

 **Press release**

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FOR IMMEDIATE RELEASE

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## **PSE Queen's Award for Enterprise - Innovation**

### **Process modelling technology supplier recognised for “outstanding innovation”**

Process Systems Enterprise of London today are delighted to announce that the company has been awarded the Queen's Award for Enterprise – in the Innovation category – for 2001.

The Queen's Award for Enterprise, with its three categories of International Trade, Innovation and Environmental Achievement, is the UK's most prestigious symbol of success in elevating standards of design, quality and marketing within UK industry. The Innovation category acknowledges outstanding, sustained achievements in innovation resulting in substantial improvement in business performance and commercial success.

PSE's award is for two technologies which, in combination, enable the mathematical optimisation of process design and operation in the process industries to a degree that has until now been impossible to achieve: the gPROMS process modelling system, a software framework for detailed mathematical modelling of the physical and chemical relationships of chemical processes, and the dynamic optimisation technology which uses the underlying process model to optimise the performance of a complex process over time.

The technology on which gPROMS is based resulted from many years' research at Imperial College in London. Since acquiring the rights to the underlying intellectual property on startup in 1997, PSE has intensively developed the technology within a robust commercial software framework.

Many chemical processes are costly to operate, and their operation carries significant environmental and safety risks. Together, the PSE technologies provide a unique capability to describe the process mathematically, solve the resulting set of perhaps tens of thousands of complex equations, and then to use this model to arrive at the optimal process design and operating procedures within a safe – software-based - environment. The 'optimal' in this case is whatever the user defines – for example, the safest, the most efficient, the most profitable, the lowest cost, or the shortest time to start up.

An example of application is fuel-cell technology, where the race is on for development of world-beating under-the-bonnet technology to power the motor car of the future. The complexity of the chemistry, thermodynamics and electronics of the process mean that mathematical modelling is essential to minimise costly and time-consuming analysis, experimentation and prototyping during the design phase. Moreover, the extreme demands of operation – for example, the requirement for the system to start up and become fully operational in a time acceptable to today's demanding motorist, in



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conditions that can range from Arctic cold to Saharan heat - mean that it is essential to use optimisation to ensure that the resulting design has the required responsiveness and versatility. Several of the major players in the fuel cell race are using gPROMS modelling and optimisation capabilities as a key enabling technology.

The benefit these technologies and their combination bring to the process industries is potentially enormous. Optimisation quantifies, rigorously, the very best design or operational strategy: environmental impact can be minimised by improved design of processes and their control systems; design efficiency is improved by reducing costly design margins; operating safety is improved by better design and the ability to screen out hazardous operation at design time as well as improved day-to-day operations; and plants can be run closer to their theoretical throughput limits and with a higher degree of on-specification product. Profits can thus be maximized by increasing throughput and product quality, by reducing capital and energy costs and a variety of other means. Process models allow intensive "offline" training of operators, as well as training for hazardous situations that would never intentionally be created on the real plant.

### Further information

Both the technologies described above are an integral part of PSE's gPROMS process modelling package which has a global market of large process industry customers. Following an alliance signed last year between PSE and major global automation vendor ABB Automation, the gPROMS modelling system provides the solution engine at the heart of a range of new ABB automation products aimed at radically improving the day-to-day operation of process plants around the world.

### About Process Systems Enterprise Ltd:

PSE (<http://www.psenterprise.com>) is one of the fastest growing providers of model-based technology and services for design and decision support to the process manufacturing industries. The company was founded in 1997, originally to deliver and support in the commercial market innovative process modelling technology originating from London's Imperial College. Among its unique offerings are advanced software packages, services and expertise for modelling and simulation of manufacturing processes and optimal design, planning, scheduling and operation of flexible manufacturing facilities. PSE has established itself as a leading independent high-tech provider to a growing, global customer base that encompasses the largest process manufacturing and automation companies in the world. The company is a winner of the prestigious UK Queen's Award for Enterprise and Innovation for 2001, for its gPROMS mathematical modelling framework and dynamic optimisation technology.

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