



Solar Fuelled Electric Maritime Mobility

Pilot project supported by the UN DESA as part of the Grant
Powering the Future we Want

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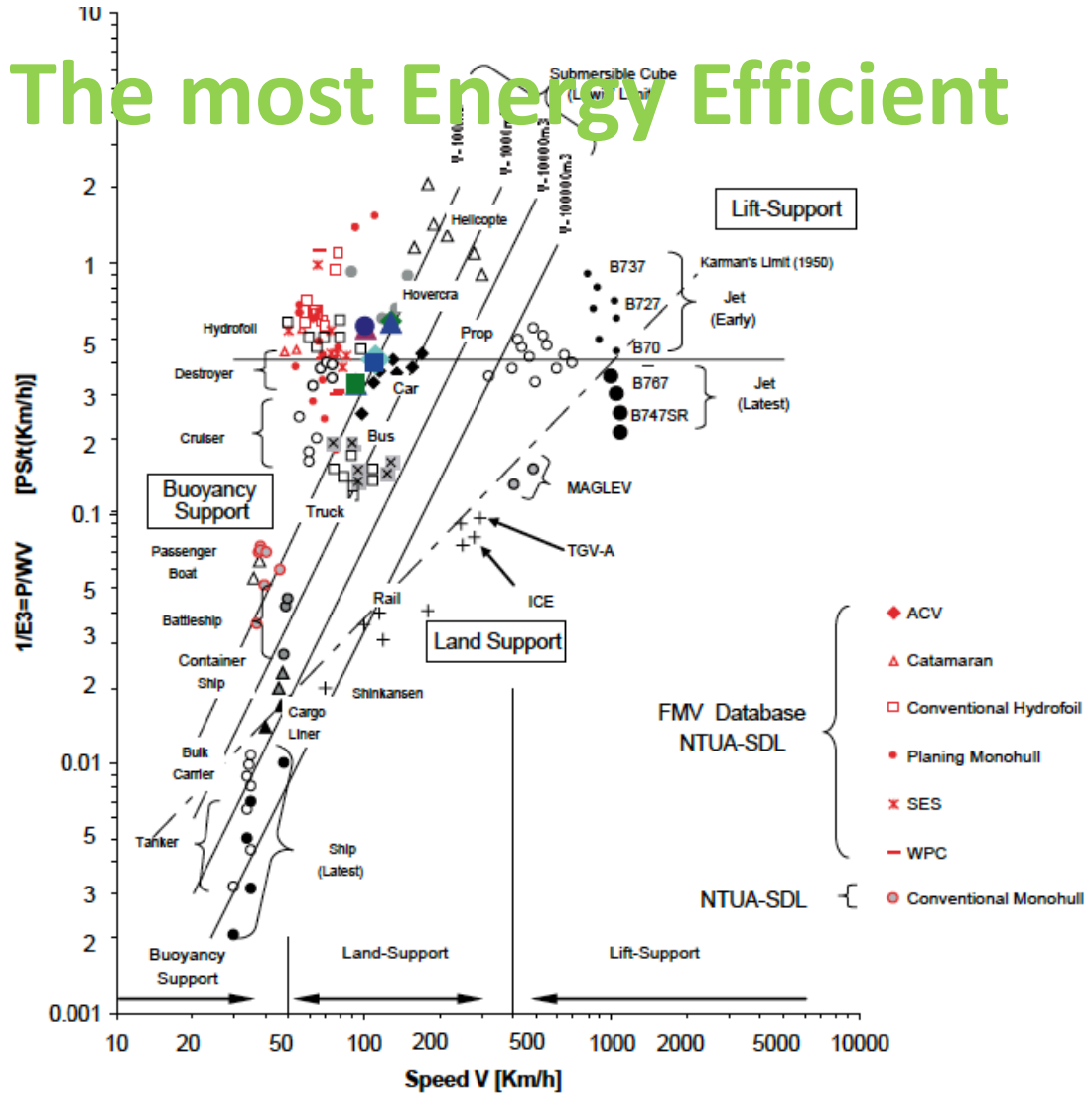
Project objectives

- Demonstrate a solar fueled maritime mobility
- Evaluate the economic viability in concept based on data collected from operation
- Evaluate the social impact
- Promote and disseminate project results.

Advantages of the maritime mobility

The most Energy Efficient

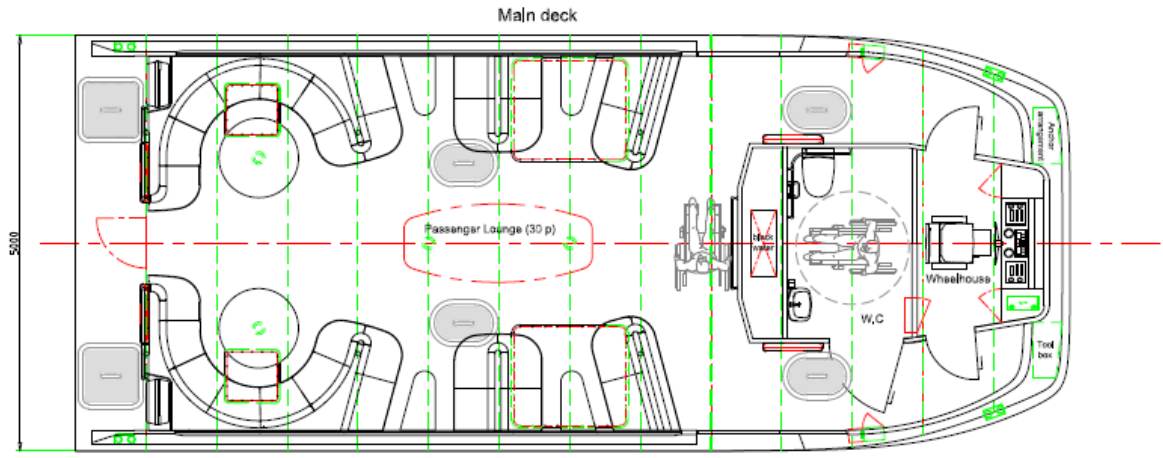
Limited need to infrastructure



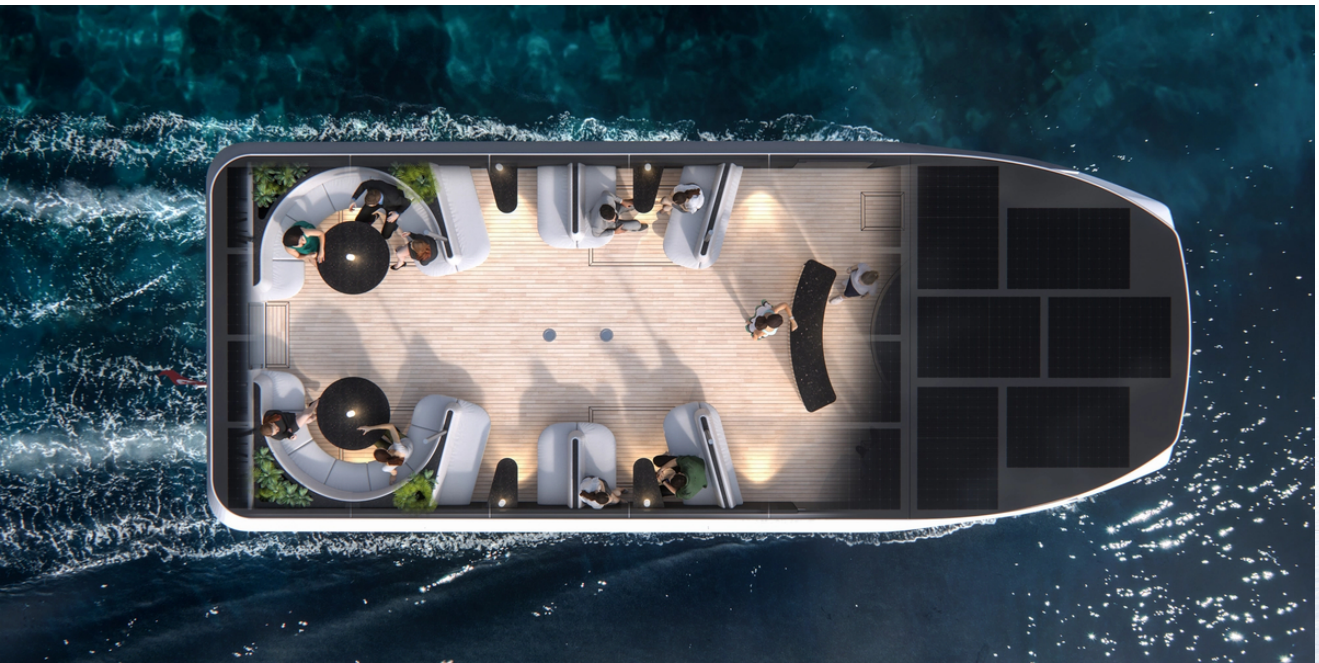
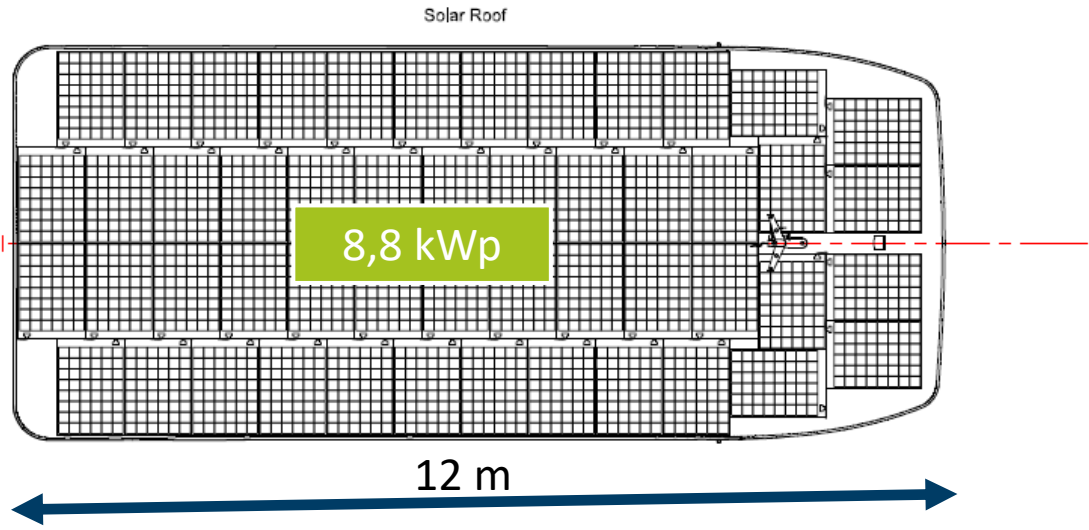
- 1 km 2 lines highway cost in the range 5 to 12 m euros (source: worldhighways)
- 1 km high railway cost in the range 5 to 39 m euros
- In congested areas, sea or river could be used as infrastructure for transport with very low cost.
- Speed of cars movement in cities is in the range of 10-30 km/h which is in the range of maritime transportation speed.

Fig. 1.2 Reciprocal transport efficiency of alternative modes of transport according to S. Akagi (1991); data supplemented by NTUA-SDL. (Papanikolaou 2005)

Boat design



5 m



Ferry operation

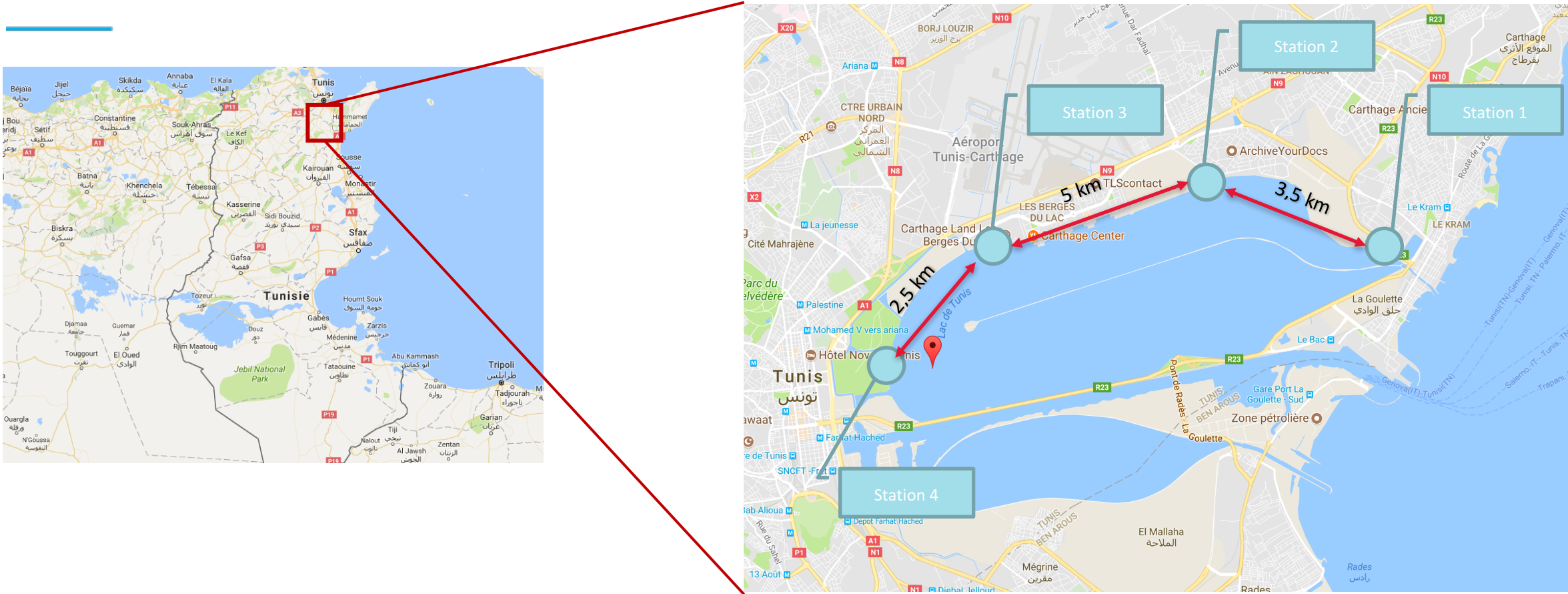


Figure 1: Proposed ferry station and routes.

Cost Benefit Analysis

- Compared to diesel powered ferry:
 - The battery pack adds an extra cost between 15 to 30%
 - Solar panels adds an extra cost around 3 %
 - Solar panels break-even ROI is around 3 years
 - Battery Pack break-even ROI in around 5-7 years (depends on the operational speed)
- ROI of extra cost the solar-electrification is around 5-7 years in the case of Tunisia and it varies based on location, operational speed and profile and local energy (fuel and electricity) pricing.



Technology for a better society