giving us the opportunity to compose more complex musical matter.

In order to give the "Old lady" turbine a special place in the symphony we plan to use its wind speed to conduct the symphony. In other words, the wind in this turbine will modify the whole symphony as an orchestra director would do.

As the Offshore Symphony is composed in real-time it could be diffused at the bottom of the "Old lady" wind turbine and at the same time be diffused in every other location in the world. Having the possibility of multi diffusion will give us the opportunity to let the world know about the project and the Denmark's wind turbines history as well.

The sound diffusion at the "Old lady" turbine will be done by a sound installation that will highlight its particular design, as a specific artistic event.

Using a smartphone application, afterwards will give everyone the possibility to hear the symphony and also to modify its sound by modifying the source parameters. This application will allow the user to change the intensity and spectrum of each turbine so the user will "re compose" the resulting symphony. The application will also provide the users historical and practical information about the project and the importance of the wind turbines as an ecological statement, such as criteria for "phonocene" of the post-industrial era from the standpoint of Denmark pioneers in this specific field of research.

In terms of technical requirements, in order to build up the platform, we will need to have the real-time information of the speed or power produced for each turbine that will participate in the symphony. And as a premiered experiment, we would kindly ask these informations to the Orsted wind farm as facing the historical site.