

SPEAR HYDRO

Unlocking
the energy
of rivers for
everyone

A renewable energy company
spearhydro.tech



PATENTS



GRANTS



AWARDS

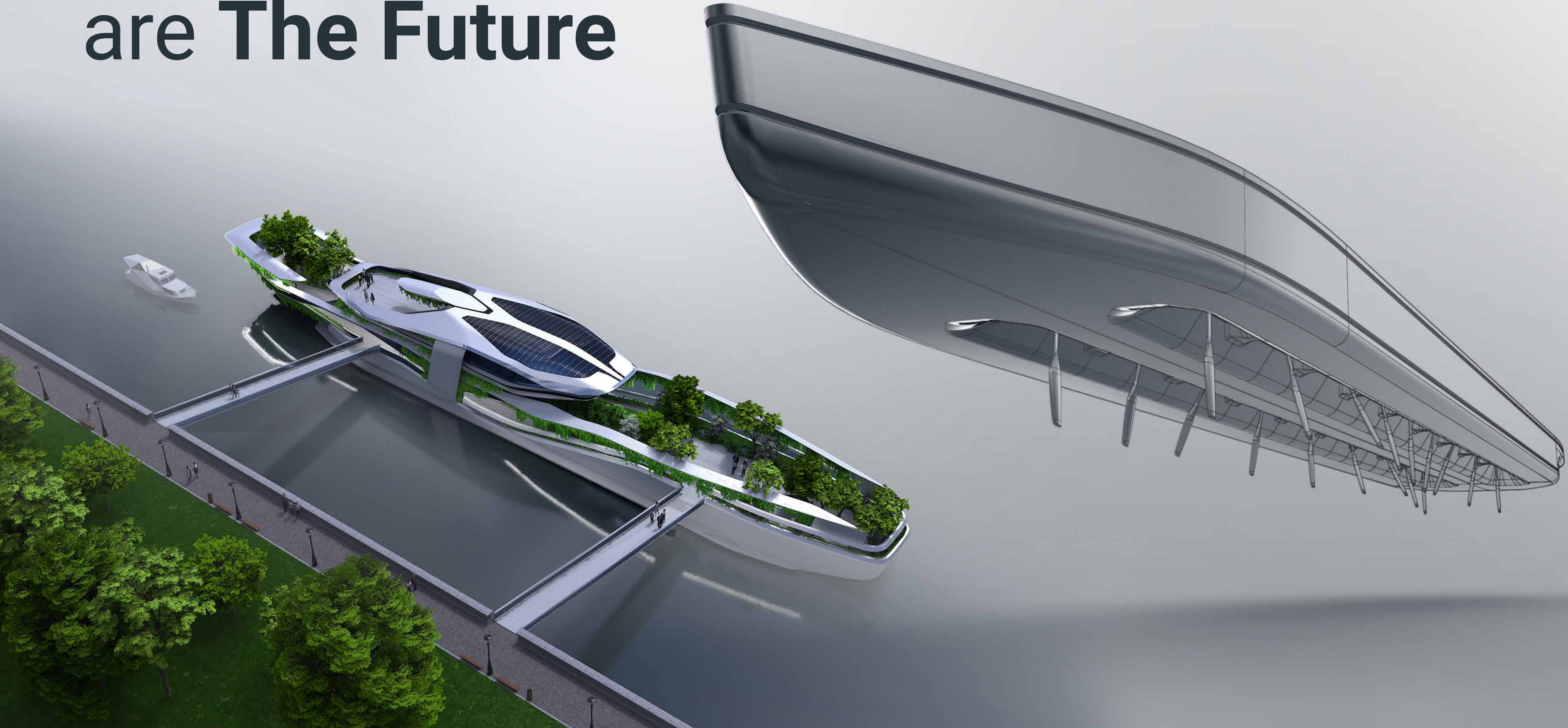


FEATURED



Renewables are **The Future**

SPEAR
HYDRO



Best Renewable is Hydro



Solar

- Weather dependent
- Requires large effective areas for deployment
- Generates heat islands in cities

Average capacity factor 25 - 35%



Wind

- Weather dependent
- Not suitable for urban areas
- Visually intrusive

Average capacity factor 20 - 35%



Small Hydro

- Impacts habitat and local ecosystems
- Blocks river traffic & natural flow
- Requires large infrastructure distant from cities

Average capacity factor 40 - 50%



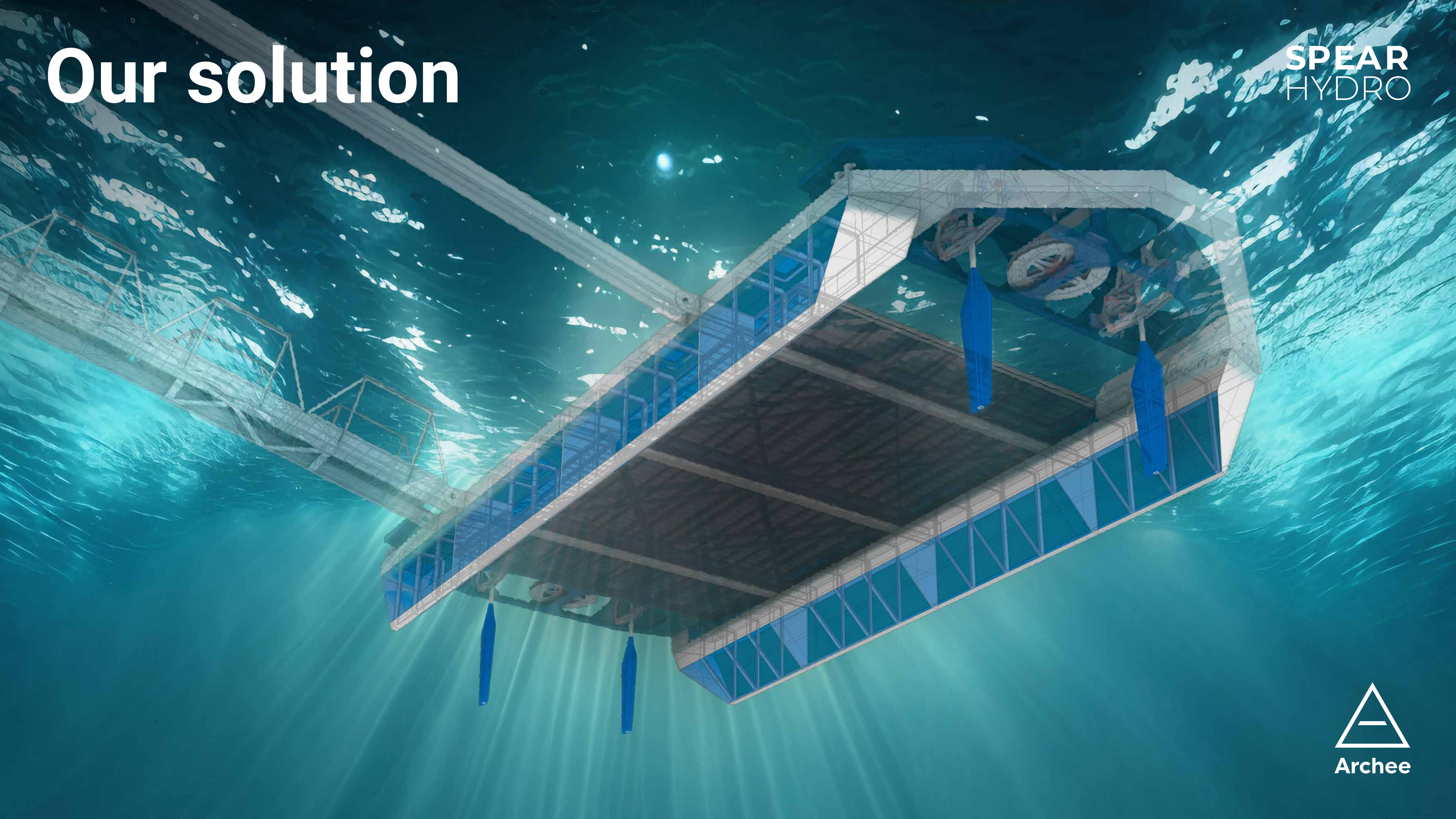
Free flow systems

- Solutions not market ready yet
- Small power generation <10 kW
- Do not support any real estate
- Development requires waterproofing of machinery

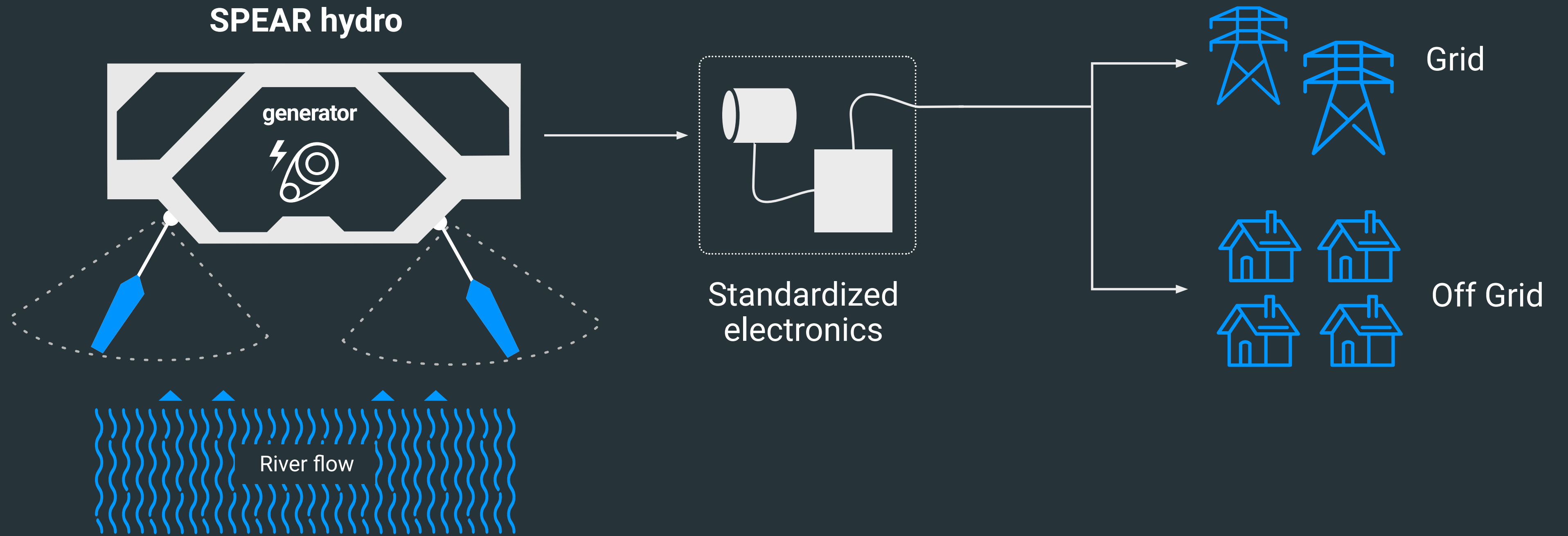
Average capacity factor > 50%

Our solution

SPEAR
HYDRO

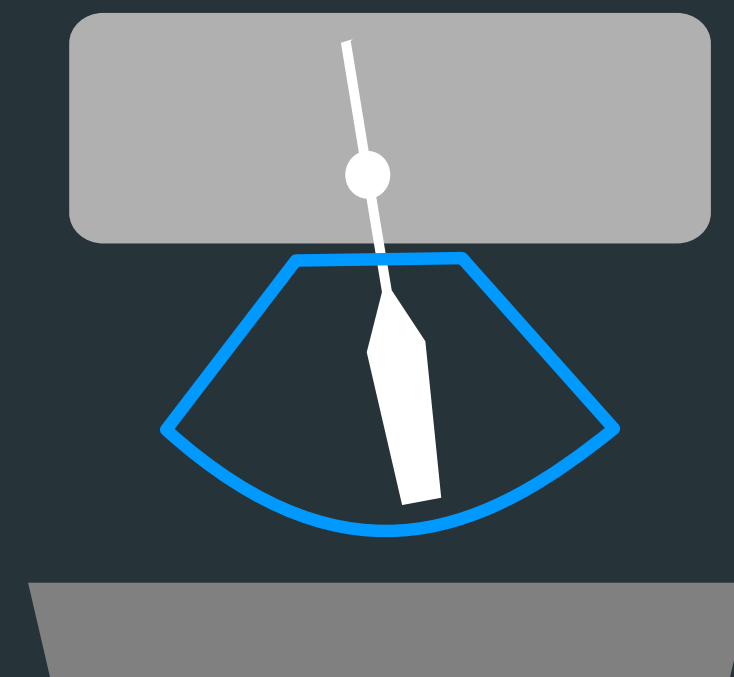


Technology



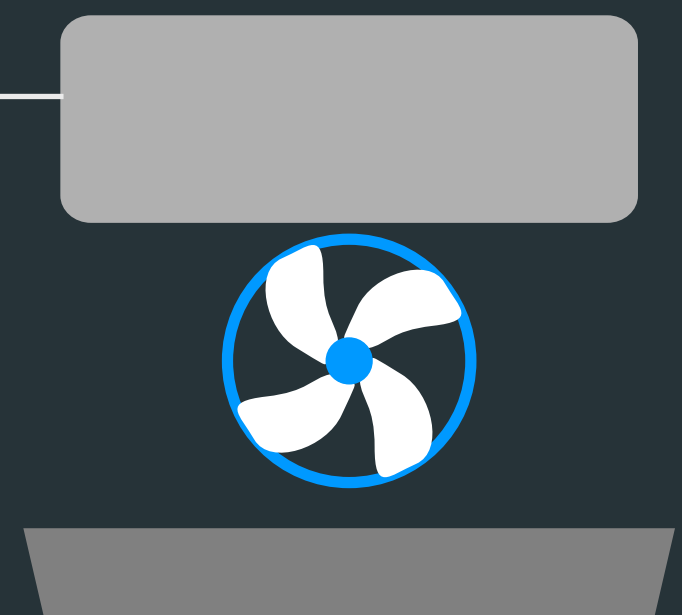
- First-of-its-kind solution.
- Suitable for urban centres.
- Open deck space available for real-estate.
- Cost effective production and maintenance.

SPEAR hydro fin



- | | | |
|---|---------------------|---|
| ✓ | Withstands debris | ✗ |
| ✓ | Safe for ecosystems | ✗ |
| ✓ | Effective area | ✗ |
| ✓ | No clogging | ✗ |

Standard propeler



Tested in Real-Life Conditions


15 kW

Power Output Model certified by:




x 10

Scaled prototype power output measured on the river Danube by the Slovak Academy of Sciences.



SLOVAK DESIGN AWARD 2021

MAIN AWARD NEW HORIZONS

 Ecofriendly Nanocoat:



 Impact Certification:




WIPO PCT
SINCE 2017




USA
GRANTED 2020




EU
GRANTED 2023



Team



Martin Sichman
CEO, Founder, Inventor



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CBO, Co-Founder,
Regulatory Affairs



Julia Molcanova
Chief Marketing Officer



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Business Development
Advisor
IPM



Mario Vircik
Financial and
Business Advisor
IPM



Marek Dorda
COO, Project & Grant
Manager



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Designer



Roberth Both
Shipbuilding
Engineer



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Machine learning, AI
KInIT



Peter Veres
Senior Power
Management Specialist



Antonin Samal
Engineer



Lubos Zalibera
Mechanical &
Electrical Engineer



Fedor Gomory
Electrical Engineer
Slovak Academy
of Sciences



Milota Sidorova
Urban & Smart City
Specialist

Advisory Board

Partners

BUSINESS PARTNERS



Municipal partner interested in our Smart City solution



Real estate developer ready to deploy SPEAR as part of the RiverPark II landmark project



Real estate developer ready to deploy SPEAR as part of the RiverPark II landmark project



Public port operator interested utilizing SPEAR for electrified berthing space



Advisory partner for grants and financing



Advisory partner for financing



Co-funding partner

R&D PARTNERS



Fluid dynamics and mechanics expert



Vessel Design and Hull Optimization



CFD Simulations, Power Output Physics



Hydrophobic and Biofouling Nanocoating development



Electrical engineering and measurements



Energy Data Analytics

MANUFACTURING PARTNERS



Hydro power manufacturing company



Shipbuilding, Heavy engineering and Construction

Market Potential

PRIMARY MARKET

Riverside real estate developers to power their buildings.

62.400 km of suitable river banks worldwide.

Aggregated market potential estimated at € 53.7 billion, go-to-market strategy aimed at early adopters on Rhine-Main-Danube waterway (est. at € 52.7 million).

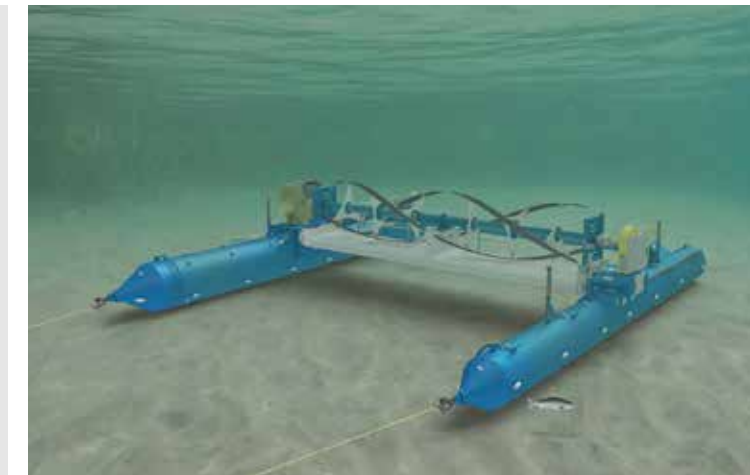
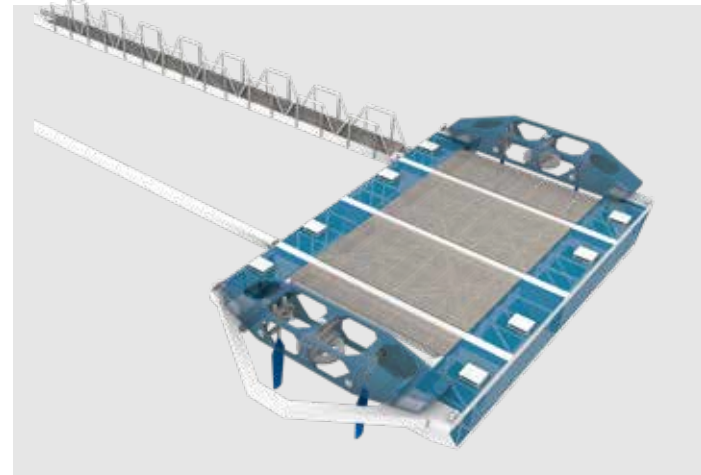
SECONDARY MARKET





Owners of anchored river vessels and berths for own electricity consumption and selling to the grid.

374.700 current and future vessel owners on suitable river banks.



Competition



Free-flow solutions comparison	SPEAR hydro AGIS	ORPC RivGen	Idénergie river turbine	Waterrotor
Market established product	no	partially	partially	no
Origin				
Power output in kW (nameplate capacity)	15 kW (at 2 m/s)	40 kW (22.9 kW at 2,25 m/s)	0.5 kW (0,23 kW at 2 m/s)	10 kW (at 1,8 m/s)
Price in EUR	€ 143 000	€ 1 106 600	€ 11 236	€ 48 000*
Price in € per installed kW at ~2m/s waterspeed	€ /kW 9530	€ /kW 48 320	€ /kW 22 742	€ 4 800
Technology applied	fins	rotor	rotor	rotor
Do the solutions address the following customer needs?				
• Clog-resistant	✓	✗	✗	✗
• reducing cost of electricity distribution	✓	?	✓	?
• low maintenance costs	✓	✗	✗	✗
• suitability for urban centres	✓	?	✗	?
• modular use of the deck	✓ 60 m ²	✗	✗	✗

The comparison is based on publicly available sources and Archee takes no liability for the accuracy of the data.

* Estimated price of product under development. Expected to be higher for a commercial product.

Go-To-Market



- Traction in both customer segments supported by LOIs from market leaders.
- First units to be deployed at landmark projects in Slovakia.
- Unique international consortium in R&D and manufacturing.
- Awarded grants, prizes, investor LOIs, media attention and goodwill.

Ready to demonstrate with us

CITY	REAL ESTATE	VESSEL OWNERS & PORT OPERATORS	CO-INVESTORS*
 <p>BRATISLAVA</p> <p>Capital of Slovakia</p>	 <p>CRESCO REAL ESTATE</p>  <p>JTRE</p>	 <p>verejné prístavy</p>  <p>RIVER'S CLUB</p> <p>LAYUCH</p>	 <p>VENTURE TO FUTURE FUND</p>  <p>QP ProPartners</p>  <p>cb ESPRI</p>

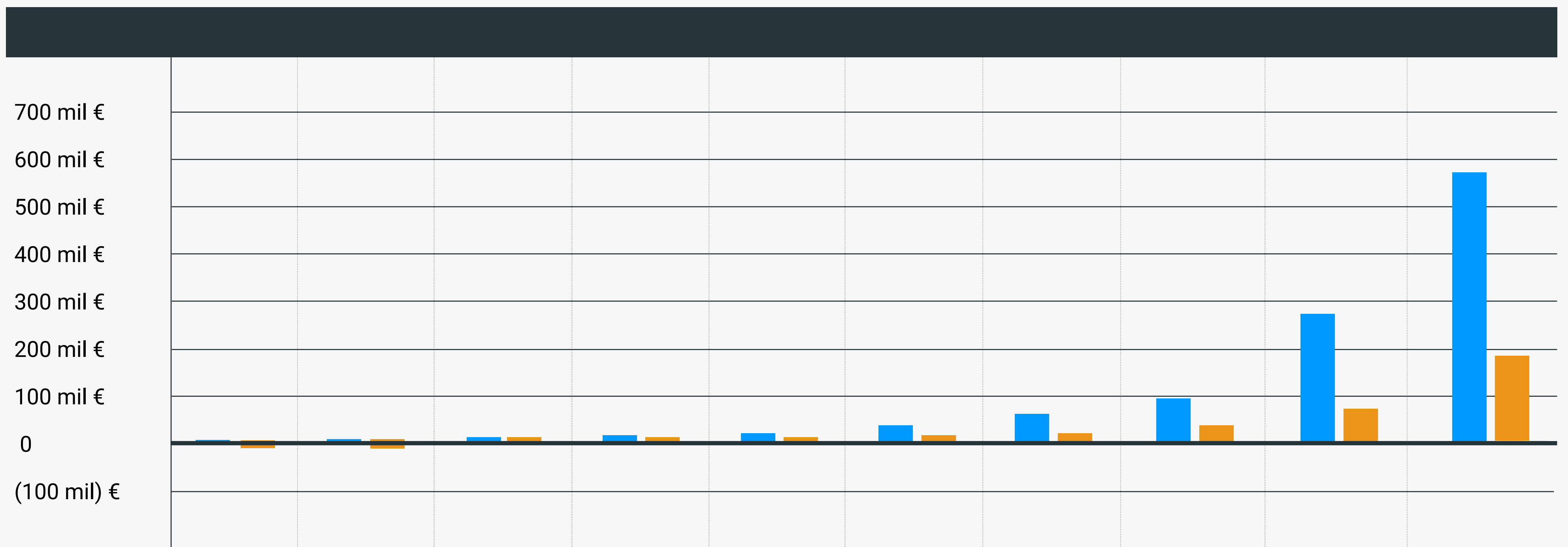
SIMPLIFIED ECONOMICS (per unit of SPEAR Agis)

For Archee	Unit Price	140,000 €	
	Margin	32,000 €	23 %
For Customer	Product lifespan (y)	25	
	ROI (y)	9	
	IRR	17 %	
	Lifetime Value Generated	827,000 €	

* Willing to consider co-investment based on signed LOI.

Financial Forecast

EBIDTA
Revenues



	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Revenues	-	253,000 €	1,433,000 €	4,104,000 €	10,251,000 €	21,164,000 €	45,260,000 €	101,562,000 €	237,873,000 €	580,252,000 €
EBIDTA	(937,000) €	(599,000) €	(1,262,000) €	(800,000) €	767,000 €	3,884,000 €	10,311,000 €	26,933,000 €	65,824,000 €	161,483,000 €
Units sold by Archee and Partners	-	1	9	25	55	110	231	508	1 168	2 803
Licensed production & sales	-	-	-	5	12	54	104	250	580	1 230

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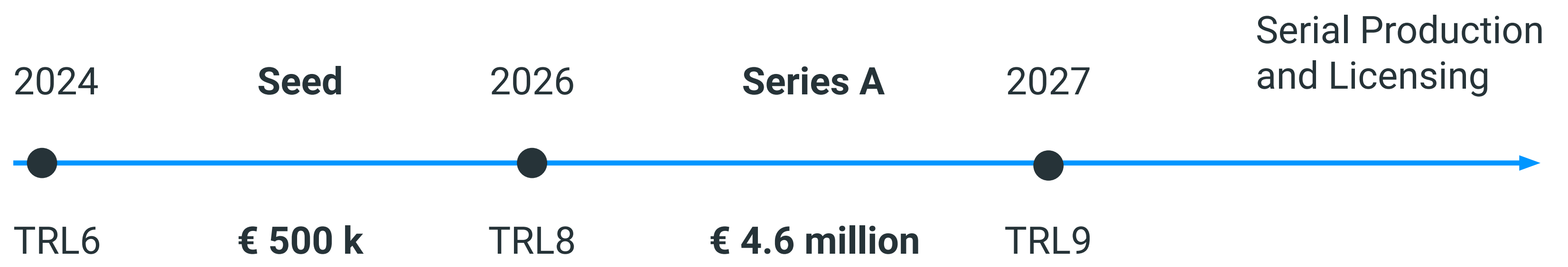


Ask

500 k €

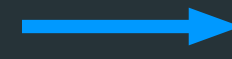
Use of the investment:

- Pilot deployment
- Optimization of the technology



Environmental Impact

1 SPEAR hydro AGIS

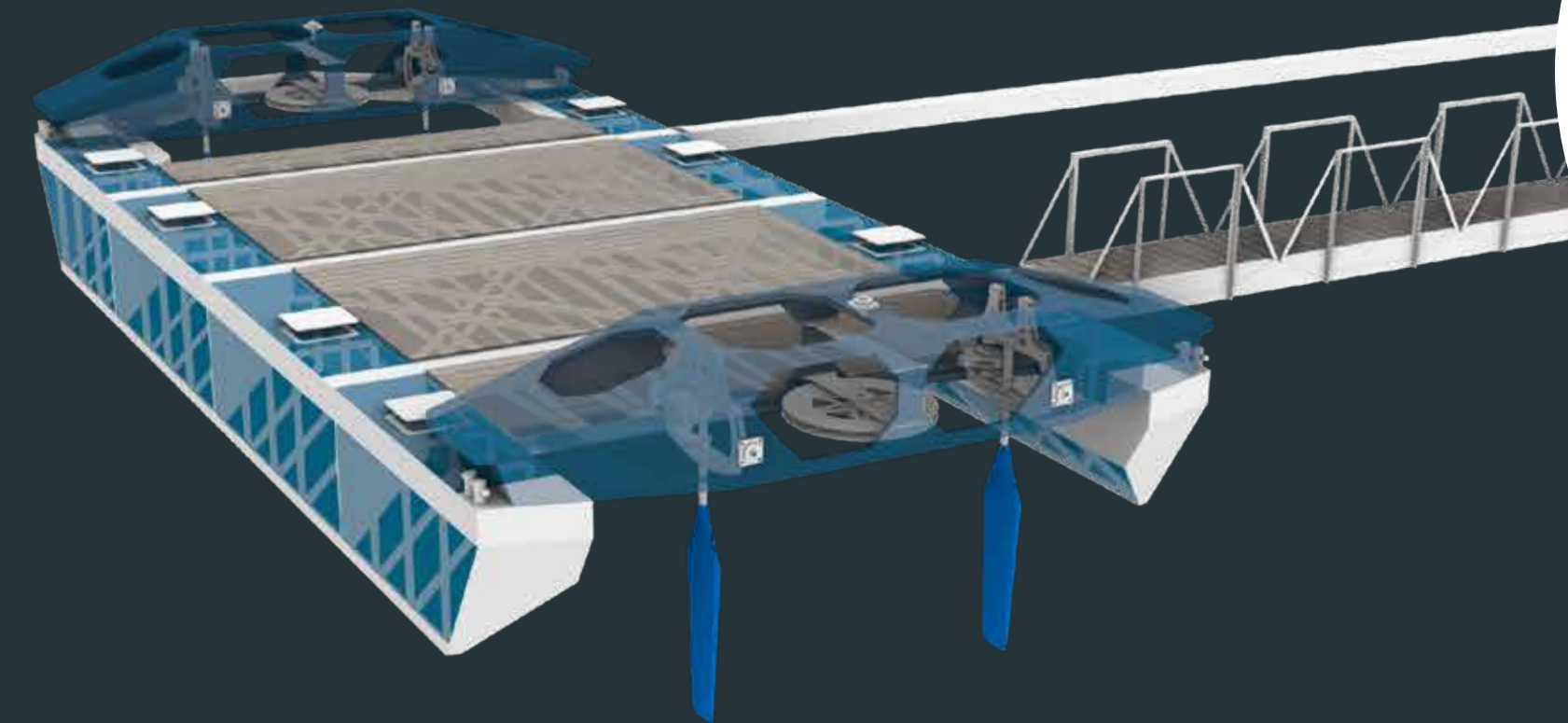


Saves
700 tons of CO²
in 10 years



Equals planting
300 trees
(0.25 sq km)

- ✓ Verified
- ✓ Certified
- ✓ Patented
- ✓ Recognized



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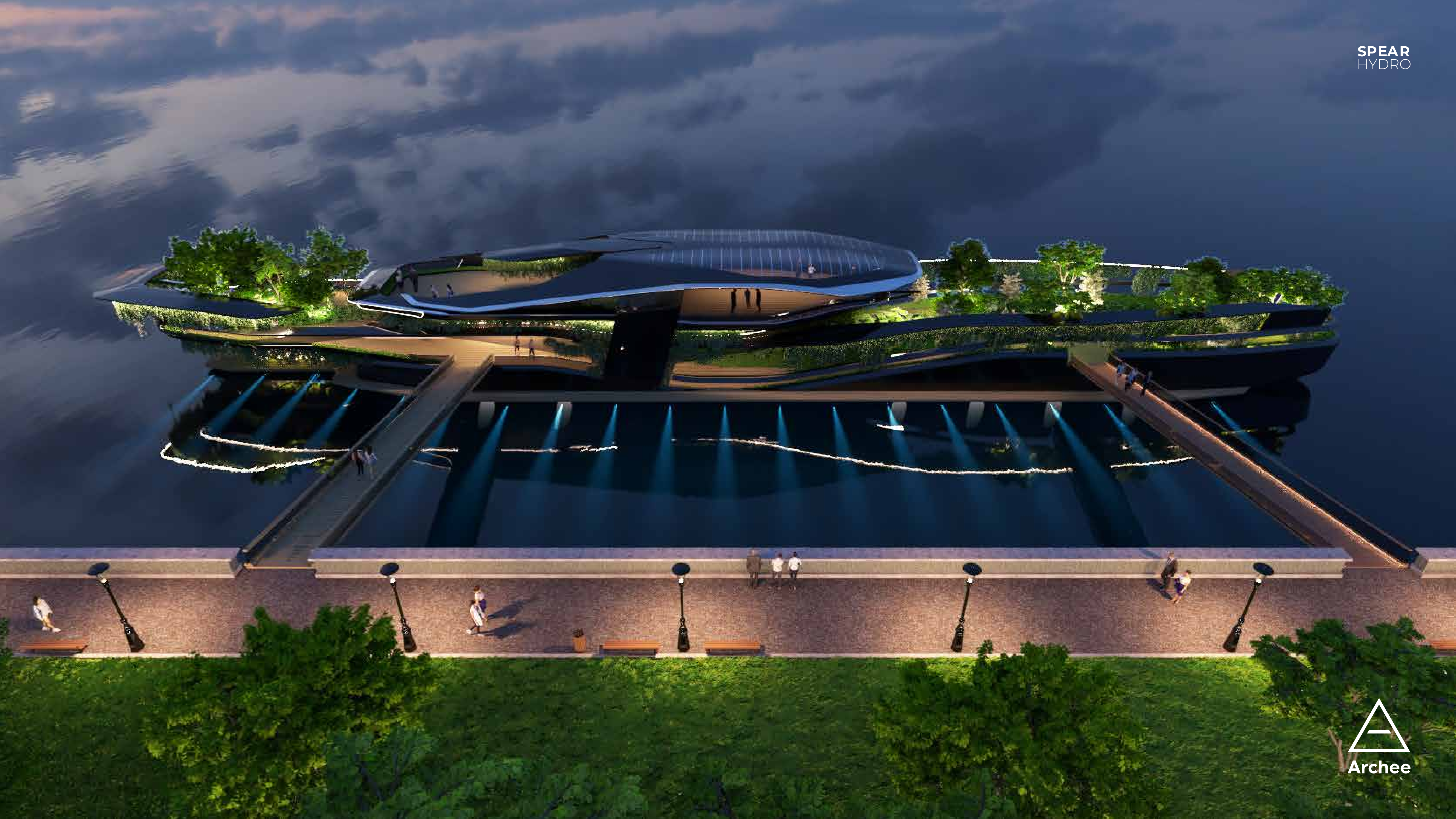


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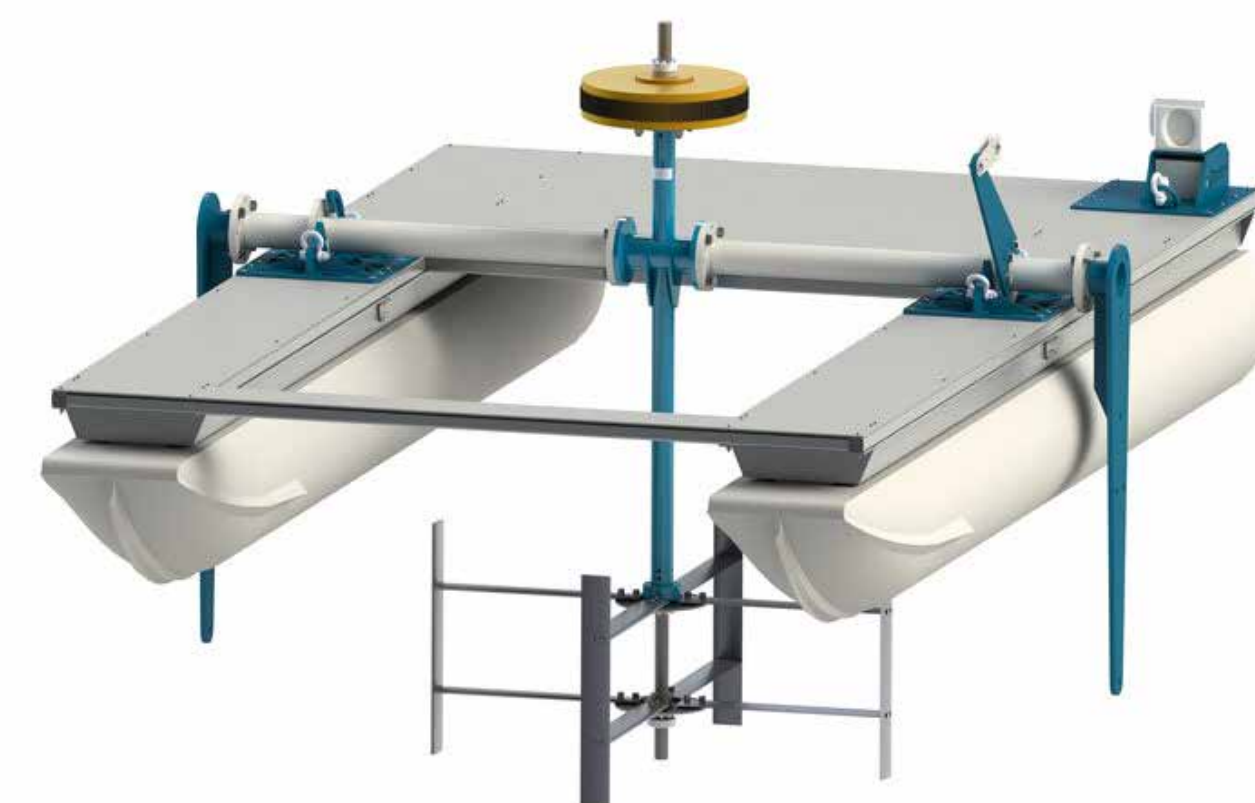
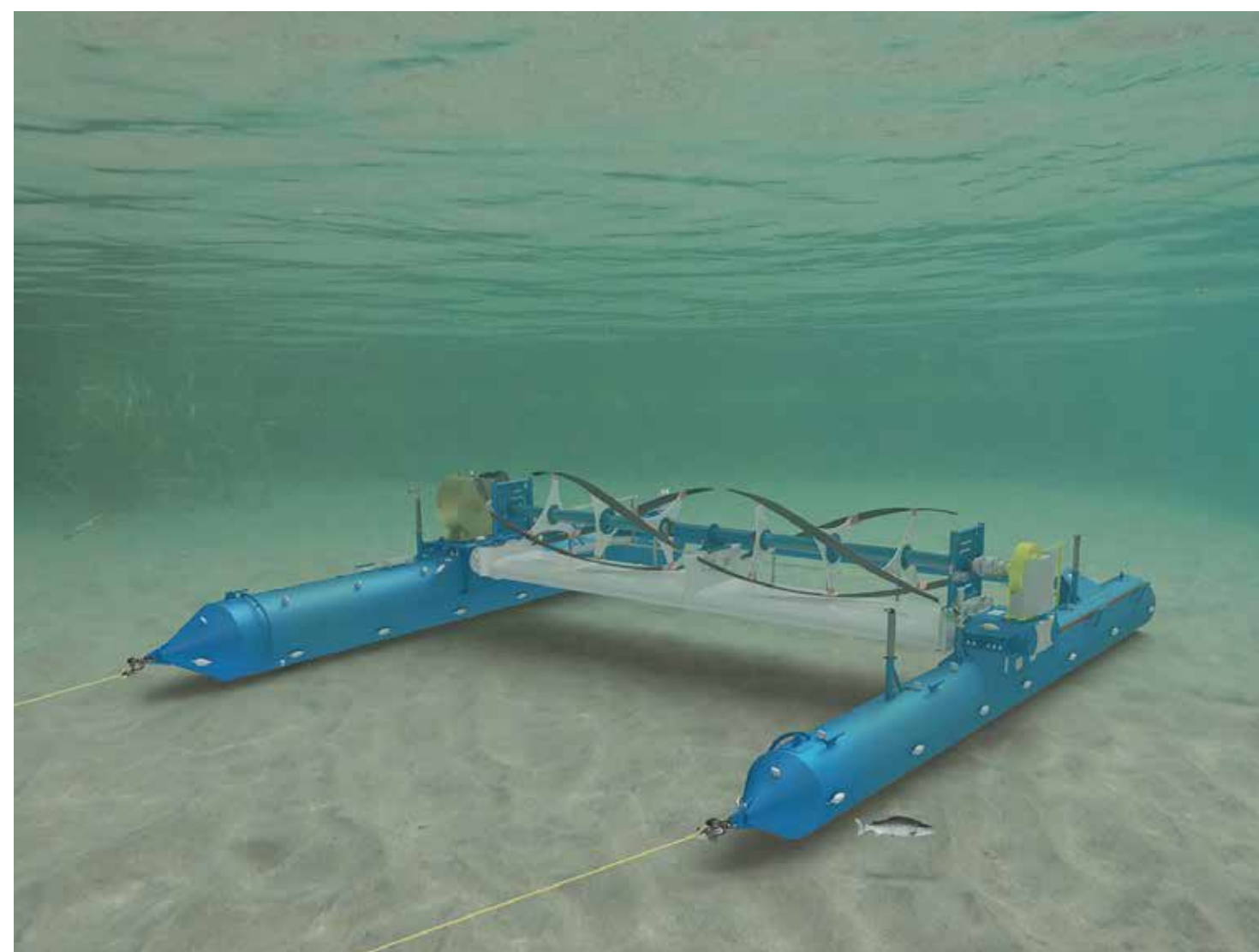


BACKUP



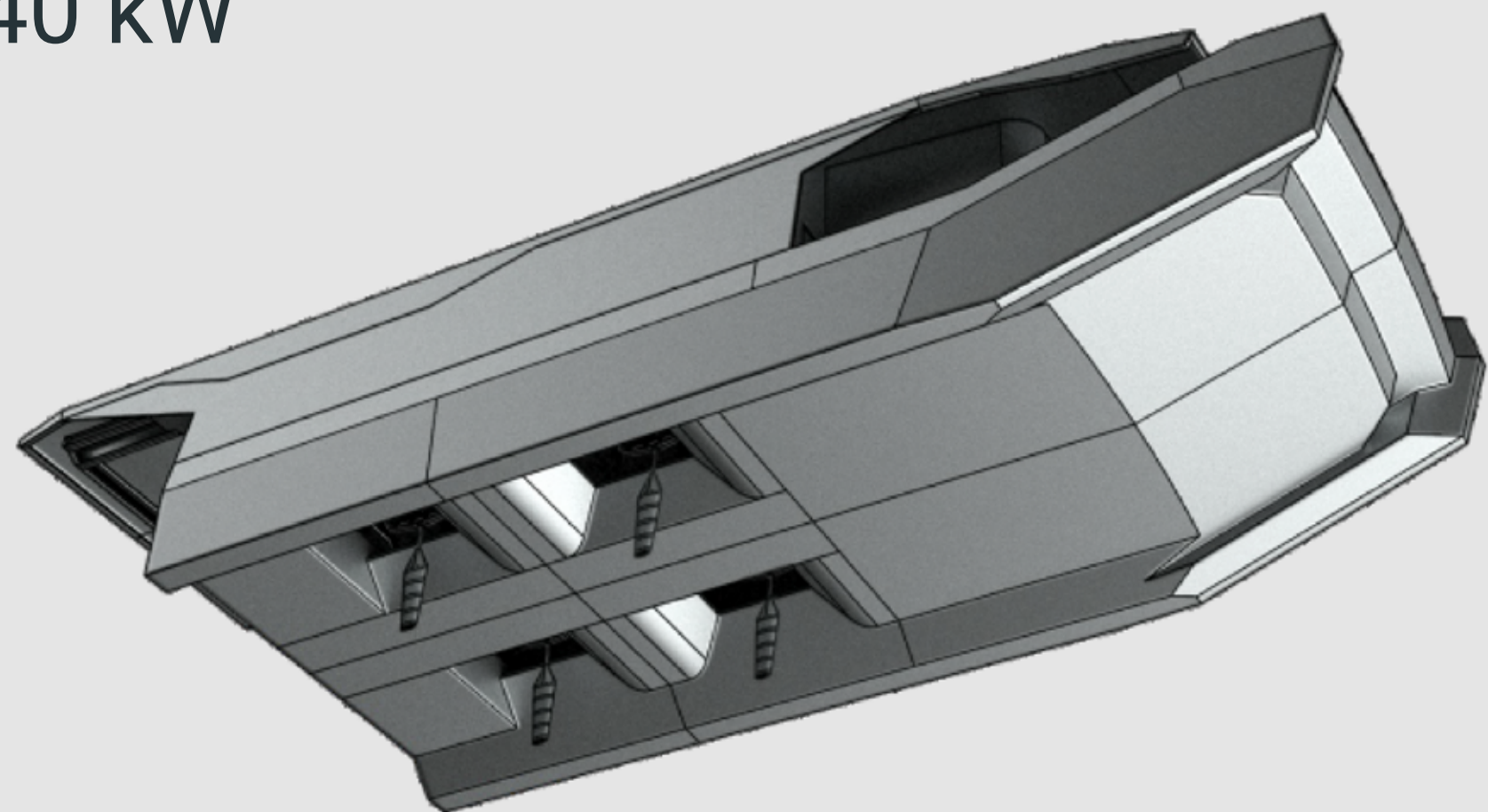


Experimental Free-flow Systems



SPEARhydro

Ares 40 kW

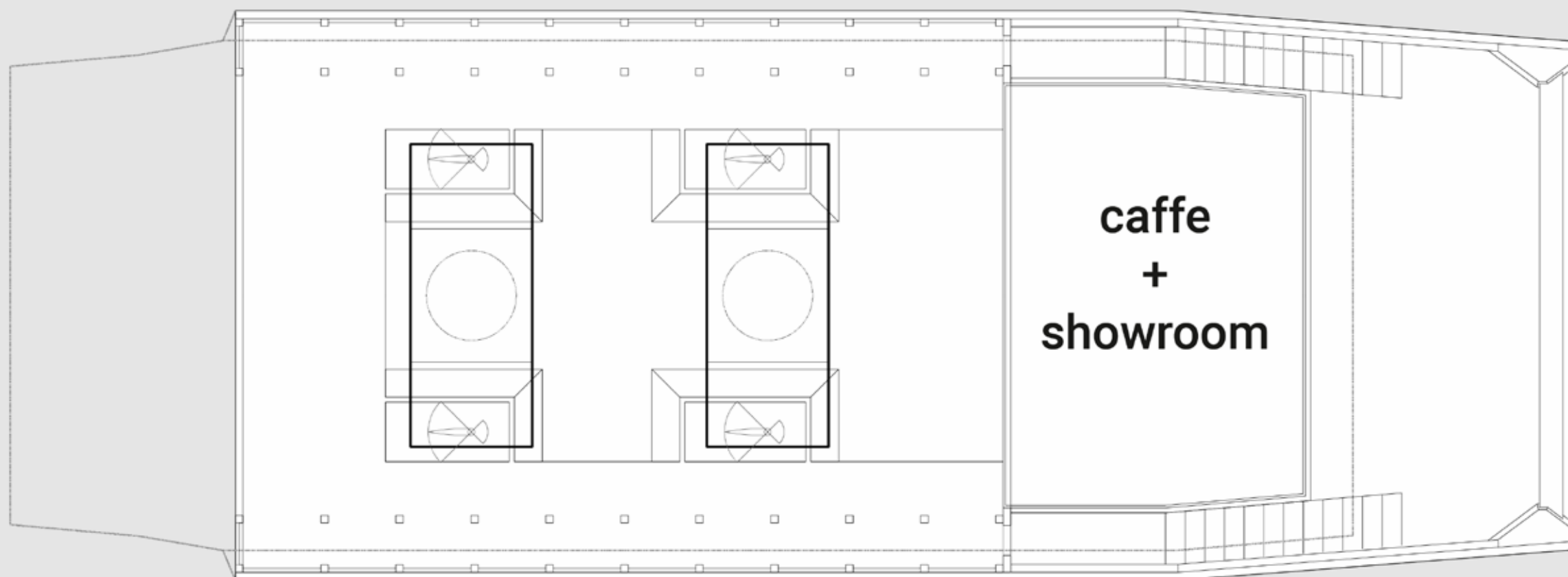


96 tons

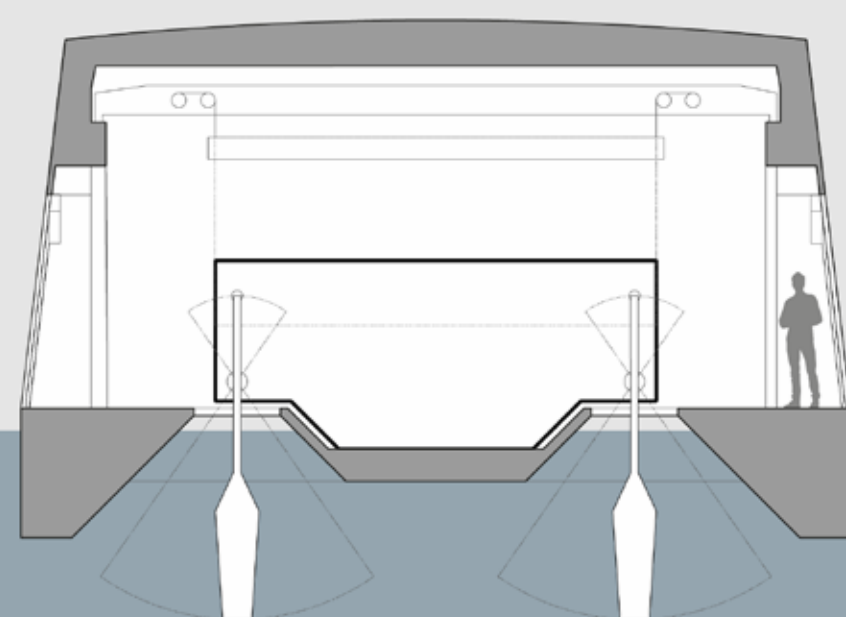
11.4 m

power output 40 kW

180m² floor space
not including powerplant



31.45 m



7.11 m

