

**R&D RECOGNIZED FOR VALUE CREATION DURING 2010 GDF SUEZ INNOVATION TROPHIES.**

# NEWS :

## Value creating research & development

### WHEN R&D PAYS OFF

#### Creating value in the medium term

**Laborelec is actively contributing to achieving operational excellence throughout the GDF SUEZ Group. Each of our R&D projects focuses on maximizing return in the field.**

Our experts are engaged in research programs in strategic domains ranging from condition assessment and water treatment to state-of-the-art process control. Their primary goal is to discover opportunities to create value in the medium term. This approach pays off, since it takes only about the first 15% of our most profitable research projects to earn back the entire portfolio investment. Here are some examples of how a small R&D project can result in a significant increase in earnings:

- Laborelec developed a new **steam turbine control system** for participation in **primary frequency control (PFC)**. By adding the contributions of the steam and gas turbines in combined cycle gas turbines together, the plant can be derated less for the same PFC contribution. This ensures a considerably more efficient use of the power plant's capacity.
- Our experts have built an **on-line tool** that measures the degree of **bio fouling and scaling** in the cooling water circuit. Close monitoring enables the optimization of the water treatment process and rationalizes the utilization of biocides.
- We have designed a **wind power forecasting tool** that improves the forecasting accuracy for wind turbine output by 13% compared to linear models. This advance helps reduce penalties from imbalances, optimizes the maintenance scheduling, and enhances the Group's wind power portfolio.
- We have also worked out an array of **destructive analyses** to assess the **potential lifetime extension** of hot gas path components. Using a mixture of visual inspections, component sectioning, optical and scanning electron microscopy, and creep tests has already identified various lifetime extension opportunities saving millions of euros.

All of these and other R&D projects have already proven their value in the field. They have yielded results that significantly surpass their initial R&D and implementation costs.

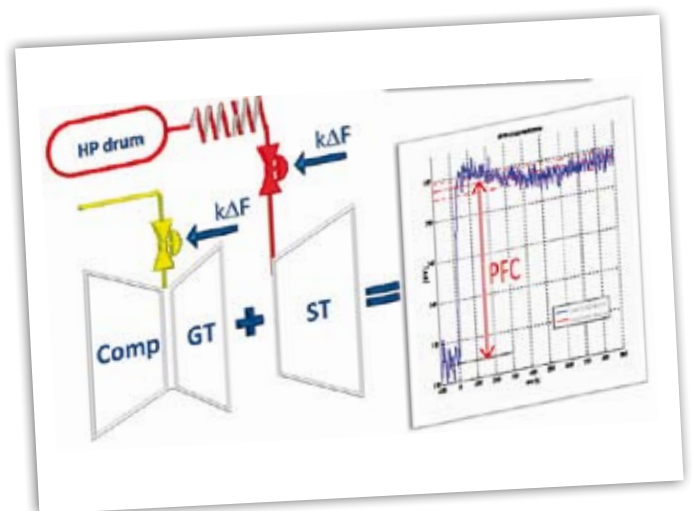
### IMPROVING OPERATIONAL EXCELLENCE THROUGH R&D

Laborelec is continuously looking for new techniques to guarantee operational excellence for all GDF SUEZ power plants. Our research programs focus on increasing availability and residual lifetime, reducing investment and maintenance costs, increasing flexibility of power plants, and improving efficiency and environmental performance. And with success! We have the cases and the figures to prove it. Moreover, our R&D was recognized for its value creation during the 2010 GDF SUEZ Innovation Trophies. Find out more in this special edition of Laborelec News.

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#### *“LABORELEC’S R&D ACTIVITIES MEET ISO 9001 QUALITY MANAGEMENT SYSTEM STANDARDS”*



*Combined cycle power plants participating in primary frequency control significantly increase their revenue with the new steam turbine control system.*

## GDF SUEZ INNOVATION TROPHIES

### Laborelec research recognized for value creation

**On 4 June 2010, the second edition of the GDF SUEZ Innovation Trophies culminated in a series of awards. Laborelec was among the lucky few invited to attend the award ceremony.**

The 2010 GDF SUEZ Innovation Trophies were a complete success with 439 dossiers submitted. Of these, 41 were passed on to the final jury, who awarded thirteen top prizes in seven categories and six Value Creation Labels. Three Laborelec innovations made it to the finals.

#### Top prize for Blade Life Management

Laborelec's Blade Life Management (BLM) approach won first prize in the Research Category. With BLM, Jean-Pierre Keustermans and Sigrid Gijbels' team developed a method for building a lifetime calculation model of gas turbine blades.

Based on this method, our experts have already built lifetime calculation models for four types of gas turbine blades. These models have helped save over a million euros, earning back a multiple of the original development cost. What makes this new method even more attractive is that it can be generalized to all types of crucial components that are subject to complex degradation mechanisms.

#### Nomination for Laborelec Steam Turbine Simulator

The Laborelec Steam Turbine Simulator (LSTS) was among the select few nominated for the Innovation Trophy in the Industrial Performance Category. Although it did not win first prize, LSTS was recognized for its widespread application and cost-saving capabilities.

Laborelec's Alexandre Perdaens developed the LSTS to enable a cold commissioning of the controller and avoid stress, damage, and time-consuming hot commissioning. In addition, the simulation parameters can be adapted easily to fit other types of equipment.

#### Value Creation Label for Diagnostic Centre

Laborelec's Diagnostic Centre earned the Group's Value Creation Label in the 2010 competition. This award recognizes projects that have created the most value for the GDF SUEZ Group in recent years.

Yves De Mulder's team developed this service to increase implementation of condition monitoring to identify problems at an early stage. It enables power plants to take corrective actions and avoid incidents. This improves maintenance planning and avoids expensive downtime and repairs. The Diagnostic Centre has already proven its success in the field. For instance, it helped identify a crack in a critical gas turbine component, saving the power plant 1.4 million euros in repair costs and production loss. Currently, the Laborelec Diagnostic Centre services more than a dozen different power plants.



*Yves De Mulder (third from left) picking up the Label of Value Creation Award on behalf of the Laborelec Diagnostic Centre.*



*Laborelec's Jean-Pierre Keustermans (first from right) was handed the Innovation Trophy in the Research Category for his Blade Life Management research.*

#### Value creation proves decisive

The GDF SUEZ Innovation Trophies reward projects based on four criteria:

- The innovative character of the project
- The ease with which the project can be implemented
- The potential application in other business divisions
- The value creating potential