Green Solar

In 2009 researchers at Berkeley helped shift research into new solar cell materials by considering the materials availability as a design constraint (See *Environ. Sci. Technol.* 2009, 43, 2072–2077). Given the proposed scales of PV adoption, the health and environmental impacts of PV technology should also be considered. This project would examine the proposed solar cell materials and designs and create a set of criteria to judge their greenness. Manufacturing, installation, and end-of-life issues associated with PV production would all need to be considered.

The figure below highlights some of the analysis done for material availability. Your goal would be to make something similar for the leading PV technologies considering various green metrics.

![Annual electricity production potential for 23 inorganic photovoltaic materials. Known economic reserves (also known as Reserve Base) and annual production are taken from the U.S. Geological Survey studies (21). Total U.S. and worldwide annual electricity consumption are labeled on the figure for comparison.](image)

FIGURE 1. Annual electricity production potential for 23 inorganic photovoltaic materials. Known economic reserves (also known as Reserve Base) and annual production are taken from the U.S. Geological Survey studies (21). Total U.S. and worldwide annual electricity consumption are labeled on the figure for comparison.