



Measures to reduce environmental impacts could also lead to a cost reduction in the manufacture of crystalline silicon modules. But what are the most important options to reduce environmental impacts and what are the main barriers to their implementation? Erik A. Alsema and M.J. de Wild-Scholten deliver some answers.

A reduction of silicon consumption in the PV manufacturing process is an obvious measure which may significantly reduce environmental impacts. In addition, silicon feedstock processes with lower energy consumption, such as fluidized bed reactor (FBR) technology, also have a large impact-reduction potential and both measures also have a cost saving potential.

Collectively such measures can reduce the energy pay-back time of a PV installation in southern Europe to well below one year.

Furthermore, improvements in crystal growing and cell and module manufacturing - as well as a number of options that are likely to be implemented as soon as technological barriers are overcome - are expected to lead to further cost advantages and environmental impact reductions. In addition, there are also several environmental improvement options that are less clearly linked to a cost reduction and in these cases progress on whether such 'best available technologies' will be implemented or not will depend on the policy of companies or on government rulings.

LIGHT IMPACT

An analysis of existing environmental impacts of present-day crystalline silicon (c-Si) modules and PV systems reveals a number of improvement options by which the environmental profile can be positively modified with relatively simple

Efficiency improvements in manufacturing solar cells will cut carbon pay-back times ERSOL SOLAR



