



Offshore Renewable Energies in a Regional Context

"Pôle Mer Bretagne" contribution



■ Agenda

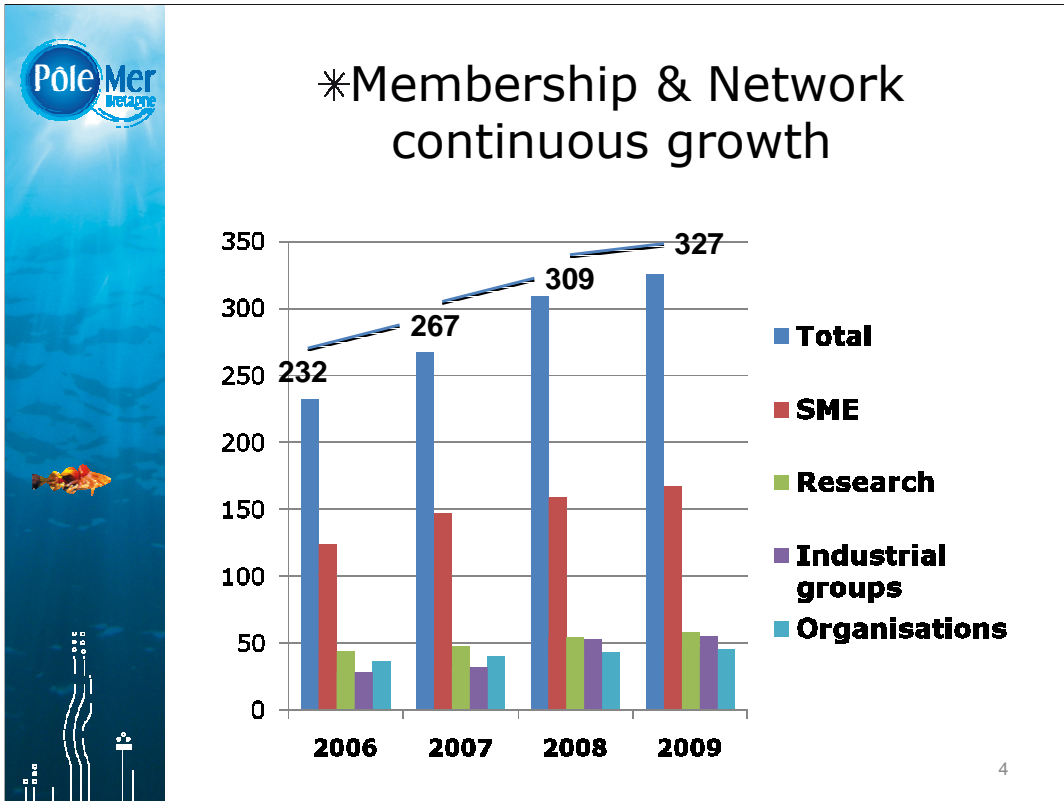
- Introduction to "Pôle Mer Bretagne" Sea Cluster
- Why Offshore Renewable Energy in Brittany?
- Towards a comprehensive ORE plan
- "Pôle Mer Bretagne" added value



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So called “Pôle Mer Bretagne” is a Sea Innovation business cluster, gathering about 330 members in an association, I have the honour and pleasure to chair.

The goal of this association is to develop economy thru collaborative & innovative R&D projects in the fields where Brittany has a strong research, thus accelerating transfer between academic partners and industry, and collaboration between SME & IG.






This cluster has been labelled by French govt in 2005, among the 17 world-class clusters, and is twinned from the beginning with “Pôle Mer Paca” headquartered in Toulon.

This slide shows the various memberships, with a sustained growth and a good balance between the colleges

Organisations are professionals organisations or unions, chambers of commerce, technology parks,...

More than half of French Ocean research is located in Brittany, especially in Brest, where we are headquartered.

* 100 selected projects worth 288 M€ of total costs

	Maritime Safety & Security :	24 projects
	Ship & leisure boats building :	19 projects
	Marine Energy Resources (renewable or not):	7 projects
	Marine Bio Resources (fishing, biotechnologies):	35 projects
	Environment & Coastal management :	15 projects

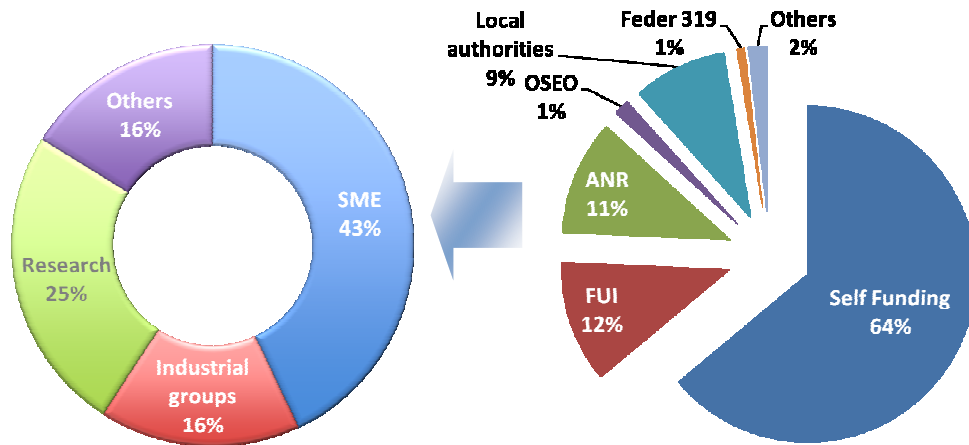
Before labelling a project we have to exchange with our colleagues from Toulon, in order to avoid redundancy; furthermore a lot of promotion and communication action are done together or coordinated.

When a project has reached a good level of quality, in the partnership, business plan, IP agreement,...it is presented to board of members and given our label if successful, that means we commit to support it for public funding search.

Not every project is taken, because it has to be coherent with our working themes and roadmaps. These themes (globally given by this slide) are the one where we've got a sufficient critical size and excellence in research. The 5 themes are common with PACA with generally speaking complementarities and synergies between the two regions, and fit with two national priorities security and safety, and sustainable development.

The comment that can be made upon the distribution of projects in the 5 themes, is that we have a lot of project in the wide spectrum subject or sustainable fishing, sustainable sea farming (including seaweed), and biotechnologies derived from these products combined with a very good know how. At the opposite, we have few projects in Offshore Renewable Energies, as it is an emerging topic, but these projects are very big.

*Public Funding: from whom to whom?



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As far as R&D funding is concerned and limited by regulation, the private share of the projects is about 2/3, the public share, is one third, shared again in 3/3.

1/3 coming from a dedicated state fund for clusters put in place by 6 ministries

1/3 coming from National research agency

1/3 coming from local authority (half at regional level) and others

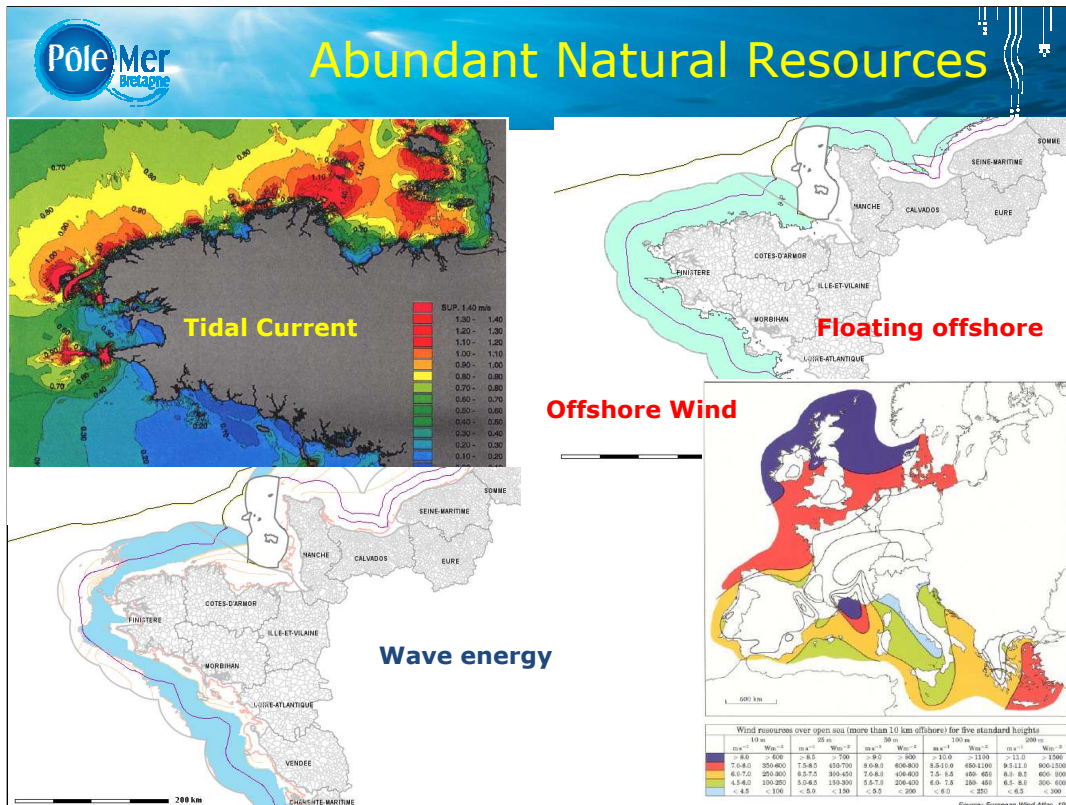
Few funds presently come from Europe, but it has to grow

This public funding goes mainly to SME and research here illustrating the positive effect that was waited from innovative clusters policy.

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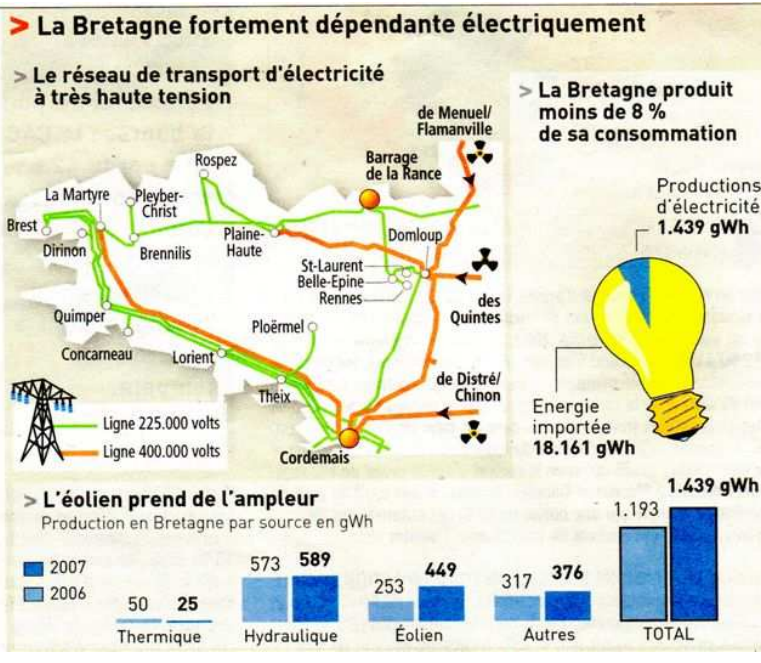
Of course it is not impossible to develop a new industrial energy path when you have not the natural resources, but saying it should be an handicap is an understatement.

Regarding offshore renewable Energy, Brittany is at the evidence one of the best places in Europe, excepted for Ocean Thermal Conversion and osmotic energy.

On the north coast Tide is very interesting, La Rance dam has pioneered potential energy from tide and has been producing annually 550Gwh, and we are now developing kinetic energy from the high tidal currents we have (in red on upper left map).

Regarding offshore wind, the onshore facilities coming progressively to saturation, industrials go to offshore, but the legal context has long been less favourable in France that it is in UK for instance, and France has not a strong position in that industry. Therefore we bet more on floating wind turbines offering new challenges in term of technology but closer to French know how in naval and oil & gas offshore technologies. Brittany coast configuration is on top of the bargain, more favourable to this kind of installation, with bathymetry between 50 and 200 m, less conflicts with others users, more reversible installation, better wind conditions (not too extreme), and, see upper right large green zone, compared to white strip under 50m depth.

And at last wave energy is also present in Brittany, nearly in the same areas (see down left) where floating offshore wind farm could be deployed.

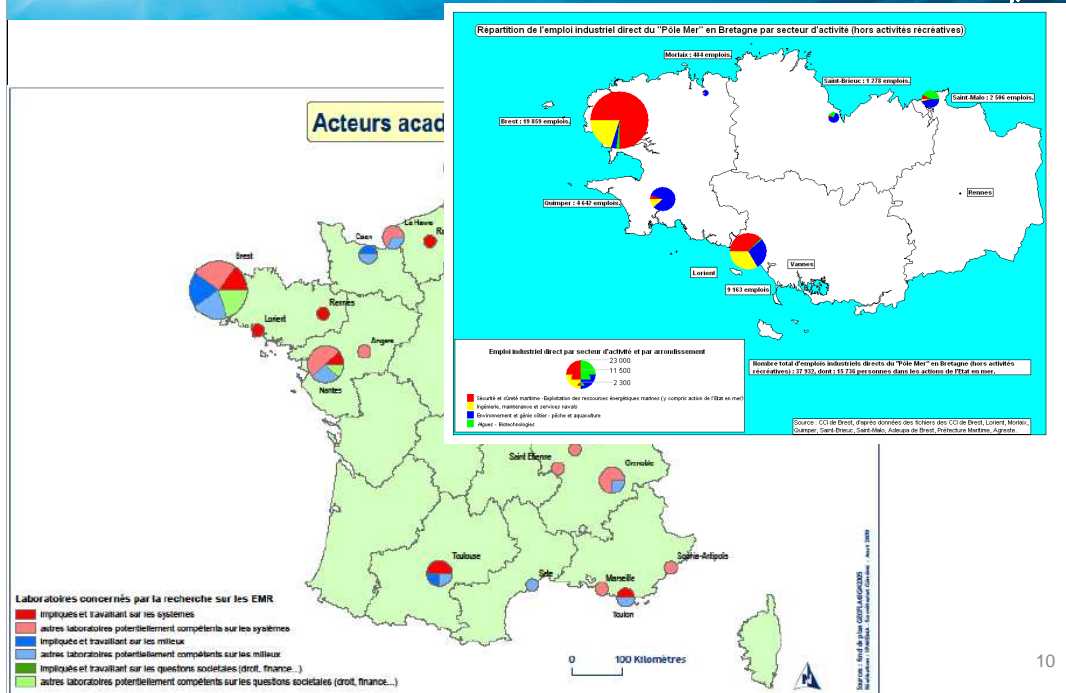


The second favourable parameter is that Brittany lacks off primary electricity production plant, fearing blackout every winter peak.

This is also correlated by the weakness of the grid especially on north path, and worsened by the fact population and consumption are fast growing on the coastline.

Saving plans initiatives are efficient and welcome, but will not be sufficient neither for peak production nor for base production.

On the short term only medium size high efficiency gas plant is suitable, but the quicker the best, in the turn of the twenties, we need to have a significant part of our energy coming from the Ocean.



The last ingredient in the cocktail, is the high concentration of French Ocean and naval research in Brittany or in the adjacent regions.

The green map is giving the offshore renewable energy research forces in France according to IPANEMA studies.

The blue map is giving the location of Ocean industry in Brittany (yellow for present naval industry)



*A lot of initiatives

It is therefore highly understandable that Brittany has taken the lead in promoting the development of Offshore renewable energy in France, through a large panel of initiatives, not only concerning Ocean energy, but more and more under the animation of Pôle Mer Bretagne, in ORE.

I'll go deeper in the structuring in next section of my speech, but one of the best example of this effervescence is the book issued last year from the Economic & social regional council, which has soon become a reference when it's about ORE

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- **European Union**
 - **2020 target : 20% renewable energies**
 - **Blue book for an Integrated Maritime Policy at UE Level (October 2007)**

- **France**
 - **"Grenelle de l'Environnement" process (2008)**
 - **Ifremer Prospective Study (issued June 2008)**
 - **Ipanema (October 2008)**
 - **"Grenelle de la Mer" process (on going)**
 - **Call for tenders for « demonstrators » issued by Ademe (2009 on going)**
 - **French Blue book for a Maritime Strategy, including ORE development & National ORE Platform creation decision in late 2009 (on going)**

- **Brittany Region**
 - **SRDE Regional Energy Development Scheme in October 2006**
 - **Energy Plan in July 2008 & 21st Agenda in May 2008**
 - **Bretagne CESR Study (mai 2009)**
 - **Discussion round initiative for Sea Wind farms planning (2009)**

But developing a new industry is not just a matter of bottom up initiatives, it has to be in phase or better in resonance with a favourable context and sometimes it has to create it.

This frame or context has been created at European level on the maritime policy first and in the commitment to reduce greenhouse gases emission and therefore to target a greater share of renewable energy.

Conversely France through its own consultation process on environment, and further on, on maritime policy has made very positive decision in the field as mentioned on this slide.

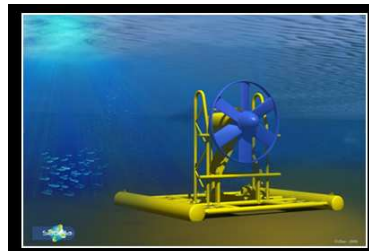
The two cornerstones of this policy are:

- a call for tender concerning ORE demonstrators issued from Energy agency
- the decision to create in Brest a national institute for ORE development

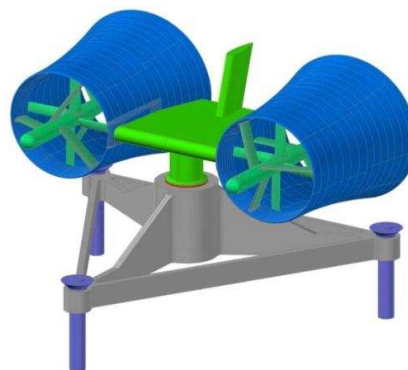
I'm going to illustrate this two actions.

Focus on ORE selected Projects

- MARENERGIE/SABELLA : *marine current turbine (MCT) using different tidal currents range*
Hydrohelix



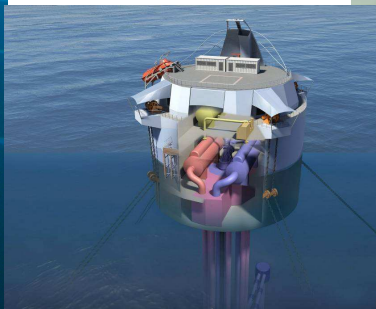
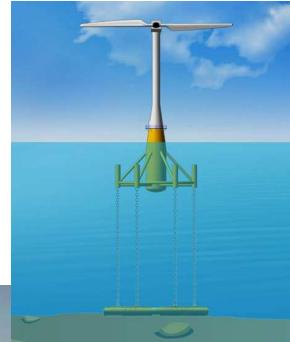
- MEGAWATFORCE : *marine current turbine producing high pressure water for onshore storage or transformation*
Guinard Energies



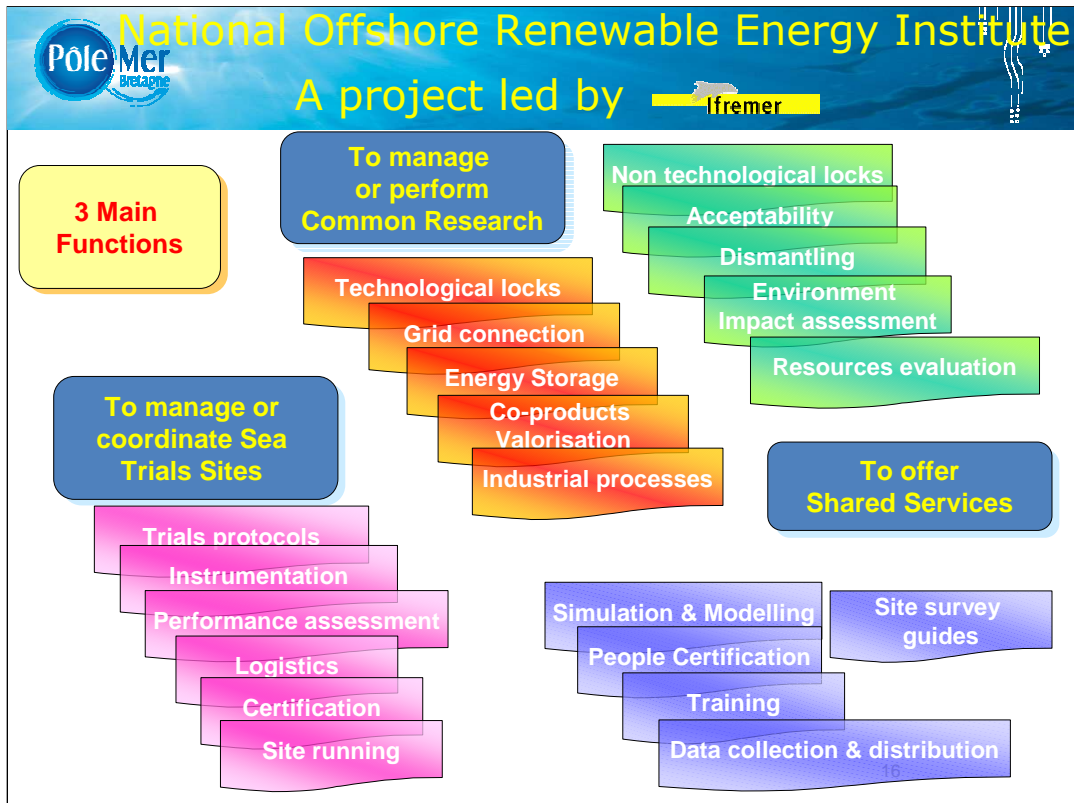
Focus on ORE selected Projects

DIWET : *deepwater floating offshore wind turbine using a semi-immersed platform with a tension leg anchoring system* **Blue H France**

WINFLO : *deepwater floating offshore wind turbine using a semi-immersed platform with a catenary anchoring system*
NASS & WIND



ESPADON : *cold water pipe (CWP) for OTEC* **DCNS**





This slide is giving some view on the functions that this institute under construction is going to perform for the whole ORE community.

This Institute base in Brest in Ifremer premises, is likely to associate big research agencies, industrials, and share all that can be shared in terms of basic & advance research, trials means and methods, and will act as a resource centre for public and private actors.

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Brittany Sea Cluster : a strong cooperation network

Other Competitiveness Clusters :
Pôle Mer PACA : Offshore Renewable Energies
Tenerrdis : network management & energy storage
EMC2 : Complex mechanical structures

French Overseas
La Reunion (ARER)
French Caribbean Islands
Tahiti Island

International
Norway (FFN Franco-Norwegian Foundation)
Prospective Mission (Sept. 29-30, 2008)
Seminar (Oslo, June 14-17, 2011)
UK (SEEDA, Low Carbon Cornwall)
European Projects
Intelligent Energy European Programme 2009 : Blower
FP7-Regions : Emsac
Interreg IVA : *Marine Energies project*

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The two structuring actions decisions have been initiated and supported by our Cluster.

But our cluster is not working alone; from the beginning and in coherence with our contract and mission, we have develop a cooperation network in ORE like we have done on other fields.

This slide is giving the main actions.

- **Emergence & Funding support to innovative collaborative projects (public & private)**
- **Training anticipation with Specialized Master in ORE : definition & promotion**
- **National Alliance for Energy Research Coordination (ANCRE) : participation to ORE Research programme definition (technological key locks)**
- **ORE National Institute : contribution for socio-economic impact evaluation and trial sites definition**
- **Organisation of prospective missions abroad : Norway (June 2010)**
- **European projects emergence : FP7 & Interreg**
- **Economic & technology survey & data gathering**
- **Territory Attractiveness**

At last, and that will be my conclusion, Pôle Mer Bretagne, is adding value to the construction of this ORE activity in France through different actions and missions: Of course and it's our main mission thru the projects.

Secondly by putting our members together in collective action such as training or research programmes, or prospective missions and collaborations.

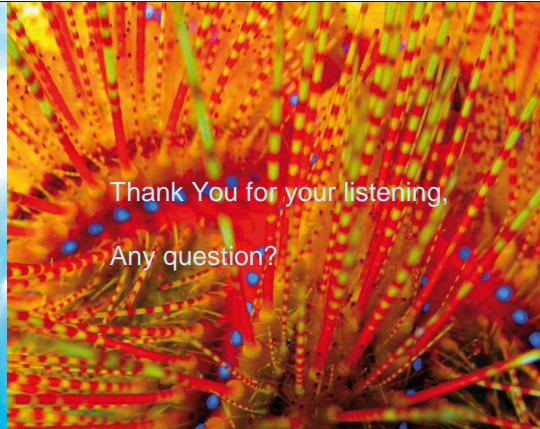
Then by representing our members wherever we have to be to prepare the future to promote our activities, and by giving smart information to them.

And last but not least by attracting new actors to this emerging business to develop this new field of maritime economy.



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Thank You for your listening,
Any question?

