

Linde Calls on PV Industry to Reduce Carbon Footprint of Solar Cells

Cites cleaner alternatives to harmful greenhouse gases used in thin-film module production

London, UK, 21st September 2009 – In a run up to the largest Photovoltaic Solar Energy Conference, The Linde Group is calling upon the thin-film PV industry to shift focus from Grid Parity to Green Parity. As the world tackles climate change and solar energy approaches grid parity, Linde believes the PV industry must focus more attention on the carbon footprint of PV module manufacturing to deliver truly green energy.

In a bid to reduce production costs, manufacturers must not be tempted to adopt lower cost solutions without considering the overall impact on the long term sustainability of the PV industry. Based on work by the [National Renewable Energy Laboratory](#), the payback time for both crystalline silicon cells and thin-film silicon modules is between three to four years, with an aggressive target for thin-film of one year payback.

Linde is reviewing the entire manufacturing chain and identified the possibility of significant CO₂ savings in the PECVD chamber cleaning process, whereby fluorine is used in place of NF₃, a greenhouse gas with a global warming potential which is 17,000 times that of CO₂. By changing from NF₃ to F₂ alone, Linde estimates that the CO₂ payback time for thin-film PV modules can be cut significantly, by around 1 year.

Dean O'Connor, Head of Market Development & Technology at Linde Gases Division, said: "Linde is committed to technologies and products that unite the goals of customer value and sustainable development. As grid parity becomes ever closer to a reality, we as an industry need to start channelling our efforts towards reducing the carbon footprint of solar cell manufacturing. Environmental concerns continue to dominate the global agenda so green parity is an inevitable important new area of focus for suppliers and manufacturers."

At the 24th European Photovoltaic Solar Energy Conference in Hamburg (21-25 September), Linde Electronics is bringing together industry experts from Oerlikon, Suniva, EuPD Research, to host a seminar: "From grid parity to green parity – sustainability in an era of overwhelming cost pressure". By considering aspects of PV fab design, as well as equipment and materials selection, Linde will explore methods to improve sustainability in manufacturing. Case studies from current cell and module makers will also be featured for discussion. The [seminar](#) will be held on Thursday, 24th September (14.30 – 17.45 CET) at the Conference Centre Hamburg.

Pioneering the European electronics industry's efforts for the sustainable manufacturing of thin-film PV and semiconductors, Linde is already supplying on-site fluorine generation technology to [STMicroelectronics](#) and [Malibu](#).

Linde has established a leading position in gas and chemical supply to thin-film Si solar cell manufacturers, winning more than half of all the industry projects, and a strong position in Crystalline Silicon with nearly 40 percent market share. LE is in a leading position in key markets such as Germany, Spain, China, Taiwan and India.