

## Proposal for a new national electric project on handmade photovoltaic (PV) module

There is a technology of handmade photovoltaic 40W class module that is constructed easily. You can make a new electrification project in your country on this technology.

You only need a small laminator, soldering technology, some familiar tools and materials for PV modules. And you need a small studio that is supplied electricity, too. The basic technology was published by us , Japanese NGO, Solar-Net in 2002 . This book is written by Japanese and English.

The HP address of Solar-Net is [http://solar\\_net.at.infoseek.co.jp/](http://solar_net.at.infoseek.co.jp/). But this HP is written by Japanese.



Lamnator



Photovoltaic module

Now we will propose a project plan on this technology.

### A. Bringing up engineers.

The target of first year is bringing up 50 engineers. We think it is good that they are selected from each municipality in your country.

5 laminators are set up in a Technical University. Then 50 students learn PV knowledge and how to construct module. They will make 2,000 modules in a year and sell and install them as “solar home system (SHS)”.

A sample of SHS is shown in attachment. This system is for a house in off-grid area. This has 2 modules (80W), a controller, a battery and some appliances.

### B. Opening 50 energy studios all over the country and a photovoltaic center in a University.

The same project is performed as the first year. And the first 50 engineers open their studios in their living place.

A studio has a laminator and about 10 staffs to construct PV modules and sells , installs and maintains them for customers. Then Over 500 people can get job. A studio will make 400 pieces a year. So 50 studios will make 20,000 modules (800kw). In other word, Over 10,000 houses will be able to have electricity.

We think it is good that the studios make up a guild to buy the materials and tools for PV.

Once the SHS are sold, users may have some troubles that local engineers can't solve. So the Univ. would have be better to have function of search and consultation to them. This place may be called “PV Technical Center”.

C. Until 5 years.

You repeat the same project. Then your country have 200 engineers, 200 studios, and over 2,000 staffs to make 80,000 PV modules (3,200kw) per year. They will give electricity to 40,000 houses year by year.

D. Summary of cost.

Solar-Net supplies the materials on the following price in 2010.

A laminator : USD(\$) 12,000.

A set of PV module : \$.185.

Other materials for SHS (controller battery and others) : \$.150.

We will use this price for the first year.

This price is on small volume of our trade. So the price must be decrease on increase in volume of the trade. We will be able to expect following price for the second year.

A laminator : \$ 8,700.

A set of PV module : \$.120.

Other materials for SHS(controller battery and others) is \$.120.

First year.

Laminators : \$ 12,000 x 5 units =\$ 60,000

Sets of PV modules : \$185 x 2,000 pieces =\$ 370,000

Other materials for SHS : \$150 x 1,000 sets =\$ 150,000.

This cost is only for materials. It doesn't include the personnel expenses and other soft costs for project.

After the second year. Each studio need the following money to buy materials.

A laminator : \$ 8,700 \*

400 sets of PV module : \$120 x 400 = \$48,000

Other materials for SHS : \$120 x 200 = \$24,000

\*this cost will probably be paid in 3 years. So \$2,900 by year.

If they sell a SHS on \$ 550, the amount of sales is \$110,000 / year (\$550 x 200sets). We guess the studio will be able to keep their job.

And you can accomplish the national electrification easily and give happy life to your people.

Solar-Net has already published the technology. And we are dreaming to establish a society to buy materials and other stuff for PV in cooperation all over the world. We deeply appreciate if we can start the project jointly.

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