

# Process control

## Control of energy conversion plants

### ■ Commissioning and optimisation of control loops

In many cases the process of regulating industrial plants for energy conversion, such as steam boilers, steam distribution networks, combined heat and power stations or traditional power stations, is very complex. These systems usually involve non-linear reactions. Even if the control loop is very well designed, it is a highly specialised task to set the parameters when bringing complex processes of this type on line. Our experts at Laborelec have an extensive practical knowledge of plants and control systems, and can set up these systems without fault.

### ■ Pro-active testing prior to construction or expansion

Dynamic modelling has a proven track record prior to the construction of a new plant or the expansion of an existing one. It provides a pro-active check to establish whether the future installation will react appropriately in all circumstances. What pressure and temperature variations can be expected? How will the steam network react if one of the boilers fails? What will be the effect of our choice of pumps? An accurate dynamic model will provide the answers to these questions quickly. If necessary, design changes can be introduced. Thanks to their extensive practical experience our Laborelec experts are well placed to design a dynamic model of this type.

### ■ Data acquisition and signal processing

To measure is to understand, and this is certainly true for energy conversion plants. When developing a control system, monitoring an installation or analysing irregularities, everything depends on measurements. However, developing a reliable system of measurement requires more than a knowledge of instrumentation. What should be measured, and where and how should it be measured? How do we go about data acquisition and signal processing? And how can the results be presented in manageable form? This is a task for the Laborelec experts, who combine a knowledge of instrumentation with practical experience of industrial processes.

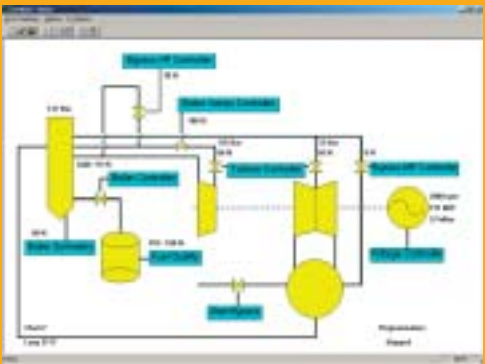
## Towards faultless and efficient control

### ■ We offer process control of :

- electrical power stations (coal, gas, nuclear or hydropower)
- industrial steam or hot water circuits
- industrial steam or heating boilers
- combined heat and power plants
- turbines
- dams (level control)



The technical Competence Center  
in energy processes and energy use.  
**From innovation to operational assistance.**



We will gladly help you to find the best process control system from a technical and economic point of view.

■ **The final objective is to optimise plant control from a technical and economic point of view. In consultation with the operating and maintenance personnel we will define the requirements and draw up a plan of action. Thereafter we will take care of :**

- The development, commissioning and optimisation of control loops
- The testing of new control techniques
- Optimising the design of an installation and its control structure, by means of a custom-made dynamic computer model
- Developing and using measurement systems, including signal processing and data acquisition
- Remote acquisition and analysis of the measurement results

During all of these actions our experts work as closely as possible with your personnel to ensure that everything runs smoothly. They also ensure that any hindrance to your production processes is kept to a minimum and that all works are carried out safely (Laborelec is VCA\*\* certified).

■ **We also provide an integrated, total approach :**

We define the problem and methodology, carry out the necessary measurements, analyse the measurement results, formulate concrete solutions and ensure that these solutions are put in place.

■ **All the instrumentation required**

We have at our disposal :

- Data analysis software (LMS, ACLS, MATLAB, etc.)
- Simulation and modelling programs (ACLS, Vissim, Simulink, MMS, COGITO, etc.)
- Controllers
- PCs and workstations
- A special tool for optimising PID control loops (RaPID)
- Sensors for all kinds of measurements
- etc.

■ **Personnel training**

If your process control system is in need of radical change, we will train your personnel to make them familiar with the new system.

For large, industrial energy plants we have dynamic simulators at our disposal, or can build them with a view to training your personnel. Simulators of this type help avoid expensive trials on the plant itself, and offer a guarantee of safety. We offer this service in conjunction with the Electrabel training center in Aalst.



**Five reasons for you to choose Laborelec:**

- you have one-stop shopping for your energy needs;
- you get access to more than 40 years of experience;
- you get rapid service with reliable solutions;
- you increase the profitability of your installations;
- you benefit from independent and confidential advice.

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