

Optimizing power plant efficiency

How do plant processes affect overall performance?

EFFICIENT POWER PLANTS REQUIRE EFFICIENT PROCESSES

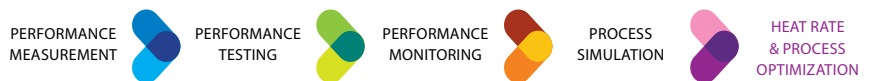
The overall performance of a power plant depends on the efficiency of each of its individual processes. Therefore, minor changes can have a big impact. But to what extent and at what cost? Such assessments require expert know-how and reliable simulation equipment.

HIGH PRECISION TOOLS BACKED BY BROAD KNOWLEDGE

ENGIE Laborelec has the knowledge and equipment to precisely establish the link between specific plant processes and overall performance.

- Extensive knowledge of power plants**
 Our experts boast a broad knowledge of all types of power plants, as well as of the various interactions between plant processes. This expertise enables them to accurately assess the impact of each adjustment on overall plant performance.
- Multidisciplinary approach**
 ENGIE Laborelec has extensive expertise in the many domains of electricity generation. This multi-disciplinary strength enables our experts to analyze problems from various angles, resulting in a better understanding of issues and their causes. This way, we can rapidly identify when and where to carry out further investigations.
- In-house top equipment and experts**
 Our experts have top quality testing and measurement equipment at their disposal and are trained in using these instruments to achieve the most accurate measurements possible.

PERFORMANCE VALUE CHAIN



ENGIE Laborelec is active in every step of a power plant's performance value chain. In this brochure we focus on optimizing power plant efficiency.



INTERNATIONAL REFERENCES

- > Esch-sur-Alzette (Luxembourg): investigation of a water spraying system improving air-cooled condenser operation. At an ambient temperature of 35 °C, this will save an estimated 42,000 euros per operating hour.
- > Novergie (France): analysis of the causes behind a lack of power output and efficiency of an incinerator.
- > Proposition of the best wind screen through CFD simulations. Based on figures of 2008, this could result in the generation of 5.6 GWh additional power.
- > Castelnou (Spain): quantification of the negative wind effect on condenser operation based on measurements.



On-site analyses, simulations, and expert advice

Our experts assist power plants in optimizing their processes by carrying out design analyses, thermodynamic process simulations, and feasibility studies. These provide the plant manager with independent recommendations and advice in their decision making.

ON-SITE PROCESS ANALYSES

ENGIE Laborelec carries out on-site analyses of all power plant processes. The investigation starts with an analysis of the piping and instrumentation diagram, as well as the sizing and design data of the installations. Our experts work in close cooperation with power plant operators.

PROCESS SIMULATIONS TO FINE-TUNE PERFORMANCE

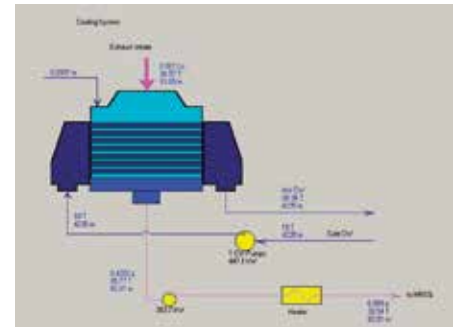
Our experts use thermodynamic simulations to assess the various means of improving process performance. Existing process design and parameters are first modelled and validated using available information or measurements. Based on this model, suggested system modifications and improvements are then tested using advanced simulation tools.

FEASIBILITY STUDY

Once potential improvements are identified, ENGIE Laborelec prepares information on the technical feasibility and cost of these improvements. If components need to be purchased, Laborelec always provides information on the latest proven technology.

ADVICE AND RECOMMENDATIONS

Based on their broad experience and on simulation results, our experts provide advice and recommendations on actions to further improve power plant performance. ENGIE Laborelec also supports plant operators during improvement projects.



Our experts use proven thermodynamic simulation tools to anticipate the impact of process changes on power plant performance.



After implementing improvement actions, such as the spraying system of the air-cooled condenser at the Saint-Ghislain and Esch-sur-Alzette combined cycle gas turbine power plants, ENGIE Laborelec also performs comparative analyses. The return of experience is shared across the Group.

Five reasons for you to choose Engie Laborelec

- Wide range of technical competencies in Electricity Generation, Grids and End-Use
- Increased profitability and sustainability of your energy processes and assets
- Unique combination of contract research and operational assistance
- Independent advice based on certified laboratory and field analyses all over the world
- More than 50 years of experience

Contact

ENGIE Laborelec
Rodestraat 125
1630 Linkebeek

T. +32 2 382 02 11
info.laborelec@engie.com

