

## BGET 2 – Week Report

17 – 28

October, 2005

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### The Planned Schedule for the Weeks

- 19 – 21 Training at Tambon Mae Tan
- 25 – 27 Training at Tambon Mae Song

### **Thai Village SHS Project**

#### The First Training at Mae Po Village, Mae Tan

(Total 964 Solar Home Systems: PEA data)

- 16 people participated (expected 10 from 5 Moo)
- 12 people participated from the first day, 4 came for the last 2 days
- All of them came from Moo that have only SHS (no electricity from the grid)
- 3 Moo that have both SHS and electricity from the grid did not participate
- Solartron sent someone to fix 26 broken inverter systems (total roughly 200 SHS) in that village 2-3 weeks before our training
- Modified how to determine the good and bad charge controller: not measure the charging current but measure the rising voltage of the battery after connected to the charge controller
- Measured the battery voltage at the battery not at the charge controller terminals
- BGET submit the list for 4 broken systems found during training (1 bad battery and 3 broken ballasts) to the Or-bor-tor to file the claims
- BGET replaced 2 broken inverters (PEA provided 15 Solartron inverters) that the participants brought from their villages on the second day
- BGET and participants moved 1 solar panels to the better location using Solar Pathfinder and filed the claim for bad battery for that system
- BGET provided distilled water and 10 W TL replacement for free
- BGET gave 15 tool kits for everyone instead of 2 for 1 Moo
- BGET provided certificated to the people who participated all 3 days
- November 18: Deadline for the participants to submit the completed survey booklets to Or-bor-tor office

#### The Second Training at Mae Ra Murng, Mae Song

(Total 1,728 Solar Home Systems: PEA data)

- Total 29 people participated (expected 34 from 17 Moo)
- 23 people came the first day, 6 more came on the second day
- 15 people participated all 3 days
- BGET submit the list for 6 broken systems found during training (2 bad batteries and 4 broken ballasts) to the Or-bor-tor to file the claims
- BGET and participants replaced 6 broken inverters during the training

- 1 new inverter blew up: caused by a bad ballast (Chris' comment)
- Found 1 burned terminal strips with reversed polarity at solar panel: faulty installation
- BGET provided distilled water and 10 W TL replacement for free
- BGET provided 7 W CFL for sale: villagers and participants bought 4 bulbs (1 replaced 60 W incandescent bulb!!)
- BGET gave tool kits for everyone instead of 2 for 1 Moo
- BGET provided certificated to the people who participated all 3 days
- November 18: Deadline for the participants to submit the completed survey booklets to Or-bor-tor office
- Solartron installers received payment per installed systems (200 baht / system) ??:  
input from participants

### Problems found and Conclusions

- Almost half of the class cannot read and write Thai, some can not even speak Thai but can understand it
- Next trainings, BGET will provide only 2 tool kits for 1 Moo
- Some participants left with tool kits without finishing 3-day training: next training, we will not allow taking the tool kits home until the training finish
- Some participants are regular villagers who will do the survey and fix the systems for free and some might not have time to do it.
- Possible income for the surveyors: selling distilled water, light bulbs, and cleaning the panels and batteries
- Both trainings are focused more on practical side and less theory: some participants did not seemed to understand most of the theory (might be partly language barrier)
- BGET will provide separate survey forms during training: participants used some pages from their survey booklets that would be used for their own survey.
- BGET modified the survey form format as shown:

(1) Owner's Name and Last Name :		(2) Survey Date:
(3) Surveyor's Name:		
(4) House Number:	(5) Moo:	(6) Village:
(7) Tumbon:	(8) Amphur:	(9) Province: <u>Tak</u>
(10) Latitude (N): <u>17</u> ° <u>    </u> ' <u>    </u> "		(11) Longitude (E): <u>098</u> ° <u>    </u> ' <u>    </u> "

Electric Appliance	Power (Watts)	Usage Hours	Watts.Hours
<u>ตัวกรอง 2 Light Bulbs</u>	<u>10 W</u>	<u>3</u>	<u>60 (=2*10*3)</u>
(12) Total WH:			

Component	Measurement	Status
<b>Solar Panel</b> Serial Number (13) _____	(14) Panel Voltage (Voc) = _____ Volts <u>Measured when it's sunny during day time</u> <b>More than 18 V</b> <b>Less than 18 V Check the Junction Box</b>	Solartron SP 120 (15) <input type="checkbox"/> Good <input type="checkbox"/> Bad
<b>Battery</b> Serial Number (16) _____	(17) Battery Voltage = _____ Volts <u>When disconnected from Charge Controller</u> <b>More than 11 V</b> <b>Less than 10 V</b> Between 10 to 11 V, Battery starts to fail, let it be charged for 7 days and use less electricity	3K EBB - 125 (18) <input type="checkbox"/> Good <input type="checkbox"/> Bad
<b>Charge Controller / Inverter</b> Serial Number (19) _____	(20) Voltage of the wires connected to battery (measured when disconnected to battery) <input type="checkbox"/> More than 14 V (Good Charge Controller) <input type="checkbox"/> <b>Less than 14 V (Bad Charge Controller)</b> (21) AC Voltage <input type="checkbox"/> In the Range of 170 - 270 V (Good Inverter) <input type="checkbox"/> <b>Not in the Range of 170 - 270 V (Bad Inverter)</b>	FORTH SH - 1210 M (22) <input type="checkbox"/> Good <input type="checkbox"/> Bad
<b>Lamp Base (Ballast)</b>	If turn on the switch and the light is not on, change to the good light bulb. If the light still not on, it means the ballast is broken	(23) <input type="checkbox"/> Good <input type="checkbox"/> Bad

(24) What kind of problems has the owner had with the system? .....

(25) How long has the system been broken?.....

(26) How does the owner gain benefits from Solar Home System?.....

(27) Has the owner been maintaining the system? How? .....

(28) Most of the equipments are still under warranty (batteris 2 years, inverters 3 years, and solar panels 5 years after the installation). The system owners would not have to pay for the equipments if they notify Solartron to fix their systems. But if the warranty expires the system owners have to pay for the expensive equipments themselves in order to fix the systems. One option is that Or-bor-tor might plan to set up the funding to maintain systems in the future by collecting some amount of money per month to buy these expensive parts.

Would you be able to afford to pay for this funding? If so, how much?

- No, I can't   
  Yes, I can  
                                 
  50 Baht   
  30 Baht   
  20 Baht   
  10 Baht

## Pictures from the Training

Mae Tan on October 19 – 21



First Day of Class



Participants Introduced themselves



Bad Panel Location



Solar Panel or Grapefruit Panel??



Providing Warranty Claim Procedures  
to Head of Or-bor-tor



BGET Provided Tool Kits

Mae Song on October 25 – 27



Manual and Tool Kits



Class on the First Day



Participants Interview System Owner



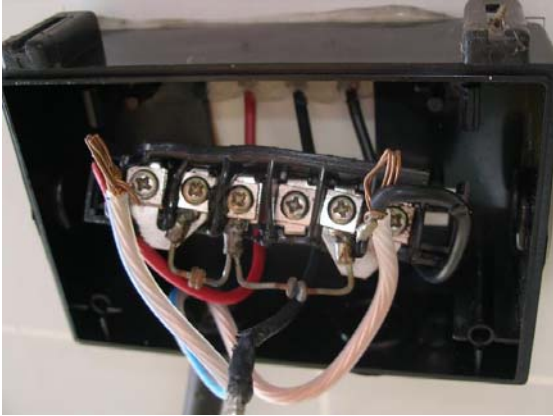
Survey Form in Karen



New Inverter Replacement



One by one Test



Burned Diodes from Reverse Panel Polarity  
Faulty Installation



60 W Incandescent Bulb !!



Possible CFL Market in the Villages



Certificate



Group Picture

### **Refugee Camp Training**

- BGET will receive the approval on either 10-31 or 11-01 from Mae La Camp Commander on bringing 6 students out for Thai SHS survey (Nov. 14 to 19) with the support from ZOA

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### **UNDP Micro-Hydro Project**

- KNCE is still waiting for the first budget approval from UNDP.
- Spring Street and Evergreen High School Students will come and help with hands-on projects in February, 2006.
- Chris and Salinee might present the BGET projects information to 3<sup>rd</sup> year engineering students at Chulalongkorn University in February, 2006 for the possible senior projects next academic year.