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New photovoltaic contracts in China

press release

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Air Liquide Electronics

With 3,000 employees and €1,044 million revenue in 2008, Air Liquide Electronics has activities in ultra-pure and specialty gases, new molecules, related equipment and customized services.

The Electronics division management is based in Tokyo to enhance its proximity to the semiconductor, TFT-LCD and PV markets in Asia.

The use of gases in the photovoltaic industry

Gases are used at all stages of solar cells manufacturing process:

- to produce Poly-Silicium: high-volume of nitrogen (N₂) and hydrogen (H₂)
- to produce Si wafers: large quantities of nitrogen, argon (Ar) and helium (He)
- to produce crystalline-Si cells: carrier gas (N₂) & specialty gases such as silane (SiH₄), ammonia (NH₃)
- to produce Si Thin Film cells: carrier gases (N₂, H₂), specialty gases (SiH₄, NF₃, dopant mixtures) and coating precursor materials.

Air Liquide confirms its **leading position in the PV market with the recent signature of thirteen new contracts** with crystalline-Silicon (c-Si) solar cell manufacturers in China. The Group expands its supply to Chinese market leaders **JA Solar and Yingli Green energy**. Air Liquide will invest **over €10 million** to meet the needs of these customers.

China is already the world's leading manufacturer of solar cells, hosting around 35% of total world capacity. Recently, the Chinese government announced a target of **20 GWp power installed by 2020**.

Air Liquide is now the carrier gases and specialty gases supplier of **JA Solar** and **Yingli**, respectively China's number two and number three manufacturer, with a combined capacity of **1,400 MWp**. Air Liquide is supplying:

- JA Solar's solar cell production fabs in the Jiangsu' and Hebei provinces;
- Yingli's solar cell and Poly-Silicon facilities in Baoding Photovoltaic park, located in Hebei province.

Air Liquide is the partner of China's **three main solar cell manufacturers**, since it already supplies **Suntech, the largest c-Si producer in China** (as announced in May 2009).

In addition, in Beijing, Shanghai, Jiangsu, Zhejiang and Hebei, Air Liquide was recently awarded **various new long-term contracts** for the supply of carrier gases and of specialty gases, namely to **Jinko Solar, Sunflower and DelSolar**, as well as to **eight other new c-Si fabs under construction**, for a total combined new manufacturing capacity of above **1,300 MWp per year**.

In light of the latest contracts, **Air Liquide becomes the supplier of more than 100 solar cell manufacturing companies around the world**, with an overall c-Si capacity **above 10 GWp per year**.

Francisco Martins, Vice-President World Business Line Electronics of the Air Liquide Group, declared: **"We are pleased to have been chosen to supply the three largest solar cell manufacturers in China. This confirms our ability to supply added-value gases and turnkey solutions to this industry. These recent contracts reinforce our leading position in this fast-changing industry. The photovoltaic activity is at the crossroads of Energy and the Environment, two growth drivers for the Air Liquide Group."**

Air Liquide is the world leader in gases for industry, health and the environment, and is present in over **75 countries** with **43,000 employees**. Oxygen, nitrogen, hydrogen and rare gases have been at the core of Air Liquide's activities since its creation in 1902. Using these molecules, Air Liquide continuously reinvents its business, anticipating the needs of current and future markets. The Group innovates to enable progress, to achieve dynamic growth and a consistent performance.

Innovative technologies that curb polluting emissions, lower industry's energy use, recover and reuse natural resources or develop the energies of tomorrow, such as hydrogen, biofuels or photovoltaic energy... Oxygen for hospitals, homecare, fighting nosocomial infections... Air Liquide combines many products and technologies to develop valuable applications and services not only for its customers but also for society.

A partner for the long term, Air Liquide relies on employee commitment, customer trust and shareholder support to pursue its vision of sustainable, competitive growth. The **diversity** of Air Liquide's teams, businesses, markets and geographic presence provides a solid and sustainable base for its development and strengthens its ability to push back its own limits, conquer new territories and build its future.

Air Liquide explores the best that air can offer to preserve life, staying true to its sustainable development approach. In 2008, the Group's revenues amounted to **€13.1 billion**, of which almost 80% were earned outside France. Air Liquide is listed on the Paris Euronext stock exchange (compartment A) and is a member of the CAC 40 and Dow Jones Euro Stoxx 50 indexes.