

The Solar Wings of Icarus

Solar Wings of Icarus is a sculpture, a poetic utility that serves both as a source of energy for the community and as an aesthetic expression of Ikaria's mythological Greek island namesake, Icarus. It evokes the fate of Icarus who ignored his father's advice and soared too close to the sun and is a metaphor for the current climate change crisis as world leaders fail to heed the scientists' advice -- a strong parable with a contemporary environmental warning.

What are the components of the Solar Wings of Icarus?

- A highly visible public art installation on the Greek island of Icaria consisting of solar panels arranged in the form of Icarus' wings
- A multi-use public area (eco-park) integrated with the Solar Wings that provides an attractive site for cultural and other community activities, while emphasizing the theme of environmental sustainability
- A high-profile use for the electricity generated by the solar panels that promotes solar electricity and directly benefits the community by providing electricity for on-site activities

Solar Wings of Icarus brings together a unique and diverse constellation of elements

- Provides a world-class environmental art installation for Icaria's residents and visitors
- Raises consciousness about the global climate crisis
- Demonstrates the practical use of solar energy to help address that crisis
- Promotes broader decentralized use of solar energy on Icaria
- Provides a needed outdoor venue for artistic, cultural, and other community activities while maintaining a focus on its theme of environmental sustainability
- Enables and drives Icaria's sustainable development as an ecotourism destination with a creative cultural economy

About the Design, Scale and Location of the Installation

- The installation, as initially proposed, consisted of 54 solar panels, each approximately 6 ft (2 m) x 3 ft (1 m). The panels would occupy an area approximately 45 ft (14 m) wide by 37 ft (12 m) deep
- In view of the expansive size of the Lefkada site and its existing seating, we are exploring scaling up the size of the Solar Wings, and using the Wings to shade as much of the seating as possible... funding permitting
- The Wings will face south and be inclined at about 30 degrees from horizontal to maximize solar electric output
- The installation and its associated eco-park will be located just below Ikaria's main south-side coastal road, four km southwest of Agios Kyrikos, the island's principal city, and two km west of the village of Xilosirtis

- The site was originally developed (around 2010) as an amphitheater for ceremonial events associated with a marathon run, but has been unused for several years
- The site’s rural location will not significantly impact usage, since Ikarians are highly mobile, and regularly travel up to two hours for social and cultural events
- The site belongs to the municipal government, and is available for the project
- The island of Icaria is about 25 miles (40 km) long and 8 miles (13 km) wide, and has approximately 8,000 residents. It is known as a “Blue Zone” tourist destination

About the Associated Eco-Park

- An eco-park is a public outdoors space that respects natural ecosystems and encourages visitors to relate to their surroundings in an ecologically sustainable manner
- The eco-park design will focus attention on the Solar Wings, supporting the project’s goal of raising consciousness about environmental sustainability
- The facility will provide a venue for local cultural activities, such as theater, concerts, dance, and the community social gatherings (pangaea) so popular on Icaria
- Local residents have proposed introducing a weekly farmers’ market and an annual Earth Day festival
- The project will work with local residents to develop an activities committee to assure effective use of the facility
- The existing amphitheater site provides a flat area sufficient for the activities envisioned, as well as a modern seating structure for an audience of 500 people

Who Are the Stakeholders in the Solar Wings of Icarus?

- **Local residents** who want more public art in their daily lives, to enhance their local identity with an attractive and useful venue for social and cultural activities, and to be culturally active participants in the European and world communities
- **Local government** is committed to developing a stronger environmental focus, including pedestrian and bicycle pathways and promoting ecotourism. This project would represent a major achievement, as well as a source of pride. The municipality of Agios Kirykos has offered the use of public land for this installation
- **Greek renewable energy advocates**, in both the public and private sector, see the project as a valuable tool for drawing the connection between the climate crisis and the urgent need to transition to renewable energy
- **The Greek diaspora** remains culturally and socially connected with its homeland, and is aware of the fires and other climate-based threats Greece now faces. The opportunity to address climate change through promoting renewable energy, in the framework of a poetic-utilitarian sculpture on Icaria and the associated, highly relevant Icarus legend, is extremely appealing

Local Community Response to the Project

- During last summer's initial visit to Icaria, Marti Elisavette Sousanis introduced the project concept to local residents and municipal officials. She encountered overwhelmingly positive support, including offers of participation from a broad cross-section of the Icarian community
- The prospects of a new cultural and social venue at the Lefkada site have been enthusiastically received by local residents
- The municipality of Agios Kirykos has assigned Vice-Mayor Nikos Kalamaras liaison to the project, and has offered municipal property for the installation
- Local technical participants include Emmanuel Xenakis, a solar and electrical contractor who is currently working on site planning
- Resident Natalie Hage summed it up: *"Please continue chipping away at this project until you and your team have sculpted that which you intended upon arriving to Icaria. If not for your original purpose of giving electricity back to the island; if not for your environmental intentions; if not for the artistic value, please succeed for the future of this island. Do it for the children. Let them see what can be done with an idea, nature and art. These wings would represent a world of possibilities to the children."*
- Former Icarian teacher and resident Stella Biliali says: *"From the dark blue Aegean Sea, the Myth of Ikarus comes to the light in the form of Art, while it is harmoniously placed on a hillside of Icaria. In my view, the "Solar Wings of Ikarus" equals to a landmark that along with its environmental message it will always remind Ikarians and visitors that we should keep flying higher and higher to the open sky, daring to reach a lost once, yet not an impossible dream! In this spirit, I strongly support the "Solar Wings of Ikarus" made by Mr. Buster Simpson, an internationally recognized artist, but mostly, I call you to give to your inner Ikarus a second chance to fly to the light!"*

On the Use of Solar Electricity Generated by the Installation

- The installation, as currently proposed, consists of 54 panels with an output of 350 Watts each, for a total output of approximately 18kW in full sunlight
- The yearly output will be about 30,000 kWh, worth about \$4,500 at current local prices
- The electricity will be used in a way that is highly visible, educates the public about solar electricity, and results in a maximum of positive environmental impact
- The electricity will be used primarily for activities in the eco-park
- A grid connection will provide electricity for nighttime cultural activities; the cost of this electricity will be offset by unused solar electricity generated by the wings
- Net surplus energy generated will be used to reduce the municipality's electric bill, potentially freeing up municipal funds for site maintenance

Dedication

*This project is dedicated to the people of Icaria, who have taken it to their hearts,
-and to-*

*Thanasis Maskaleris, 1930 - 2017, professor, lecturer, poet, author,
environmentalist.* Born in Greece, Thanasis Maskaleris emigrated to the United States and remained a lifelong champion of Hellenism as he pursued an outstanding career in the world of culture and higher education. Among Professor Maskaleris' many awards and accolades, the most prestigious is the Hellenic Republic's Order of the Phoenix, Greece's highest civilian honor. He is remembered as a highly respected pillar of the Greek community, both in the US and Greece, a beloved teacher and mentor and an inspiration to all who knew him.

Thanasis' poem *Unnatural Tumbleweeds*, excerpted below, embodies the spirit of the Solar Wings sculpture and will be memorialized in the installation:

*But now, in this troubled Spring, on the same Aegean shore,
I turn my back to the once magic slope,
trying to block off, as in a nightmare, the new tumbleweeds—
plastic bags, billowing in the wind, descending on the littered shore...*

*Will Persephone continue to bring
Her green Spring to our choking earth?*

Preliminary Timeline

Phase 1: Design and Planning

- June 2022: Initial site visit
- April 2023: Second site visit
- April 2023: Selection of site for the installation
- July 2023: Initial eco-park planning
- October 2023: Third site visit
- October 2023: Conceptual design of mounting structure
- November 2023: Engineering of mounting structure

Phase 2: Implementation

- April - May 2024: Fabrication of mounting structure
- April – June 2024: eco-park construction and landscaping
- June 2024: Installation of mounting structure
- July 2024: Installation of panels

Project Participants

Core Project Team

Buster Simpson, Artist

Buster Simpson, a leading environmental installation artist, active since the late 1960s, has deployed an aesthetic which embraces *poetic utility* in the public realm. He has worked on major infrastructure and planning projects, site specific sculptures, museum installations, and community interventions. Humor and rich metaphors distinguish his work, with many of his deceptively simple sculptures offering social and ecological engagements, and solutions to real problems.

Simpson received his MFA in 1969, and later, the Distinguished Alumni Award in Architecture and Design, from the University of Michigan. Simpson is a recipient of numerous awards, among them, NEA fellowships and the Americans for the Arts Public Art Award in 2009. In 2013 the Frye Art Museum in Seattle mounted a major retrospective of his work. In May of 2015 and 2016, Simpson conducted *Rising Waters*, a climate-disruption confab of artists and scientists, at the Robert Rauschenberg Foundation on Captiva Island in Florida. Simpson has exhibited at The New Museum, MoMA PS1, Seattle Art Museum, Frye Art Museum, The Hirshhorn Museum in Washington, D.C., and San Francisco's Capp Street Project. Present public works commissions in progress include: Anthropocene Beach on the Seattle Waterfront, a social and ecological amenity that accommodates a rising sea level, and a major ecological piece for the Sound Transit Light Rail Station.

Marti Elisavette Sousanis, Concept Originator, Author, and Organizer

Marti Elisavette Sousanis brings a unique combination of creative vision, organizing skills, and a Greek cultural base to the Project. She is a first-generation Greek-American, speaks fluent Greek, and made strong connections in the Icarian community when she led the initial Solar Wings of Icarus outreach mission on the island. Her entrepreneurial work has included founding a cooking school and several innovative small businesses. She has been a lifelong activist in environmental and social issues, and holds a Bachelor of Arts degree in Art and Cultural Communications from San Francisco State University. A published Book-of-the-Month Club author, she wrote *The Art of Filo Cookbook* and has written for many California magazines and newspapers, among them *San Francisco Magazine*, *The San Jose Mercury News* and *Bay Food*. She is currently writing her next book.

Jon Katz, Technology Consultant

Jon Katz has an academic background in physics. He has dedicated the past 25 years to helping rural developing-world communities create their own environmentally benign, low cost, socially sustainable electrical and telecommunications infrastructure. He specializes in micro-hydroelectric based mini-grids and has extensive experience with photovoltaic systems and long-distance wi-fi technology. His work has resulted in over 60 villages in the Dominican Republic producing their own electricity. He is currently working on the efficient computerized management of hybrid hydroelectric and photovoltaic mini-grids.

Key Participants in the Project

Dr. Alex Papalexopoulos

Dr. Alex Papalexopoulos, an authority in energy market design, is the CEO of ECCO International, a specialized consulting and software company based in San Francisco, CA which provides energy market design services to governments, regulators, utilities, TSOs and power exchanges. Over the last 20 years he has designed 15 energy markets in North, Central and South America, Western and Eastern Europe and Asia. He is also the CEO and Chairman of the Board of ZOME Energy Networks, based in San Francisco, CA, which focuses on the decarbonization of the energy sector and smart grid development services, and CEO and Chairman of the Board of the World Energy Consortium, based in Malta, which focuses on developing blockchain technologies and token economics for the emerging decentralized transactive energy future in the energy sector. He has published hundreds of papers in refereed scientific journals, and is the 1992 recipient of PG&E's Wall of Fame Award and the 1996 recipient of IEEE's First Prize Paper Award. In 2016 he was bestowed the award of the honorary Professor at the University of Patras, Patra, Greece.

Emmanuel Xenakis

Emmanuel Xenakis is an Icarian resident with a Master's Degree in data systems, and has extensive experience in solar energy design and installation and general electrical contracting. He is an active participant in the municipal government, currently serving as ombudsman, and is acting as project liaison to the Mayor's Office in Agios Kirykos.

Dr. Odysseas Vlachopoulos

Dr. Odysseas Vlachopoulos is a computer and electronics engineer with a Canadian PhD in Forestry and Environmental Management and specializes in food security and precision agriculture. He is based in Athens, and also works at the ZEU Institute in Germany in the prediction and management of extreme climate events.

Dr. Socrates Kaplanis

Dr. Socrates Kaplanis has a doctorate in nuclear science, and has worked in Greece, Romania, the UK, and Israel. Upon returning to Greece, his focus turned to researching renewable energy systems, particularly photovoltaics. Currently he is editor of the energy section of the HELIYON Journal. He is based in Athens.

Natalie Hage

Natalie Hage is a Greek-American journalist and author living in Agios Kirykos, site of the proposed project. She graduated with distinction from the University of Michigan where she earned her Bachelor of Arts in Communications. She will be participating in outreach and publicity for the project, as well as developing support in the community.

Preliminary Budget in US Dollars * Based on tentative 54 panel design

Materials

| | |
|----------------------------------|-------|
| Panel Mounting Structure | 80000 |
| Panels (54 x \$350) | 18900 |
| Panel Wiring | 5000 |
| EcoPark Wiring | 20000 |
| Picnic Area and Toilets | 40000 |
| Plants and Landscaping Materials | 20000 |

Materials Subtotal **183900**

Equipment

| | |
|-------------------------|------|
| Grid Tie Inverter 20 kW | 4000 |
|-------------------------|------|

Equipment Subtotal **4000**

Personnel

| | |
|--------------------|-------|
| Artist | 30000 |
| Organizer | 30000 |
| Engineering | 30000 |
| Local coordination | 30000 |
| Local labor | 70000 |
| Skilled labor | 20000 |

Personnel Subtotal **210000**

Contracts for Professional Services

| | |
|----------------------|-------|
| Soil Study | 3000 |
| Mounting Engineering | 20000 |
| Landscape Design | 5000 |

Contracts Subtotal **28000**

Transportation

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|--|-------|
| Air fares 15 RT (900+400+300) \$1600 | 21750 |
| Air fares Athens-Icaria 10 RT x \$300 | 3000 |
| Meals and Lodging (per diem \$100 x 200) | 20000 |
| Shipping for Mountings | 10000 |
| Shipping for Panels 54 x 100 | 5400 |

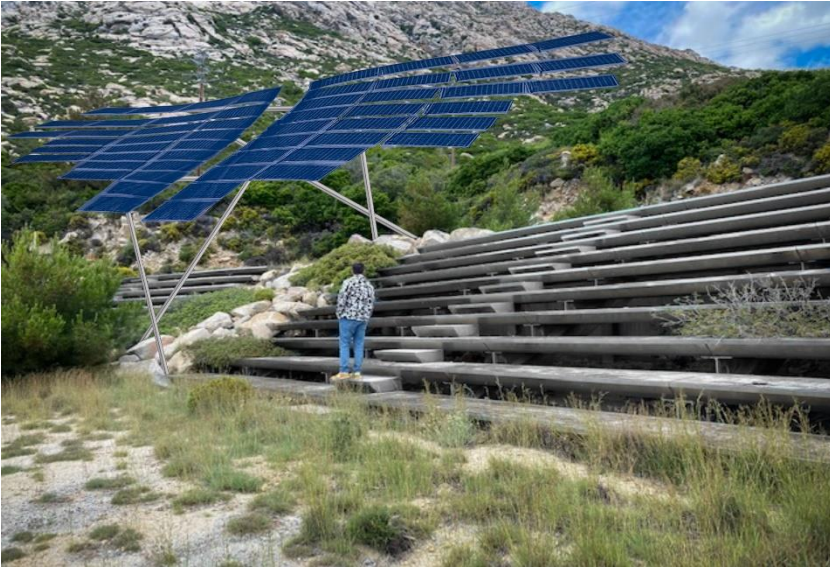
Transportation Subtotal **60150**

Contingency Reserve 20% **97210**

SUBTOTAL **583260**

Administration, Insurance, etc 10% **58326**

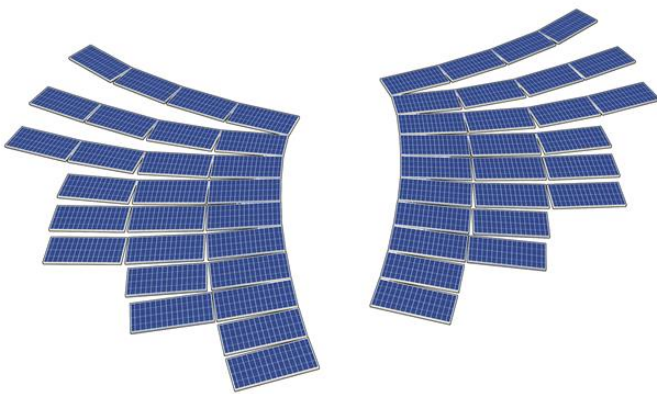
TOTAL **641586**



Artist's vision of the Solar Wings from the eco-park (before site work)



View of the Lefkada site from the shoulder of the coast road



The array of solar panels suggests the aspirational and utilitarian intent of the sculpture. This illustration does not show the supporting armature and necessary infrastructure under the sculpture

Prospectus 5g 6/22/2023