

TREE-TYPE SOLAR POWER GENERATION SYSTEM

E-1

AI (PC) CONTROLS OPTIMAL SOLAR TRACKING

AI (PC) is installed with an annual solar tracking program. At the installation site, the latitude and longitude of the location are entered into the AI, which performs optimal solar tracking.

MEASURE THE ACTUAL SYSTEM AND READ THE ENCODER.

1. True south and horizontal
2. Maximum elevation position
3. True east at 45° angle

CAN GENERATE POWER EVEN AT **SUNRISE AND SUNSET**.
CAN BE USED EVEN IN **SNOWY REGIONS**.

Installation efficiency is tens of times higher than that of mega solar systems.

TOP PULLEY

CONNECTION BETWEEN WIRE, PANEL FRAME, AND PANEL FRAME CONNECTOR

WIRE (ROTATING SIDE)

POWER CABLE (FIXED SIDE)

ENVIRONMENTALLY FRIENDLY, USABLE EVEN IN SNOWY REGIONS, AND CAN BECOME A POWERFUL EXPORT INDUSTRY.

PANELS ARE STORED DURING STRONG WINDS OR HEAVY SNOWFALL.

WATER FAUCET FOR CLEANING

BURIED UNDERGROUND AT THE BEARING END.

MAINTENANCE FLOOR

wire Winder

wire Winder

WORM GEAR MOTOR (with encoder)

WORM GEAR WHEEL (with encoder)

PANEL STORAGE COMPARTMENT

SOLAR PANEL

SOLAR PANEL

MAIN SUPPORT COLUMN

Remote villages, areas without rivers, snowy regions, and inland Ukraine need this system.

BRAKE & GEARED MOTOR WITH POWER OFF
Equipped with brake and speed reduction.

ENCODER PULLEY
WIRE WINDER

By winding the wire with a motor after the wire passes once around the encoder-equipped pulley, the position of the solar panel is proportional to the number of encoder pulses.

Patent Information

The tree-shaped solar power generation system (AI solar tracking) is a standard model consisting of a five-stage, two-sided perovskite module, maximizing power generation with the same land area, offering storage capability, high wind resistance, and snow and sand resistance.

[City sola]

It coexists with the surrounding nature and existing buildings without causing environmental destruction. It can be installed beneath panels in farmland and on flat-roofed buildings. Additionally, it can be installed in the central median of wide roads, enabling local power generation.

[Sea sola]

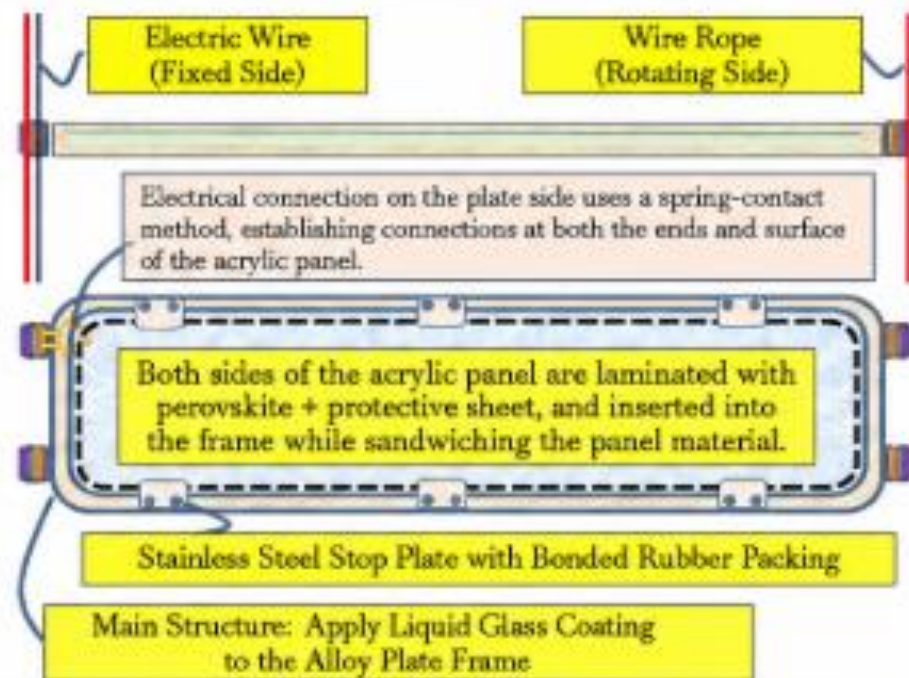
When installed on artificial islands in the ocean, it does not require foundations or soil preparation. It can generate power not only in the morning and evening but also by utilizing reflected light from the sea (albedo).

It can also be installed in marine areas and wind power sites, allowing both solar and wind energy generation.

Storage batteries, AI (PC) capable of conversation via smartphones, wind speed meters, rainfall meters, and other sensors are mounted on the structure. These units measure wind speed and strength, as well as rainfall conditions, and the AI lowers the panels when strong winds are predicted, stores them, or orients them horizontally (stow position) during snowfall.

Through conversations with AI and smartphones, manual operation is possible for cleaning and maintenance.

Perovskite Panels are Inserted Type (Exchangeable for Maintenance)



Both sides of the module (perovskite panel and protective sheet) are inserted into the frame and the surfaces are coated with liquid glass coating. The frame is constructed by inserting the acrylic panel material into the alloy frame, then fixed in place.

The fixed method uses embedded insert nuts (blind nuts) on the main structure, with rubber packing interposed, and the acrylic panel surface is secured by fastening.

Electrical connections on the wood frame side use spring-contact electrical connections, establishing connections at both the ends and surface of the panel.

By connecting the perovskite panel in this way, the + and - electrodes are connected, enabling power from both sides of the panel to be linked to the electric wiring.

AI Perovskite Separated Device

Solar Tracking & Wind-Resistant Retractable Tree-Shaped Solar Power Generation System

By installing in place of utility poles and streetlights (including bearing holder parts), as well as roadside trees and overhead wires, on roads and streets, it can also be attached to the upper side surfaces of buildings that allow it to be installed, and there is almost no limit to installation locations.

City sola

Double-sided perovskite

Storage Box

Maintenance & Cleaning Workspace

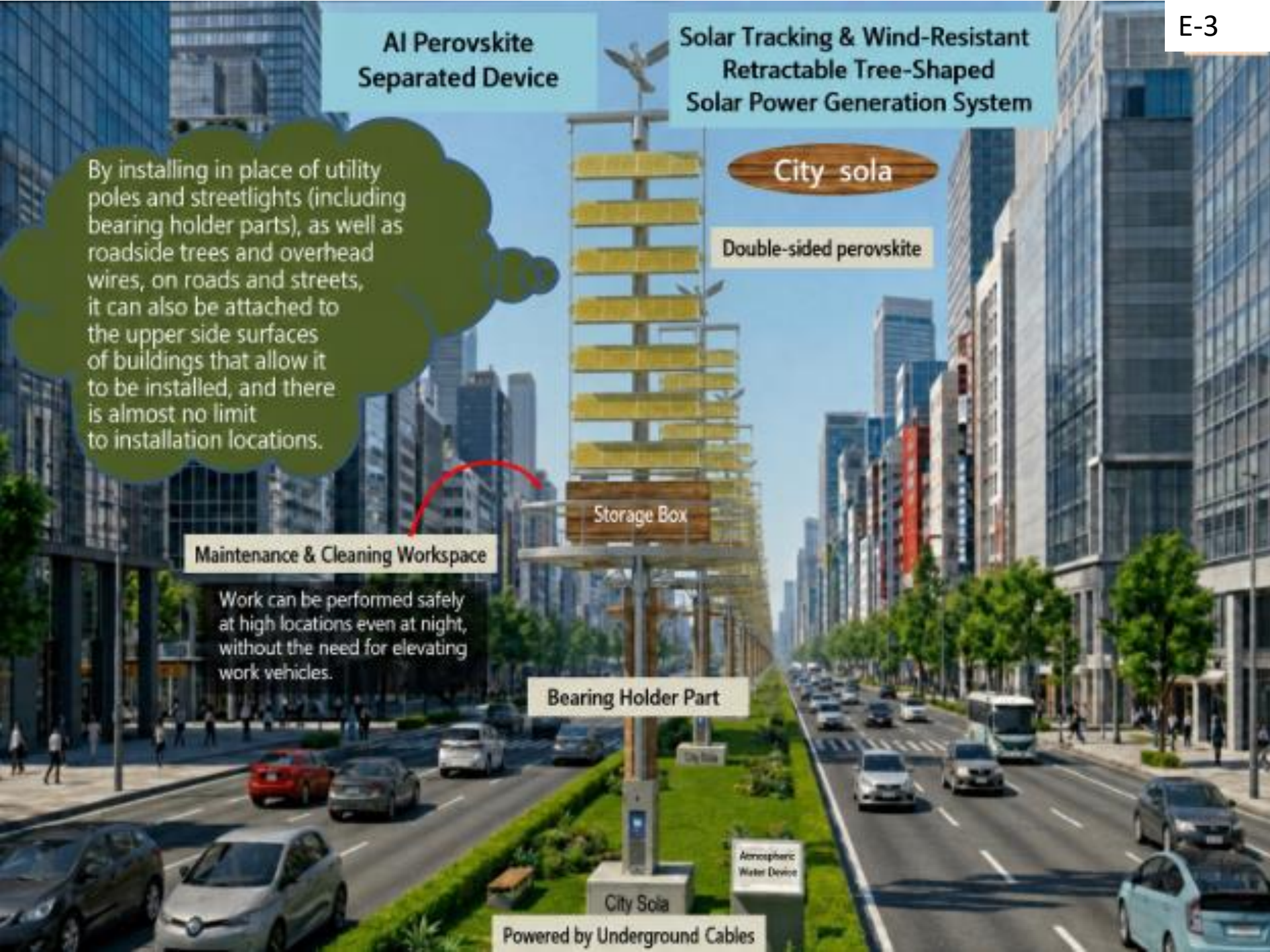
Work can be performed safely at high locations even at night, without the need for elevating work vehicles.

Bearing Holder Part

Atmospheric
Water Device

City Sola

Powered by Underground Cables



Perovskite Tree-Type Solar Power System

PTS

The maintenance platform rotates; the water-spray nozzle moves back and forth. AI control optimizes road operation and water supply for cooling in summer and snow melting in winter.

Urban Landmark

City sola

Large and small versions are available to suit the scale of each city and region.

Wind-resistant storage box (AI-controlled)

Water-spray nozzle (stops when people or vehicles are passing)

Maintenance / cleaning area (for high-rise work vehicles)

Earthquake and heat protection, with large equipment installed underground and water storage available during major disasters.

Free atmospheric-water station (installed where needed)



A system with high added value that uses domestic panels in Japan



**Japanese Style
Design (Vertical)**



Since the vertical type here can include 100% to 120% (reflected light from the surface), the power generation can be about 4 times greater.

100%

70%

45%

25%~0%

(May be hidden by mountains or buildings)

When installed vertically at 100%, the power generation decreases depending on the incidence angle.

Using all-reflected light on the water surface from morning to evening

AI Solar Tracking

Artificial Island

Offshore Vertical Solar Power Generation System

Earth

At sea, (all) reflected light and diffuse reflected light are also received, so solar panels can be installed on both sides.

Storage BOX (When strong winds occur at night, lower and store the panels)

Solar Panels

Solar Panels

At sea, there are no obstacles, allowing power generation from sunrise to sunset.

At sea, no land is required, so it only needs to be fixed to the wooden frame of the artificial island.

Diffuse Reflected Light

All-Reflected Light

Maintenance-free for decades

Sealed Wooden Structure (Liquid Glass Coating)

No Land Required

Wooden Bearing Holder (Liquid Glass Coating)

Sea sola

With 'City car' & 'City HUB,' more people will move to the suburbs, shifting from concentrated urban living to distributed living, and large families will return home. By enabling everyone to move freely until the end of their lives, every area will become more vibrant.

Wooden Buildings for Street Power Generation
(Long-life, disaster-resistant buildings with backup power generation)

E-6

Local Production
for Local Consumption

City sola

**Even if construction costs are twice as high,
a 10-fold longer service life makes the effective cost one-fifth.**

Durable glass with solar generation has been used; wooden construction can last 1,000 years, with piping replaced every 100 years, and elevators and City sola replaced every 25 years. Even including recycling costs, electricity costs are greatly reduced, and residential costs are also greatly reduced.

(In high-rise buildings, elevators cause congestion and increase travel time.)

Because elderly people, people with disabilities, and children will travel extensively by City car, underground parking facilities need to be expanded. In addition, multiple City HUBs should be required, with vehicle AI and HUB AI connected so that queues do not form. **(AI electric vehicles will also rapidly increase, avoiding congestion at facilities.)**

120m ± 1m

120m ± 1m

"Blue Carbon of the Timber Artificial Island"

Patent Information

https://www.garden-field.com/_files/ugd/954e39_7f5e70e720ff47a2bb7d96aee5dfcc5a.pdf

LUMBER = Large-scale Urban & Marine Blue carbon Ecosystem Restoration

LUMBER is a large-scale project that restores urban and marine ecosystems, including areas such as large-scale cities and coastal regions, by growing seaweed in many areas and absorbing CO₂ through photosynthesis. By combining these efforts with the cultivation of marine resources, it aims to create a new industry for timber artificial islands.

Liquid ballast coating: long-term durability (equivalent to 1,000 years)

The large sealed wooden box is sealed to the LUMBER frame with an eco-friendly sealant so that it can be integrated with the structure. The box size is 1.6m × 7m (longer cases can be used depending on the species).

In conventional natural growth, at a depth of 5–10m, CO₂ is fixed by seaweed, but it is quickly decomposed by microorganisms, so the effect is limited. On the timber artificial island, cultivation at a depth of 5–10m is highly efficient, and seaweed can be grown for a long period of 10–30m. After withering, it is harvested and used as a resource, allowing for stable, long-term CO₂ fixation.

(*) For the LUMBER cycle, please refer to the illustration on the next page.

Hatch

Seawater is pumped in/out
(depth adjustment)

1 Unit
□ 12m

Connected with ropes

Sealed wooden box

Lifting hook

Fish-exclusion net

Composition of seaweed,
culture soil, sheets, timber
frames, and sealed wooden boxes

Anchor installation point

IMAGE DIAGRAM OF LUMBER RECYCLING (Refer to the URL below for details)

https://www.garden-field.com/_files/ugd/954e39_8433ee043bfd451cb82a9178cf3e8cfd.pdf

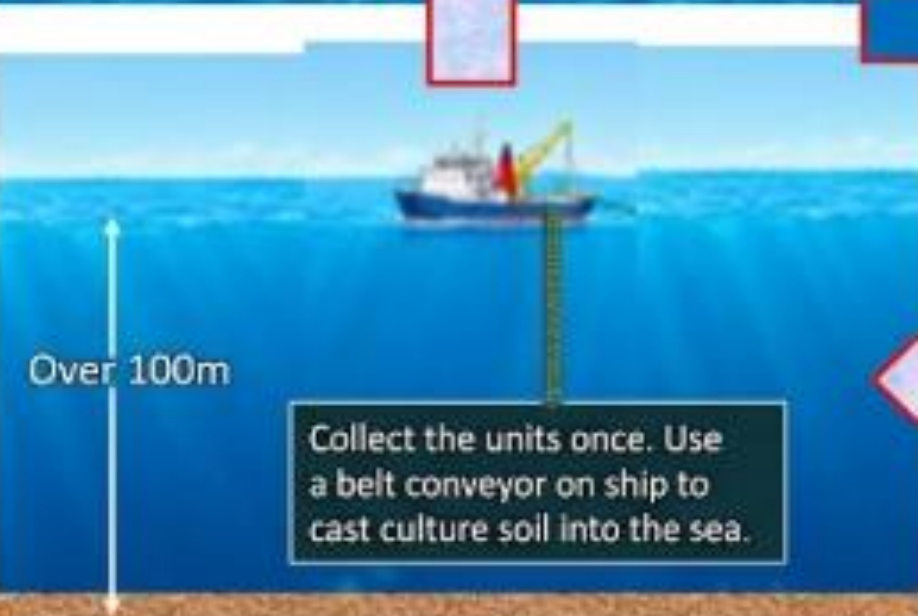
E-8



Load sea weed seedlings cultivated in tanks and other materials. Construct wooden artificial islands on ship. Cranes lower the units containing box sheets, culture soil, and seedlings into the sea.



Cultivate sea weed at a depth of 5~10m in a sea area of 10~30m depth.



Over 100m

Collect the units once. Use a belt conveyor on ship to cast culture soil into the sea.



Once sea weed is mature, tow each unit by ship to a deep sea area with a depth of over 100m.

ZERO DEATHS FROM MAJOR EARTHQUAKES & TSUNAMIS

(If you come here, you can find anything.)

Various commercial facilities, medical facilities, various stores, children's facilities, amusement parks, sports facilities, restaurants, hot springs, hotels, mahjong, karaoke, various game machines, shrines...

Marine Cooling

Marine Firefighting

Relocation of the Shrine

Even if total cost and scale become 10 times larger, if it can be maintained for 1,000 years, it is still more than worth it.

1,000-Year Floating Artificial Island

Ultra-Large Communication Center
500 m × 100 m, Central Passage 40 m,
Central Sports Facility 120 m × 80 m (Passage 9 m × 2)

Marine Product Agriculture

Sea sola

60 m Guide Pole

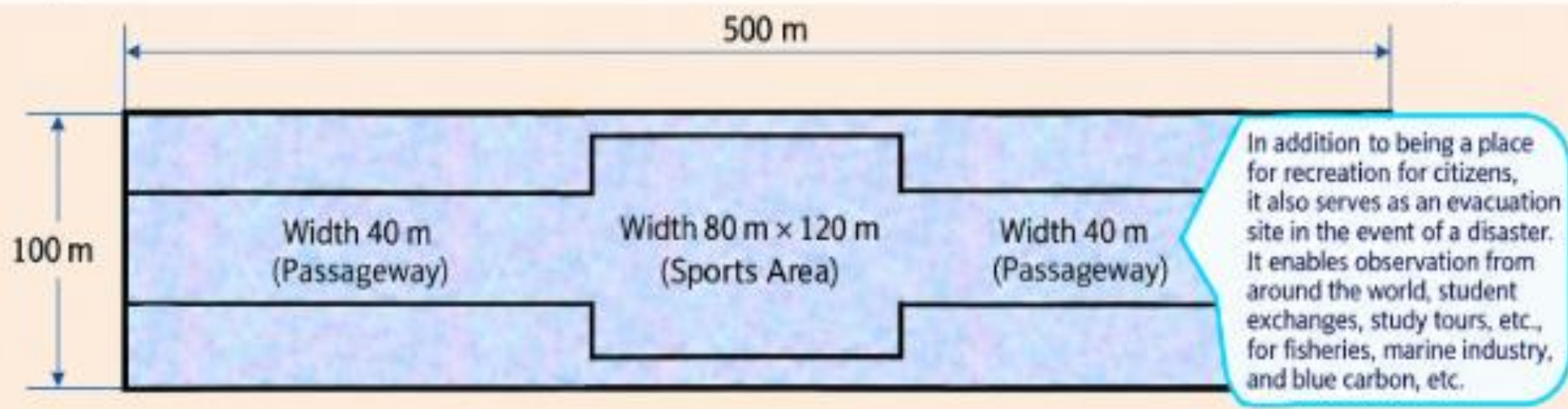
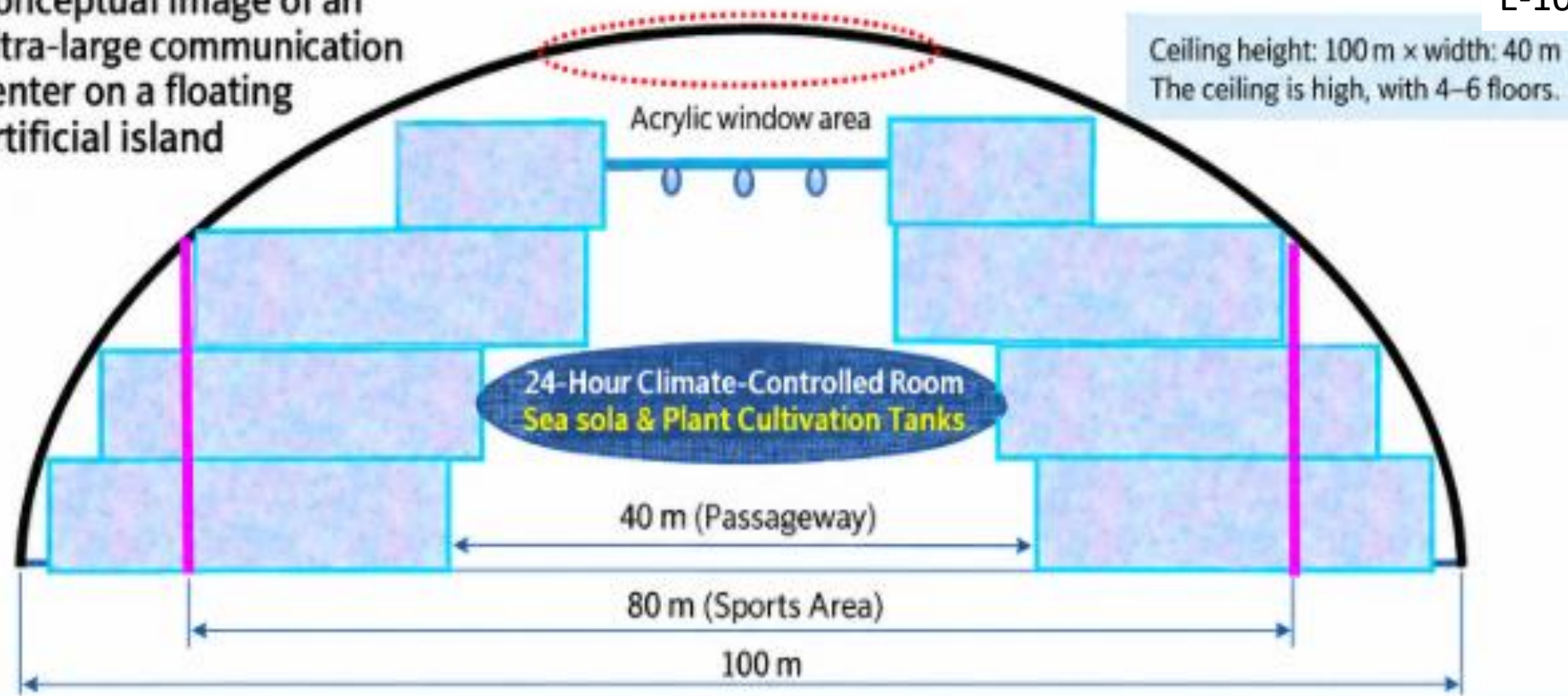
Compared with mega-solar, about 5 times the output in one layer × 5 layers = about 20 times; about 40 times, the output in one layer × 10 layers.

Wave Barrier of the Floating Artificial Island: 30 m wide × 1,200 m diameter

Even if a 60 m tsunami arrives, no one dies... Electricity and water are always secured.

Since securing a large area of land is unnecessary, the necessary area can be assembled anywhere.

Conceptual image of an ultra-large communication center on a floating artificial island

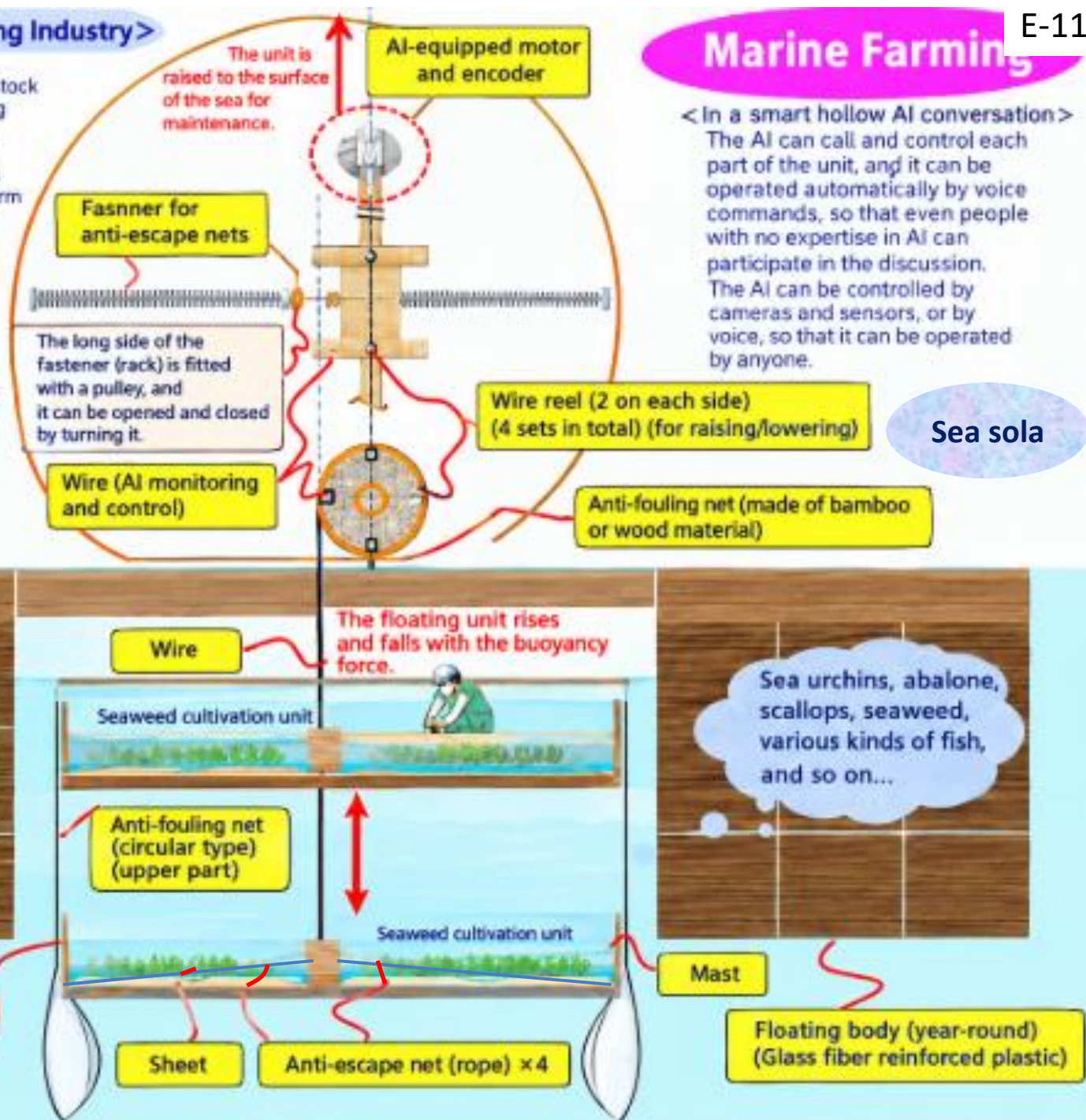


Plan view of the ultra-large communication center on a floating artificial island

< Overview of the Marine Farming Industry >

Marine farming can be done not only for seaweed and crops, but also for raising livestock and can be operated by a single person, using the natural power of the sea. We use the same principle as the "Marine Farming Unit" to grow seaweed and other marine resources in a floating state, with the stocker (floating farm unit) serving as a breeding unit. We cultivate marine resources in the sea, and the facility is designed to grow seaweed, shellfish, and other organisms. We also cultivate seaweed in the sea by allowing it to float, thereby promoting the growth of marine resources while reducing the burden on the environment.

The floating farm unit, the control unit, and the seaweed cultivation unit are integrated, using a wire system to be raised and lowered. By using a pulley system, the cultivation unit can be raised to the surface for maintenance at any time. This makes it possible to carry out efficient and sustainable marine farming while minimizing the environmental impact.



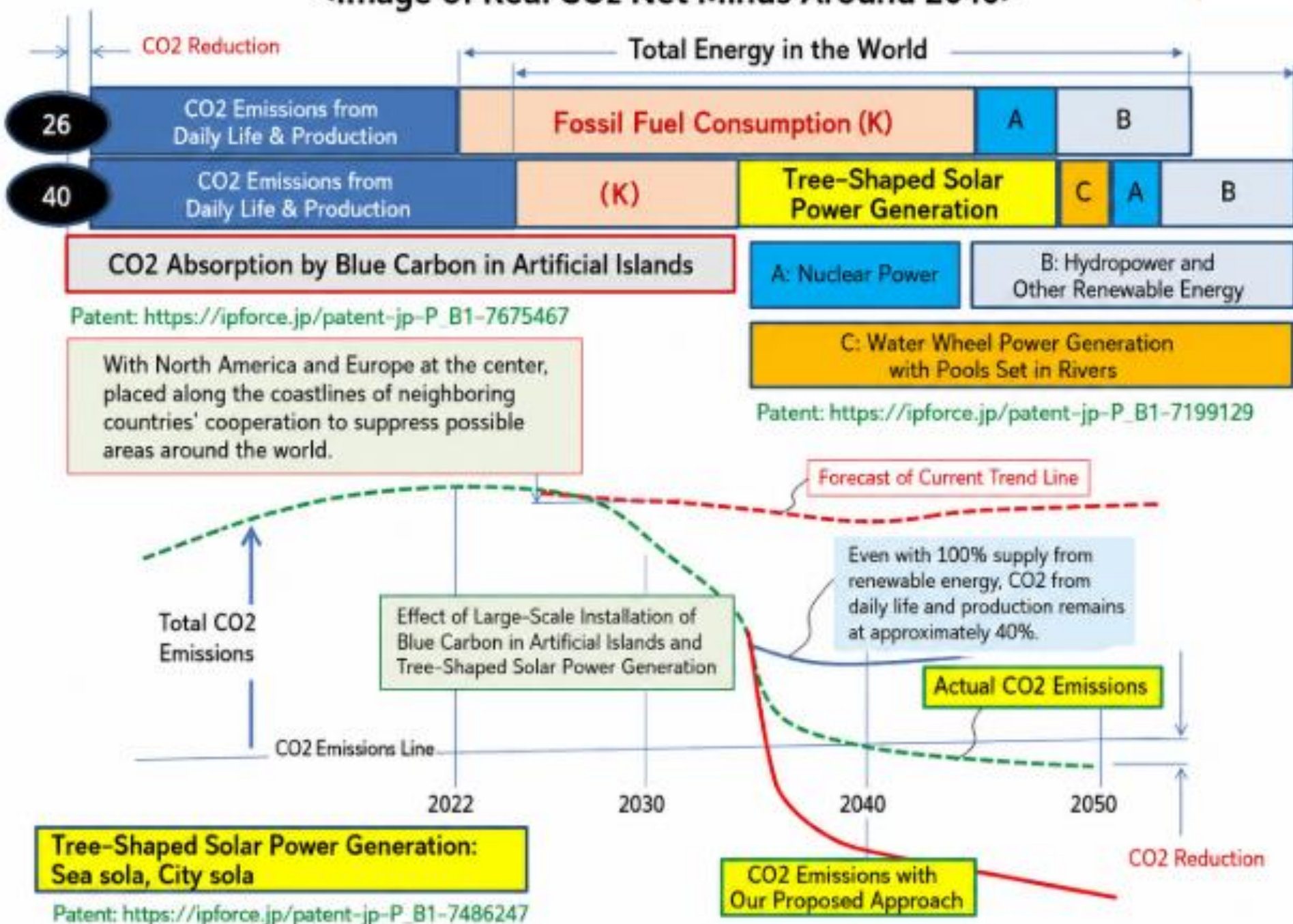
Marine Farming

< In a smart hollow AI conversation >

The AI can call and control each part of the unit, and it can be operated automatically by voice commands, so that even people with no expertise in AI can participate in the discussion. The AI can be controlled by cameras and sensors, or by voice, so that it can be operated by anyone.

Sea sola

<Image of Real CO2 Net Minus Around 2040>



City sola and Low-Speed Autonomous Boat for Remote Islands

ANNEX

Stores wind and snow, collects morning sunlight, and generates electricity using AI control. A solar power system with high efficiency (Megazone effect x) (tandem-type)



Electric Power



Desalinated Water



Purified Water



AI Autonomous Boat

- High-speed, high-performance design
- Safe and stable navigation
- Equipped with 3 water-spray nozzles
- AI-controlled autonomous system



AI Shipborne Defense System (3 large water-spray nozzles)

When an AI detects a threat, the system adjusts automatically and sprays water from the 3 nozzles to suppress the intruder.