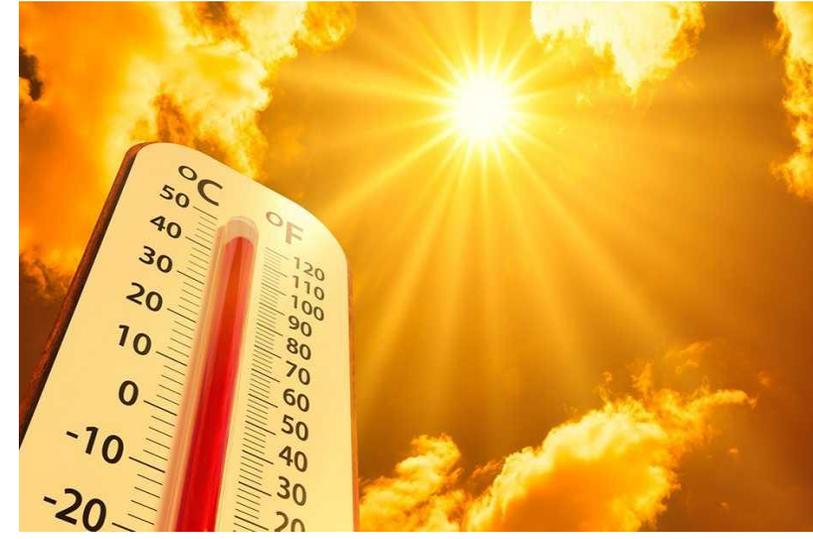


IMO Compliance and Reefer Container Fleeting Requirements

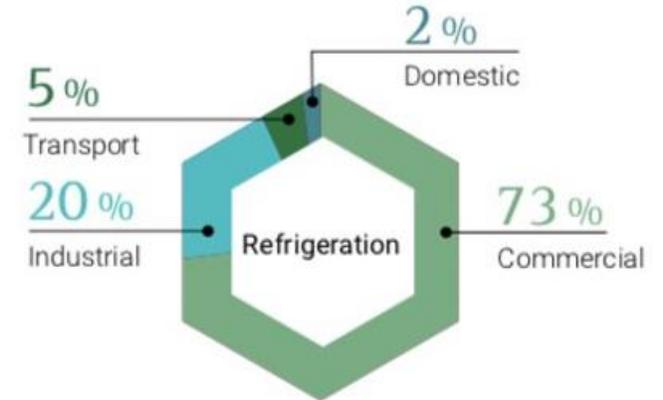
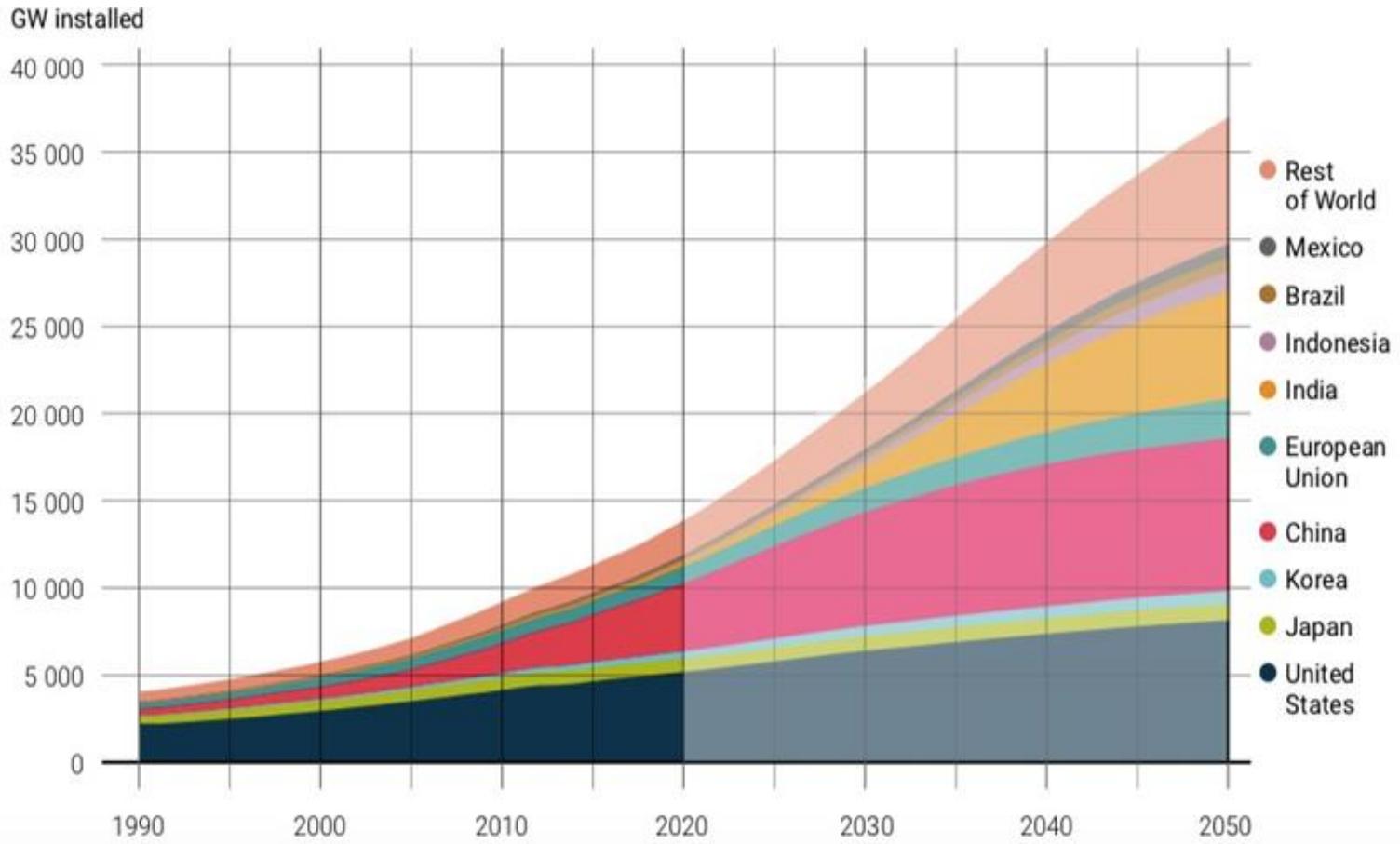


Climate Change is Real – The Need to Address GHG/CO2 Emissions is Now!



Refrigeration Efficiency - Significant Opportunity for CO2 Reduction

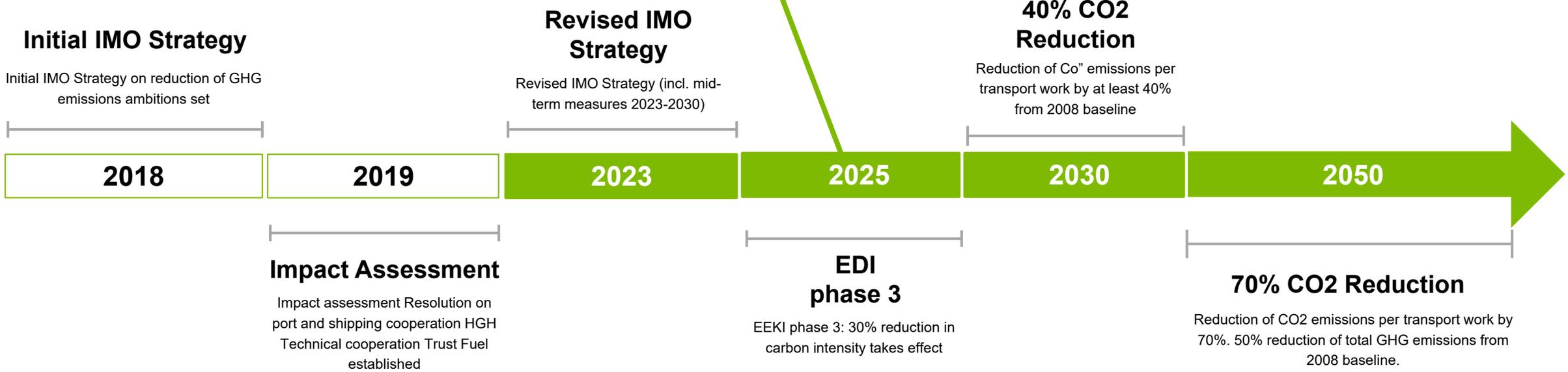
By 2060, global energy consumption for refrigeration including cold transport, will overtake that consumed for heating. Refrigerated container transport will be the primary mode for perishable.



IMO Container Shipping Framework

IMO Timeline to Reduce GHG Emissions

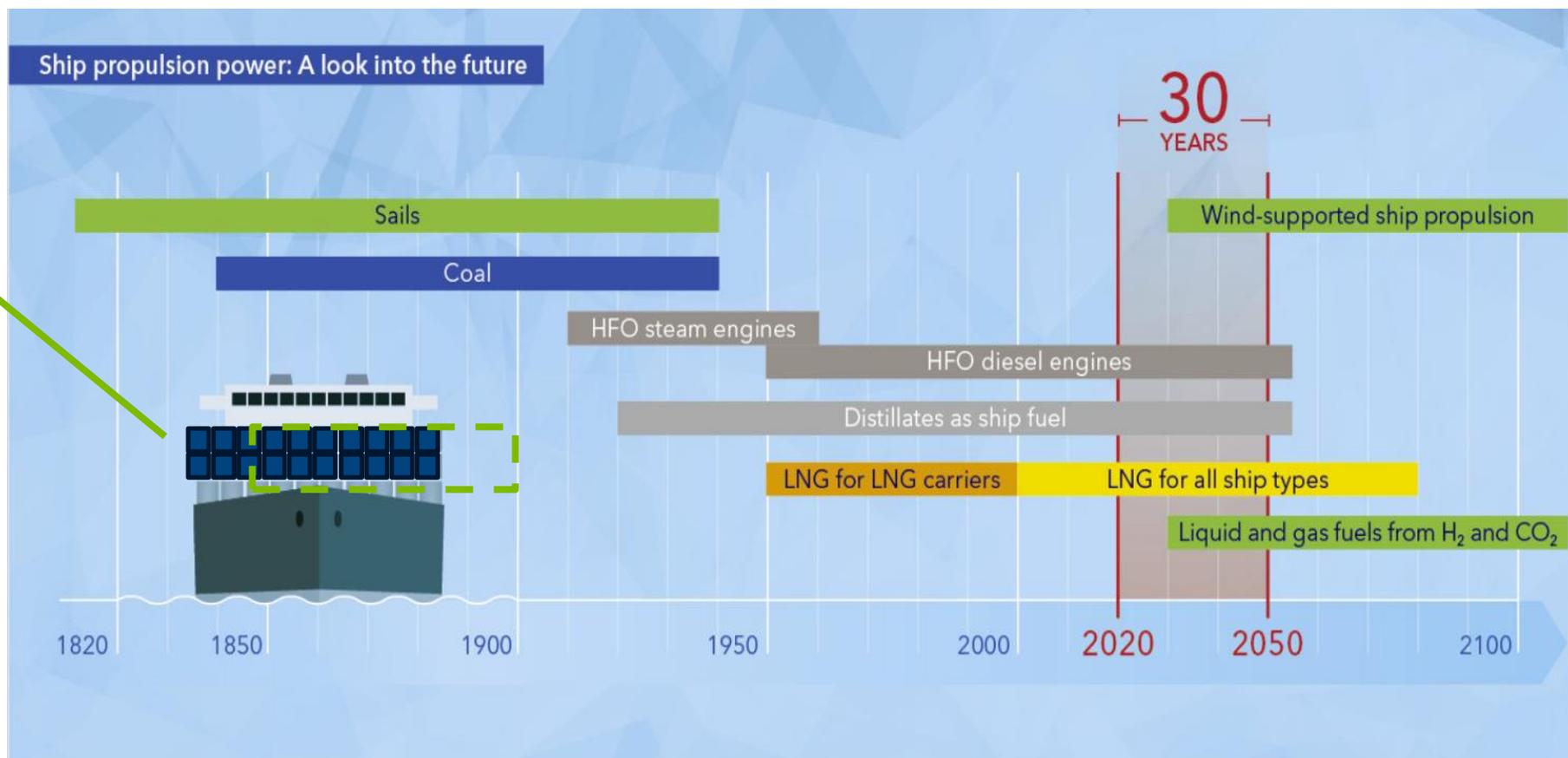
Reefer asset investment to be compliant with IMO 2030 needs to take place today to ensure compliance is achieved.



IMO Container Shipping Framework

On a 15,000 TEU vessel equipped with 2,024 reefer plugs, refrigeration can account for up to 25% of the vessel's total energy consumption dedicated to electricity generation

Reefer transport energy demand will be a significant factor in IMO compliance

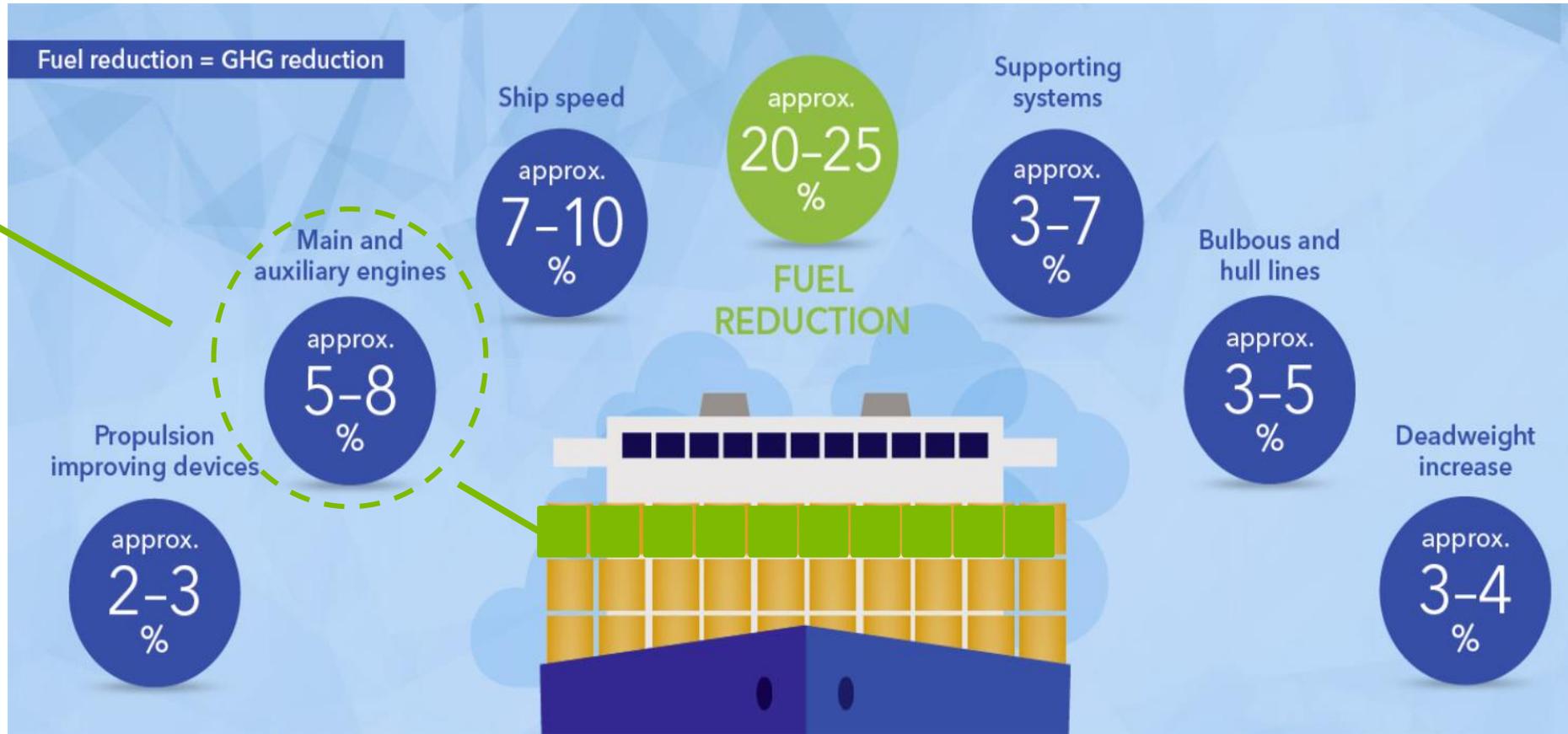


IMO Container Shipping Framework –

Refrigeration Transport Efficiency is a Big Piece of the Solution

Main and auxiliary power demand from refrigerated container plugs is significant and can equal up to 25% of shipboard energy consumption

Reefer transport energy demand from auxiliary and main plant will be a significant factor in IMO compliance



Source: DNV reporting and update Aug 2024

Reefer Fleet Optimization Program

Benefits to the industry:

- ✓ **Understand and identify energy and CO2 wastes**
- ✓ **CO2 reduction validation and monetization**
- ✓ **Innovation solution impacts**
- ✓ **Test and assess customer benefits**
- ✓ **Report and analytics on energy savings & CO2 tracking**

SeaCube Refrigerated Container IMO and CO2 Dashboard


John Doe 

Display <<

Reefers

Carrier

- ML3
- ML5
- Optima line
- Everfresh

Thermo King

- MP3000
- MP4000
- CFF

Daikin

- LXE series
- Zestia series
- Active CA

StarCool

- CIM6
- SC - MCI40
- SC - MCI40 WC

Comparison

Brand or Model:

With:

Dashboard

Trade lane: Value
Start date: 02 / 2023
End date: 08 / 2023
Set Temp:
Age:

 **247**
Containers

 **15 356 €**
ETS

 **452**
CO2e gr/ton.km

 **-3%** CO2e gr
Optima line

 **+4%** CO2e gr
MP 4000

GHG : CO2e gr / ton.km

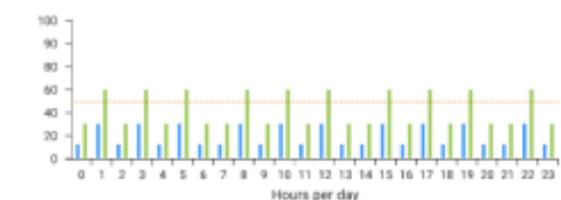


Comparison



Optima line	452 CO2 gr / ton.km	67%
MP 4000	512 CO2 gr / ton.km	21%
SC - MCI40 WC	674 CO2 gr / ton.km	5%
ML3	823 CO2 gr / ton.km	3%

Average per day / GHG : CO2e gr / ton.km



Trips 

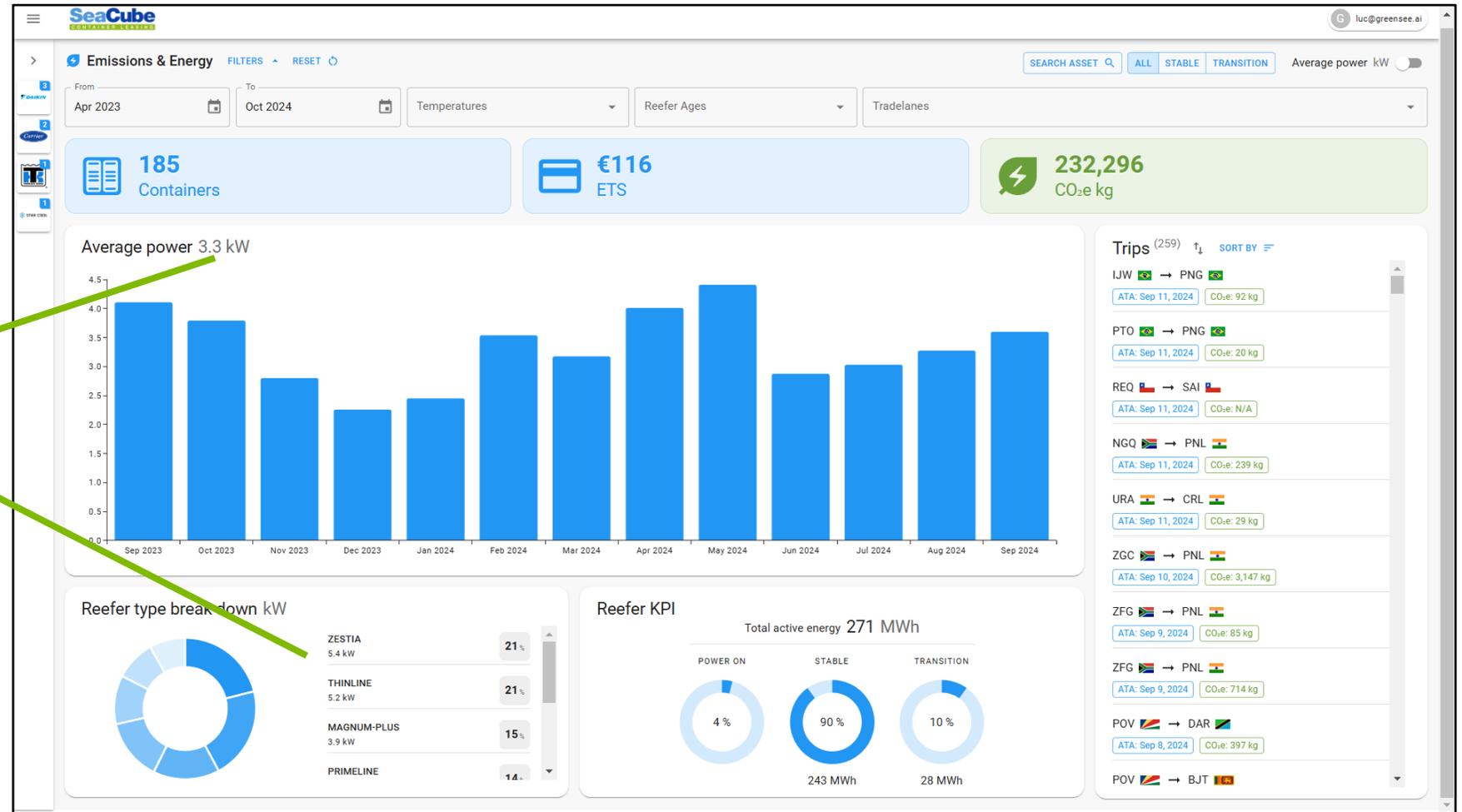
- Guayaquil / Rotterdam
ATA 26 May 24 - 2,765 kg CO2e →
- Rabat / Fos
ATA 29 May 24 - 634 kg CO2e →
- Durban / Algeiras
ATA 2 June 24 - 3,896 kg CO2e →
- Lorem / Ipsum
ATA X Xxx XX - X,XXX kg CO2e →
- Lorem / Ipsum
ATA X Xxx XX - X,XXX kg CO2e →
- Lorem / Ipsum
ATA X Xxx XX - X,XXX kg CO2e →
- Lorem / Ipsum
ATA X Xxx XX - X,XXX kg CO2e →
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ATA X Xxx XX - X,XXX kg CO2e →
- Lorem / Ipsum
ATA X Xxx XX - X,XXX kg CO2e →
- Lorem / Ipsum
ATA X Xxx XX - X,XXX kg CO2e →

Energy kWh/ton.km

[DOWNLOAD REPORT](#)

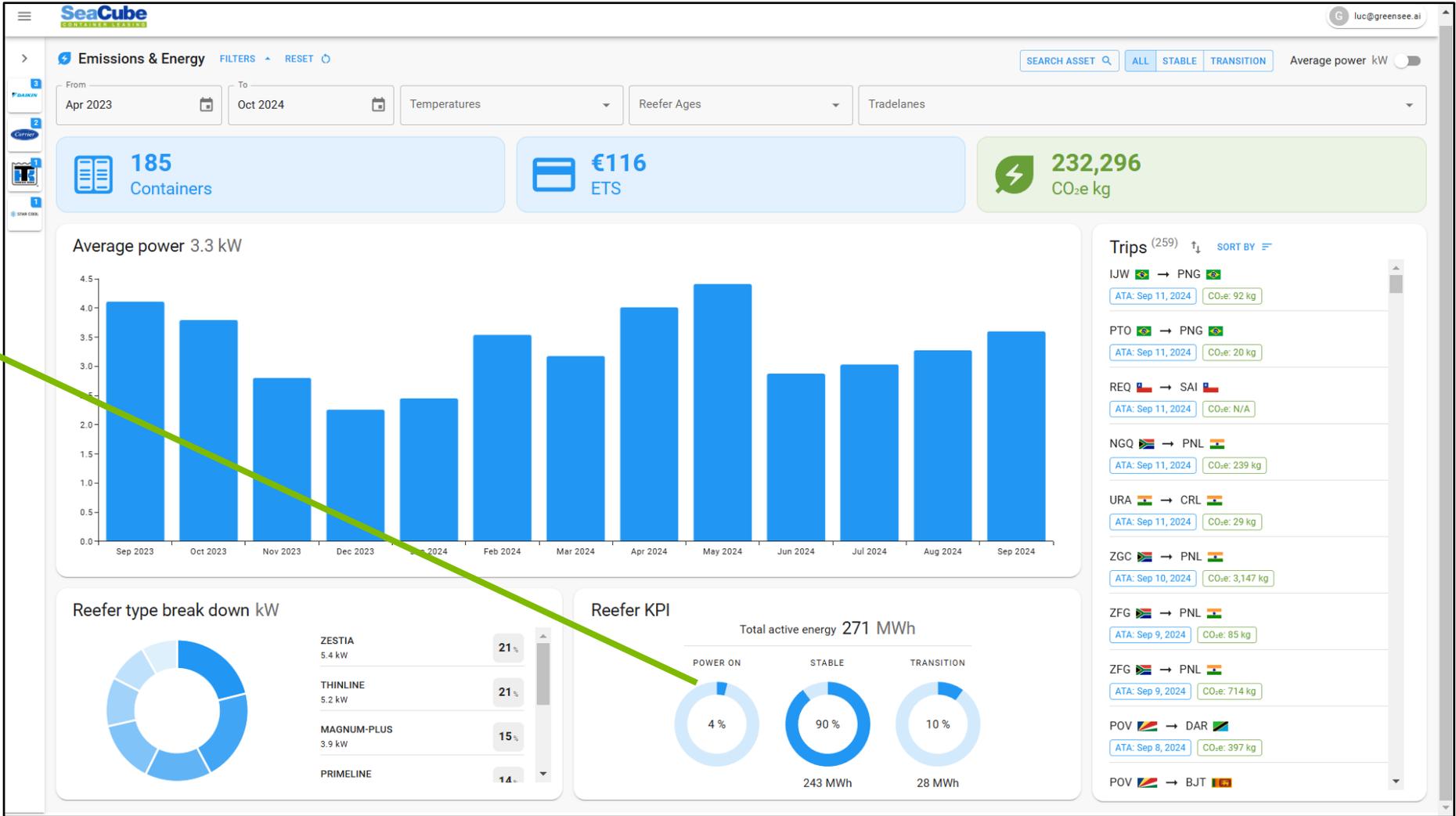
Pilot Portal – Latest Release Stable / Transition Stats

Fleet optimization
Which asset is the most efficient for each trade-lane?



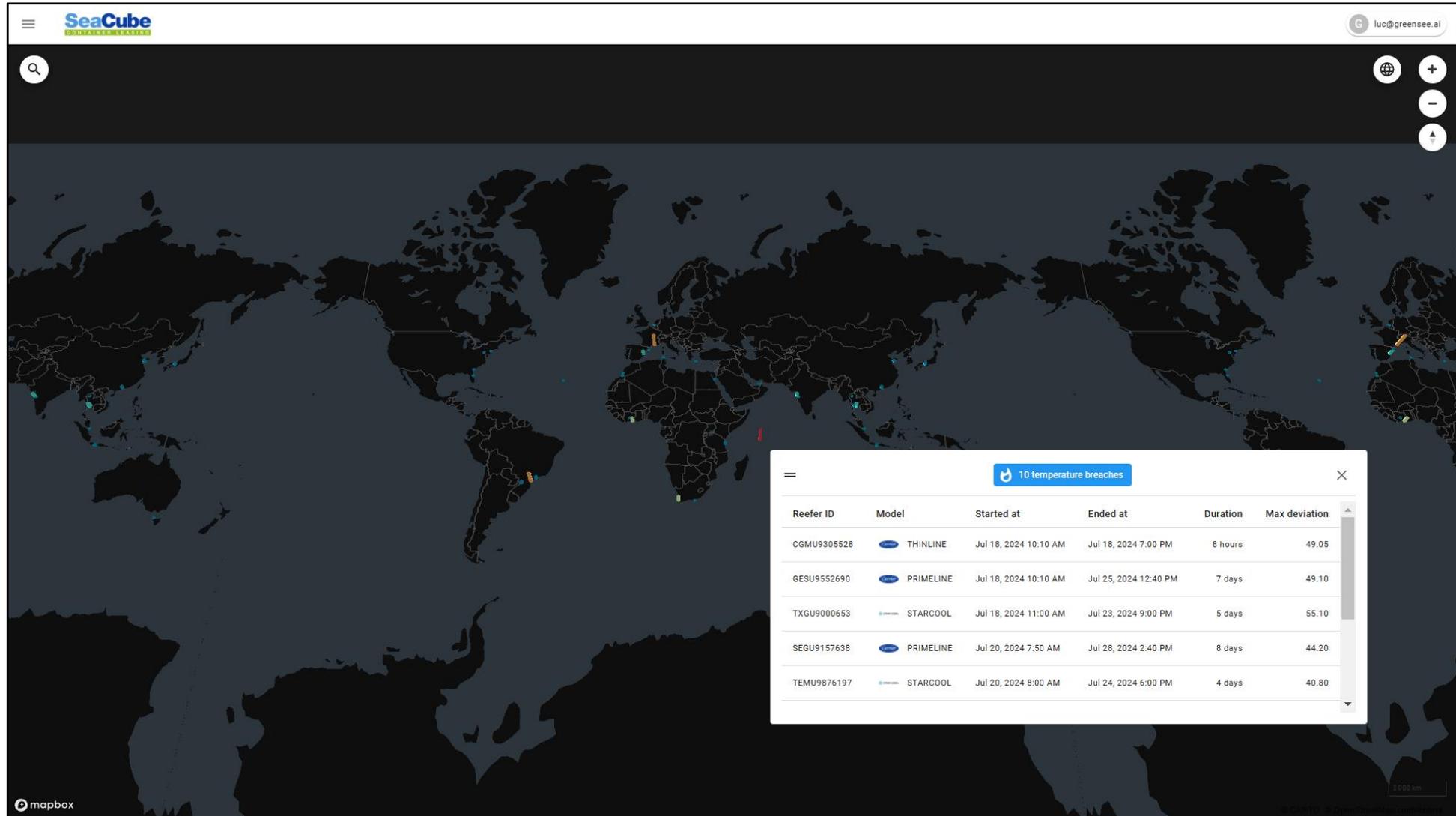
Pilot Portal – Latest Release Stable / Transition Stats

Reefer KPI's
Stable / transition
mode energy now
available



Pilot Portal – Heatmap to Track Transition Events

An event map showing all “Transition” events (hot loads and temps breaches) are now available on heatmap



SeaCube's Commitment to ESG and Decarbonization

- ✓ SeaCube is offering comprehensive CO2 reporting for new and existing refrigerated fleets
- ✓ Metrics and dashboards are developed for leveraging CO2 reporting efficiency and for simplified ETS or IMO audit reporting processes
- ✓ SeaCube is exploring asset electrification solutions for both reefer hybrid and genset applications

SeaCube ESG Services

- 1 Technology applications for IMO and ESG CO2 baseline measurements and reporting
- 2 Efficient reefer products and services
- 3 Future electrification applications including field testing of electric generator sets
- 4 ESG friendly refrigerant solutions
- 5 Low CO2 impact reefer and genset products





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