

# Photovoltaic System Technology

## Student Inquiry

### ● Inquiry 1

Before you try to answer Inquiry 1, have a go at answering supporting questions 1A, 1B, and 1C on the next page.

You can research information on these questions by going to the websites listed at the bottom of the page.

**How does photovoltaic (PV) cell technology work?**

**Schoolgen – Student Fact Sheet *Photovoltaic System Technology***

[http://www.schoolgen.co.nz/se/pv\\_tech.aspx](http://www.schoolgen.co.nz/se/pv_tech.aspx)

**World of Energy – Photovoltaics**

[http://www.worldofenergy.com.au/factsheet\\_solar/07\\_fact\\_solar\\_photovoltaic.html](http://www.worldofenergy.com.au/factsheet_solar/07_fact_solar_photovoltaic.html)

**Schoolgen – Renewable Energy**

<http://www.schoolgen.co.nz/se/photovoltaics.aspx>

**Research Institute for Sustainable Energy – Photovoltaics**

<http://www.rise.org.au/info/Tech/pv/index.html>

### Supporting question 1A

**How is electricity generated from the sun's radiation?**

### Supporting question 1B

**How are raw materials altered to build PV cells and combined to make pv cell technology?**

### Supporting question 1C

**What are the components required for PV solar technology to work effectively?**

## ◎ Inquiry 2

Before you try to answer Inquiry 2, have a go at answering supporting questions 2A, 2B, and 2C on the next page.

You can research information on these questions by going to the websites listed at the bottom of the page.

**What factors should consumers take into consideration before selecting and installing a PV system to generate electricity?**

**Schoolgen – Student Fact Sheet *Photovoltaic System Technology***

[http://www.schoolgen.co.nz/se/pv\\_tech.aspx](http://www.schoolgen.co.nz/se/pv_tech.aspx)

**Energy Efficiency and Conservation Authority – Fact Sheet 4 Photovoltaics**

<http://www.eeca.govt.nz/eeca-library/renewable-energy/solar/fact-sheet/photovoltaics-fact-sheet-04.pdf>

**Cell Power – Multi-Crystalline Silicon Photovoltaic Module**

[http://www.cellpower.co.nz/Solar%20Panels\\_files/Sharp%20123.pdf](http://www.cellpower.co.nz/Solar%20Panels_files/Sharp%20123.pdf)

### Supporting question 2A

**What factors affect how efficient PV systems are in generating electricity?**

### Supporting question 2B

**What factors affect how durable PV systems are?**

### Supporting question 2C

**What economic factors exist that may affect a consumer's decision to select and install a PV system?**

## ◎ Inquiry 3

Before you try to answer Inquiry 3, have a go at answering supporting questions 3A, 3B, and 3C on the next page.

You can research information on these questions by going to the websites listed at the bottom of the page.

**What are some of the technologies powered by PV systems?**

**Schoolgen – Student Fact Sheet *Photovoltaic System Technology***

[http://www.schoolgen.co.nz/se/pv\\_tech.aspx](http://www.schoolgen.co.nz/se/pv_tech.aspx)

**Energy Efficiency and Conservation Authority – Fact Sheet 3 Solar Water Heating**

<http://www.eeca.govt.nz/eeca-library/renewable-energy/solar/fact-sheet/solar-water-heating-fact-sheet-04.pdf>

**Cell Power – Multi-Crystalline Silicon Photovoltaic Module**

[http://www.cellpower.co.nz/Solar%20Panels\\_files/Sharp%20123.pdf](http://www.cellpower.co.nz/Solar%20Panels_files/Sharp%20123.pdf)

**Self Power Limited – Sustainable Energy and RV Specialists**

<http://www.selfpower.co.nz/>

**Smart Marine Boating and Fishing – Inverters, Solar Panels, Batteries plus accessories**

[http://www.smartmarine.co.nz/lighting-electrical-power-inverterssolar-panelsbatteries-c-31\\_87.html](http://www.smartmarine.co.nz/lighting-electrical-power-inverterssolar-panelsbatteries-c-31_87.html)

**Australian Government Department of the Environment and Water Resources – Solar Photovoltaics (download relevant pdfs)**

<http://www.greenhouse.gov.au/renewable/recp/pv/index.html>

**The Australian National University – Luminescent Concentrators and Dish Thermal Concentrators**

[http://solar.anu.edu.au/level\\_1/gallery/gallery.php?gal=1](http://solar.anu.edu.au/level_1/gallery/gallery.php?gal=1)

**The Australian National University – Trough Concentrators**

[http://solar.anu.edu.au/level\\_1/research/linearconc.php](http://solar.anu.edu.au/level_1/research/linearconc.php)

**Build It Solar (non-commercial site) – Range of PV products, including street lights, boats, scooters**

<http://www.builditsolar.com/Projects/PV/pv.htm> Click on 'projects'

### Supporting question 3A

**What forms of technology currently use PV systems?**

### Supporting question 3B

**Which technological purposes have PV systems been most effective for?**

### Supporting question 3C

**Why are PV systems appropriate for these purposes?**