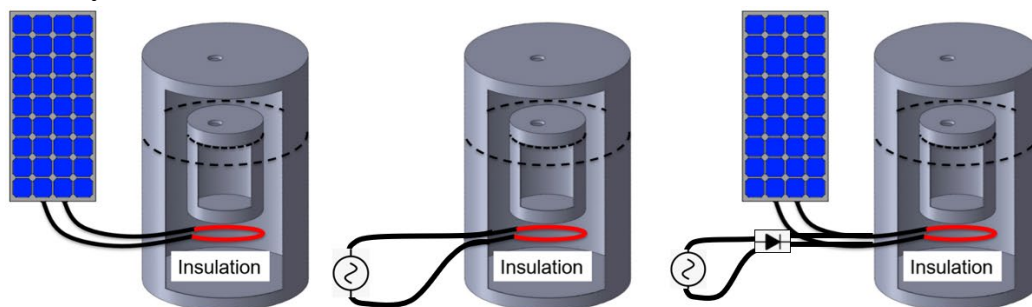


## Locally Made Insulated Electric Cookers



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**Insulated electric cookers** save energy and money by:

- 1) Reducing the amount of electricity used in grid-connected cookers.
- 2) Reducing the number of solar panels needed in off-grid systems, greatly reducing the capital costs.

**These insulated cookers can be made locally**, stimulating local economy, exciting interest in technology, and providing product support and customer feedback. We support new manufacturing centers with funding, instructions, and a support community. We collaborate with local academic institutions to jointly study technology and adoption.

**ISECookers (Insulated Solar Electric Cookers)** are great for off-grid communities, but the insulated cooker itself can also be **grid connected** in order to:

- 1) Save money by using less electricity.
- 2) Provide solar/grid hybrid for security in areas where grid electricity is unreliable.

Low power can be stored over time in an aluminium mass to provide high-power cooking during peak load times - as high as 100 kW, as demonstrated in the following two videos:

<https://www.youtube.com/watch?v=FKIH7HDK6Dw> , and

<https://www.youtube.com/watch?v=M8bjnh59BBE&>

**Experience:** Several African collaborators have been constructing ISECookers, using less than \$30 in parts and materials. Three vocational programs have been established (two in Malawi, one in India). In Nepal (pictures below), a high quality, \$100 version is being produced in Nepal YantraShala Energy; which can be imported into other countries for distribution and to us as a template for local manufacturing.



### **Sustainability:**

- ISECooking provides services to underserved communities with otherwise no access to cooking technologies.
- ISECooking replaces present combustion cooking that cause deforestation, climate change, and more deaths from respiratory disease than AIDS, malaria, and tuberculosis combined.
- Developing communities gain financial and academic independence.

### **Education:**

- Cal Poly students will collaboratively develop these technologies in service learning classes dedicated to development. Please see: <http://appropriatetechnology.peteschwartz.net/about-us/>
- Approximately 15 Cal Poly students engage in research developing ISECooking technology, often in collaboration with international collaborators and/or student groups.

### **Present Research Challenges:**

- Electronic control is being developed to optimize power drawn from the solar panel as well as improve the user interface.
- To produce ISECookers outside Nepal, we must find substitutions for some parts not locally available. For example: heaters, thin stainless steel, fiberglass insulation.
- We have the opportunity to study the adoption process, adoption barriers and design revisions.

**More Information:** Besides the links above, please see:

- 1) Construction directions: <http://sharedcurriculum.peteschwartz.net/isecooker-construction/>
- 2) Blog of experience with collaborators in Africa, India, and Nepal: <http://sharedcurriculum.peteschwartz.net/sabbatical-trip-log-sept-2022-sept-2023/>
- 3) Contact me directly: [pschwartz@calpoly.edu](mailto:pschwartz@calpoly.edu)
- 4) Our research page: <http://sharedcurriculum.peteschwartz.net/solar-electric-cooking/>