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**Secretary General, International Windship Association (IWSA)**

Non-Executive Director, World Wind Energy Association (WWEA)

## IMO MTCC Stakeholders Advisory Committee Member

## EU Interreg WASP, SAIL and DualPorts Projects: Advisor

IRENA: Renewable Energy in Shipping Report: Coordinator

# IPCC 1.5C Climate Report: Expert Reviewer

# Masters Degree: Sustainable Development

[specialising in small zero-emissions vessels in LDCs]



# Hybrid W.A.V.E. “1.5C Target: All ships designed and built today must operate in a net zero emissions world at the end of their service life.”

WIND	+	ACTIVITY	+	VESSEL	+	E-FUELS
Wind –assist or primary wind power		Operational optimisation		Vessel optimisation		Renewable energy or waste derived fuels
-retrofit wind-assist (5-20% savings – possible up to 30%) -newbuild primary wind 30%++ -today’s tech +optimise & cheaper -lease/OPEX approach		-voyage & fleet management -weather routing -speed reduction -virtual arrival -crew training -data/ blockchain -new business models etc.		-design -size & capacity -energy management system -energy efficiency measures -air lubrication -reduced engine power etc.		-2 <sup>nd</sup> gen biofuels -batteries -synthetic fuels + CCS -bio-gas/liquids -H2 & H2 carriers  *Electric propulsion systems enables modular approach
20-30%	+	20%	+	20-30%	+	20-40%

Note: Figures are estimates & any one measure/category could provide a significant % saving.

# Facilitation/Cooperation Examples

**IWSA Network: 120+ Members & registered supporters  
+ Five regional wind propulsion hubs under development**



## **WASP: EU Interreg North Sea Project**

- Five wind-assist installations - monitor & verify
- Develop business models
- Recommendations to help facilitate wind propulsion uptake.



## **WiSP: Joint industry Project**

- Improve methods for transparent performance prediction + provide ship owners/operators with fast low-cost predictions for their fleet
- Review the regulatory perspective including status of rules and regulations, EEDI etc.

## **IWSA Collaborations**




## **IMO-EU MTCC Network**

- Five Maritime Technology Cooperation Centres—Asia, S. Pacific, Africa, Latin America & Caribbean
- Promoting technologies and operations to improve energy efficiency + Capacity Building



# Key Considerations.....

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- Hybrid Approach vs One-Size Fits All
  - Sustainability = Efficiency + RESILIENCE
  - Vision: Two- or Three-Tier Industry?
  - Today's Solutions = We have the tools NOW!
  - Facilitation: Circular Carbon Levy?
  - Future: High Ambition vs Lowest Bar Compliance
  - Future Proofing: Stranded Assets vs Predictability