

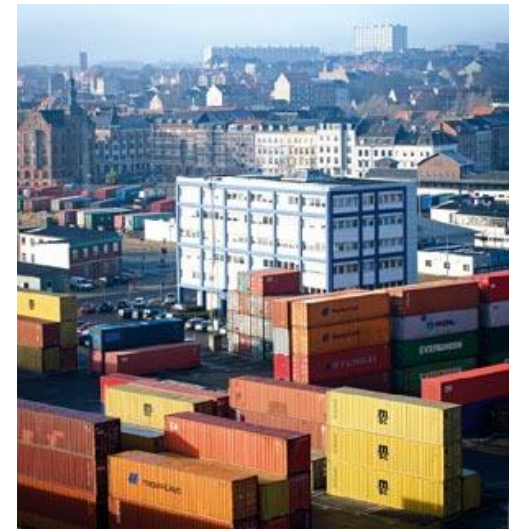
Unifeeder Presentation

CO2 Calculator



Unifeeder A/S

- Founded in 1977
- Headquarters in Aarhus, Denmark
- Private equity owned
- Approx. 250 employees
- 10 offices in 8 countries
 - Antwerp
 - Gothenburg
 - Hamburg
 - Helsingburg
 - Helsinki
 - Copenhagen
 - Oslo
 - Rotterdam
 - St. Petersburg per 1.10.2009
- Group turnover 2008: Approx. 406 mio. EUR
- Handling 1,6 Mill teu in 2008
- 01.01.10 - Acquisition of IMCL, Poland's largest container feeder carrier



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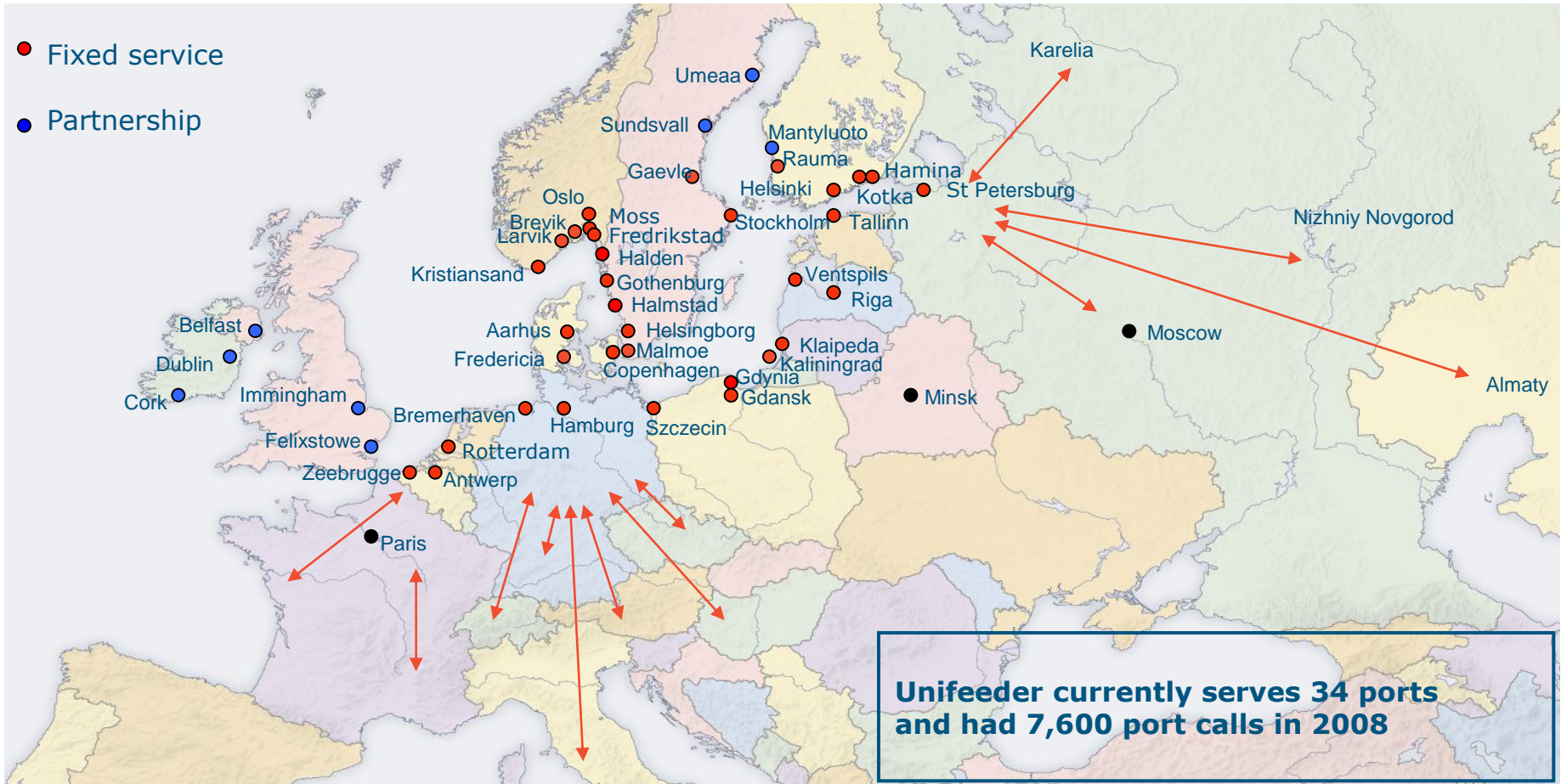
Unifeeder Business Divisions



- **Container Feeder Service**
Transport of containers for global deep-sea container carriers, linking them to the smaller and less accessible ports in Northern Europe

- **Shortsea Service**
Shortsea Service transport solutions within Europe for anything that can be containerized.

Geographical Coverage – Shortsea



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Environmental focus is high on our agenda

- Increased efforts to ensure optimal utilization of capacity in the network and thereby reducing fuel consumption
- Eco-speed program in place for all vessels to reduce fuel consumption
- Introduction of CO₂ calculator to compare environmental impact of different modes of transport
- Introduction of 45' pallet wide containers to shift transportation from road to sea
- "Green IT" project has reduced power consumption



Why calculator ?

- We used to argue;
Ship transport more environmental friendly than truck and rail.
- Market used not to bother about environment;
Selling argument was price.
- A year ago a big International company listened to environment argumentation – but;
How much better ?
- Investigation and 'home made' calculations made;
Customer accepted calculation as selling argument and made further negotiations possible.
- In the months after more experiences of same kind
We decided to have calculator verified by a competent organization.

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How ?

- Honest calculation
 - we did not want to have questions about reliability
- Easy to use
- Accessible from our homepage
- Recognized calculation standard;
 - EEOI Established inline with IMO MEPC.1/Circ.684 "Guidelines for voluntary use of the ship Energy Efficiency Operational Indicator (EEOI)"

$$\text{Average EEOI} = \frac{\sum_i \sum_j (FC_{ij} \times C_{Fj})}{\sum_i (m_{\text{cargo},i} \times D_i)}$$

where:

- j is the fuel type;
- i is the voyage number;
- FC_{ij} is the mass of consumed fuel j at voyage i ;
- CF_j is the fuel mass to CO2 mass conversion factor for fuel j ;
- m_{cargo} is cargo carried (tones) or work done (number of TEU); and
- D is the distance in nautical miles corresponding to the cargo carries.

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Voyage database

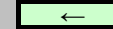


IMPORT NEW
Voyage Report

GO TO
IMO Number

MERGE ALL
Voyage Reports

Select Ship's name



IMO Number	Ship's Name	VR entered?	LINK
9354363	ANNABELLA		
9396696	ANNE SIBUM	Yes	Link
9296999	ATAIR J		
9287716	AURA	Yes	Link
9234989	AURORA	Yes	Link
9119658	BALTIC TRADER		
9297591	BIANCA RAMBOW	Yes	Link
9292943	CEPHEUS J		
9129469	ELECTRA	Yes	Link
9123805	ELUSIVE	Yes	Link
9312212	ENSEMBLE	Yes	Link
9113745	GERDA	Yes	Link
9302255	HANSE SPIRIT	Yes	Link
9302243	HANSE VISION	Yes	Link
9372200	HEINRICH EHLER	Yes	Link
9354430	HENNEKE RAMBOW	Yes	Link
9328651	HERM J		
9354478	IDA RAMBOW	Yes	Link
9197521	JOHANNA	Yes	Link
9234991	JORK		
9328041	JORK RELIANCE	Yes	Link
9339014	JRS CANIS	Yes	Link
9130444	KALINA	Yes	Link
9404089	KRISTIN SCHEPERS		
9226372	MAIKE D	Yes	Link
9339026	MARNEDIJK	Yes	Link
9242986	MERWEDIJK	Yes	Link
9108063	PIRITA		
9087532	PLANET V	Yes	Link
9339064	RBD ALEXA		

58

40

92

171

86

88

121

468

70

69

26

92

61

272

51

121

51

266

114

354

607

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Voyage database particular

Number of records: 6885

Ship data				Leg												
IMO number	Name	Voyage type	Voyage report number	Departure			Arrival			Type of Leg	Distance steamed	Average Speed	Speed instructions from Unifeeder	Cargo deadweight	Aux engine running time	Shaft generators running time
#	-	#	#	From	Date	Time GMT	To	Date	Time GMT	-	(miles)	(kts)	-	(tonns)	(hours)	(hours)
9396696	Anne Sibur	58	48	Hamburg	12.01.09	1912	Hamburg	13.01.09	1806	Harbour						
9396696	Anne Sibur	58	48	Hamburg	13.01.09	1806	Hamburg	13.01.09	2312	Pilot	81			1,724	5.1	
9396696	Anne Sibur	58	48	Hamburg	13.01.09	2312	Bremerhav	14.01.09	0018	Sea passage	12	10.9	Full Speed			1.1
9396696	Anne Sibur	58	48	Bremerhav	14.01.09	0018	Bremerhav	14.01.09	0248	Pilot	33				2.5	
9396696	Anne Sibur	58	48	Bremerhav	14.01.09	0248	Bremerhav	14.01.09	1332	Harbour						
9396696	Anne Sibur	58	48	Bremerhav	14.01.09	1332	Bremerhav	14.01.09	1548	Pilot	33			5,886	2.3	
9396696	Anne Sibur	58	48	Bremerhav	14.01.09	1548	Kiel Canal	14.01.09	1624	Sea passage	12	17.2	Full Speed			0.7
9396696	Anne Sibur	58	48	Kiel Canal	14.01.09	1624	Kiel Canal	14.01.09	1924	Pilot	38				3	
9396696	Anne Sibur	58	48	Kiel Canal	14.01.09	1924	Kiel Canal	15.01.09	0406	Canal (Kiel)	52				8.7	
9396696	Anne Sibur	58	48	Kiel Canal	15.01.09	0406	Kiel Canal	15.01.09	0524	Pilot	10				1.3	
9396696	Anne Sibur	58	48	Kiel Canal	15.01.09	0524	Riga	16.01.09	1400	Sea passage	554	17.0	Full Speed			32.6
9396696	Anne Sibur	58	48	Riga	16.01.09	1400	Riga	16.01.09	1430	Pilot	8				1	
9396696	Anne Sibur	58	48	Riga	16.01.09	1430	Riga	17.01.09	0610	Harbour				4,477	1.3	
9396696	Anne Sibur	58	48	Riga	17.01.09	0610	Riga	17.01.09	0730	Pilot	8					
9396696	Anne Sibur	58	48	Riga	17.01.09	0730	Rauma	18.01.09	1148	Sea passage	355	12.5	Optimal Speed			28.3
9396696	Anne Sibur	58	48	Rauma	18.01.09	1148	Rauma	18.01.09	1330	Pilot	9				1.7	
9396696	Anne Sibur	58	48	Rauma	18.01.09	1330	Rauma	19.01.09	1630	Harbour						
9396696	Anne Sibur	58	48	Rauma	19.01.09	1630	Rauma	19.01.09	1730	Pilot	9			8,019	1	
9396696	Anne Sibur	58	48	Rauma	19.01.09	1730	Kiel Canal	21.01.09	1318	Sea passage	652	14.9	Optimal Speed			43.7
9396696	Anne Sibur	58	48	Kiel Canal	21.01.09	1318	Kiel Canal	21.01.09	1450	Pilot	10				1.5	
9396696	Anne Sibur	58	48	Kiel Canal	21.01.09	1450	Kiel Canal	21.01.09	2200	Canal (Kiel)	52				7.2	
9396696	Anne Sibur	58	48	Kiel Canal	21.01.09	2200	Kiel Canal	22.01.09	0100	Pilot	38				3	
9396696	Anne Sibur	58	48	Kiel Canal	22.01.09	0100	Bremerhav	22.01.09	0154	Sea passage	12	13.3	Optimal Speed			0.9
9396696	Anne Sibur	58	48	Bremerhav	22.01.09	0154	Bremerhav	22.01.09	0500	Pilot	33				3.1	
9396696	Anne Sibur	10	49	Bremerhav	22.01.09	0400	Bremerhav	22.01.09	1800	Harbour					14	
9396696	Anne Sibur	10	49	Bremerhav	22.01.09	1800	Bremerhav	22.01.09	2018	Pilot	33				2.3	
9396696	Anne Sibur	10	49	Bremerhav	22.01.09	2018	Hamburg	22.01.09	2230	Sea passage	12	5.5	Optimal Speed	423		2.2
9396696	Anne Sibur	10	49	Hamburg	22.01.09	2230	Hamburg	23.01.09	0518	Pilot	81				6.8	
9396696	Anne Sibur	10	49	Hamburg	23.01.09	0518	Hamburg	23.01.09	1748	Harbour					12.5	
9396696	Anne Sibur	10	49	Hamburg	23.01.09	1748	Kiel Canal	23.01.09	2148	Pilot	43				4	
9396696	Anne Sibur	10	49	Kiel Canal	23.01.09	2148	Kiel Canal	24.01.09	0706	Canal (Kiel)	52				9.3	
9396696	Anne Sibur	10	49	Kiel Canal	24.01.09	0706	Kiel Canal	24.01.09	0806	Pilot	10				1	

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CO₂ calculator

[CO₂ CALCULATOR](#)

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[TERMS & CONDITIONS](#)

[LOCAL COSTS](#)

[EQUIPMENT](#)

[B/L TERMS](#)

[ROAD WEIGHT LIMITATIONS](#)

Unifeeder.com

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CO₂ Calculator

[Click here to open routeplanner](#)

Unifeeder shortsea transport

Precarriage

From:	Distance to port	CO ₂ emission
<input type="text"/>	<input type="text" value="0"/>	<input type="text"/>

Vessel voyage

	CO ₂ emission
Select port of loading <input type="text"/>	<input type="text"/>
Select port of discharge <input type="text"/>	<input type="text"/>

Oncarriage

To:	Distance from port	CO ₂ emission
<input type="text"/>	<input type="text" value="0"/>	<input type="text"/>

Alternative trailer transport

Precarriage

From:	Distance to ferry	CO ₂ emission
<input type="text"/>	<input type="text" value="0"/>	<input type="text"/>


Ferry crossing

	CO ₂ emission
No ferry crossing <input type="text"/>	<input type="text"/>

Oncarriage

To:	Distance from ferry	CO ₂ emission
<input type="text"/>	<input type="text" value="0"/>	<input type="text"/>

How to use Unifeeder CO₂ calculator

 EEOI calculation method verified by DNV

- Compares CO₂ emissions from shortsea transport with trailer transport

Data Sources

Unifeeder ship emission factor 490,78 g CO₂/TEU/nautical mile.

- Ship Energy Efficiency Operational Indicator established inline with MEPC.1/Circ. 684 "guidelines for voluntary use of the ship Energy Efficiency Operational Indicator (EEOI). EEOI calculation method verified by DNV 10.09.09.

Unifeeder vessel voyage number based on FEU (40'/45')

Road Haulage emission factor: 1044,92 g CO₂/km/trailer.

- Based on fuel consumption of 1 liter diesel per 2,7 km (ref. The European Environment Agency report no. 3/2009; 'Transport at a crossroads', and BDI(Bundesverband der Deutschen Industrie e.V.) Position Paper on Cabotage of 05.12.07)

Ferry emission factor: 1704,01 gCO₂/nautical mile/trailer.

- Based on the M/V Stena Forerunner (ref. www.axs-alphaliner.com) operating with 80% loadfactor.

Sailing distances.

- Based on data from www.sealoy.com

Others

Hans Otto Kristensen, Jacob Kronbak, Danmarks Rederiforening

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What to come next

- Annual up-date of company EEOI number
- Monitoring Operational Performance in an environmental perspective – Ship Energy Efficiency Management Plan (SEEMP)
- Maybe Environmental partnerships/commitments