

## Press Release

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### Linde to make EUR 15 m gas production investment in Finnish pulp and paper industry

**Munich, 13 November 2015:** Linde Gases, a division of The Linde Group, today announced it will construct ECOVAR™ standard on-site nitrogen and oxygen production plants for CP Kelco and Metsä Fibre, respectively, in Äänekoski, Finland. The long-term on-site gas supply agreements include plant installation, operation and maintenance. Both plants will be constructed by Linde's Engineering Division.

The nitrogen production installation at CP Kelco will incorporate Linde's ECOVAR™ ADSOSS™-N gas generation plant, which separates nitrogen from air employing the adsorption-based PSA (pressure swing adsorption) process. The customer uses nitrogen for inerting processes in the production of CMC (carboxymethyl cellulose) in order to control the level of oxygen content.

The uninterrupted supply of nitrogen is of primary importance to the production process, product quality and operational safety. To guarantee CP Kelco a continuous supply of nitrogen under all conditions, a back-up system based on vapourisation of liquid nitrogen will also be installed. Implementation of the ECOVAR™ plant is underway, with operations beginning early 2016.

Linde has also agreed with Metsä Fibre, part of Metsä Group, long-term deliveries of oxygen based on a similar ECOVAR™ supply concept, this time incorporating an ADSOSS™-O oxygen plant. The plant will extract oxygen by means of adsorption. ADSOSS™-O gas generation plants are typically designed with two cyclically operated adsorber vessels to extract oxygen continuously, known as vacuum pressure swing adsorption (VPSA) technology.

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Manfred Schneider, Chairman  
Executive Board:  
Wolfgang Büchele, Chairman  
Thomas Blades, Christian Bruch  
Georg Denoke, Bernd Eulitz, Sanjiv Lamba

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The installation will be built in the Metsä Group's new bioproduct mill area, currently under construction. Oxygen is an essential chemical in the modern pulp mill and its uninterrupted delivery is vital. Metsä Fibre uses significant amounts of oxygen in its processes, for example, in the bleaching of pulp and oxidation of white liquor.

The Äänekoski ADSOSS™-O oxygen plant will be one of the world's largest oxygen plants based on VPSA and will begin operations at the same time as Metsä Group's bioproduct mill in the third quarter of 2017.

"We are delighted to be able to contribute, through our expertise, to this new EUR 15 million investment project for the pulp and paper industry in Finland. Gases are an essential part of many production processes in this industry and these particular investments are an important focus for growth. The new bioproduct mill will create further opportunities for both our gases and gas technologies. As such, we have a commitment to our customers to continue to develop technologies and delivery concepts which improve the efficiency, productivity and sustainability of their processes," said Bo Dyrvold, Head of Linde's Regional Business Unit Northern Europe.

The ECOVAR™ delivery method is the most efficient way to deliver large amounts of gases for industrial processes, both in terms of energy consumption and a reduction in environmental impact. On-site production significantly reduces the need for road deliveries of gas and adsorption technology also saves energy compared to cryogenic distillation, commonly used in production of gases in large quantities. The plants are fully automated and operations are monitored from the company's remote operation centre in Avesta, Sweden.

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### About The Linde Group

In the 2014 financial year, The Linde Group generated revenue of EUR 17.047 bn, making it the largest gases and engineering company in the world with approximately 65,500 employees working in more than 100 countries worldwide. The strategy of The Linde Group is geared towards long-term profitable growth and focuses on the expansion of its international business with forward-looking products and services. Linde acts responsibly towards its shareholders, business partners, employees, society and the environment – in every one of its business areas, regions and locations across the globe. The company is committed to technologies and products that unite the goals of customer value and sustainable development.

For more information, see The Linde Group online at [www.linde.com](http://www.linde.com).

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