

## **UPM-Kymmene Corporation**

### **Activities in Printed Functionality and in Energy**

UPM is one of the world's leading forest products groups. The Group's sales in 2006 were EUR 10 billion, and it has about 28,000 employees. UPM's main products include printing papers, self-adhesive label materials and wood products. The company has production plants in 15 countries and its main market areas are Europe and North America.

UPM Corporate Venturing is continuously searching for new ideas that have potential to become fast growing value adding businesses. These ideas may be new products, technologies or manufacturing processes that can create new business or add value of existing businesses. In particular, UPM is interested in developing new based on large-volume cost-effective process integration of core production technologies such as printing, coating and lamination. UPM Raflatac is already one of the world's leading producers of RFID tags, chemical sensor labels for food packaging were presented in 2007, and flexible, paper-like electronic shelf labels are in the process of commercialisation.

Printed electronics has been identified within UPM as one of the most promising technologies in the field of advanced roll-to-roll products, and Corporate Venturing has been assigned the task of looking into potential applications. Solution coatable electronic materials offer opportunities for fast and cost-effective high-volume manufacturing of electronic components. The liquid phase processes to fabricate such components are compatible with UPM's roll-to-roll manufacturing competencies. Through its participation in several Finnish national and European consortium-projects, UPM is developing know-how connected with printing and deposition of organic semiconductors and devices based on these.

UPM is not currently involved in organic photovoltaics, but is interested in investigating potential opportunities. Organic photovoltaics, since it is a large-area electronics application based on solution processing with large market potential, may fit well to UPM's interest in printed electronics and capabilities in process optimisation and integration for value added products. This is the major motivation for attending this meeting.

Another, more generic, motivation is the importance of CO<sub>2</sub> neutral energy. UPM's energy strategy is based on high self-sufficiency both in electricity and in fuel supply. Effective large-scale utilization of biomass based fuels is an extremely important aspect of the Group's energy strategy. Over the last years, CO<sub>2</sub> neutral energy sources have come to dominate UPM's energy portfolio. Presently in Finland more than 75% and globally about 60% fuels used at UPM's mills are biomass based and CO<sub>2</sub> neutral. Since the 90's UPM has invested in building new mill site power plants using biomass as fuel. This, in addition to energy efficiency improvements, has resulted in a significant global reduction of 25% in the company's fossil CO<sub>2</sub> emissions.

UPM's commitment to renewable energy has recently been expanded to synthetic fuels based on wood residue biomass. UPM announced in October 2006 that it will strongly increase its stake in second generation biodiesel in the next few years and prepare to become a significant producer of renewable biofuels. In May 2007 a co-operation with Andritz and Carbona on development of the technology for biomass gasification and synthetic gas purification was announced.