Opportunities in Marine Renewable Energy for the MetalWork Sector

Eletricity Museum, Lisbon, 25th November 2013
MARINE RENEWABLE ENERGY PROJECT (STEPS)

Development  
Design

Construction

Installation

O & M

METAL WORK - FABRICATION

METAL WORK - SHIPYARDS

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MARINE RENEWABLE ENERGY PROJECTS (TYPE / TECH)

WAVE

TIDAL

OFFSHORE WIND

lower tech maturity
greater tech maturity

FABRICATION – MASSIVE USE OF STEEL

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MARINE RENEWABLE ENERGY – EXAMPLE

WAVEROLLER (Peniche, Portugal)

Ø ~ 2,5 m
10 m length
65 m³
13,000 kg

6 floaters

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MARINE RENEWABLE ENERGY – EXAMPLE

WINDFLOAT n.1 (Aguçadoura, Portugal)

- ~ 1200 ton of steel
- Ø 1,5 m to 8 m
- tubes till 30 m long
- thickness btw 20 to 40 mm
- 6 months - delivery time

FUTURE

BIGGER FOUNDATIONS

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MARINE RENEWABLE ENERGY – EXAMPLE

FIXED STEEL FOUNDATIONS (offshore wind)

MONOPILES + TP
✓ Up to 80m length
✓ Up to 8,5 m diameter
✓ Up to 1000 ton

JACKETS
✓ Up to 70m height
✓ Up to 20m x 20m base
✓ Up to 1000 ton
✓ Up to 3,5 m diameter
MARINE RENEWABLE ENERGY

STEEL COMPONENTS

PRIMARY STEEL

Heavy steel manufactures

SECONDARY STEEL

Small medium steel manufactures

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MARINE RENEWABLE ENERGY

AMBITIOUS GOALS

By 2020
56 MW wave & tidal
527 MW offshore wind

PORTUGAL

By 2050
1460 GW offshore wind
2188 GW ocean energy (wave & tidal)

EUROPE

By 2050
31150 GW offshore wind
4748 GW ocean energy (wave & tidal)

WORLD

BIG SCALE
BIG ROLE OF METAL INDUSTRY

SUPPLY CHAIN

FABRICATION
LOGISTICS
O&M
MARINE RENEWABLE ENERGY – EUROPEAN PRESPECTIVE

European Offshore Renewable Energy Roadmap

6 Combined Resource Scenarios:
- Medium Wind - Low Wave
- Medium Wind - Medium Wave
- Medium Wind - High Wave
- High Wind - Low Wave
- High Wind - Medium Wave
- High Wind - High Wave

Offshore Wind
Wave Energy
Tidal Stream

North and Baltic Sea Area
Atlantic Ocean Area
Mediterranean and Black Sea Area

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IS PORTUGAL READY FOR MARINE RENEWABLE ENERGY?

METAL WORKS

- Very competitive industry (driving the costs down)
  - 2011, 12.000 M € exports (1/3 global Portuguese exports) + 15% compared to 2010
  - 40% of total production was exported in 2011
  - Global turnover 26.000 M €, 2011 (18% Gross National Product)
  (AIMMAP, 2012)

- Success case - WIND CLUSTER

- High quality parameters & international recognition
IS PORTUGAL READY FOR MARINE RENEWABLE ENERGY?

✓ POEM
✓ PILOT ZONE
✓ LONG COAST

✓ 1 700 000 km² of Exclusivity Economic Zone
  (enlargement proposal in UN ⇒ ~ 3 800 000 km²)

✓ LONG TRADITION IN NAVAL ACTIVITIES
  > 20 ACTIVE SHIPYARDS

✓ PORTS (mainly small/medium)
ASM GROUP ACTIVITIES

OIL & GAS
Storage
Special equipments

OIL & GAS - TRANSPORT
Road tankers
ISO containers
Trailers

RENEWABLE ENERGY
Fabrication
Investment

main Core Business is the fabrication of Steel equipment's for the Energy Sector
✓ Oil&Gas Sector
✓ Renewable Energy Sector
THANK YOU!

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