OSK
DESIGN

OUT OF THE BOX POSSIBILITIES FOR THE INDUSTRY

Ferry Shipping Summit
2025

Onboard spending and interior design

Peak season vs shoulder/winter season

How we develop an optimum layout and flow

- Optimising income during the busy season
- Reducing expenses in the off-peak or shoulder periods
- Ensuring smooth passenger flow across both periods
- Minimise cost when demand is low (crew, cleaning, HVAC etc.)

Synergies between port and ship

Shore Charging and fuel strategy

How we utilise electricity and reduce fuel taxes

- Electrification should be part of all shipowners fuel strategies
- Shore charging vs shore power
- Collect what's possible
- Future proof with more capacity
- Include both OPEX and CAPEX in your total cost of owner ship model
- Avoid aux. engines running during manoeuvring and in port
- Batteries – power always available

Shore based energy storage systems

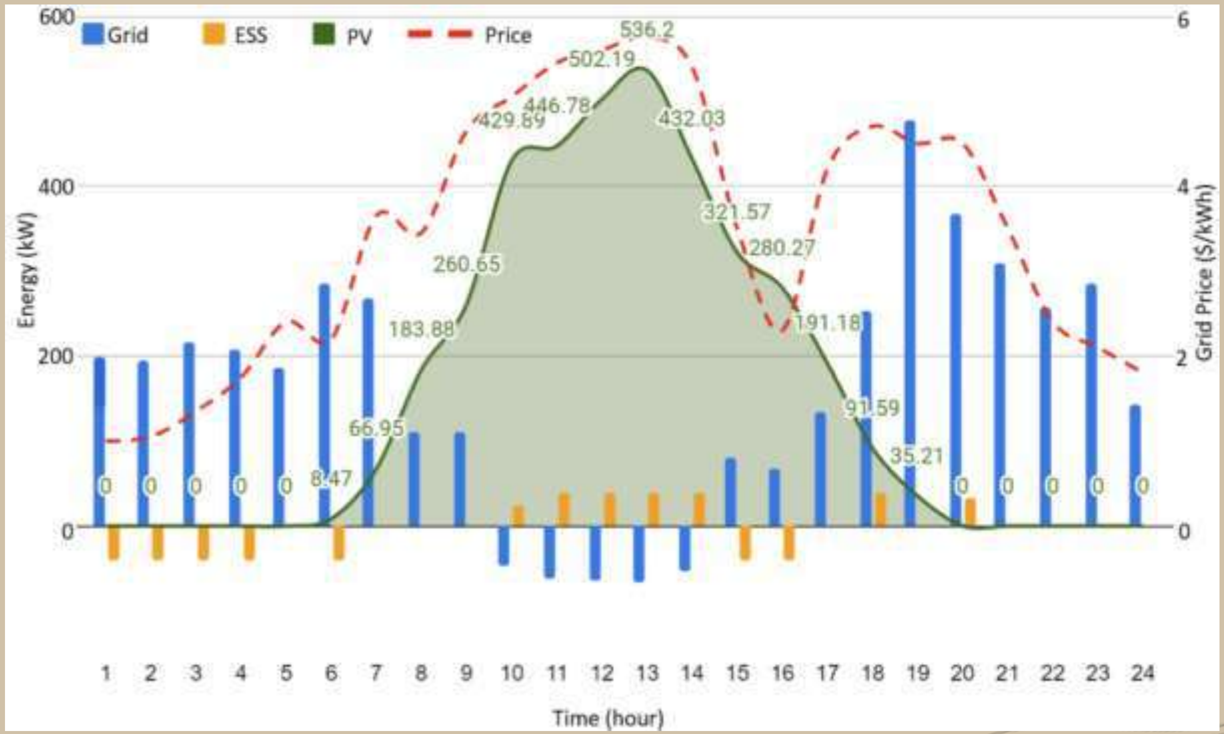
How we reduces the cost for grid connection

- Islands have limited power
- Transformer stations are often central positioned on islands
- Cable connection shall be established over long distances
- Approval processes are often very complicated
- Ferry charging - high power demand for a limited period
- Grid connection expensive

Battery Energy Storage Systems – BESS

How we ensures power availability and lower energy cost for the ferry operator

- Peak shaving & load balancing
- Stabilize grid frequency and voltage
- Store excess renewable power
- BEES charges when demand is low and discharges when price is high
- Limited transformer connection
- Lower ferry operating costs



Electrification and fuel/energy strategies

Electrification – a new possibilities for High Speed Ferries

New possibilities with electrification

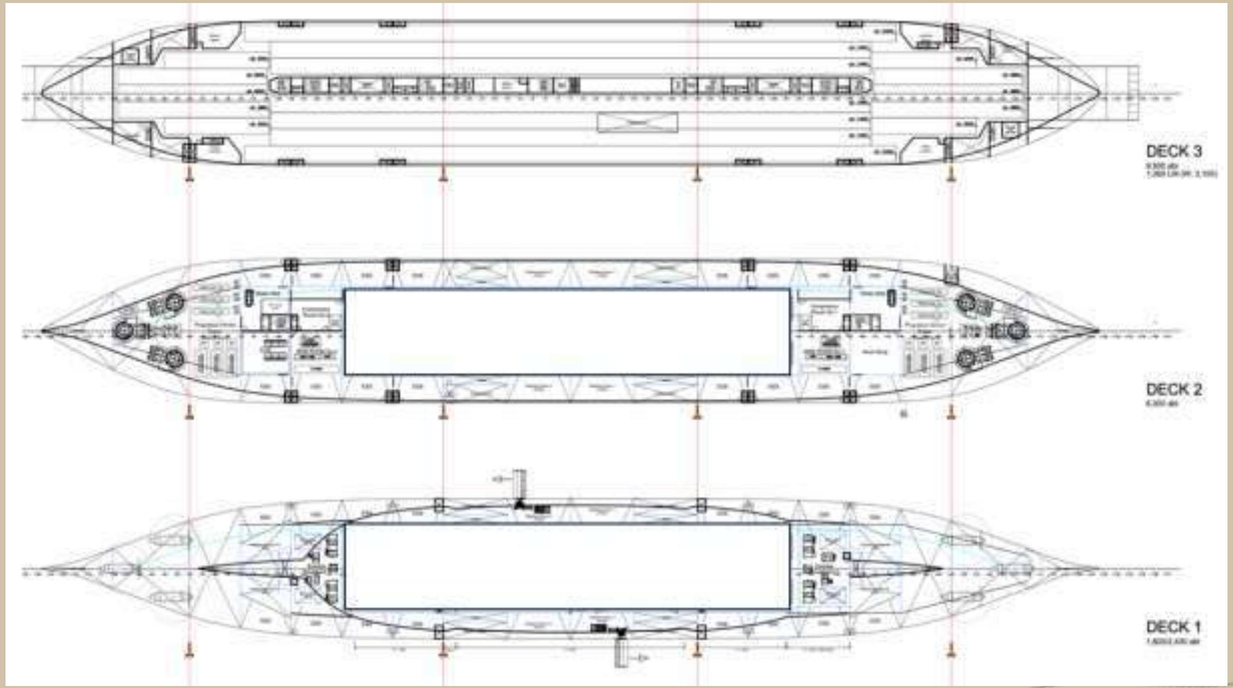
Vessel type:	Battery-electric high-speed catamarans
Size:	129m long, 30.5m beam
Capacity:	1,483 pax 500 cars
Speed:	>40 knots
Crossing:	1,5 hours
Battery:	~45,000 kWh
Charging:	55 MW, 30 min
CO_2 :	reduction ~132,000 t/y

+3 hours Battery operated ferry

Electrification – double ended ferry for Gotland

New standards for electrification of larger ferries

Vessel type:	Battery-electric double ended ferry
Size:	200m x 30m
Capacity:	2,000 pax, 2300 LM
Hull material:	Steel & alu
Lightweight Interior	HSC type furniture and interiors
Battery:	~80,000 kWh
Shore ramps:	Two tier loading



Proposed Design – more than 3 hours crossing – Energy balance
What can be achieved

	kWh	Maks kW	Speed	kWh/hr	Distance
Route 1 – 3h 15min	43674	16678	22,8	13438	65 nm

New Electrical ferry			Existing vessel
kWh pr crossing	gram co2/kWh	Tons Co2 pr crossing	Tons Co2 pr crossing (MRV)
43.674	41	1,8	43,4

Similar results can be obtained at:

Frederikshavn – Göteborg

Tallink - Helsinki

Visby – Stockholm

In 2024, the average CO2 emissions from electricity generation in Sweden are approximately 41 grams of CO2 per kilowatt-hour (gCO2/kWh)

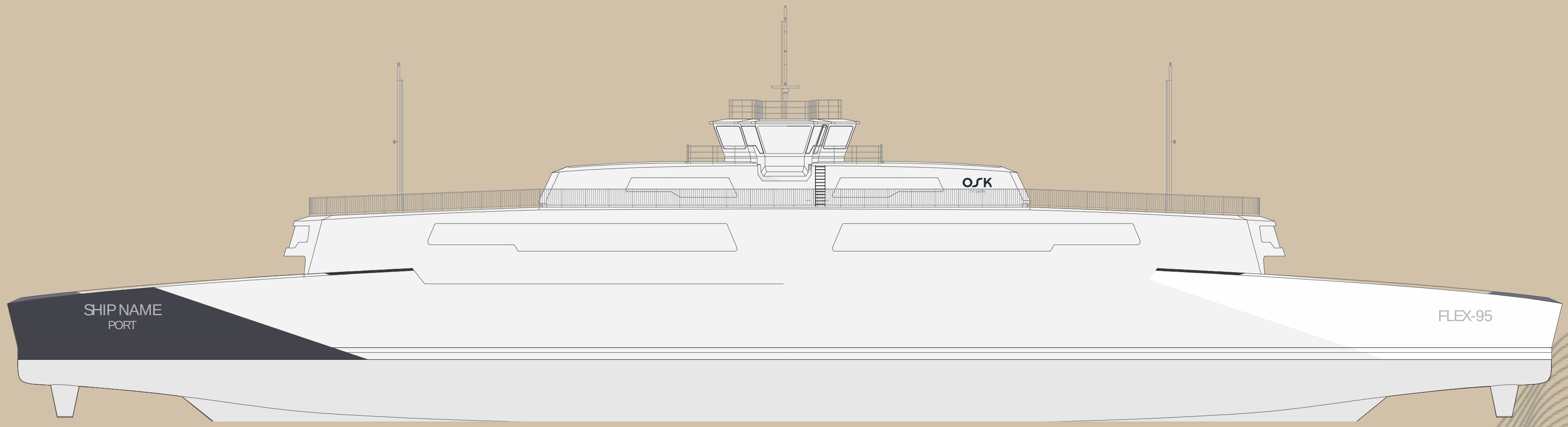
LightCraft[OSK]

LightCraft^OSK

A series of aluminium lightweight double enders

70m double ender

40m double ender



95m double ender

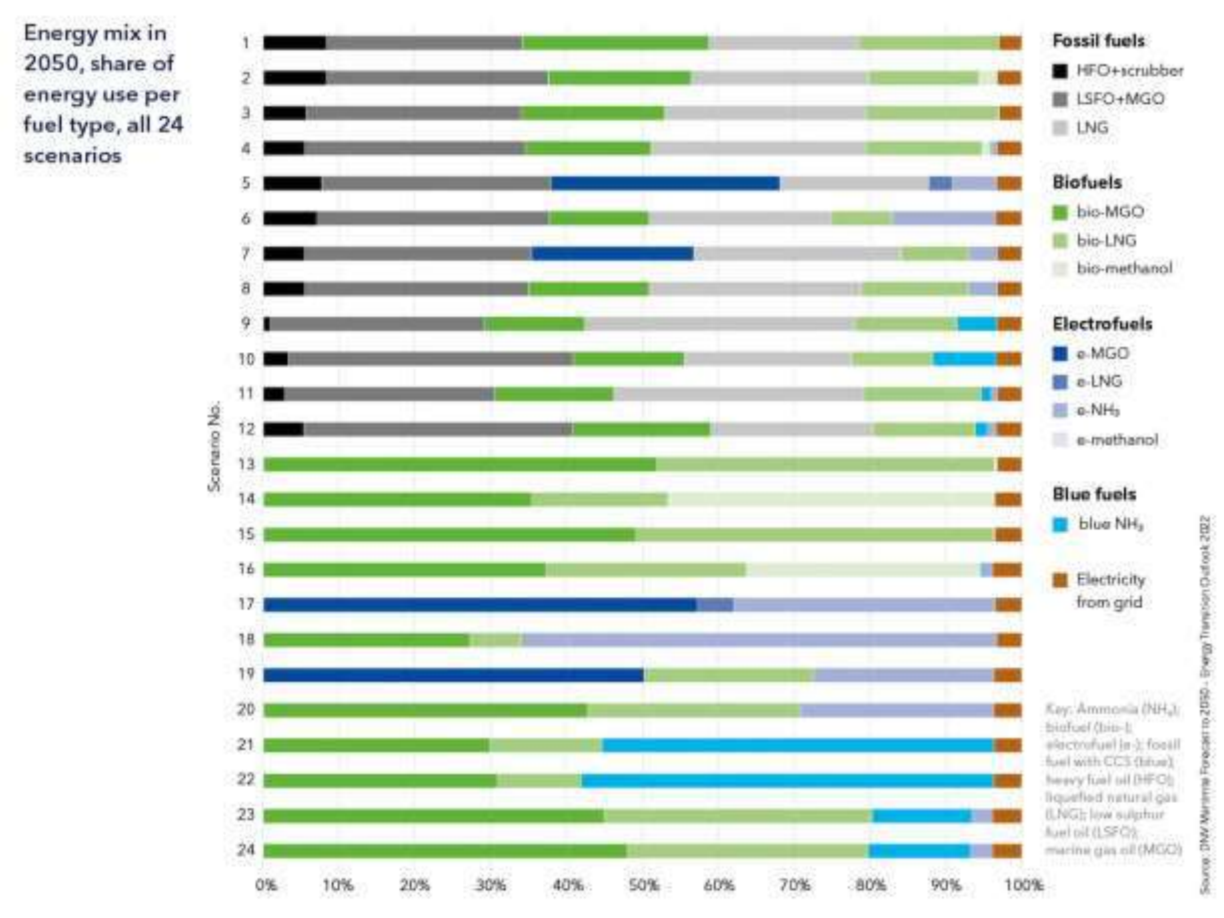
LightCraft^OSK

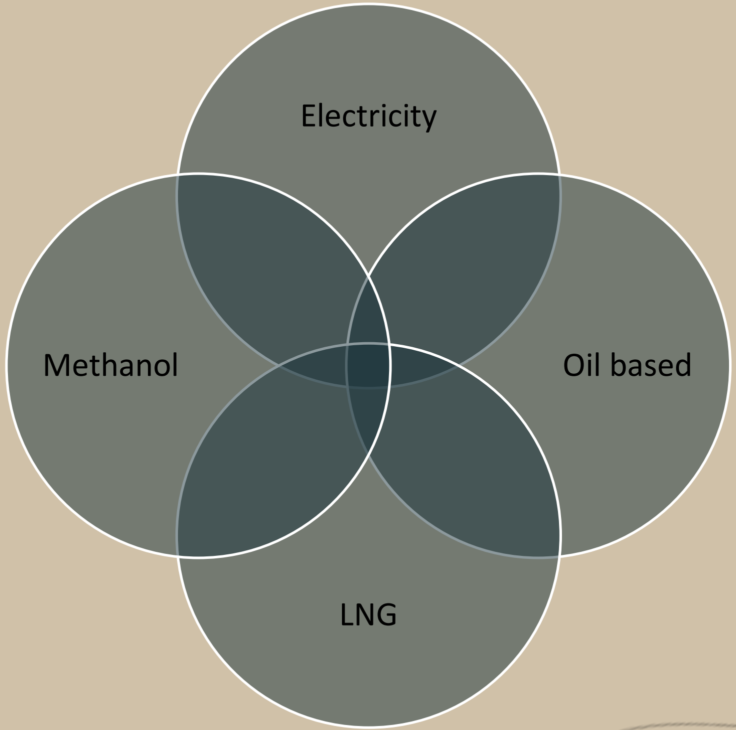
What can be achieved - compared to recent newbuildings

	Electrical Ellen	Electrical Grotte	Electrical As LightCraft Grotte	Electrical Nerthus Tyrfing (Ballen Kalundborg)	Electrical As LightCraft Tyrfing	Conventional MF Princesse Isabella	As LightCraft MF Princesse Isabella	Electrical Flex95
Length o.a. (m)	59,50	49,90	49,90	116,80	116,80	99,90	99,90	95,00
Beam (m)	12,80	13,40	13,40	18,20	18,20	18,00	18,00	18,50
Speed (knots)	14,00	11,50	11,50	17,00	17,00	15,00	15,00	15,00
Propulsion Power (kW)	1.500	750	750	3.600	3.600	3.200	3.200	2.100
BESS installed (kWh)	4.500	1.100	600	3.800	3.800	N/A	1.900	2.000
Gross Tonnage	996	925	860	4.318	4.058	5.087	4.749	4.000
Lightweight (ton)		550	300	2.400	1.400	2.500	1.200	1.000
Deadweight (ton)	192	230	230	600	600	600	600	650
Displacement (DWL)		780	530	3.000	2.000	3.100	1.800	
Private Car Capacity (PCU)	31	33	33	188	188	163	163	129
Passenger Capacity (summer)	196	396	396	600	600	600	600	450
Construction	Steel/Alu	Steel/Alu	Alu	Steel/Alu	Alu	Steel	Alu	Alu
Crossing Time		10	10	105	105	60	60	60
Propulsion Energy per Crossing (kWh)		90	60	1.995	1.295	1.850	1.200	1.100
Crossing Distance (nm)	11,5	1,3	1,3	17,8	17,8	11	11	11
Distance DWT (ton nm)		299	299	10.680	10.680	6.600	6.600	7.150
Energy per DWT nm (kWh/DWT nm)		0,301	0,201	0,187	0,121	0,280	0,182	0,154
Savings if LightCraft			**33%**		**35%**		**35%**	

Energy blending

Future energy mix is a combination of several energy carriers





Key takeaways

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- Onboard flow should support passenger experience outside peak time operation
- Include scenarios for both off-season as well as service offerings in your accommodation layout
- Electrification should be part of every shipowners fuel strategies
- Fuel strategy is not binary – but should adopt to future opportunities for electrification
- Electrification is possible for larger ferries for more than 3,5 hours crossing time

Questions and discussion ?

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