

CESI project consultant in Brasil for the High Voltage Direct Current line Rio Madeira - São Paulo



The activities concern the technical support to Interligação Elétrica do Madeira (IEM) related to the Quality Assurance and decision support during the design and development of Bipole 2 (see Figure), provided by AREVA, of “RIO MADEIRA” HVDC link, connecting Coletora P.Velho to Araraquara in Brazil .

CESI consultancy aims at ensuring that products (goods and/or services) satisfy Customer requirements in a systematic and reliable way. The activities are focussed on both the two twelve pulse converter stations rated 2x1575MW, 600kVdc of the second bipole and, in particular, are divided in three different phases.

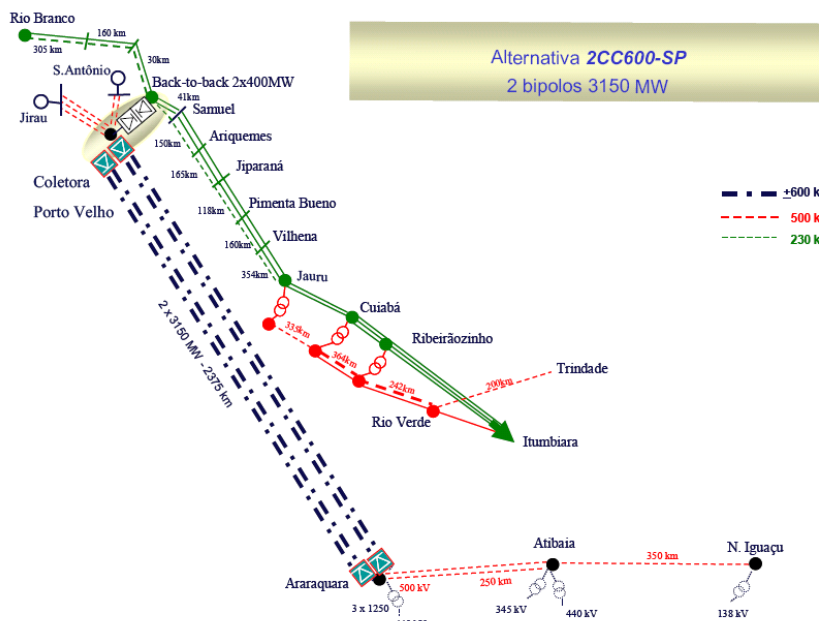
PHASE I – SURVEILLANCE DURING DESIGN

CESI activities for the surveillance in the design of RIO MADEIRA project can be summarized as follows:

- Technical revision of the design on the basis of the Customer Technical Specifications
- Critical revision of the supplier system studies, mainly devoted to system performance evaluation and verification of ratings

These execution of the above activities entails:

- Review of technical documentation concerning the HVDC system
- Follow-up and review of the studies performed by the supplier in the HVDC link design
- Review of preliminary design of the supplier to verify the fulfilment of IEM's requirements
- Verification of the Main Equipment Specifications
- Validation of control and protection system design



PHASE II – SYSTEM QUALITY ASSURANCE

The activity consists of:

- Verification of available type test and of test list foreseen for each one of the main component
- In-production inspection to verify the fulfilment of the production process of the main and critical equipment to the international standards, in order to assess the expected quality of the products
- Witnessing of type and routine tests, mainly concerning converter transformers, smoothing reactors, thyristor valves, converter control system, AC and DC filter equipment (reactors, resistors and capacitors), bushings, arresters and, breakers and disconnectors
- Definition and witnessing of Control & Protection (C&P) factory system tests at simulator and commissioning tests. The activity consists of a set of tests performed firstly at simulator at manufacturer premises, in order to verify the performance of the system that cannot be verified during commissioning, secondly at site for non-invasive checks.

PHASE III - COMMISSIONING SUPPORT

CESI will provide the engineering support during commissioning test on site and plant trial operation.

In particular, the activities consist of:

- Commissioning test list, test procedure and test scheduling verification
- Main equipment commissioning test witnessing
- Support during the commissioning and performances/acceptance tests
- First trial assistance (for the first 30 days of HVDC operation)
- Technology Transfer.