



Project Summary

Self Installing Wind Turbine

SIWT

Action Line: Cost-effective supply of renewable energies
Contract Type: Specific targeted research projects
Activity area: Wind Energy

Coordinator:

Organisation: Suction Pile Technology bv
Korenmolenlaan 2
3440AM Woerden
Netherlands
Contact Person: [Mark Riemers](#)

Project details

Reference:	Wind/020068/2005	Start Date:
Status:	Execution	End Date:
Project Cost (€):	7.983.000	Duration (months): 24
Project Funding (€):	1.500.000	

Summary

Participants plan to demonstrate to the offshore wind industry the realisation of a novel offshore wind turbine concept using a suction pile foundation. The subject concept allows installation of the complete wind turbine, substructure and suction pile foundation offshore in one piece. The concept is virtually independent of the water depth as floating equipment is utilised. This allows offshore wind parks to be installed in deeper waters out of sight from the coastline. The marine spread required comprises a flat top barge, tugs, lowering system and suction pumps. These items are relatively cheap and widely available. In port the complete substructure with suction piles, tower and turbine will be erected and constructed as one unit. The complete unit will be supported on the end or corner of the barge and hung-off using a special frame. The unit will be seafastened to the barge and is then ready for sailaway to the offshore location. The roll and pitch response periods of the barge will be relatively high, so that the barge will not respond to the short waves occurring at 1.5m seastates or less. Accelerations and forces on the unit are therefore limited, resulting in a high offshore workability. The complete duration including tow and offshore installation is anticipated to take only 2-3 days subject to the distance to port. In the field, the barge will be moored and the unit will be lowered to the seafloor. The suction piles will be installed using suction pumps. This operation occurs in only 3-6 hours without noise, i.e. there is limited distraction to marine life. For the installation of a large wind farm involving say 50-100 turbines two complete spreads could be mobilised to make installation feasible in one season. The complete wind turbine including foundation can be removed by reversing the installation procedure. No structural elements will be left in or on to the seabed. If required the complete unit can be re-installed at another location.



Partners

1	Suction Pile Technology bv	NL
2	Energi E2 A/S	DK
3	Per Aarsleff A/S	DK
4	Eide Marine Services A/S	NO