

Unlocking the potential of water.



Candela P-12 Drammen 2026 – en mobilitetsrevolution

Zero emission

High-end Swedish technology

Fast Ferries

Minimal Cost of Operations



Alexander Sifvert
Head of Europe

Pro

Candela Pro-Series.
6-30 pax.
100% electric.
Hydrofoil craft.

00%

Zero emission.
Zero water pollution.
Zero air pollution.
Zero noise pollution.

95%

Up to 95%
reduction in
energy
consumption.

97,5%

Up to 97,5%
CO2 reduction
over the full
product life-cycle.

90%

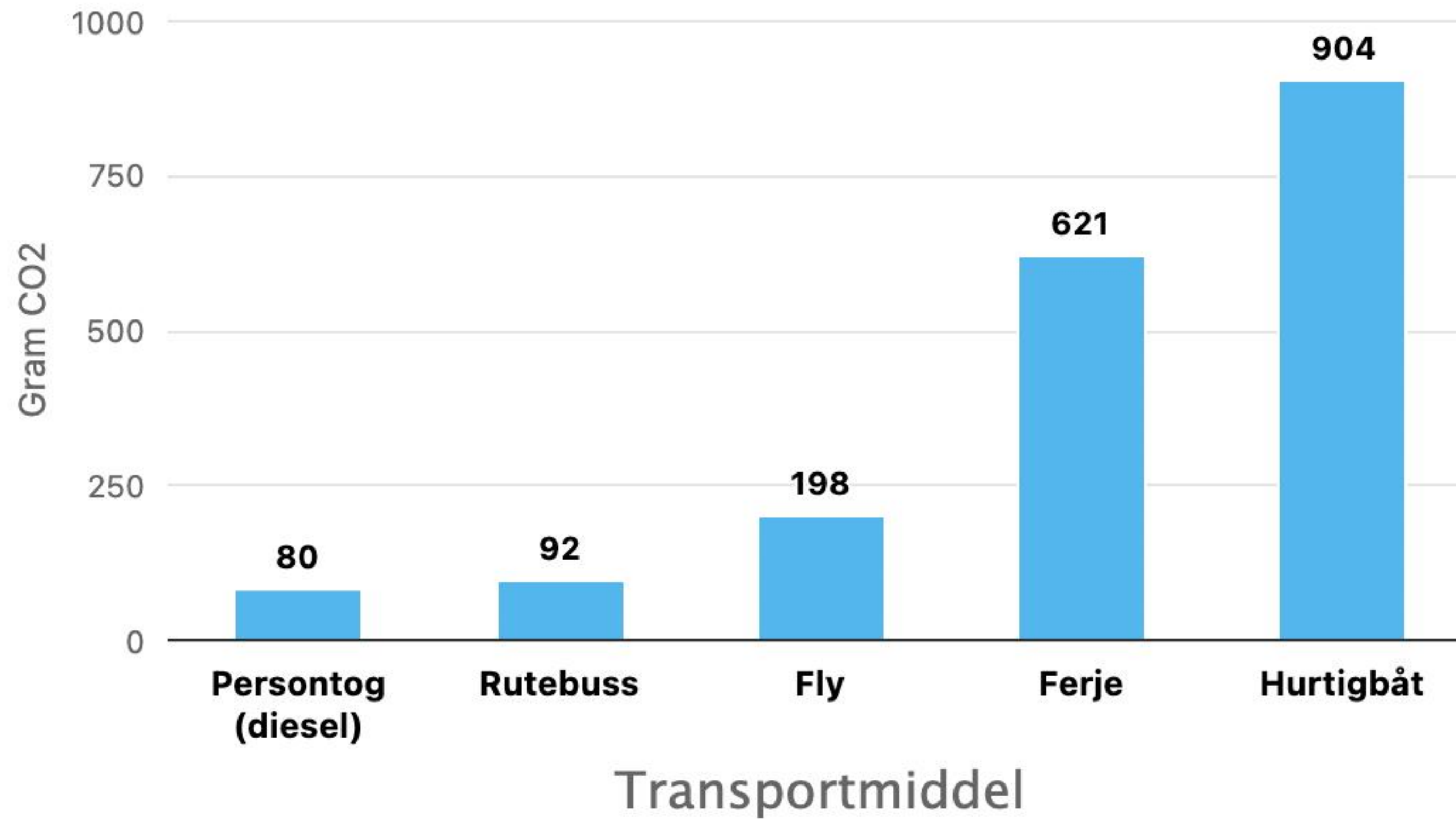
Up to 90%
lowere energy
and service
costs.

Sh_{hh}

Silent, fast and
smooth "magic
carpet ride"
over the water.

CO2-utslepp per kilometer

Gram CO2 som sleppast ut for å frakte ein passasjer ein kilometer



● CO2-utslepp

Kjelde: TØI / CICERO

Leap-frog technology. Tried and tested.



C-7 – Serial production
32 made and sold to 10 countries



Advanced R&D and production
Launch of the C-8
Series B round



C-8 hit the water, 100+ boats sold
5 x increase of production facilities



Production and commissioning of Candela
P-12 Shuttle
220 employees



2014

2019

2021

2022

2023

2024

Candela was founded with the mission to:

“Speed up the transition to fossil fuel-free lakes and oceans”

Pro-Series launched



Production ramp-up and expanding order book
Ferries in commercial traffic





THE STOCKHOLM CASE.

3 x Candela P-12 Shuttle (30 px ea) = 2 x Current Vessels (200 pax ea)

Passenger capacity increase

+15%

Operating costs decreased with

-60%

Energy consumption down by

-80%

And energy costs down by

-77%

Travel time reduced with

-50%

Departures per stop per hour increases

from **1** to **3**

The case

If replacing current 2 vessels with 3 Candela P-12, passenger capacity will **increase**, meanwhile saving energy and money.

The circumstances

- Direct line
- 9 months operation/year
- 14 operating hours/day
- Electricity/kWh
- Candela cruising speed: 24 knots
- Current cruising speed: 12 knots
- One way distance: 8.7 NM
- Candela 70% occupancy rate



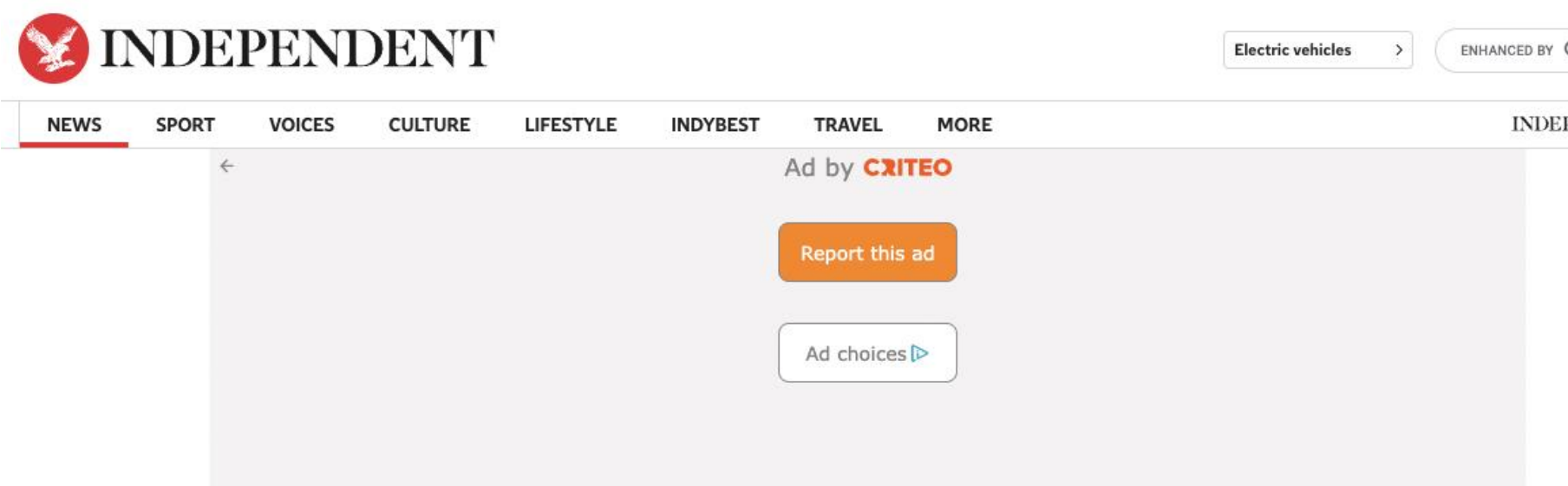


100% electric power
100% public transport

Candela P-12 Shuttle "Nova".



Candela P-12 Shuttle “Nova” Operational Launch in Stockholm – media coverage.



News

A new electric hydrofoil ferry in Stockholm offers cleaner journeys between its 14 islands

A high-tech electric ferry service has begun operating in Stockholm, offering commuters a low-carbon way to zip through the waterways of the Swedish capital, which is built on 14 islands

Via AP news wire • 3 hours ago



Sweden Hydrofoil Ferry



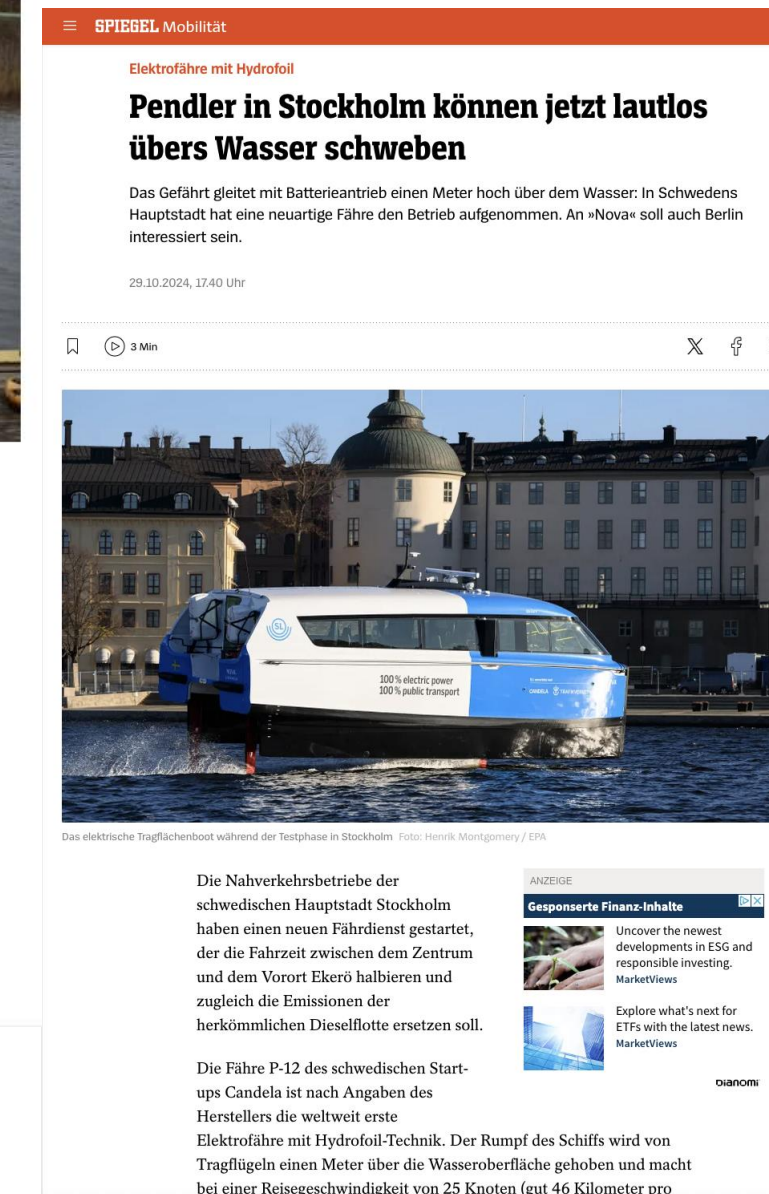
Nu kan stockholmarna sväva till jobbet

Premiär för den nya båtlinjen mellan Ekerö och Klara Mälarstrand. Foto: Moa Källström

Sväva fram över vattnet till jobbet. Nu har SL invigt sin elektriska pendlingsbåt, som med hjälp av bärplansteknik flyger över vattenytan. Men framtiden för nya pendelrutten är osäker.

Malin Hector
Publicerad 14:21

Vid Klara Mälarstrand i centrala Stockholm är det kö för att få kliva ombord. Turen ut till Tappström, Ekerö, börjar som vanligt, men när båten kommer upp i 18 knop, motsvarande ungefär 33 kilometer i timmen, tystnar plötsligt motorljudet – och den börjar sväva.



PRESS RELEASE - 29 OCTOBER 2024 13:49

World's First Electric Hydrofoil Ferry Line Takes Off in Stockholm

The world's first electric hydrofoil ferry has begun its service. **Candela P-12** "Nova" sets out to eliminate emissions from Stockholm's public transport while halving commute times.

"This is a paradigm shift for urban transport and a revival of our waterways," says Gustav Hasselskog, founder and CEO of Candela.



Certified against the highest standards.

The Candela P-12 Shuttle will have a Type approval-DNV Craft with passenger and battery notation. Rigorous attention has been taken to ensure compliance with regulatory frameworks and to guarantee passenger safety.

Operation:

Max significant wave height.

When foiling: Hs = 1M

Non-foiling: Hs = 2M

Max wind: Beaufort 6

CANDELA

×



Specifications in Short

- 30 Pax Vessel
- 25 Knots (47 km/h) Service Speed
- 40 Nm (75 km) Range on One Charge
- 50 min of Charge Time – Type 2 CCS, 175 kW
- 20 NOK per Nm , Whole Vessel, Energy Cost
- 0,8 NOK per Nm, Per Pax

FULL OPEX COST: Energy + Service + Staff + Capital Costs
9 NOK per Nm, per Pax

Average Distance between on- and off:

2 Nm in Drammen Fjord (Route F2): 18 NOK / pax

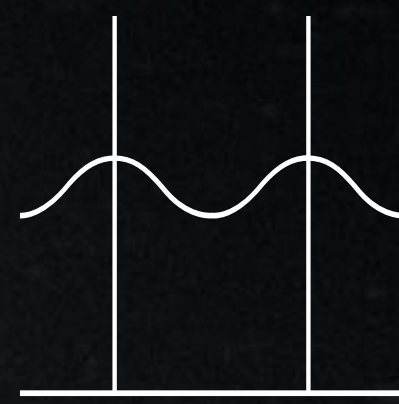
Ticket Price?





Electric Pod Motor

Candela Technology



Hydrofoil Technology

Smart Water Mobility



Flight Control System

candela.com

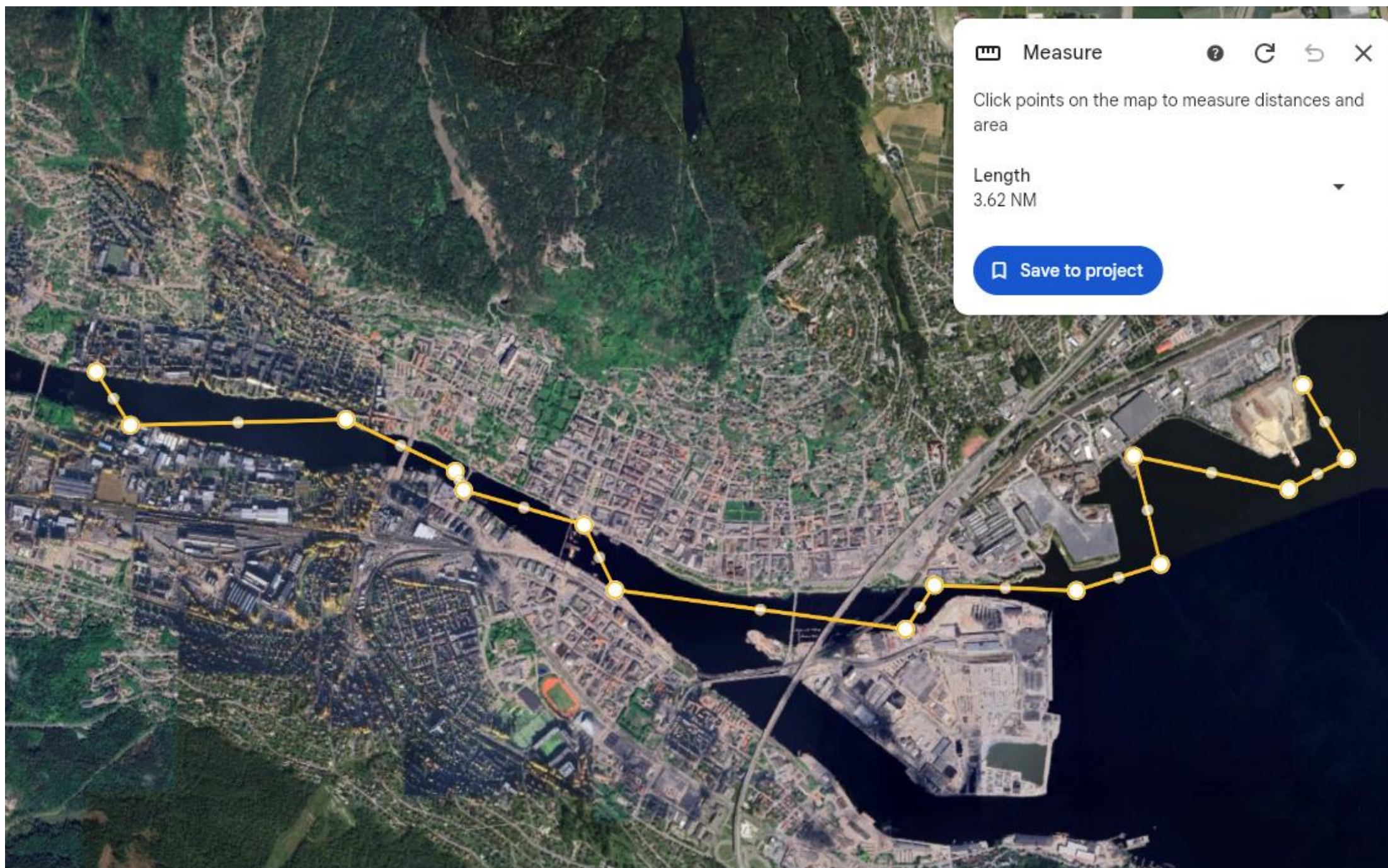


Drammen Route Calculations.



E1, Elveruta

Hotvet strand – Sundland/Lyche - Øvre sund – Union - Bragernes torg - Drammen stasjon – Holmen - Sykehuset



INPUT	
Total distance (Nm)	3,6
Number of stops	9
Time per stop (min)	2
Total number of boats	1
Passengers	30
Operating hours/day	12
Operating days/year	300
Average occupancy	80%
Ticket price (Euro)	8,00
Cost/kWh (Euro)	0,2
Consumption kWh /Nm	6
Charging power (kW)	175
Average speed	6,0
Staff cost/hour/boat	50
Vessel price (Keur)	€ 2 500
Service and maintenance cost/hour	€ 23

E1, Elveruta

Hotvet strand – Sundland/Lyche - Øvre sund – Union - Bragernes torg - Drammen stasjon – Holmen - Sykehuset



OUTPUT		PASSENGER CAPACITY AND DEPARTURE FREQUENCY	
TIME		Peak hour continuous operation w/o charging	
Average distance between stops (Nm)	0,40	Departure per boats/stop/hour	1,1
Average time between stops (min)	4,0	Number of departures per hour all boats	1,1
Time full run one way(min)	54,0	Departure interval (min)	54,0
Time full run return (min)	108,0	Number of seats per hour	33,3
Time one way inc charging for 1 way	67,6	Number of passengers per hour	26,7
CONSUMPTION		Off peak with charging (all boats charging after 1 run)	
Consumption between stop (kWh)	2	Number of boats/ stop/hour	0,9
Consumption turnaround/stop (kWh)	2	Number of departures per hour from destination	0,9
Consumption inc docking (one-way) (kWh)	40	Departure interval (min)	67,6
Number of runs (one-way) on one full charge	5,4	Number of passengers per hour	21,3
Number of runs (return) on one full charge	2,7	ELECTRICITY COST	
CHARGING TIME		Cost one way trip (EUR)	€ 7,92
Charging time for one return trip (min)	14	Cost one way trip/passenger (occupancy) (EUR)	€ 0,33
		Cost one way trip/seat (EUR)	€ 0,26

Comments:

- WSP have probably mis-calculated the route length and time, using 6 knots of speed
- Route is however profitable even in slow speed with Candela P-12
- Due to low speed / energy consumption, only 14 min of charging is needed per trip
- The same vessels can be used, even more profitable using cros fjord routes

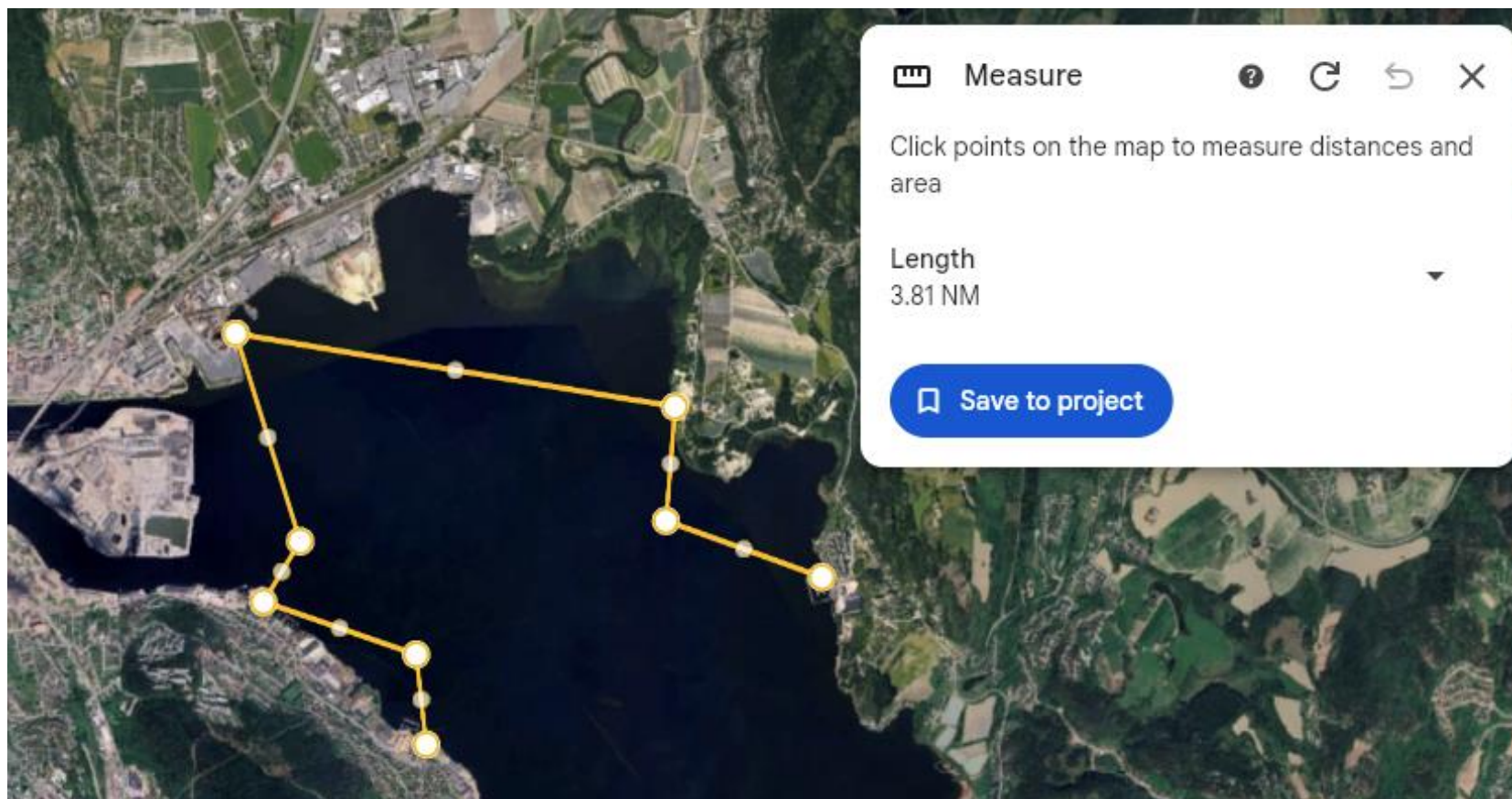
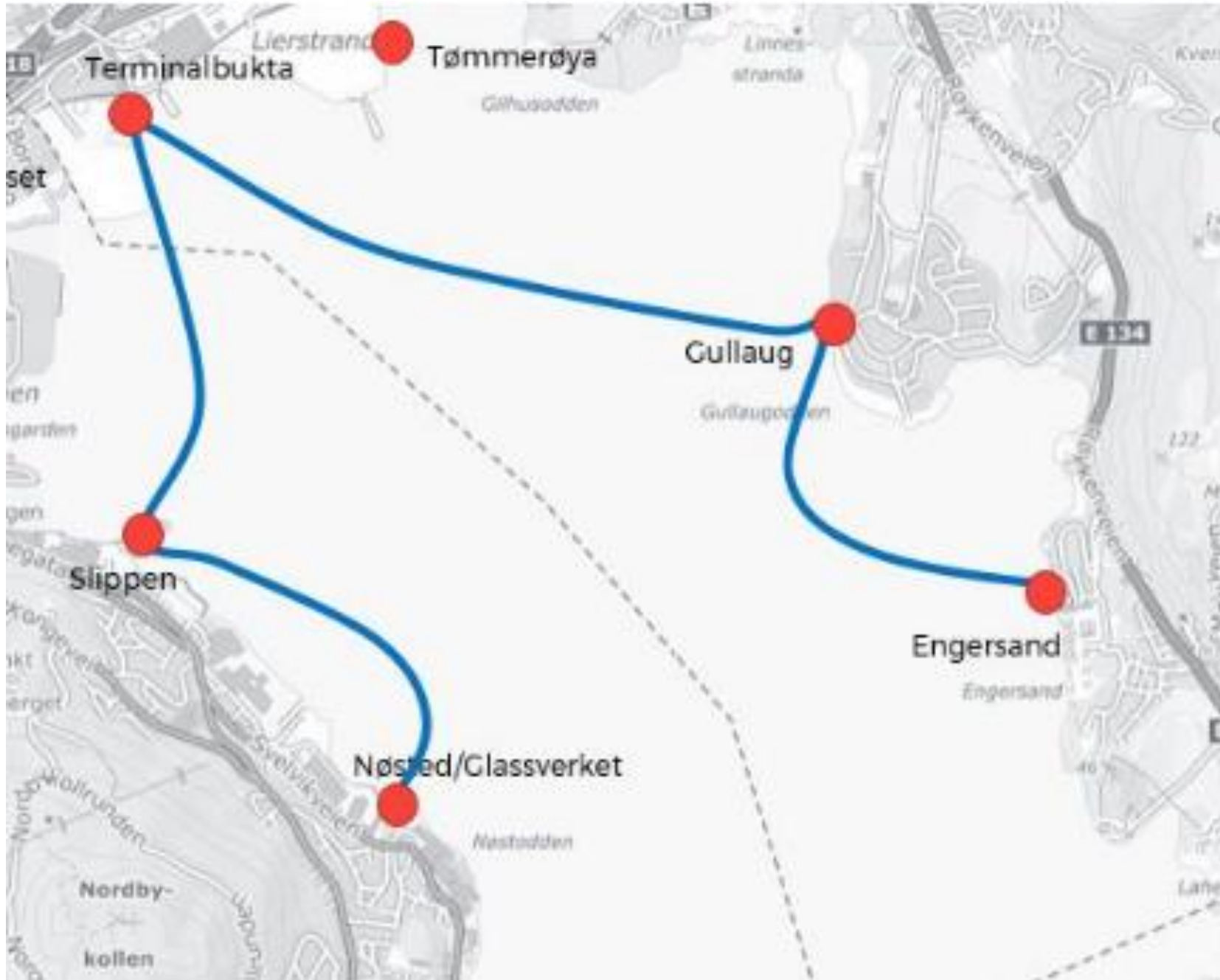
DAILY BREAKDOWN	Per boat	Total (x boats)
Departures/day one way	10,7	10,7
Number of passengers/day	256	256
Operating hours/day	9,6	10
Staff cost/day	€ 600	€ 600
kWh/day	422	422
Daily electricity cost (Euro)	€ 84	€ 84
Daily cost	€ 960	€ 960

YEARLY BREAKDOWN		
Departures/year	3 196	3 196
Passengers /year	76 712	76 712
Yearly operating hours/boat	2 877	2 877
kWh/year total	126 575	126 575
Yearly staff cost	€ 180 000	€ 180 000
Yearly electricity cost (Euro)	€ 25 315	€ 25 315
Service and maintenance cost/year/boat	€ 66 164	€ 66 164
Capex (Boat only)	€ 246 667	€ 246 667
Other (e.g. insurance cost, cost of jetty, charging points)		
Total yearly average cost (electricity + service+capex+other)	€ 518 146	€ 518 146

YEARLY PnL		
Yearly ticket revenue	€ 613 699	€ 613 699
Other yearly revenue (e.g. through procurement contract)		
Total yearly average cost (electricity + service+staff+capex)	€ 518 146	€ 518 146
Revenue - cost (electricity + service)	€ 95 553	€ 95 553
Profit	16%	16%

F2, Fjordruta

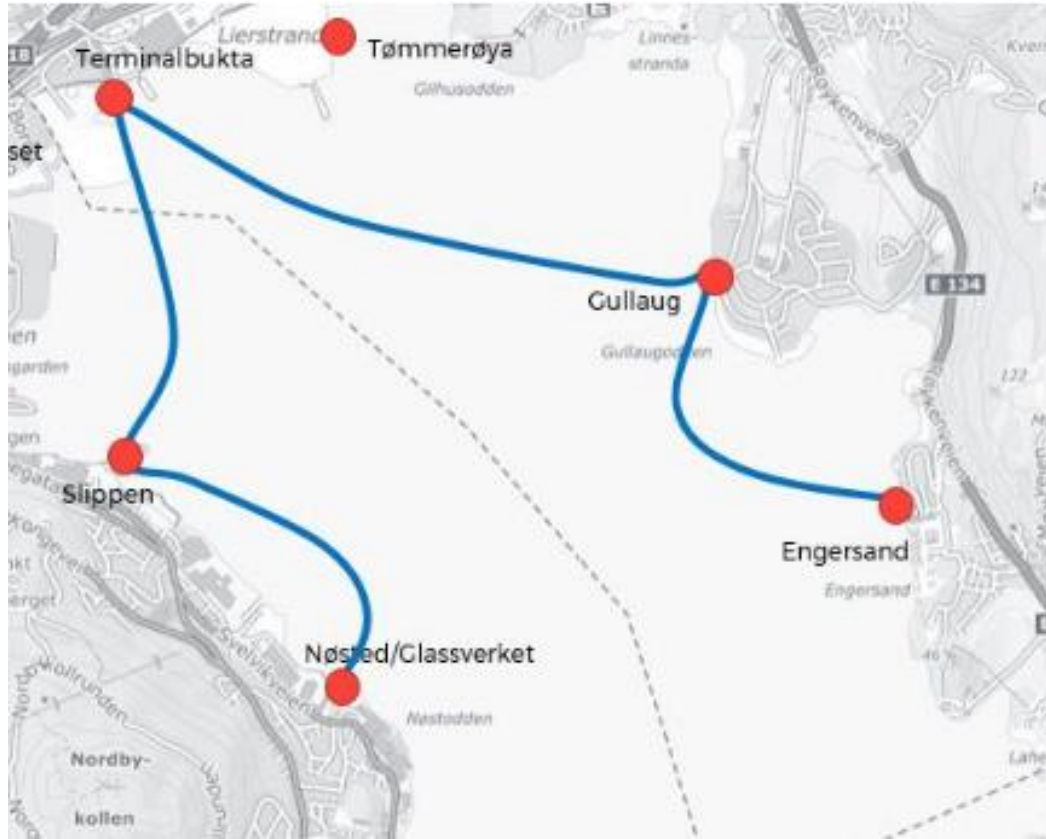
Engersand– Gullaug– Sykehuset/Terminalbukta – Slippen – Nøsted/Glassverke



INPUT	
Total distance (Nm)	3,8
Number of stops	4
Time per stop (min)	2
Total number of boats	1
Passengers	30
Operating hours/day	12
Operating days/year	330
Average occupancy	80%
Ticket price (Euro)	8,00
Cost/kWh (Euro)	0,2
Consumption kWh / Nm	8
Charging power (kW)	175
Average speed	20,0
Staff cost/hour/boat	50
Vessel price (Keur)	€ 2 500
Service and maintenance cost/hour	€ 23

F2, Fjordruta

Engersand– Gullaug– Sykehuset/Terminalbukta – Slippen – Nøsted/Glassverke



OUTPUT	
TIME	
Average distance between stops (Nm)	0,95
Average time between stops (min)	2,9
Time full run one way(min)	19,4
Time full run return (min)	38,8
Time one way inc charging for 1 way	32,6
CONSUMPTION	
Consumption between stop (kWh)	8
Consumption turnaround/stop (kWh)	2
Consumption inc docking (one-way) (kWh)	38
Number of runs (one-way) on one full charge	5,6
Number of runs (return) on one full charge	2,8
CHARGING TIME	
Charging time for one return trip (min)	13

PASSENGER CAPACITY AND DEPARTURE FREQUENCY	
Peak hour continuous operation w/o charging	
Departure per boats/stop/hour	3,1
Number of departures per hour all boats	3,1
Departure interval (min)	19,4
Number of seats per hour	92,8
Number of passengers per hour	74,2
Off peak with charging (all boats charging after 1 run)	
Number of boats/stop/hour	1,8
Number of departures per hour from destination	1,8
Departure interval (min)	32,6
Number of passengers per hour	44,2
ELECTRICITY COST	
Cost one way trip (EUR)	€ 7,68
Cost one way trip/passenger (occupancy) (EUR)	€ 0,32
Cost one way trip/seat (EUR)	€ 0,26

Comments:

- Route is very profitable with Candela P-12
- Only 13 min of charging is needed per trip
- The same vessels can be used in the river area in slow speeds

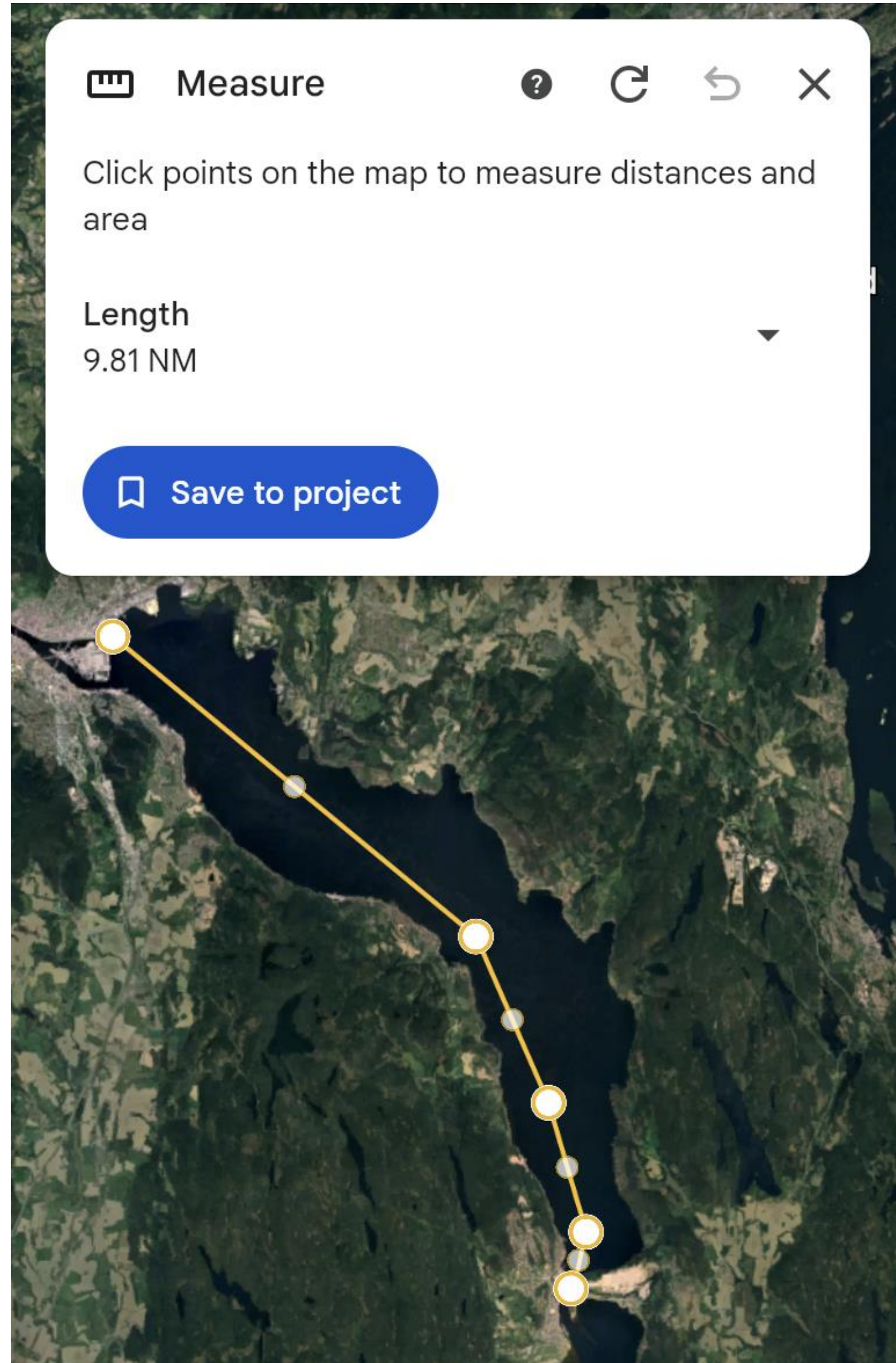
DAILY BREAKDOWN	Per boat	Total (x boats)
Departures/day one way	22,1	22,1
Number of passengers/day	531	531
Operating hours/day	7,1	7
Staff cost/day	€ 600	€ 600
kWh/day	849	849
Daily electricity cost (Euro)	€ 170	€ 170
Daily cost	€ 1 046	€ 1 046

YEARLY BREAKDOWN		
Departures/year	7 296	7 296
Passengers /year	175 104	175 104
Yearly operating hours/boat	2 359	2 359
kWh/year total	280 167	280 167
Yearly staff cost	€ 198 000	€ 198 000
Yearly electricity cost (Euro)	€ 56 033	€ 56 033
Service and maintenance cost/year/boat	€ 54 258	€ 54 258
Capex (Boat only)	€ 246 667	€ 246 667
Other (e.g. insurance cost, cost of jetty, charging points)		
Total yearly average cost (electricity + service+capex+other)	€ 554 958	€ 554 958

YEARLY PnL		
Yearly ticket revenue	€ 1 400 835	€ 1 400 835
Other yearly revenue (e.g. through procurement contract)		
Total yearly average cost (electricity + service+staff+capex)	€ 554 958	€ 554 958
Revenue - cost (electricity + service)	€ 845 877	€ 845 877
Profit	60%	60%

C1, Fjordruta

Sykehuset/Terminalbukta – Svelvik



INPUT	
Total distance (Nm)	9,8
Number of stops	1
Time per stop (min)	2
Total number of boats	1
Passengers	30
Operating hours/day	12
Operating days/year	330
Average occupancy	80%
Ticket price (Euro)	8,00
Cost/kWh (Euro)	0,2
Consumption kWh /Nm	8
Charging power (kW)	175
Average speed	25,0
Staff cost/hour/boat	50
Vessel price (Keur)	€ 2 500
Service and maintenance cost/hour	€ 23

C1, Fjordruta

Sykehuset/Terminalbukta – Svelvik



OUTPUT	
TIME	
Average distance between stops (Nm)	9,80
Average time between stops (min)	23,5
Time full run one way(min)	25,5
Time full run return (min)	51,0
Time one way inc charging for 1 way	53,1
CONSUMPTION	
Consumption between stop (kWh)	78
Consumption turnaround/stop (kWh)	2
Consumption inc docking (one-way) (kWh)	80
Number of runs (one-way) on one full charge	2,7
Number of runs (return) on one full charge	1,3
CHARGING TIME	
Charging time for one return trip (min)	28

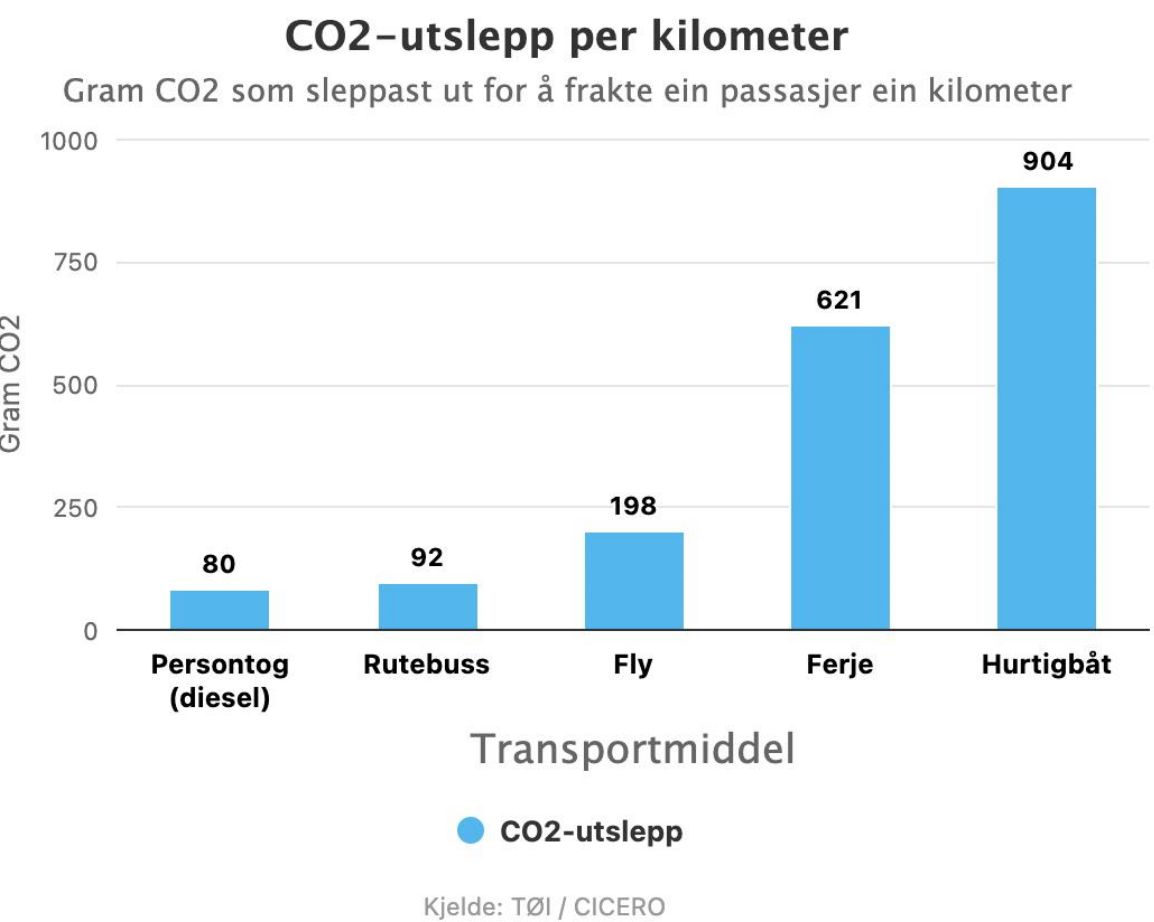
PASSENGER CAPACITY AND DEPARTURE FREQUENCY	
Peak hour continuous operation w/o charging	
Departure per boats/stop/hour	2,4
Number of departures per hour all boats	2,4
Departure interval (min)	25,5
Number of seats per hour	70,5
Number of passengers per hour	56,4
Off peak with charging (all boats charging after 1 run)	
Number of boats/stop/hour	1,1
Number of departures per hour from destination	1,1
Departure interval (min)	53,1
Number of passengers per hour	27,1
ELECTRICITY COST	
Cost one way trip (EUR)	€ 16,08
Cost one way trip/passenger (occupancy) (EUR)	€ 0,67
Cost one way trip/seat (EUR)	€ 0,54

DAILY BREAKDOWN	Per boat	Total (x boats)
Departures/day one way	13,6	13,6
Number of passengers/day	326	326
Operating hours/day	5,8	6
Staff cost/day	€ 600	€ 600
kWh/day	1 090	1 090
Daily electricity cost (Euro)	€ 218	€ 218
Daily cost	€ 1 094	€ 1 094

YEARLY BREAKDOWN		
Departures/year	4 476	4 476
Passengers /year	107 419	107 419
Yearly operating hours/boat	1 904	1 904
kWh/year total	359 853	359 853
Yearly staff cost	€ 198 000	€ 198 000
Yearly electricity cost (Euro)	€ 71 971	€ 71 971
Service and maintenance cost/year/boat	€ 43 785	€ 43 785
Capex (Boat only)	€ 246 667	€ 246 667
Other (e.g. insurance cost, cost of jetty, charging points)		
Total yearly average cost (electricity + service+capex+other)	€ 560 422	€ 560 422

YEARLY PnL		
Yearly ticket revenue	€ 859 350	€ 859 350
Other yearly revenue (e.g. through procurement contract)		
Total yearly average cost (electricity + service+staff+capex)	€ 560 422	€ 560 422
Revenue - cost (electricity + service)	€ 298 928	€ 298 928
Profit	35%	35%

Drammen 2026 – A Doable Near Future Scenario



Reservation of 3 Candela P-12 Vessels

First Pilot Boat to be delivered
Creates local and national attention
Decide on detailed route plans
Order of 2 more Candela P-12 Vessels

2 Additional vessels delivered
Total of 3 units, in Live operations.
Transporting 2000 people per day in Drammen

2 Additional vessels, total of 5 units, in Live operations.
Transporting 3500 people per day in Drammen. 9 000 Departures per year.
The additional fleet size allow Drammen to be the first region in the world offering water borne public transportation on Demand, off rush hour



Presentation at Drammen 2050

Candela P-12 Drammen 2026 – en mobilitetsrevolution

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