

DDIS DIRECT DRIVE SYSTEMS

Future of Energy

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> our Company

DDIS is an electrical engineering company founded in may 2008 which the objective is to develop a new architecture of electric machine (motor or generator) more compact and lighter than conventional technologies.

The primary target of DDIS is the wind energy sector, a rapidly growing technology in which DDIS can bring real competitive advantages: no gearbox, lower total head mass, high grid compatibility.

> our markets

Other potential markets are identified such as marine propulsion (surface ship, submarine), hydro-electricity generation, sectors where compactness, reliability and performance are important assets.

> our institutional partners

DDIS enjoys an unanimous recognition. Prizewinner of the "Concours National d'Aide à la Création d'Entreprise en Technologies Innovantes", DDIS, Young Innovative Company, federated many supports among which Oseo, the Ministry of Research, Europe through the FEDER funds (European regional development fund), the Nord-Pas-de-Calais Regional Council, the CCI of Valenciennes, the Network Entreprendre Hainaut... DDIS is also a member of SER (French Renewable Energy association) and of EWEA (European Wind Energy Association).

> our technology

DDIS designs, manufactures and tests, at full load, a new type of electric machine with many advantages:

- > Intrinsic reliability using simple and modular components, ie each module stator is impregnated under vacuum and pressure
- > Compactness by clever design and modular
- > Important weight reduction thanks to the axial flux and multiphase technology
- > Fully compliant with the new grid regulations («grid code») with the permanent magnet machine and a full power converter (DC bus controlled by a chopper)
- > Easy operation mode of withdrawal and / or better performance by the design of the multiphase machine
- > Easily transferable to the multi-megawatt range without costly investments in production
- > Easily transportable due to its modular design

> our Strategy



In order to demonstrate its concept of innovative electrical machine, DDIS decided in July 2008 to design and manufacture a wind turbine. Using an innovating technology protected by international patents, DDIS has developed a three-bladed wind turbine equipped with a direct drive, permanent magnet, multipolar, multiphase synchronous axial flux generator. In January 2011, DDIS erected its wind turbine pilot DDIS60 at Onnaing, in the North of France. The nominal power of this first wind turbine is rated at 800 kilowatts dedicated to low wind speed sites (6 m/s at hub height) with a rotor of 60 m and respecting the ceiling height of 90m fixed by the French civil aviation.

In addition, DDIS could manage this project thanks to the support of high ranking suppliers but also by federating a network of SME able to provide the various modular components of the wind turbine.

As the same time as the marketing of DDIS60, the DDIS target is double :

- Impose its technology on the offshore market and develop wind turbine multi-megawatt by capitalizing on the technological developments carried out on the DDIS60.
- Sell Manufacturing Licenses of its Technology to European partners then Indian even American.