pur Emissions

Revolutionary exhaust gas pollution capture technology that allows any vessel to meet the strictest emission limits anywhere in the world, and reduce their carbon footprint

Start Up Finalists at;

THE CAPTAIN'S TABLE
by YPSNHK

Transfiere
12º European Meeting on Science, Technology and Innovation

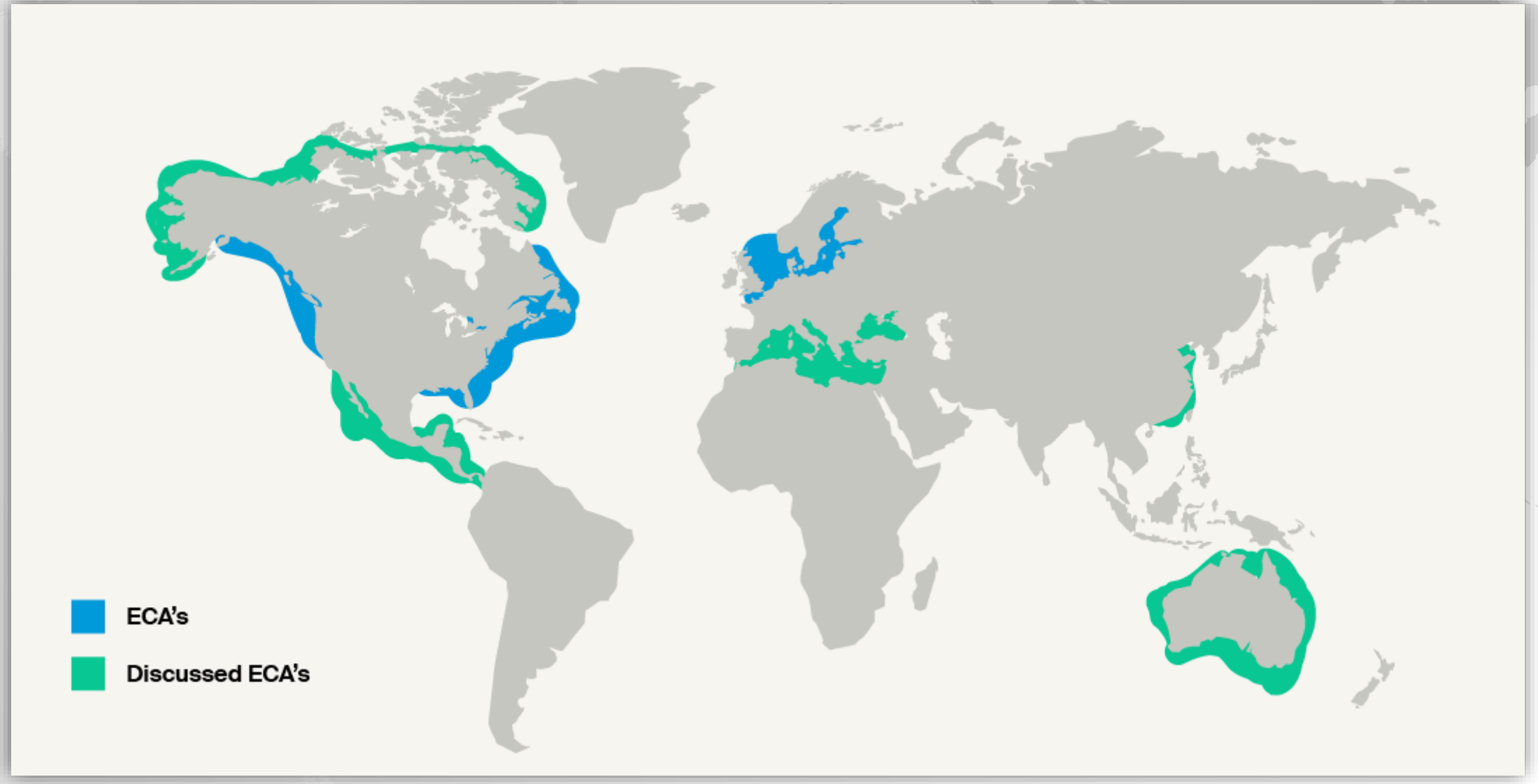
changeNOW

www.puremissions.org

Malaga Port, Spain, Nov 2022

Shipping is responsible for 30% of the world's NOx pollution, 9% SOx pollution and 3% of all climate change emissions (1Gt CO2/year)

Emission Control Areas (ECA) are being rolled out to reduce SOx and NOx pollution

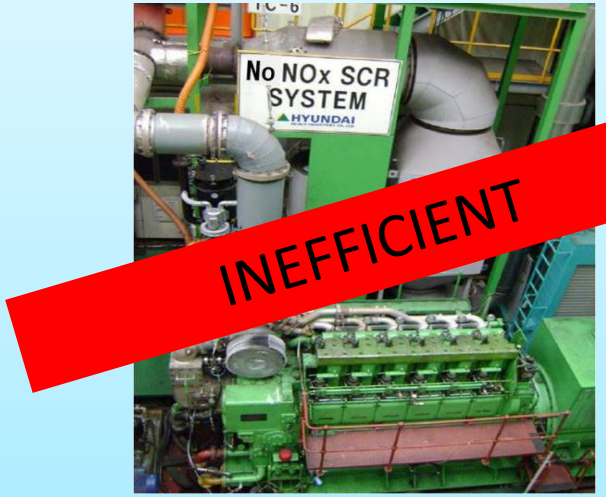


THE PROBLEM: Controlling vessel exhaust emissions is expensive, inefficient and inhibits the move to low/zero carbon fuels

SOx control = Wet Scrubbers

Suffer from seawater corrosion & release acidic wastewater to the sea

NOx control = Selective Catalytic Reduction



Prone to blockages & poisoning, reducing efficiency

Soot/Carbon control = Diesel Particulate Filter

Burns off captured soot, releasing CO_2

pur Emissions

Technology controls and captures all 3 in 1-system - SOx, NOx and Soot/Carbon

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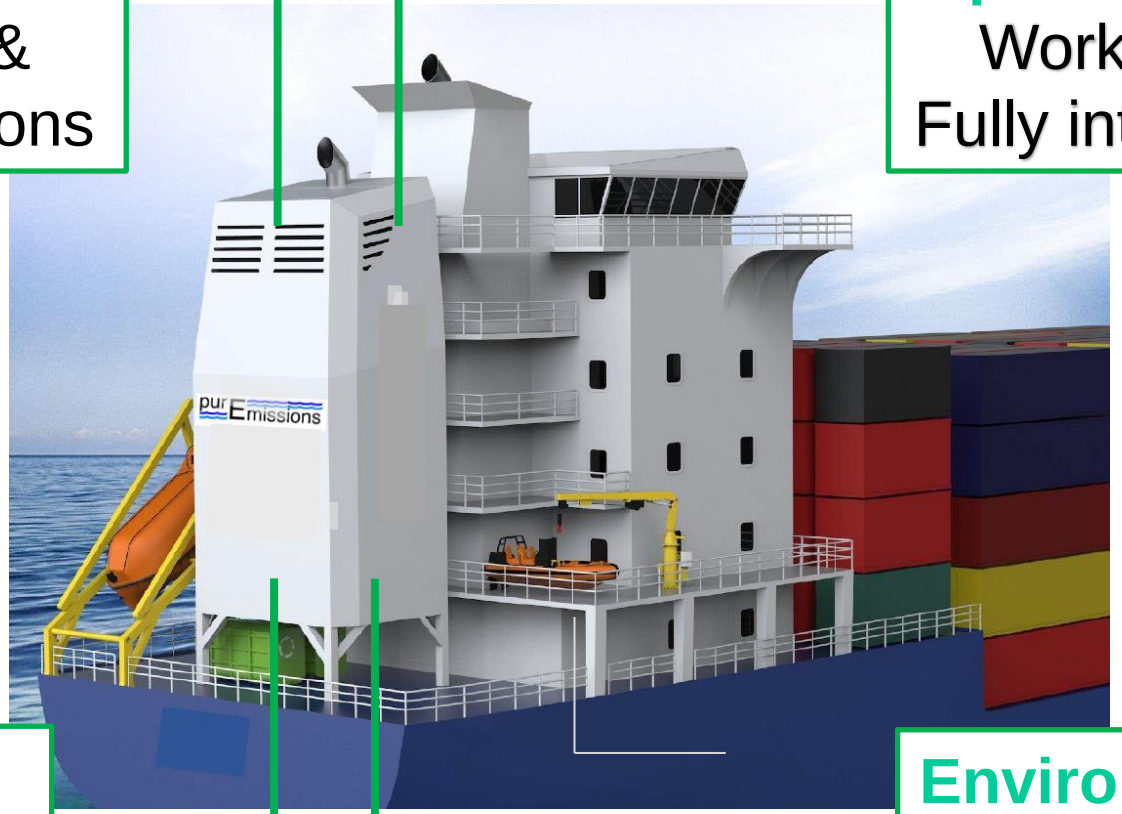
Technology provides THE SOLUTION

Performance Benefits
Removes NOx, SOx &
Reduces CO_2eq emissions

Operational Benefits
Works on all fuels
Fully integrated 1-step

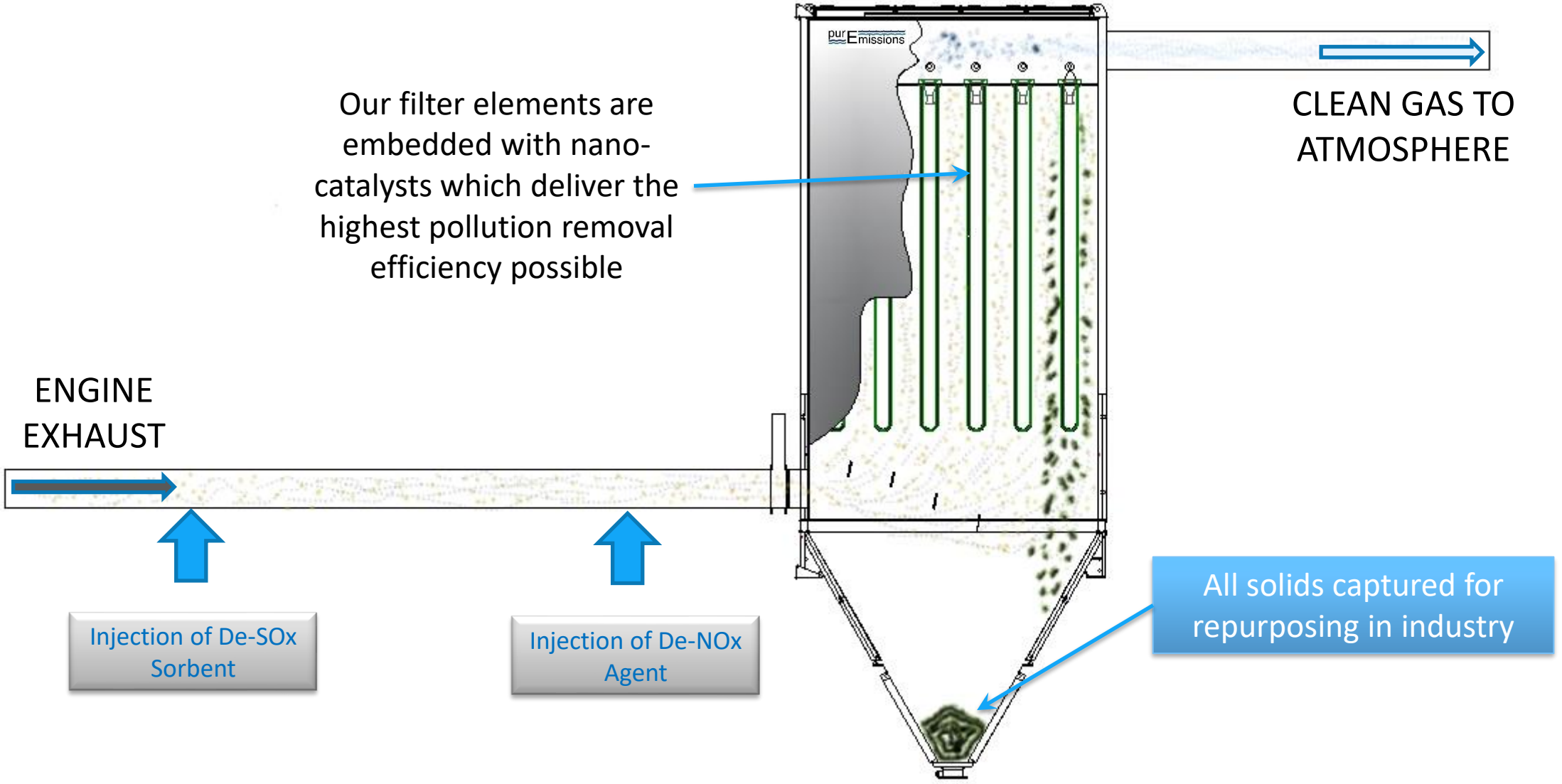


Cost Benefits
Lower operating costs
Shorter installation time

Environmental Benefits
100% dry, near zero
emissions to air & sea

How it Works – Filter media with embedded nano-catalyst

Our filter elements are embedded with nano-catalysts which deliver the highest pollution removal efficiency possible



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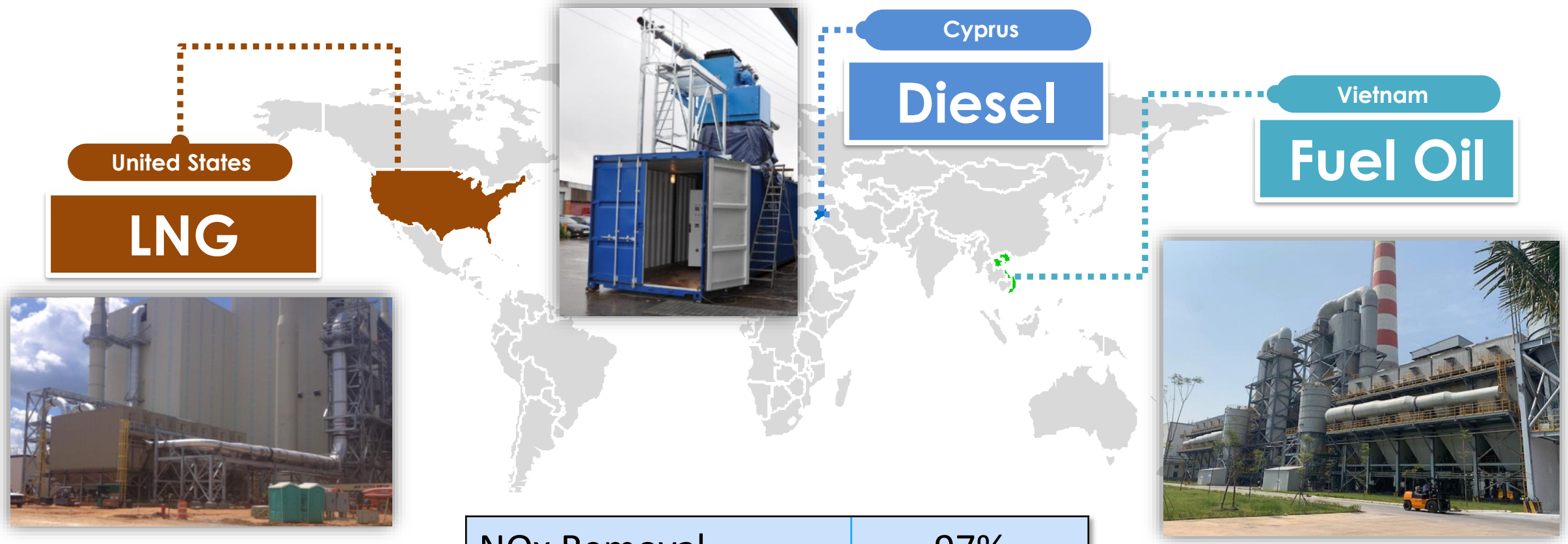
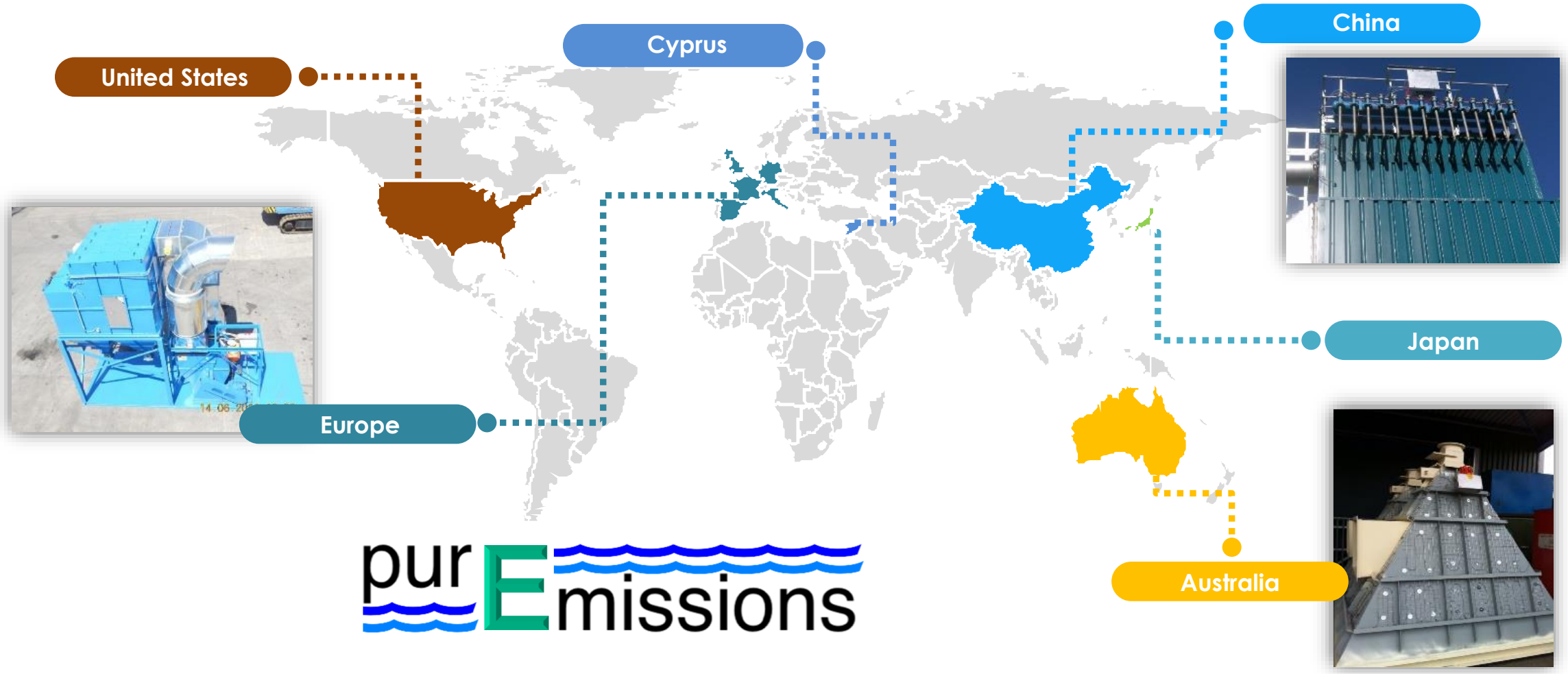
Technology is already proven with Shipping Fuels



NOx Removal	97%
SOx Removal	95%
Soot/Dust Removal	99.9%

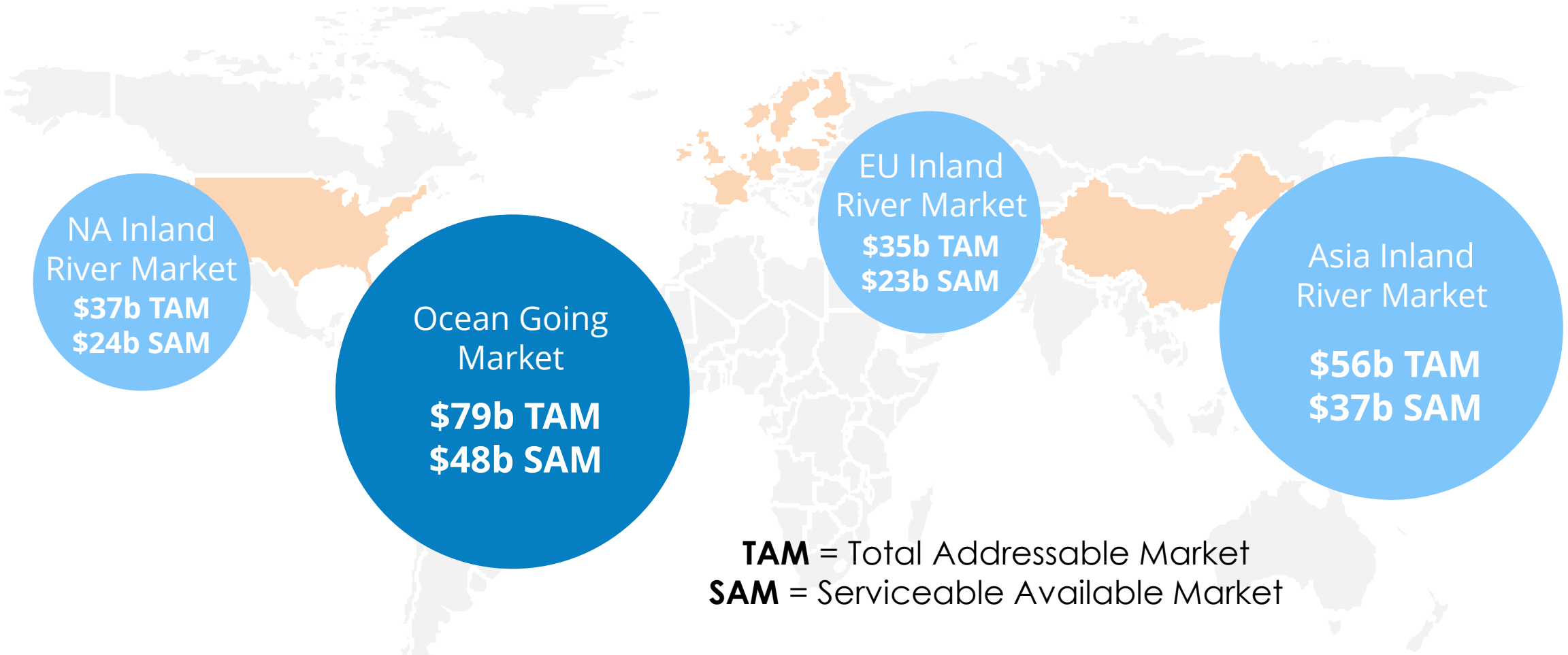
For more than 15 years our technology has delivered optimum performance in over 100 industrial applications…….



purEmissions

……and we are now bringing the benefits of our patented system to the shipping industry

THE MARKET is large, growing and currently underserved



TAM = Total Addressable Market
SAM = Serviceable Available Market

purEmissions **is perfectly positioned to capture this >$130b market and become a $b business within 10 years**

Example - To meet ECA requirements, vessels need to switch to very expensive fuel

Ultra-low sulphur fuel ($1000/t) → **Still emits NOx & soot**

purEmissions offers a better solution

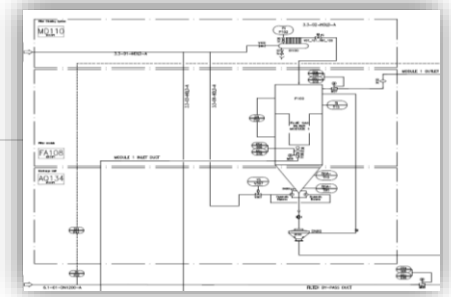
Run on LowSFO ($670/t) →

- Saves $2.5m/year on fuel
- Zero SOx, NOx & PM emissions
- Payback 6-12 months

Business Model - PurEmissions will generate revenue through 4 services

Install Equipment

Managing the project delivery from design to installation



License to partners

Extend our coverage through trusted partner network

Sell consumables

Including our unique catalytic filters manufactured by sub-contract, and other items

Maintenance Contracts

Annual service contracts to test gas compositions & meter readings to optimise performance

A system installation is $0.3-2m total cost to install (depending on ship size) from which PurEmissions will generate 20% as revenue

Go to Market Strategy – 4 Key Entry Points

Fleet Owner/Operators

Customers; discussions with KC Maritime, Wah Kwang, BP, Pacific Basin, Fortescue

Exhaust Gas Control Producers

Licensees and Installation Partners; discussions with Langh Tech, CR Ocean

Ship Builders/Designers

Installation Partners; discussions with Yangzhou Ryuwa, Cosco

Engine Manufacturers

Customers; discussions with Wärtsilä, Yanmar, MAN Energy, Rolls Royce, Cummins

All express interest, but all say ‘come back when you have a working demo’

We are seeking partners to get the 1st unit on a ship

Our Partners will...

Provide Seed Capital

Enable Access to Target Markets

Provide Access to a Vessel for the 1st unit

Have Installation Capability

PurEmissions will...

Provide the IP

Detailed Engineering Design

Supply Chain for Key Components

Build Supervision & Results Monitoring

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Contact; andy.wynn@puremissions.org

The purEmissions Founders have led the design and installation of over 100 exhaust gas cleaning systems around the world, both on land and sea

Gary Elliott
Air Pollution Control Expert & Lead Engineer

30 years leading the application and business development of catalytic filter technology all over the world as a senior executive at market leading businesses and as an independent consultant.

Dave Bennett
Air Pollution Control Expert & Design Engineer

25 years in environmental engineering, with catalytic filter equipment design, project management, installation, troubleshooting and commissioning for industrial projects in the US, EU and China.

Prof. Andy Wynn
Adv. Materials & Tech Commercialization Expert

Commercialized $1billion of new technologies in industrial, transportation and renewable energy. Former CTO at Morgan Advanced Materials plc, FTSE250 global manufacturer. Professor at IE Business School in Madrid.