

TIGER

TIDAL STREAM
INDUSTRY
ENERGISER



EUROPEAN UNION

Interreg 
France (Channel
Manche) England
European Regional Development Fund

Project Description and Supplier Opportunities

Raz Blanchard

Normandy Hydrolennes



TIGER Introduction

- TIGER is Interreg's largest ever funded project which aims to be a game-changer for the European tidal stream energy sector.
- Funded through [France \(Channel\) England Programme](#), the €45.4m (€29.9m ERDF) aims to drive growth through the installation of up to 8MW of new tidal capacity in and around the Channel region driving learning, innovation and the development of new products.
- Led by the ORE Catapult from its regional offices in Hayle, Cornwall the 18-partner strong consortium will deliver the project which runs until Q2 2023.

The TIGER Partners are:



Interreg area & TIGER activity map



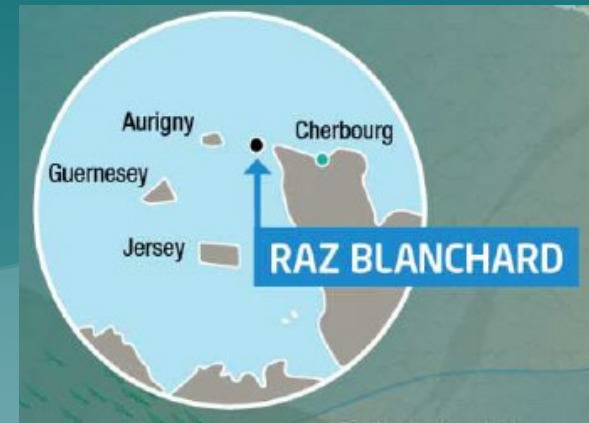
Site	Key partner	Location	Current status	Capacity to be installed	Technology to be installed	Timescale for deployment
Ramsey Sound	Cambrian Offshore	Pembrokeshire, UK	Fully developed tidal demo site with 5MW ROCs	Up to 1MW of new turbine capacity	TBC	2021
Paimpol-Bréhat	EDF and SEENECH	Brittany, FR	Test site to be repurposed	100kW of capacity	Minesto (x1 turbine)	2021
Le Raz Blanchard	Normandie Hydroliennes Hydroquest	Normandy, FR	Existing site under development	Consenting and techno-economic studies only	Atlantis / Hydroquest (up to 5MW deployment planned following consenting)	Deployment outside of scope of TIGER
Morbihan	Morbihan Hydro Energies SASU and Sabella	Brittany, FR	New site to be consented	500kW in project	Sabella turbines (2x D08 250kW)	2022
PTEC (TBC)	QED Naval	Isle of Wight, UK	Consented, dormant	Up to 5MW	Subhub and turbines (TBC)	2022
2.8 to 7.8 MW						

Further information can be obtained from the Project web site:

<https://interregtiger.com/>

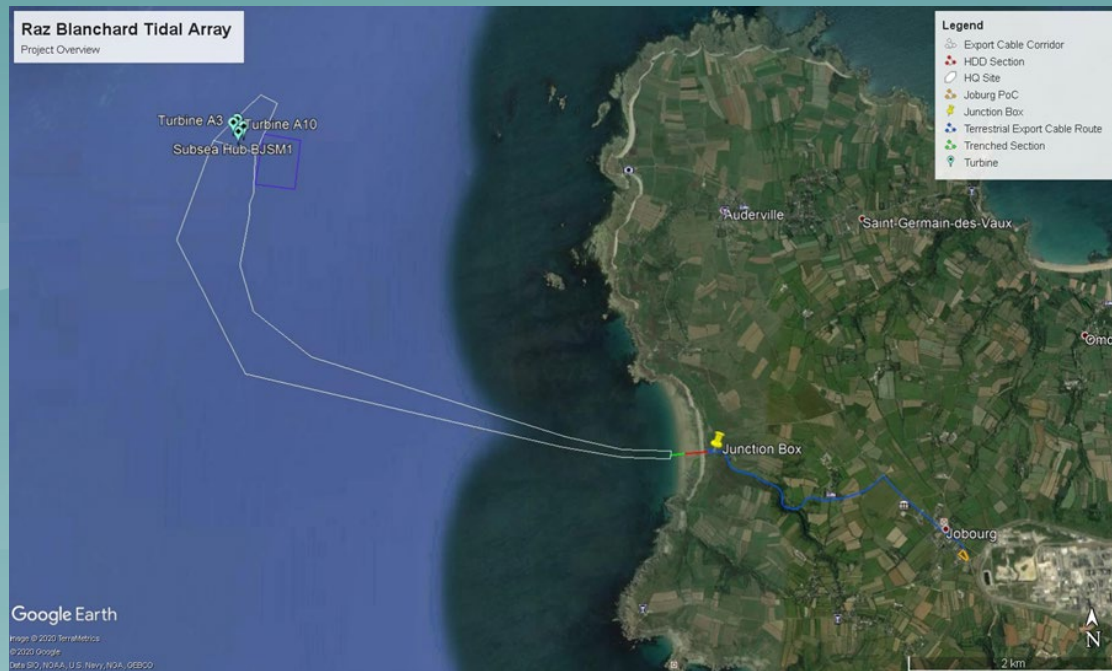
Raz Blanchard

Normandy Hydroliennes pilot tidal array: NH1



NH1 Project Summary

- Located in the Raz Blanchard tidal race between the west coast of Cap de la Hague and Alderney
- 12MW
- 4 Turbines
- 1 Subsea Hub
- 7km Subsea Cable
- 3.3km Terrestrial Cable
- 220m Horizontal Directional Drilling



Project Specifics

- **Developer – Normandy Hydroliennes, a Joint Venture between:**
 - Proteus MR
 - Normandie Participations
 - Eiffinor
- **Site consented by Engie in 2017 and transferred to NH in 2020**
- **NH require to vary certain elements of the consent, mainly:**

	Engie Specifications	NH Specifications
Turbines	4 x 1.4MW	4 x 3MW
Rotor Diameter	18m	24m
Foundation	5 x monopiles (inc. Subsea Hub)	4 x pin piled tripod (gravity based Subsea Hub)
Tip to Chart Datum	10m	10m
Export Cable Voltage	11kV	33kV
Position	Stated with precision in the authorisations	Located to north of consented site for deeper water, flatter seabed and lower turbulence

Timeline Project Development

	2021				2022				2023			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Consent												
Prefecture engagement												
Variation application												
Resource Assessment												
Flow Modelling												
ADCP Deployment and Retrieval												
Offshore Geotechnical												
Data Assessment												
Site Investigation												
Grid Connection												
Technical and Financial Proposal												
Design												
Pre-FEED												
Turbine System												
Substations												

Technology Description - Turbines

The turbines to be installed by NH will be designed by Proteus MR, based on the operational turbines at MeyGen:

- Turbine type – AR3000
- Installed Capacity – 3MW
- Number of blades - 3
- Rotor Diameter – 24m
- Dry weight – 170Te
- Foundation – Pin piled tripod
- Wet-mate connection to subsea hub



Technology Description – Subsea Hub

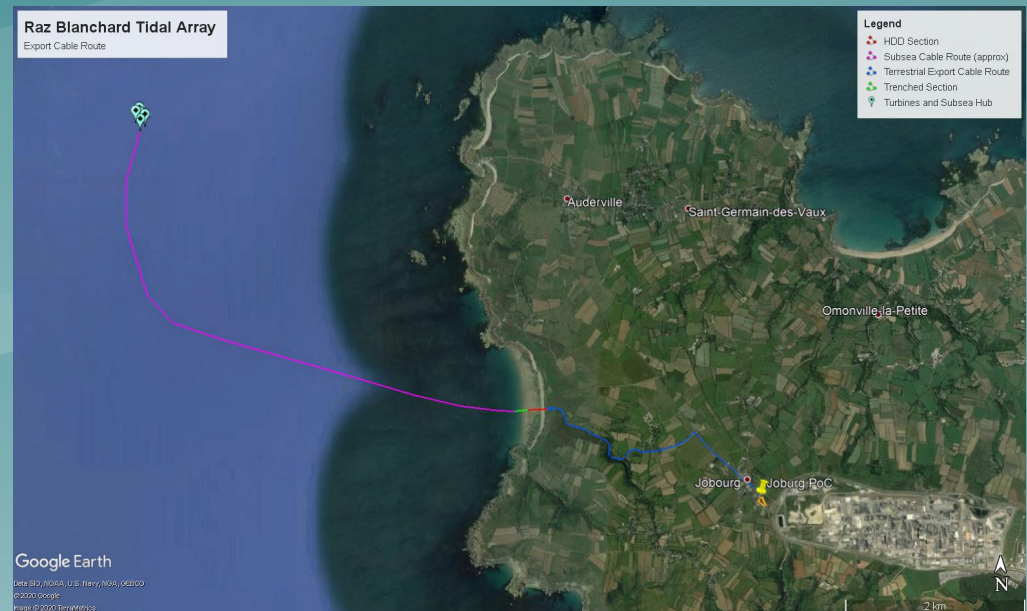
The Subsea Hub will also be based on a design which has been successfully installed at MeyGen

- **Dimensions**
 - Height – 3m
 - Length – approx. 8m
 - Width – 6m
- **Weight – 50Te**
- **Voltage – 8kV/33kV**
- **Gravity based**



Grid connection

- **Single export cable from the subsea hub to the Bay of Ecalgrain.**
 - 33kV
 - 115mm dia
 - Double-armoured
- **A combination of trenching and HDD to cross the beach**
- **3.3km of terranean cable to Joburg, following existing roads**
- **A new substation at Joburg where connection to the existing grid will be made**
- **Additional upgrades to the existing network to be undertaken by ENEDIS**



Logistics: Construction

Construction and ongoing operations base will be located in Cherbourg

Installation equipment:

- **Foundations:**
 - DP with specialist drilling equipment for of pin piles
- **Cables, subsea hub and turbines:**
 - Offshore construction vessels operating on DP



Project Consent

The project has previously been awarded consent, but this must be varied to accommodate the Proteus MR turbine design. The table below provides an updated timeline to the project consenting.

	2021		2022				2023	
	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
Consent								
Review of existing consent documents								
Presentation to the authorities								
Environmental Impact studies								
Submit application part 1 of 2: cas par cas								
Submit application part 2 of 2: porter á connaissances								
Request extension to consent start of works								
Consultation phase								
Decision expected								

Contact Details

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