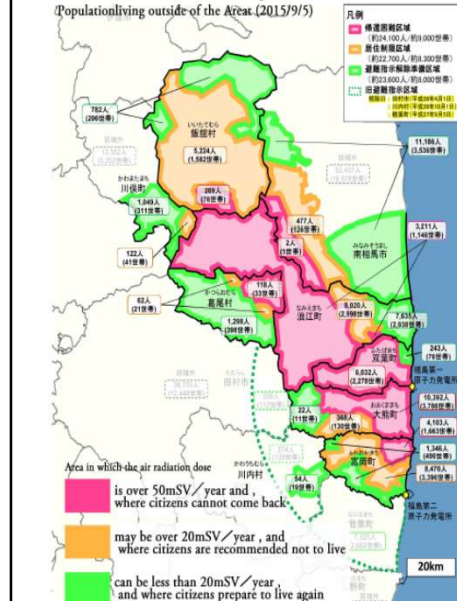


For the recovery of the Great East Japan Earthquake and Nuclear Electricity Generation Accident

F.1 the population living apart from home land in 2015

(Population living outside of the Area. (2015/9/5))



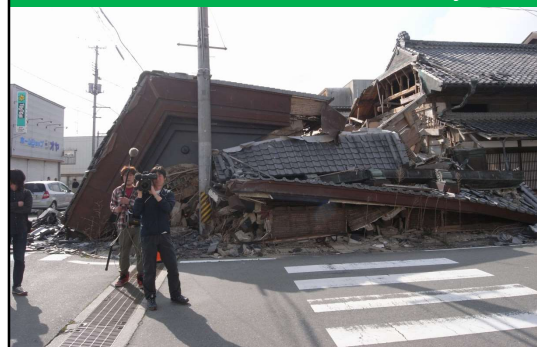
Huge earthquake attacked,
17m high tsunami attacked, and
Nuclear generator bursted.

Report from Fukushima 2015

Seamen has lost their sea,
farmers have lost their lands,
merchants have lost their markets,
not by their own will.
Families have been separated to live in
several houses, their communities have
been separated in many areas.
In the year 2015, still 130,000 people
have lived apart from home.



For the recovery of the Great East Japan Earthquake and Nuclear Electricity Generation Accident



Report from Fukushima 2015



Still Namie Town/ shore area
has not been clean up.

Still many people lived in emergency house.

Government only manage their wills,
when come back.






Report from Fukushima 2015



The city governments have built the 15m high retaining walls to defend against the next tsunami, which, will attack on hundreds years later. By its tremendous disaster, the tsunami and Nuclear Electricity generation plants burst accident, the people escaped from their houses, without any belongings.

Many reconstruction demand increased, It's a development babble. The construction cost has been higher, lack of workers, rejection new work, etc. Recover housing development started in public, very few in private houses. Because of their lost property by Tsunami and Nuclear Accident.

Report from Fukushima 2014



Fukushima Dai -ichi Nuclear Power Plant

No.1:	460,000Kw1971
No.2:	784,000Kw1974
No.3:	784,000Kw1976
No.4:	784,000Kw1978
No.5:	784,000Kw1978
No.6:	1,100,000Kw1979
total	4,696,000Kw

before

2011

2014

11, March 2011, Tsunami attacked and Plant Stopped by emergency electricity stopped. Melt down of the core happened and hydrogen burst destroyed No.1,2,3,4 plants.

In 2014, many tanks are set on the hills. Nuclear contamination water is most difficult 360,000tons stocked, 400tons/d increasing 30m Ice bar walls will be put around the plants (1500m) 30~40years needed to finish

© Ben Nakamura



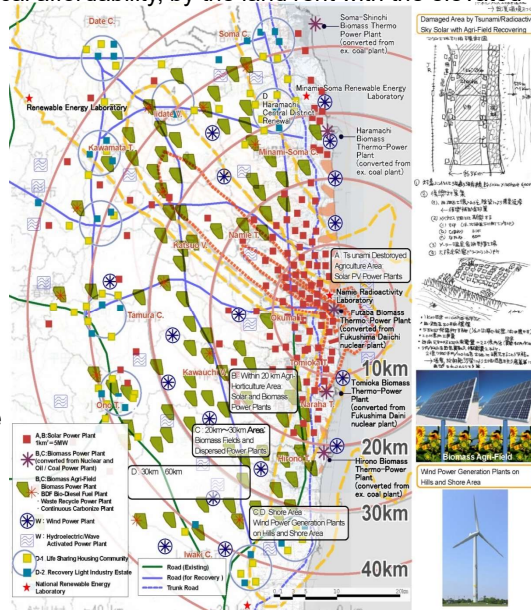
sponsored by Ministry of Environment

- Ben Nakamura had organized the Committee of the Low Carbon Society in the Architectural Institute of Japan

- Research for Three years, 2009~2011 was collaborated with Tokyo University, Tokyo Institute of Technology, and Nihon university and others.
- We have appealed 13 guidelines to realize actual city to Low Carbon City in 2050
- However, We have not concerned to the regional energy development.


Ben Nakamura

Srilanka has tremendous capacity, by strong sun and ocean wind and wave.



Development for Sky Solar System

to make double effect for solar generation and free activity



The development criteria for the Sky Solar System:

- In Japan, the area capacity of the flat lands for normal solar panel on the ground is **very small**, and competitive with normal land use.
- Normal Solar System needs land fill, cut and dig roots, and leveling the land, therefore, **the cost for the land formation** is high.
- The cost for **the preparation against the natural menace** like earthquake, tsunami and typhoon is also very high, because normal type is not needed to check the structural standard.
- The solar panels put on the ground is needed to prohibit the people's entering into the site.
- Elevated Solar Panels is needed to be adapted to the low of the standard of the architecture in order to allow the people enter underneath the panels.

Could you hand your land to the solar panel single use in the 20 years?

Sky Solar System allows the multiple land use, and make the shade for the land be cool, make the desert land be green, and change the land to the park, road, car parking, agricultural development for the people.

Development for Sky Solar System

to make double effect for solar generation and underneath activity

©Ben Nakamura

5 Types of Sky Solar System

- ① Cable Sky Solar
- ② High Pole Sky Solar
- ③ Carport Sky Solar
- ④ Solar Glass House (BIPV)
- ⑤ Solar Curtain Wall (BIPV)



① Cable Type Sky Solar

CABLE type
ケーブルタイプ

First Concept Sketch:
Initial idea is started to use undeveloped space above daily activities

Model Wind Test:
Wind durable test is needed for Typhoon disaster.

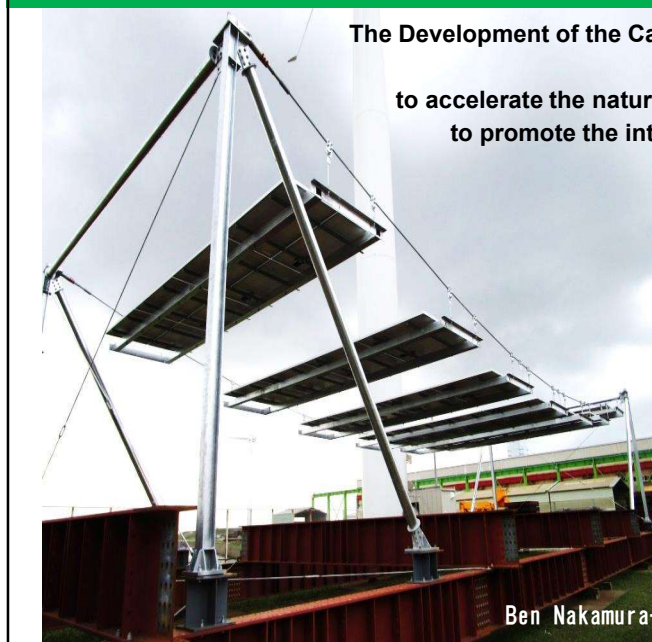
1/5 Real Material Model Test:
Real Material Model shows the details of Joints and construction method..

Implementation Scheme :

Sky Solar above the hilly slope:

**Proposals for
A Amusement Park Car Parking Space :**

① Cable Sky Solar Test Model in Futtsu



The Development of the Cable Type Sky Solar System is to encourage both to accelerate the natural energy development and to promote the intensive agricultural farming development.

SKY SOLAR

Ben Nakamura+ Komai Haltec+ Provance

① Cable Sky Solar Air Wind Test

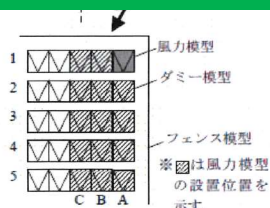
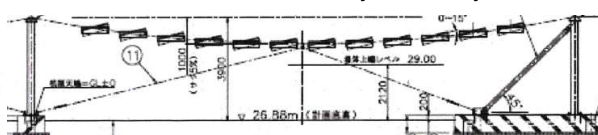
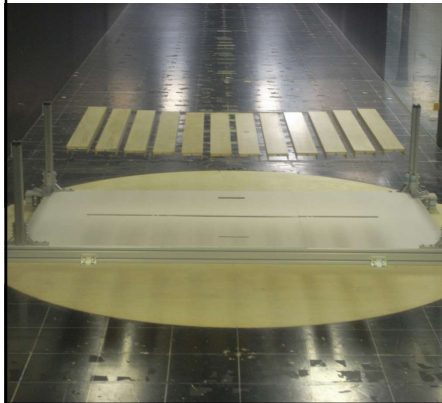


図3 複数アレイ模型の配置状況($H=0.5m, \beta=10^\circ$)

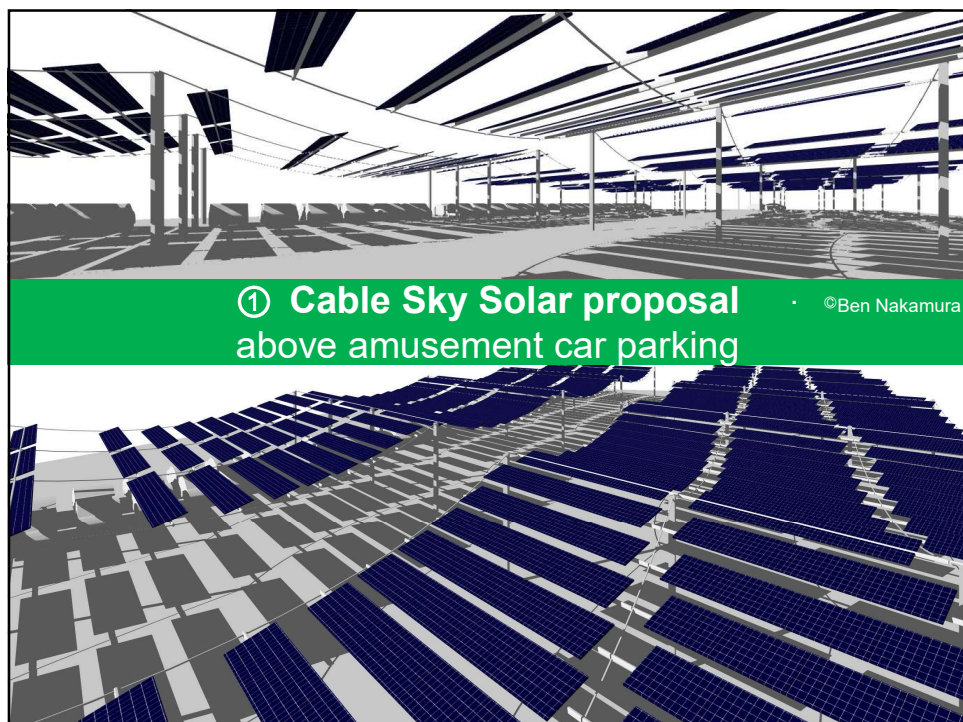
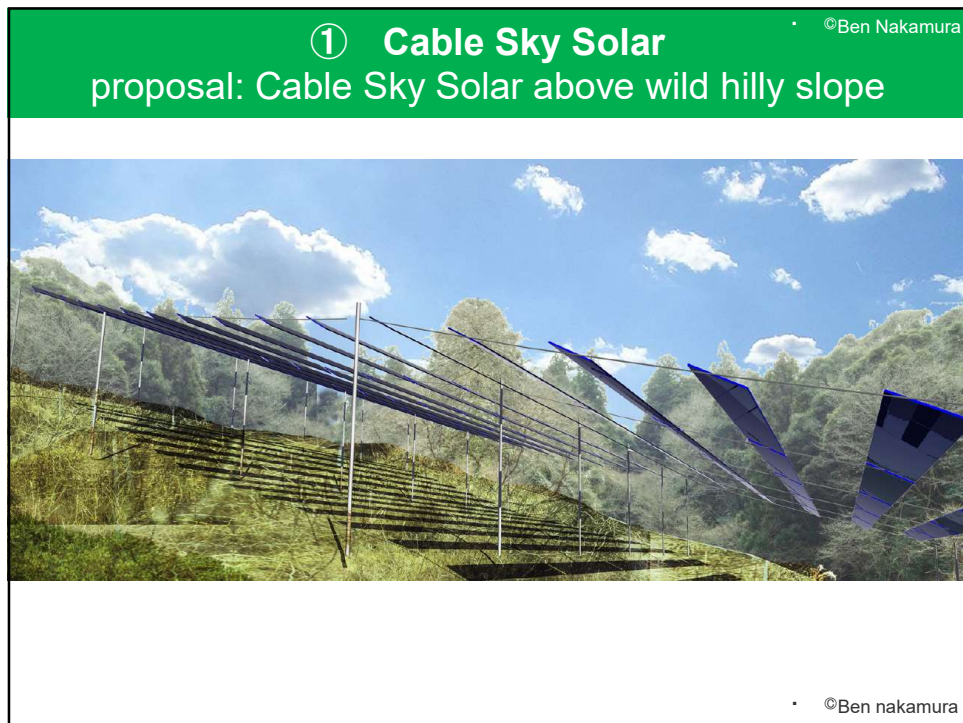
Suspension Bridge technologies are used.
Wind test confirm the stability of the Skysolar

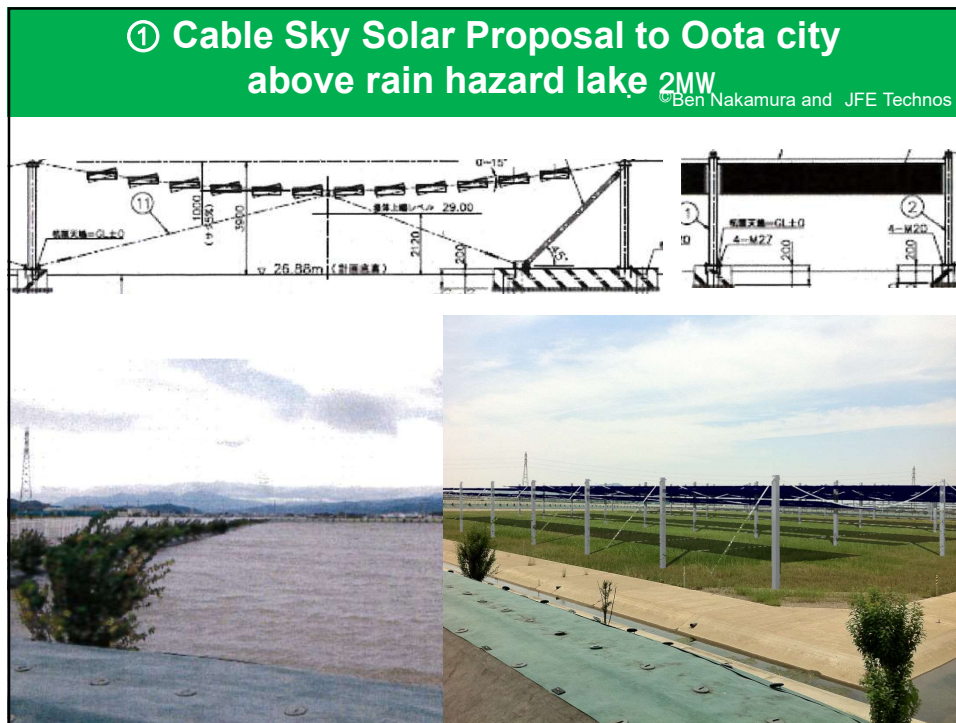


Very stable, only 30mm move in the center of the poles,



©Ben Nakamura + JFE Technos

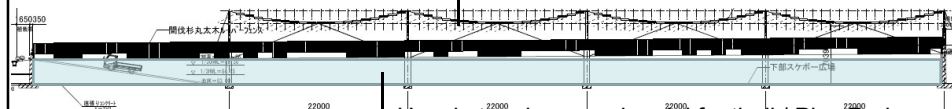




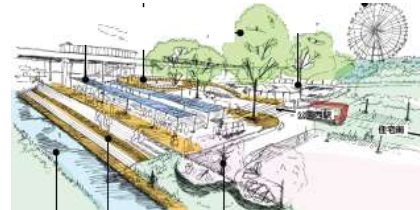
Proposal: ①Cable and ②High Pole Sky Solar For Nagakute City Above Flood Control Pond / Play Park and a Market

©Ben Nakamura and JFE Technos

Cable Sky Solar System



Usual : tennis, squash, mini football / Play Park
Emergency: Flood Control Pond



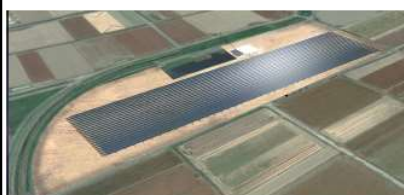
In the central area, high pole sky solar generates electricity on the canteen of the morning market.

② High Pole Type Sky Solar

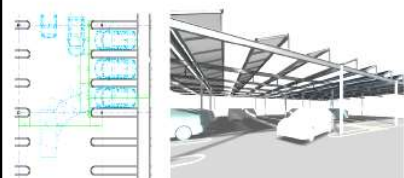
©Ben Nakamura and Komai Haltec

HIGH POLE type

ハイポールタイプ



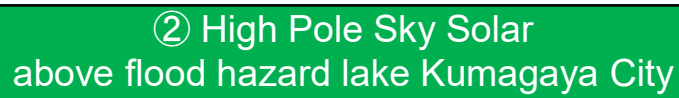
High Pole Type Sky Solar above River Flood Control Pond, Kumagaya City



High Pole Type Sky Solar above Car parking ,
for factory, shopping market, amusement
facility, etc.



High Pole Type Sky Solar above River Flood Control Pond, under construction



災害に配慮したスカイソーラーパネル

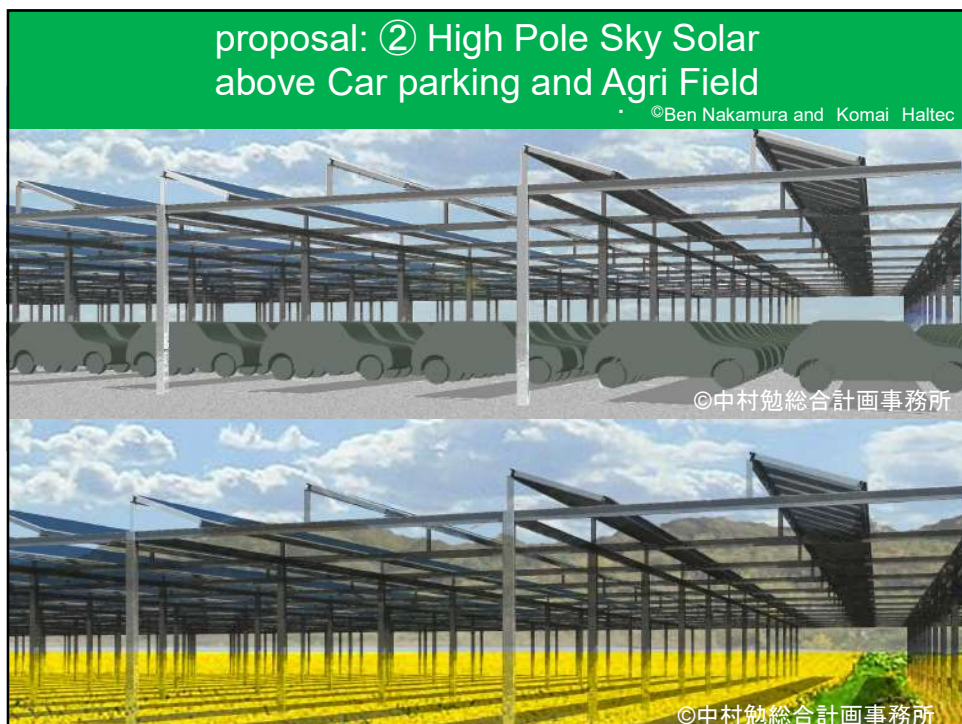
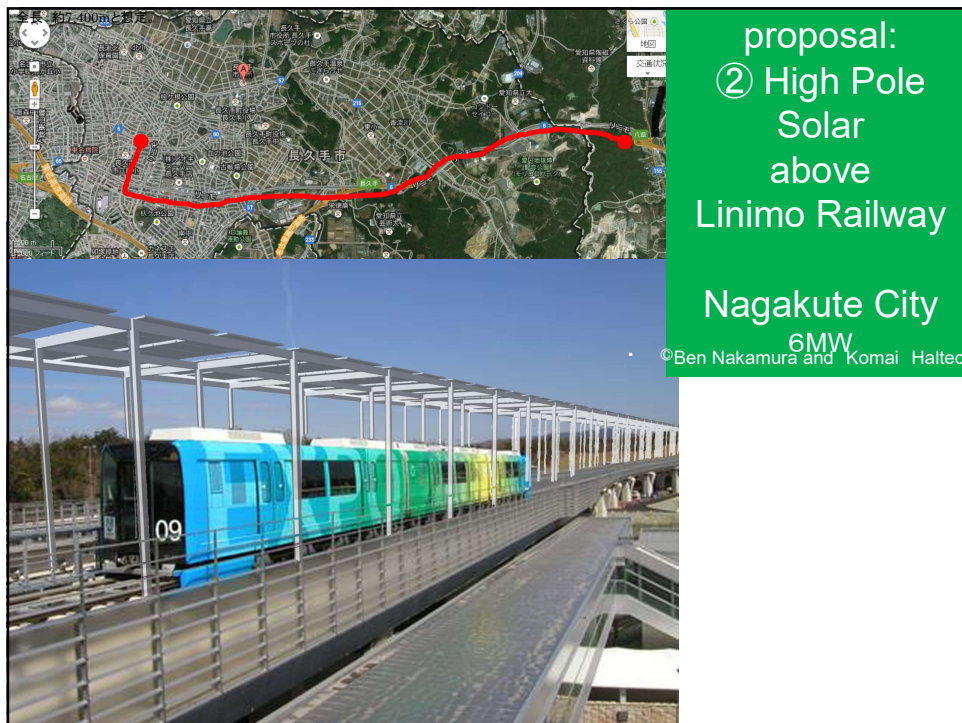
受変電設備も高架配置

系統電力へ接続

葎、雑草などの影を受けない
草刈も不要

断面計画

Rivers floods 10times a year.
The needs for this flood control ponds Sky Solar System will be increase for the high climate change stage.




proposal: ② High Pole Sky Solar above shore walk way



Width 6.5m
Length 2km
900kw
≒990,000kwh/y
For the demands of this island

パネル面積	1m × 6.5m = 6.5㎡
パネル総面積	6.5㎡ × 950枚 = 6175㎡
面積あたり定格容量	140kw/㎡
定格容量	865kw
年間総発電量	866,762kwh (約200世帯の年間電力使用量 × 1)
総工事費概算	3億3千万円

※1 電気事業連合会資料より

©中村勉総合計画事務所

③ Carport Type Sky Solar

©Ben Nakamura and Komai Haltec

CAR PORT type

カーポートタイプ



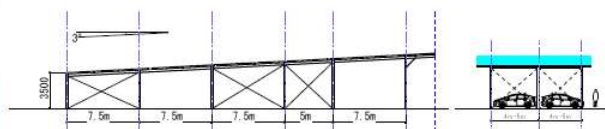
兵庫県食品工場駐車場 駐車台数100台 250kW
食品工場の従来食用駐車場にカーポートタイプを設置しました。



第一工区完成 第二工区建方 現場写真
工事中の駐車可能台数を減らさないために工区分けを行いながらの施工も可能です。



第二工区建方 現場写真



兵庫県食品工場駐車場 参考断面図





Aizu Wakamatsu
Carport Type
1.3MW

The panels are
elevated above 2.5m
of the snow depth,
The carport is cleared
by snowplows
In every morning

SKY SOLAR

中村勉総合計画事務所+駒井ハルテック

③ Carport Type SKY SOLAR
Electric factory developed renewable energy



Carport Type
Sky Solar system
is to make roof
on the carpark.
Normal type
requires
5m to 7,5m span
for the 2 to 3
vehicles.

SKY SOLAR

Ben Nakamura and Kokko Facility Co. jp



$$1+2+3=6$$

② High Pole Sky Solar System with Agricultural Industry Flower Garden



- Flowers and Agri-Crops needs less than 50% of the solar energy

Light Intake Capacity for species

Rice padi: 40~50 Klux

Tomato : 70

Lettuce : 25

Grapes, Peaches: 40

Flowers : 5~10~15

ref: Sun in fine : 100~400 Klux

in cloudy : 10 Klux


• ©Ben Nakamura and Komai Haltec

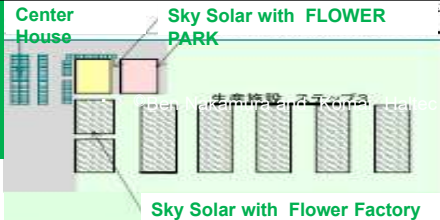


② Sky Solar “6” sector Development

Flower Park Proposal for Iitate village in Fukushima

Image of the Flower garden ©Kamo Kachoen





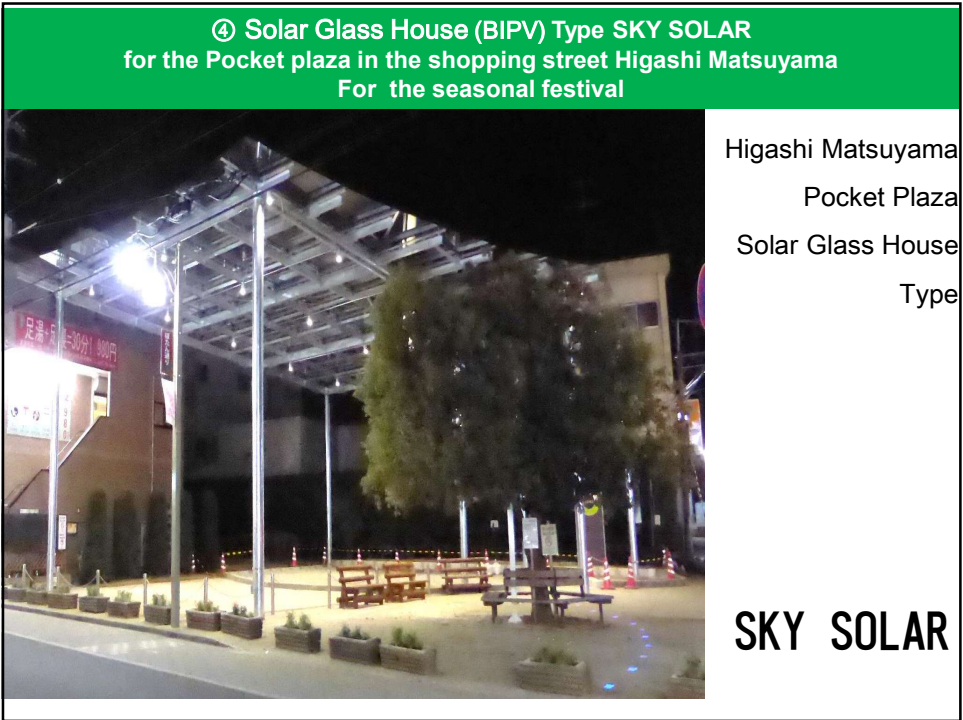
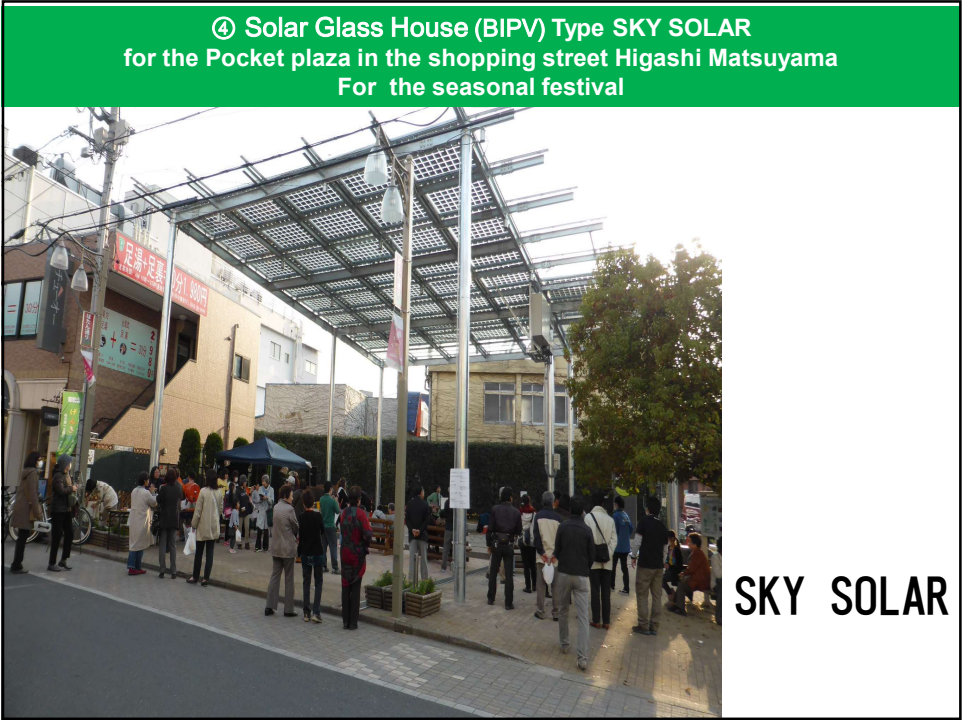
Sky Solar with Flower Factory

③ Glass House Solar 2006, Nara

design : Tamiya Glass and Ben Nakamura




©タミヤ製作所+中村勉総合計画事務所



⑤ Solar Curtain Wall (BIPV) Type SKY SOLAR for the Building Facade
Daito Bunka University lecture House Curtain Wall



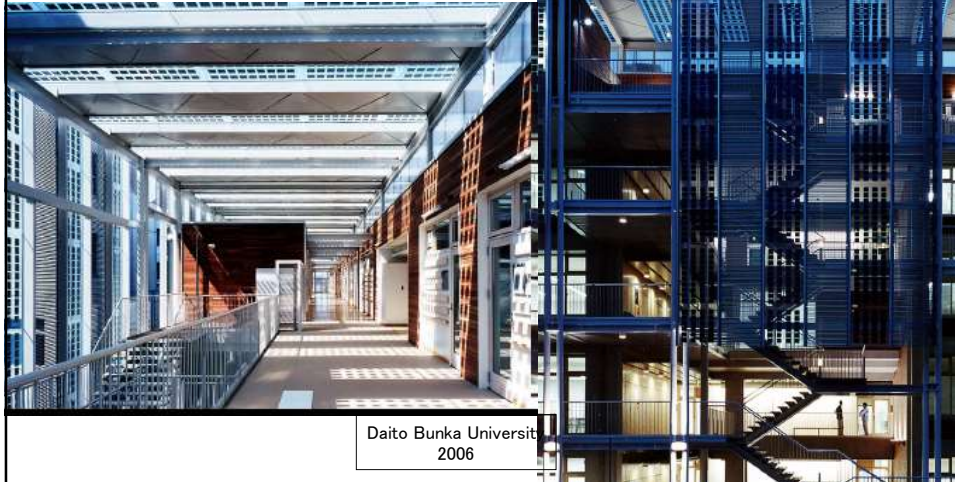
⑤ Solar Curtain Wall (BIPV) Type SKY SOLAR for the Building Facade
Daito Bunka University lecture House Curtain Wall



⑥ Solar Curtain Wall (BIPV) Type SKY SOLAR for the Building Facade Daito Bunka University lecture House Curtain Wall

Sky Solar Curtain Wall type
Built Integrated Photo Voltaic system

See through type double glazing with 40mm slit, which make space warm by direct gain system.



Daito Bunka University
2006

3. Scope of the world wide contribution

A) Wares of Great Britain,

I was invited by the peace group of the Wares, and gave some idea to develop the renewable energy in the Anglesey Island as "Natural Energy Island", and appealed to the people not to redevelop the renewal of the nuclear generation plant.

B) the desert of Cairo, Egypt,

I proposed the idea to develop the Sky Solar System on the desert skirt along Nile river.

The space structure along the Nile, built environment are built along the river, and over the city area, the huge area of the sand desert area cover the land.

If the Sky Solar System is developed in this fringe area, the shaded area will be spread to the desert, and green vegetable will be produced under the solar panels.

This idea will encourage both to accelerate the natural energy development in the sky and to promote the greening the land to the agricultural farming for the people.



copper mine site



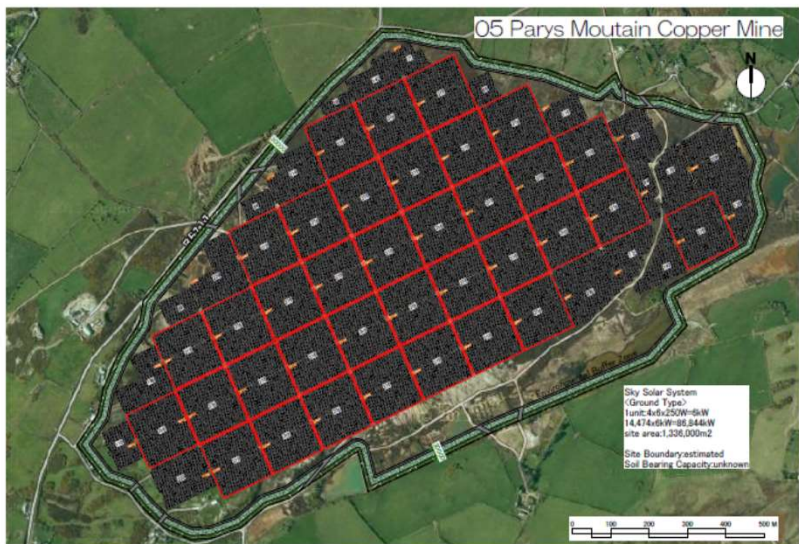
Nuclear plant



05
Parys Mountain
Copper Mine
Proposal for
Ground type
solar electricity
generation
system

05
Parys Mountain
Copper Mine

Proposal for Ground type solar electricity generation system



Ground Type Section

