

Partnerships for Horizon Europe: ideas for Smart Communities projects

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Dnipropetrovsk Chamber
of Commerce and Industry

ETC AVTOMATIKA

Project: Production and Implementation of Innovative, Eco-Friendly, Cost-Efficient Energy Storage Solutions for Solar/Wind Power in the Form of Ice – COOL ICE

ABOUT THE COMPANY: www.sakura.ua

We offer a new energy storage technology:

- High energy capacity
- Low capital expenditure
- Scalable to any size
- Transportable by land and sea



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The Problem

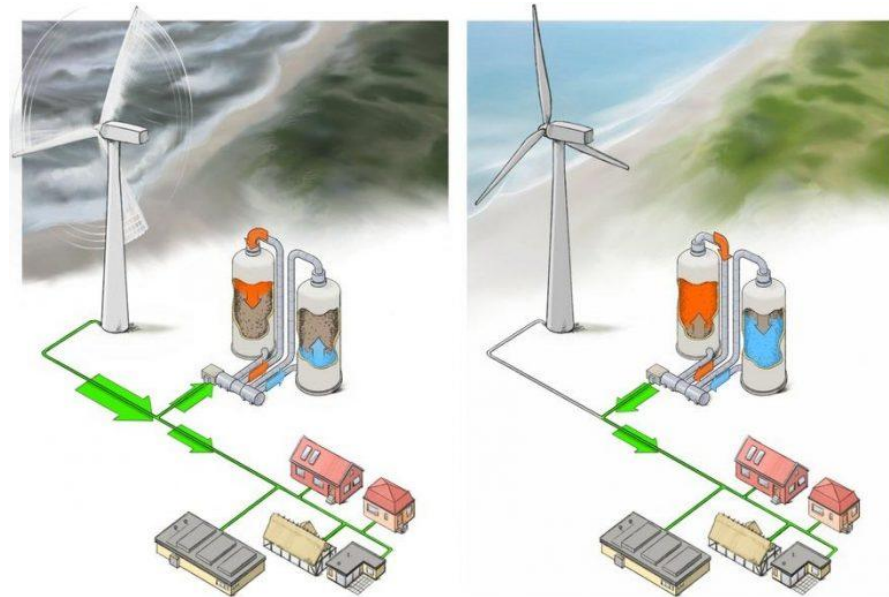
- Imbalance between energy production and consumption due to increasing use of solar power.
 - Electricity prices can drop to zero (for 400–1100 hours per year in some countries).
- ➔ This creates a critical need for energy storage solutions.



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Current Energy Storage Methods

- Compressed air, water reservoirs, hydrogen production, chemical/electrochemical batteries
- Lithium-ion batteries are widely used but expensive, low capacity, hazardous, hard to recycle
- Thermal storage: steam, hot water, chilled water, phase-change materials (PCMs)
- PCMs are used in HVAC and cooling systems but are not transportable
- Ice-based PCM is transportable, but current systems are expensive and low capacity



Our Solution: COOL ICE

We propose producing ice using standard or shock freezing chambers with our proprietary COOL ICE technology.

- Operates during energy surplus or night-time tariff hours
- Cost-effective and easy to integrate



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Who Needs Ice as a Cooling Source?

Cooling consumes up to 20% of global electricity.

Ice can be used for:

- Pre-cooling milk during milking
- Pre-cooling of vegetables, berries, and fruits at the place of their collection
- Brewing and wine fermentation
- Food storage and air conditioning

→ +2 to +7°C is sufficient – achievable through ice melting



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Business Model & Market Positioning

Business Model:

The technology is versatile in terms of monetization methods.

Costs:

Depend on the implementation objects, as the technology is delivered as an add-on product to existing ones.

Market Positioning and Future Development

- Searching for specialized partners to jointly implement pilot projects (including within international grant programs)
- Refining the technology and monetization methods
- Conducting thermal engineering calculations for all sections of the project
- Patenting the developed solutions
- Studying and identifying technical and regulatory barriers, and creating potential recommendations for the future ice market



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Environmental Impact

Over a 20-year period, the COOL ICE system significantly reduces CO2 emissions.

- ✓ Sustainable
- ✓ Eco-friendly
- ✓ Future-ready



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Social Impact

1. A truly innovative solution: cost-effective, easy to use, beyond current technologies.
2. Zero environmental impact at end-of-life – installations are safe to dismantle and dispose.



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Thank you!



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