
OceanSET
ETIPOCEAN
European Technology & Innovation Platform for Ocean Energy
Webinar
Ocean energy progress in Europe
WEDNESDAY 26 MAY 10 am BST / 11 am CEST.

1 | Welcome

Programme

1. **Introduction and Welcome: Gianmaria Sannino,** *IWG Chair and Head of Climate Laboratory, Italian National Agency for New Technologies, Energy and Sustainable Economic Development (ENEA)*
2. **OceanSET second Annual Report findings: Patricia Comiskey**, *Ocean Energy Programme Manager Sustainable Energy Authority of Ireland (SEAI)*
3. **100MW of Ocean Energy in Europe by 2025: Matthijs Soede**, *Policy Officer, European Commission DG Research & Innovation, European Commission*
4. **2030 Vision: The Growth Pathway for Ocean Energy: Lotta Pirttimaa** *Policy and Project Officer Ocean Energy Europe*
5. **Q&A session**

Support to the realisation of the ocean energy implementation plan of the SET-Plan

Webinar

OceanSET Report Launch and Dissemination Workshop

26th of May 2021

OceanSET has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N°840651

Background

EUROPEAN COMMISSION

Brussels, 15.9.2015
C(2015) 6317 final

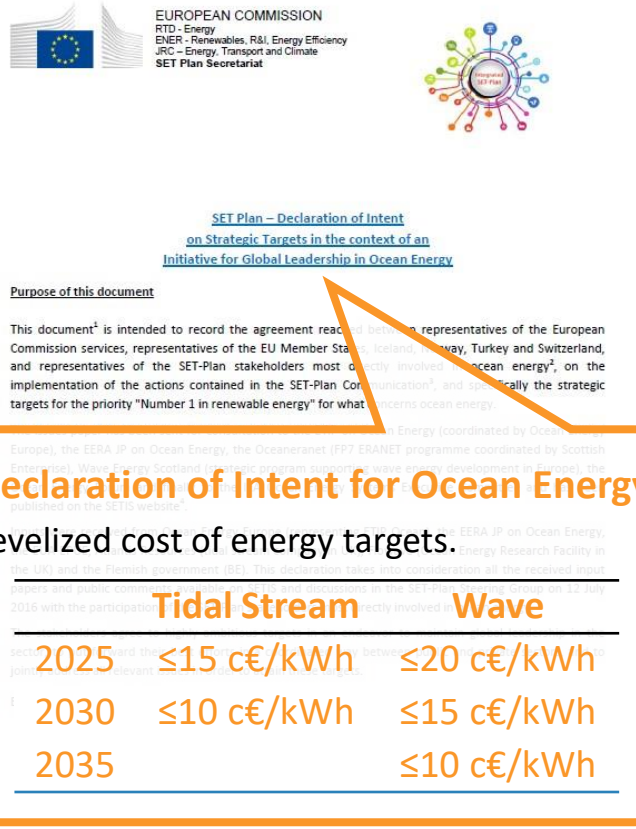
COMMUNICATION FROM THE COMMISSION

Towards an Integrated Strategic Energy Technology (SET) Plan: Accelerating the European Energy System Transformation

Strategic Energy Technology (SET) Plan

EU Number 1 in renewable energy

1. Sustain technological leadership by developing highly performant renewable technologies and their integration in the EU's energy system.
2. Reduce the cost of key technologies.



EUROPEAN COMMISSION
RTD - Energy
ENER - Renewables, R&I, Energy Efficiency
JRC – Energy, Transport and Climate
SET Plan Secretariat

SET Plan – Declaration of Intent
on Strategic Targets in the context of an
Initiative for Global Leadership in Ocean Energy

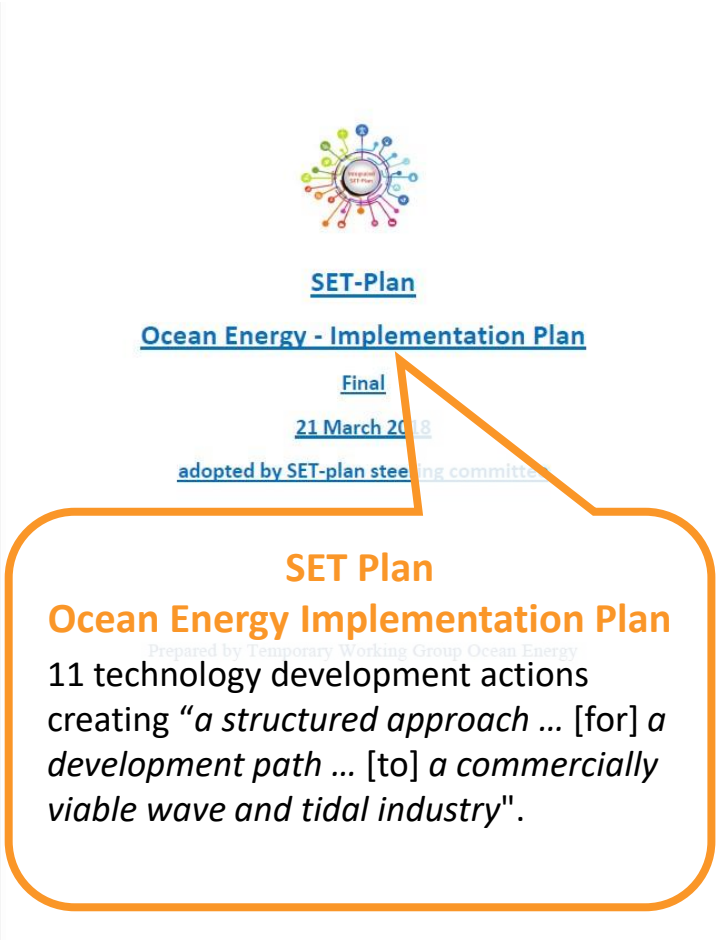
Purpose of this document

This document[1] is intended to record the agreement reached between representatives of the European Commission services, representatives of the EU Member States, Iceland, Norway, Turkey and Switzerland, and representatives of the SET-Plan stakeholders most directly involved in ocean energy[2], on the implementation of the actions contained in the SET-Plan Communication[3], and specifically the strategic targets for the priority "Number 1 in renewable energy" for what concerns ocean energy.

Declaration of Intent for Ocean Energy

Levelized cost of energy targets.

	Tidal Stream	Wave
2025	≤15 c€/kWh	≤20 c€/kWh
2030	≤10 c€/kWh	≤15 c€/kWh
2035		≤10 c€/kWh



SET-Plan

Ocean Energy - Implementation Plan

Final

21 March 2018

adopted by SET-plan steering committee

SET Plan
Ocean Energy Implementation Plan

11 technology development actions creating "*a structured approach …* [for] *a development path …* [to] *a commercially viable wave and tidal industry*".

From the SET Plan to OceanSET

How it works

The **SET Plan** is the technology pillar of the EU's energy and climate policy

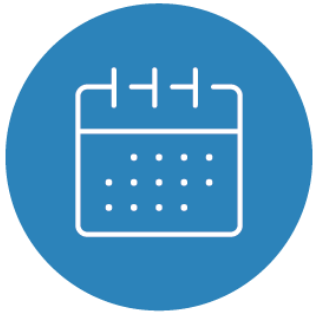
An **Implementation Plan** was developed for ocean energy actions in the SET Plan

The **Implementation Working Group** will deliver actions

OceanSET

Overview of OceanSET

OceanSET aims to obtain a solid understanding of **evolution in the European ocean energy sector** in order to **optimally tailor future funding** for member states, regions and the European Commission.



3 years
(Mar 2019 – Feb 2022)

Budget of
€1 million

Funding from
Horizon2020

2 | OceanSET Progress to date

OceanSET

- The OceanSET project has the overall goal to support the realisation of the ocean energy SET-Plan IP
- OceanSET is focusing on assessing the **progress of the Ocean Energy sector** and monitoring funded projects in delivering successful supports.
- Relevant data is being collected annually to inform MS and the EC on the progress of the sector.

Work Package	Code	Leader
Ethics requirements	WP1	SEAI
Mapping & Analysis	WP2	SEAI
Finance	WP3	WES
Pre-Commercial Procurement Programme Development	WP4	WES
Monitoring & Review	WP5	DGEG
Communication & Dissemination	WP6	FEM
Management	WP7	SEAI

OceanSET methodology

An annual process comprising 4 key stages:

- To **gather information** on the ocean energy sector across Europe
- To **compile and analyse** the data collected from stakeholders and to conduct a gap analysis
- To **assess the progress** of the ocean energy sector by tracking key metrics and to consider other factors (identification of best practices, state-of-the-art…)
- To **provide recommendations** on the next steps required to progress the implementation of the SET Plan and suggest approaches to stimulate industry and research progress in key priority areas

Mapping using a survey: what information?

4 types of information
aligned with the requirements of the Implementation Plan

General
Policy
Revenue support

Technical
Technology deployment
Supply chain
LCOE analysis

Financial
Pre-commercial procurement

Environmental
Measures for consenting

What targets for such a survey?

A two sections survey

Member States

High-level information on their ocean energy sector that will feed into the annual report for the European Commission

Technology Developers

Specific information on devices or projects to develop technology to a TRL 7 or above

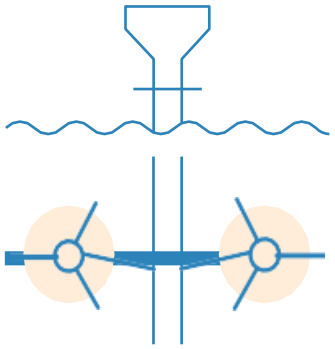
Information

that will feed into the annual report for the European Commission

Summary of Results

Annual report key findings – 2019

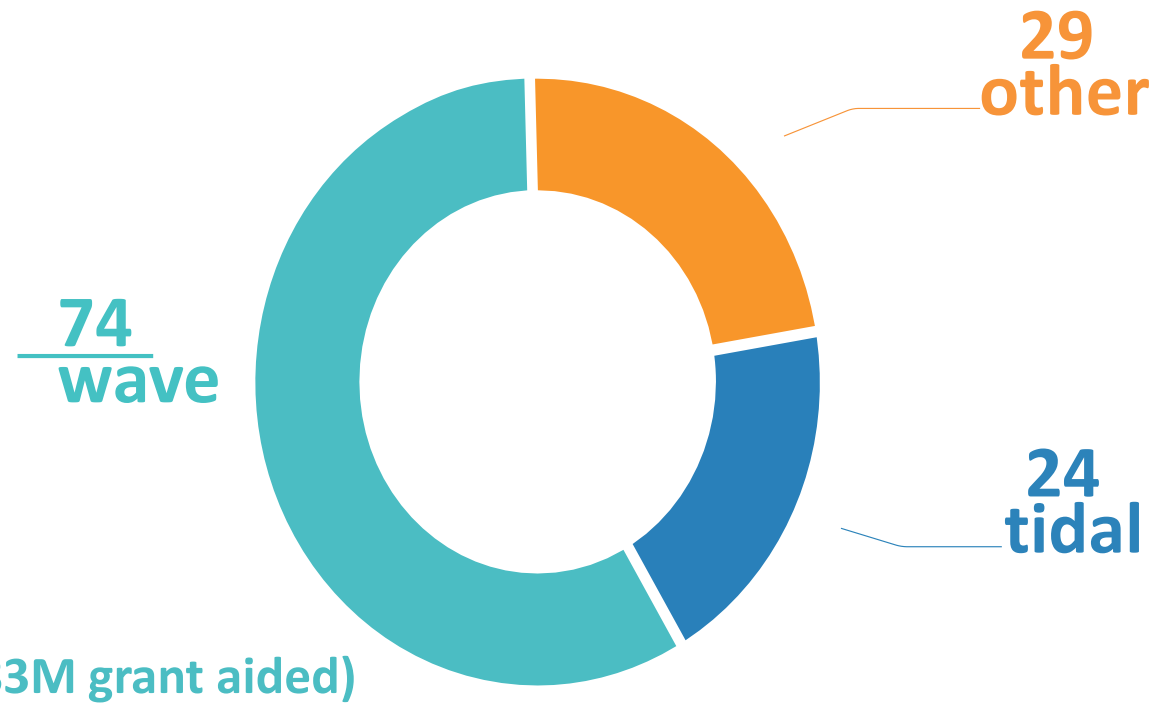
16 responses received (from 14 member states). Ref year 2019.



A total of

127

ocean energy projects
supported



- **16 projects EU Funded (€115M total value; €83M grant aided)**
- **11 Projects were ERANET with 26 partners**
- **Strong collaboration being built in the sector**

Summary of Results

Annual report key findings – 2019

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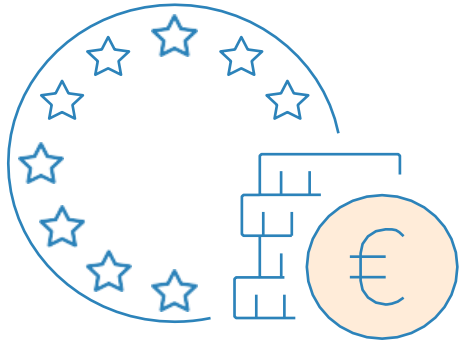
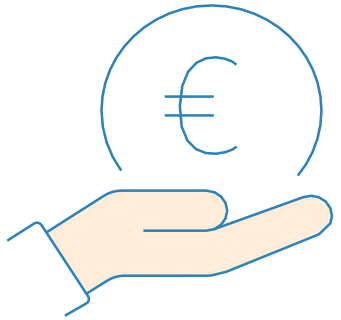


€42.7

million in public funding from member states and regions

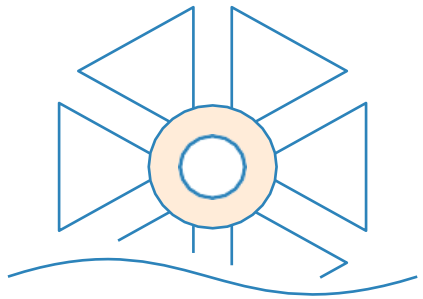
8 member states have an **ocean energy budget**



10 member states have **test site facilities**

9 member states have an **ocean energy policy**

10 member states were **funding ocean energy projects** and **9** were funding TRL 7+



Summary of Results

Ocean energy projects survey

Member states reported 25 projects over TRL 7 active in 2019. Developers reported target values from a selection of projects.

11 tidal projects

- Mainly horizontal axis turbines

For 1 – 2 MW rated capacities:

- **67%** **average** annual availability for tidal prototypes
- **8.38** **€/W** average capital expenditure
- **1.08** **€/W/year** average operational expenditure

12 wave projects

- No technology front runner
- Technologies included attenuator, point absorber and oscillating wave surge converter

For 0.15 – 1.15 MW rated capacities:

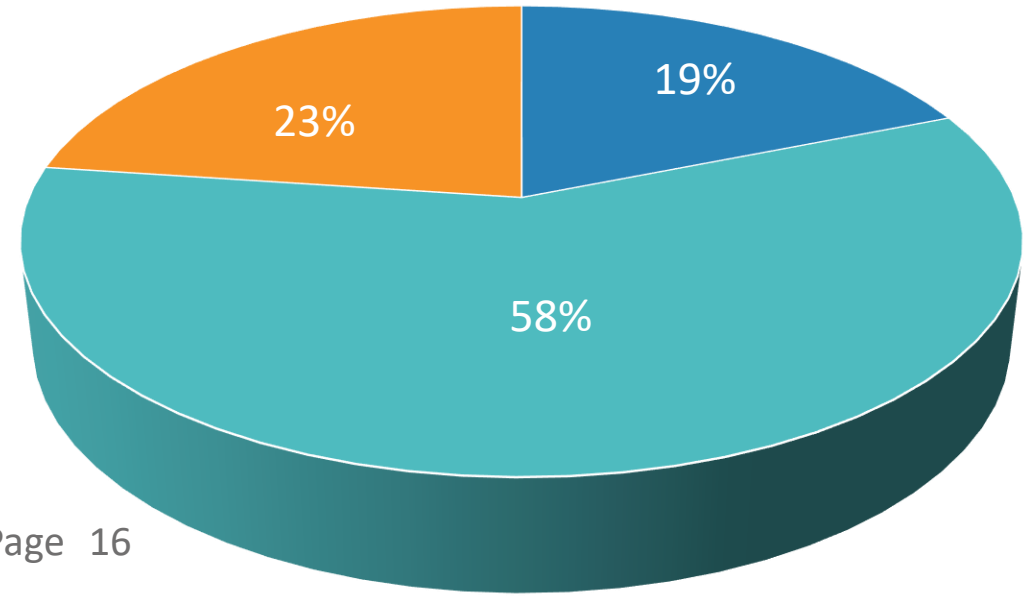
- **67%** **average** annual availability for wave prototypes
- **2.01** **€/W** average capital expenditure
- **0.32** **€/W/year** average operational expenditure

2 other projects

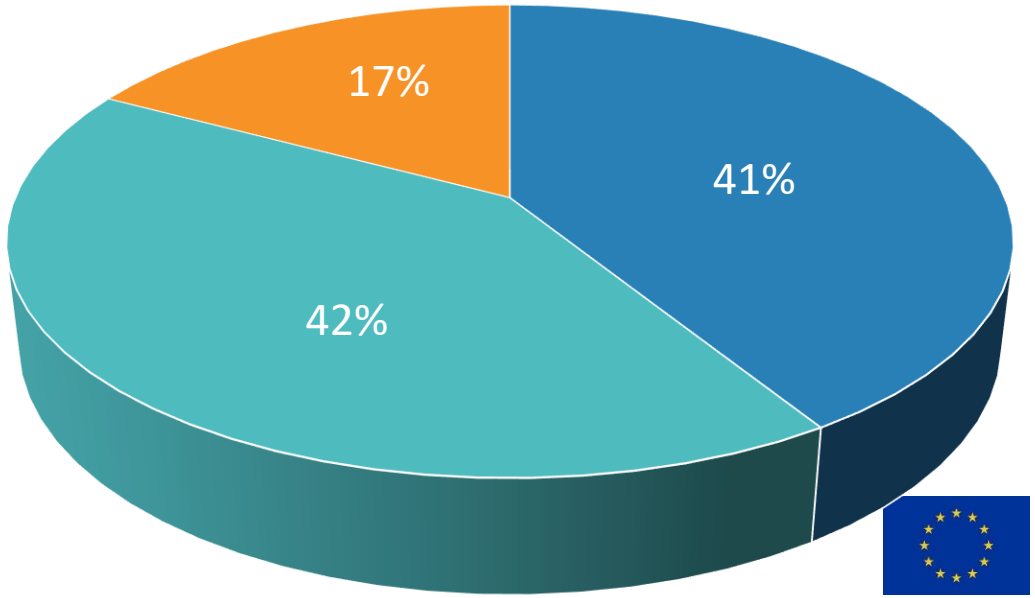
Results of Survey 2- 2019

	TRL 1-6	TRL 7+	Unknown	Total
Wave	46	12	16	**74**
Tidal	5	11	8	**24**
Other	7	2	44	**29**
Total	**58**	**25**	**44**	**127**

Number of Projects



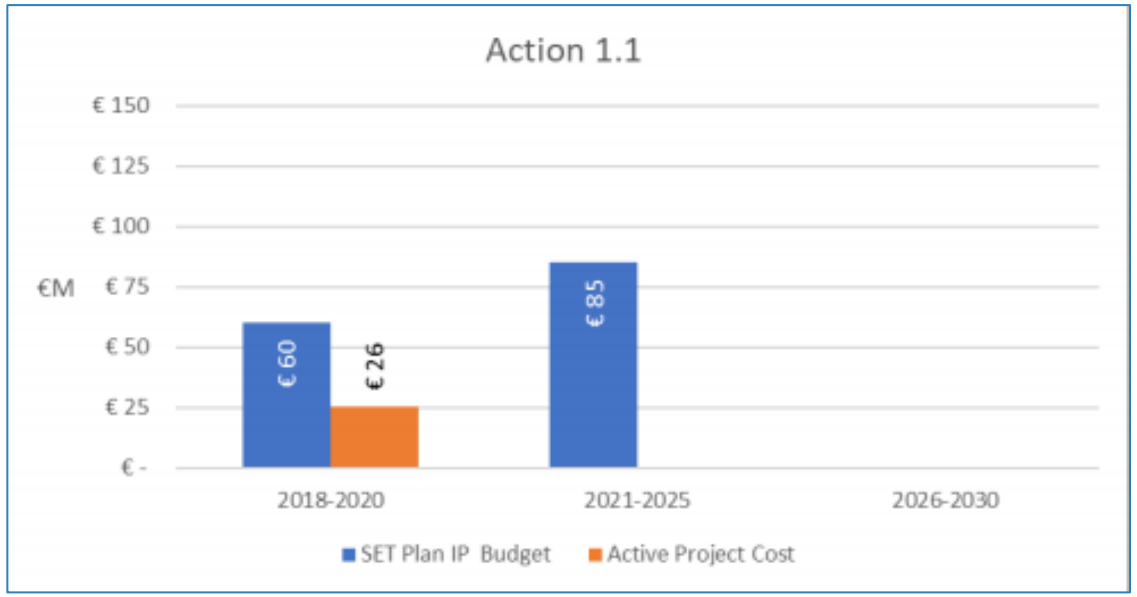
Value of Projects

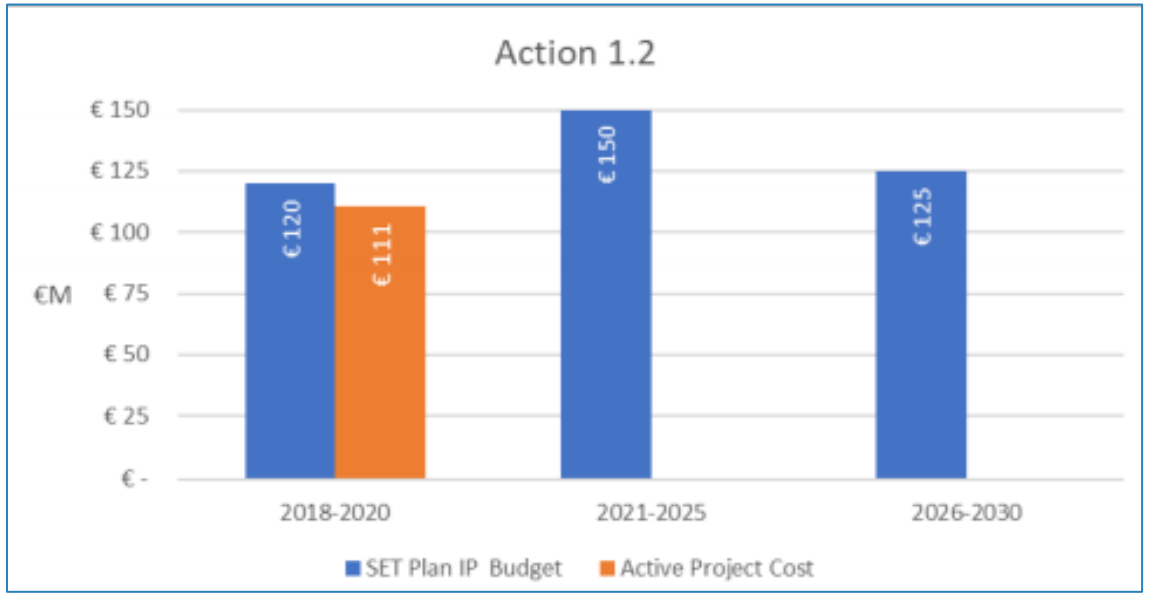


Results of Survey 2- 2019

Action Title	Details	Proposed IP Funding		
		Period	Total	Discovery Phase (2018-2020)
1.1: Tidal Energy technology device development and knowledge building up to TRL6	Novel systems / sub components tidal technologies	18-25	€145M	€60M
1.2: Tidal energy system (device and array) demonstrations and knowledge building in operational environment (TRL 7-9)	3 x full scale device demonstrations 4 x 10MW arrays	19-22 20-25	€395M	€120M
1.3: Wave energy - technology device development, including system demonstration and knowledge building (up to TRL6)	Novel sub systems / concepts wave technologies TRL4-6	18-30	€222.5M	€60M
1.4: Wave energy – device and array system demonstration at large scale device and early demonstration array scale and leading onto large scale deployment (TRL 7-9).	Full scale device demonstration Implementation of up to 4 arrays	18-25 25-30	€335M	€60M
1.5: Installation, logistics and testing infrastructure as well as supply chain development for the wave and tidal sectors	Infrastructure to support ocean energy Supply chain development	18-30	€100M	~€10M
1.6: Development of stage gate metrics (technical standards and guidelines) for wave technology evaluation.	Definition and implementation of EU-wide agreed stage-gate metrics for wave energy	18-19	€6.5M	~€1.5M
Total			€1204M	€311.5M

Results of Survey 2- 2019





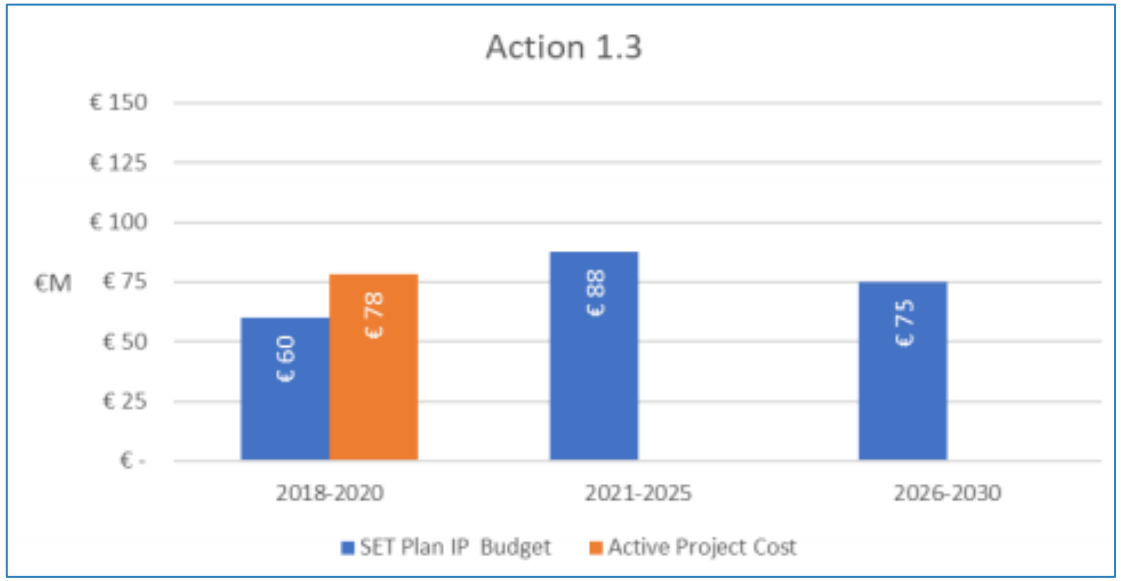
Action 1.1 Tidal Energy technology device development and knowledge building up to TRL 6

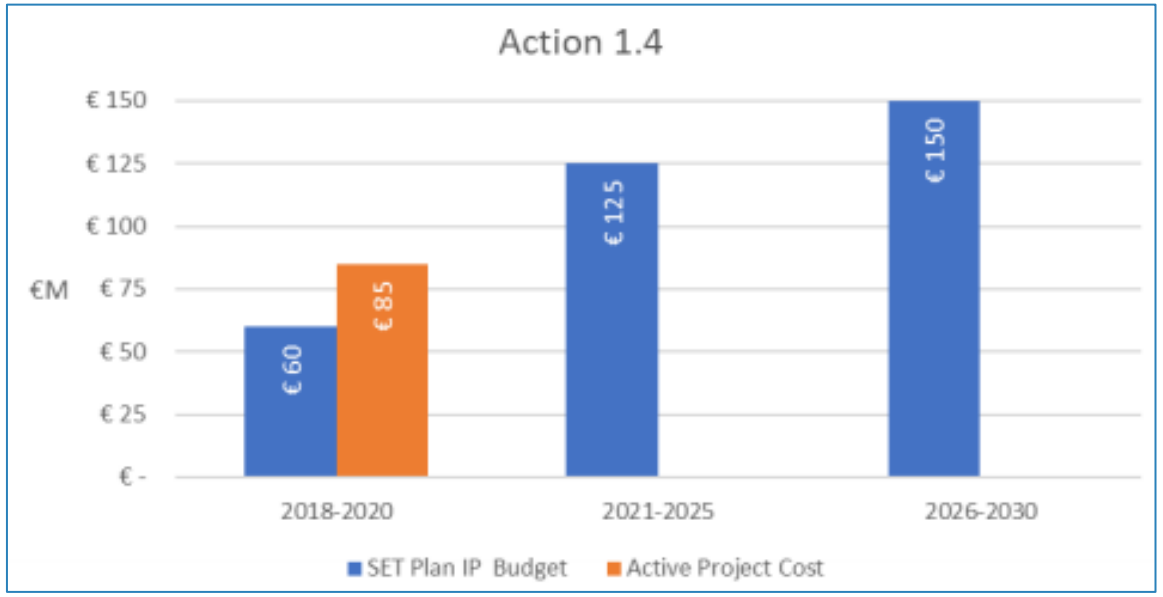
Action 1.2 Tidal energy system demonstration in operational environment (TRL 7-9)

Proposed budget in Implementation plan

Actual data from surveys

Results of Survey 2- 2019





Action 1.3 Wave energy technology development and demonstration up to TRL 6

Action 1.4 Wave energy system demonstration and deployment TRL 7-9

Proposed budget in Implementation plan

Actual data from surveys

OceanSET Progress

SET Plan IP 11 Technology Development Actions are outlined below by using a traffic light system to identify the progress OceanSET has made during the first year of the discovery phase. This is a review of the progress OceanSET have made in mapping the Ocean Energy sector against these 11 actions, not of the fulfilment of these actions.

- Green: on track
- Orange: behind progress
- Red: no activity or progress

	Technical Actions	Year 1	Year 2
1.1	Tidal Energy technology device development and knowledge building up to TRL 6		
1.2	Tidal energy system demonstration in operational environment (TRL 7-9)		
1.3	Wave energy technology development and demonstration up to TRL 6		
1.4	Wave energy system demonstration and deployment TRL 7-9		
1.5	Installation, logistics and testing infrastructure [and] supply chain development.		
1.6	Co-ordinate the development of standards and guidelines for technology evaluation and LCOE analysis.		
	Finance Actions		
2.1	Creation of an investment fund for Ocean Energy farms		
2.2	Creation of an EU insurance and guarantee fund to underwrite project risks.		
2.3	Pre-Commercial Procurement (PCP) action for development of wave energy technology.		
	Environmental Actions		
3.1	Development of certification and standards to support the offshore renewable technology sector		
3.2	De-risking environmental consenting through an integrated programme of measures		

Overall Comments

- More data available –but still gaps that need to be addressed
- Good momentum built with MS and industry gathering data- want to continue this by reducing reporting challenges
- Inclusion of EU projects is important to reflect overall activity
- Research timelines can differ depending on programme –year on year analysis can be a challenge
- Good collaboration on projects noted
- Overall sector was well supported in 2019

Next Steps

- Next survey will go out to MS – but will access to data gathered to date
- Data to be gathered on actions not yet sufficiently addressed
- IWG will consider current IP Actions for review and update
- OceanSET will work with developers to improve data collection
- OceanSET will align with work being done on other projects- eg IEA-OES

Support to the realisation of the ocean energy implementation plan of the SET-Plan

Thank you for your attention!

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OceanSET has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N°840651

Meeting Administration

- Microphones and Cameras for attendees will be switched off.
- Please use **Q&A** to send questions to the panel.