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## Cegelec, European ground segment specialist

*For more than 40 years, Cegelec has brought its vast experience and innovative solutions to the space industry. A recognized European expert in the design, installation and maintenance of ground support equipment, Cegelec plays a pivotal role in boosting space industry performance.*

Cegelec is a global technological services group, with annual sales of 2.7 billion euros and 26,000 employees in 30 countries. In addition to its historic role in support of European space programs, Cegelec offers high performance solutions spanning a number of areas: energy and electricity, automation, instrumentation and control, IT and communications, heating, ventilation and air conditioning (HVAC), mechanics, maintenance and other services.

Cegelec built up its space expertise and a successful track record by leveraging the synergies between these different disciplines. To succeed in the space market, Cegelec draws on the skills of its fluids/instrumentation division, especially those used in oil industry processes, which are similar to those needed for propellants and other launcher fluids. Through this experience, plus an in-depth understanding of the space industry and its specific requirements, Cegelec has become one of today's recognized specialists in ground support equipment.

The company has participated in France's space program from the outset, at the original launch base in the Sahara. In 1968, it set up shop in Kourou, French Guiana, when the current Guiana Space Center was esta-

blished. Today, Cegelec is one of the largest private companies operating in French Guiana, with 130 staff at the Space Center out of a total of 300 in the region.

Working for both French space agency CNES and launcher marketing company Arianespace, Cegelec has contributed to the worldwide renown of the Guiana Space Center. It is an integral part of all ground infrastructure projects, with responsibility for operation and maintenance of ground facilities for both satellites and launchers. More specifically, it provides the following services:

- engineering and lead contractor in the design and construction of a large number of ground facilities;
- maintenance and operation of payload preparation facilities;
- maintenance and operation of Ariane launch complexes;
- Guiana Space Center design and construction office.

### European presence

Cegelec has subsidiaries in nearly all countries belonging to the European Space Agency (ESA). In 2001, it created the Cegelec Space consortium to reduce costs and facilitate technology transfer. Based in Kourou, Cegelec Space groups the company's French, German, Austrian and Dutch teams, allowing them to work in concert without engendering additional structural costs. Each country has developed a specific area of expertise: Germany handles the operation and maintenance of the payload preparation facilities; the Netherlands is in charge of maintenance of fluid systems; Austria is the specialist in quality assurance, spanning all areas; and Belgium offers legacy expertise in checkout stands.

### Delegated by CNES

Early in 2002, CNES awarded Cegelec Space, in association with the Swiss company Apco Technologies, three 5-year service contracts on behalf of the Guiana Space Center. All contracts include performance guarantees. The first contract assigns Cegelec Space responsibility for the operation and maintenance of systems and equipment for all payload preparation facility premises.

The second contract, for design and construction work, places Cegelec Space in charge of upgrades to ground facilities at the Guiana Space Center, from the original writing of requirements to final delivery. According to the third contract, Cegelec Space is responsible for archives and documentation, and also participates in drawing up CNES's own internal publications, whether print or audiovisual.

### Delegated by Arianespace

Cegelec Space also signed a contract with Arianespace covering the operation and maintenance of fluid networks for the launch complexes. It is responsible for the conven-



tional and cryogenic fluid lines used to fill the Ariane launcher, along with the specialized mechanical engineering aspects of this activity.

As part of the latter task, Cegelec Space handles the operation and maintenance of the cryogenic arms and other devices, as well as the release system used for propellant filling during the final countdown.

**Cegelec's role in Kourou**

Cegelec handles design, installation, operation and maintenance tasks in the following areas at the Guiana Space Center:

- Propellant lines (storable and cryogenic).
- Fluid lines and instrumentation.
- Data acquisition and processing; telecommunications systems.
- Mechanical systems.
- Control and command systems.
- Low voltage systems, access control, security (gas detection, fire-fighting, etc.).
- HVAC.
- Electrical power generation and distribution.

**All-around expertise**

Cegelec's services for the space industry cover system design, integration, operation and maintenance. In fact, Cegelec is recognized as the benchmark for ground support equipment, from fluid mechanics to instrumentation, and from climate control and energy to checkout stands, telecoms and telemetry. Cegelec is the only company in this field to offer such multidisciplinary expertise.

**Competitiveness and transparency**

Cegelec has always focused on its customers' needs, taking a lead role in reducing overall launch costs. With the launch service business increasingly competitive, reducing service costs has become an imperative.

Cegelec's choice of a consortium type structure means greater transparency for its customers. Cegelec Space offers greater openness, while freeing customers from administrative and management tasks so they can concentrate on their core expertise. With Cegelec providing its services on an increasingly global stage, it offers guaranteed reporting and accountability. It also ensures process reversibility, as well as technology transfer in case of a change in service provider.

**Enhanced flexibility and responsiveness**

As a systems and service integrator in its various fields, Cegelec offers the flexibility and responsiveness demanded by major projects. One of its major assets is a worldwide network of partners, that it can call on at any given moment. This means that Cegelec can quickly call in local "reinforcements" when needed. For instance, during the extensive testing of the new version of Ariane 5 in 2002, Cegelec was able to call on a team of 40 highly-qualified technicians for a mission lasting several months.



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