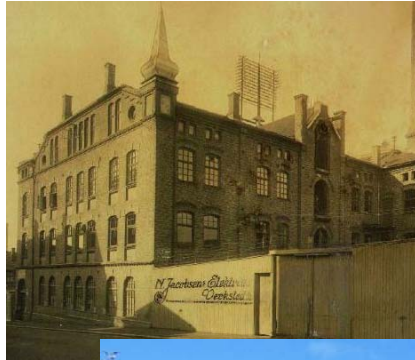




Jacobsen elektro

**Industrial experience with project execution on
upgrading of energy systems in Rosiori Substation**

Jacobsen Elektro AS



- ❑ Established as an electro-technical company in 1881
- ❑ Located close to Drammen, 50km south of Oslo, Norway
- ❑ Employing some 60 high skilled people
- ❑ Annual turnover of MUSD 45
- ❑ Extensive international network
- ❑ Complete turnkey contractor and supplier of components
- ❑ Long experience from projects in Africa, Asia and Europe

Jacobsen Elektro in Romania

❑ **2001:**

Jacobsen Elektro started market activities in Romania

❑ **September 2002:**



Signed a Memorandum of Understanding with Transelectrica regarding modernizing of a 400/220 kV Interconnection Substation

❑ **August 2003:**



Contract signed; 18,5 MEURO

❑ **June 2004:**

Contract effective

❑ **May 2006:**

Contract completed

❑ **June 2006:**



Official Inauguration

Rosiori 400/220kV Substation Project



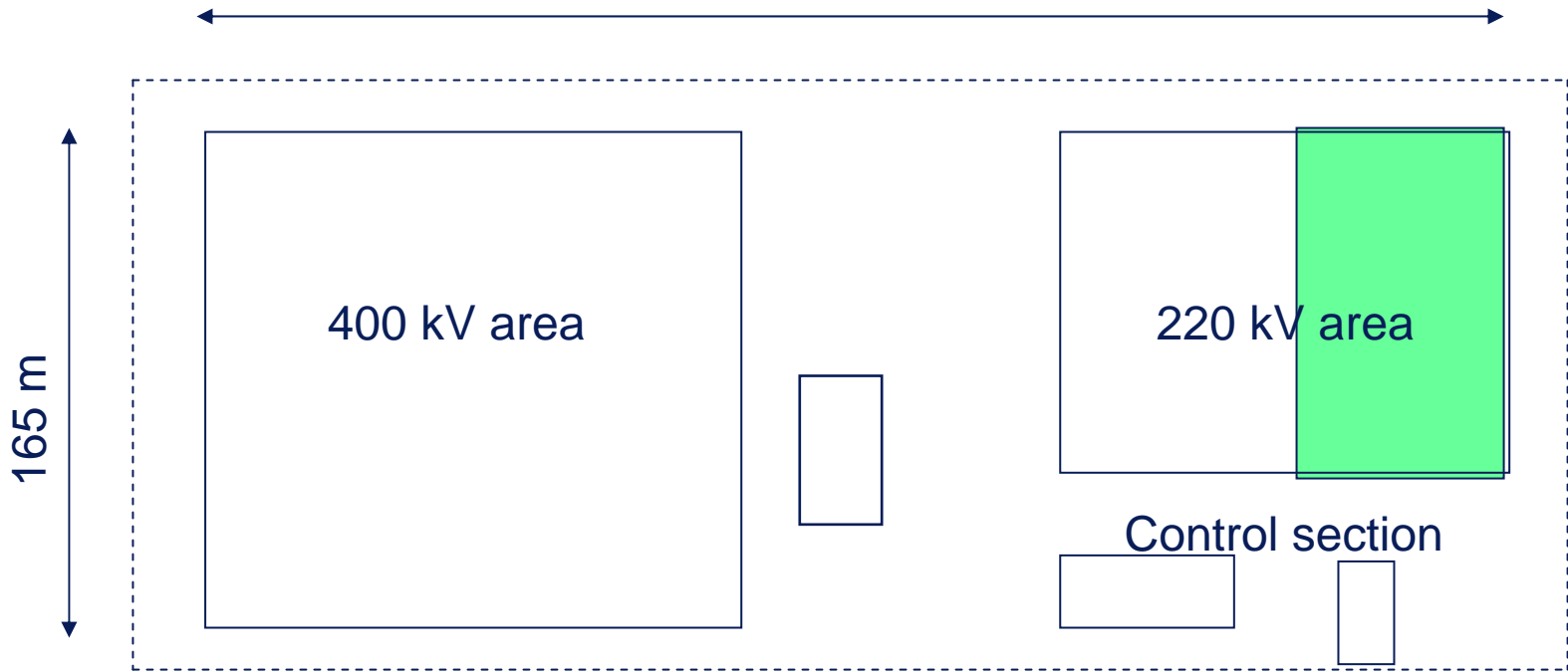
- ❑ Rosiori Substation is an important node in the national power system of Romania
- ❑ Interconnection with the West European grid
- ❑ The substation is upgraded to the “state of the art”

Rosiori 400/220kV Substation Project



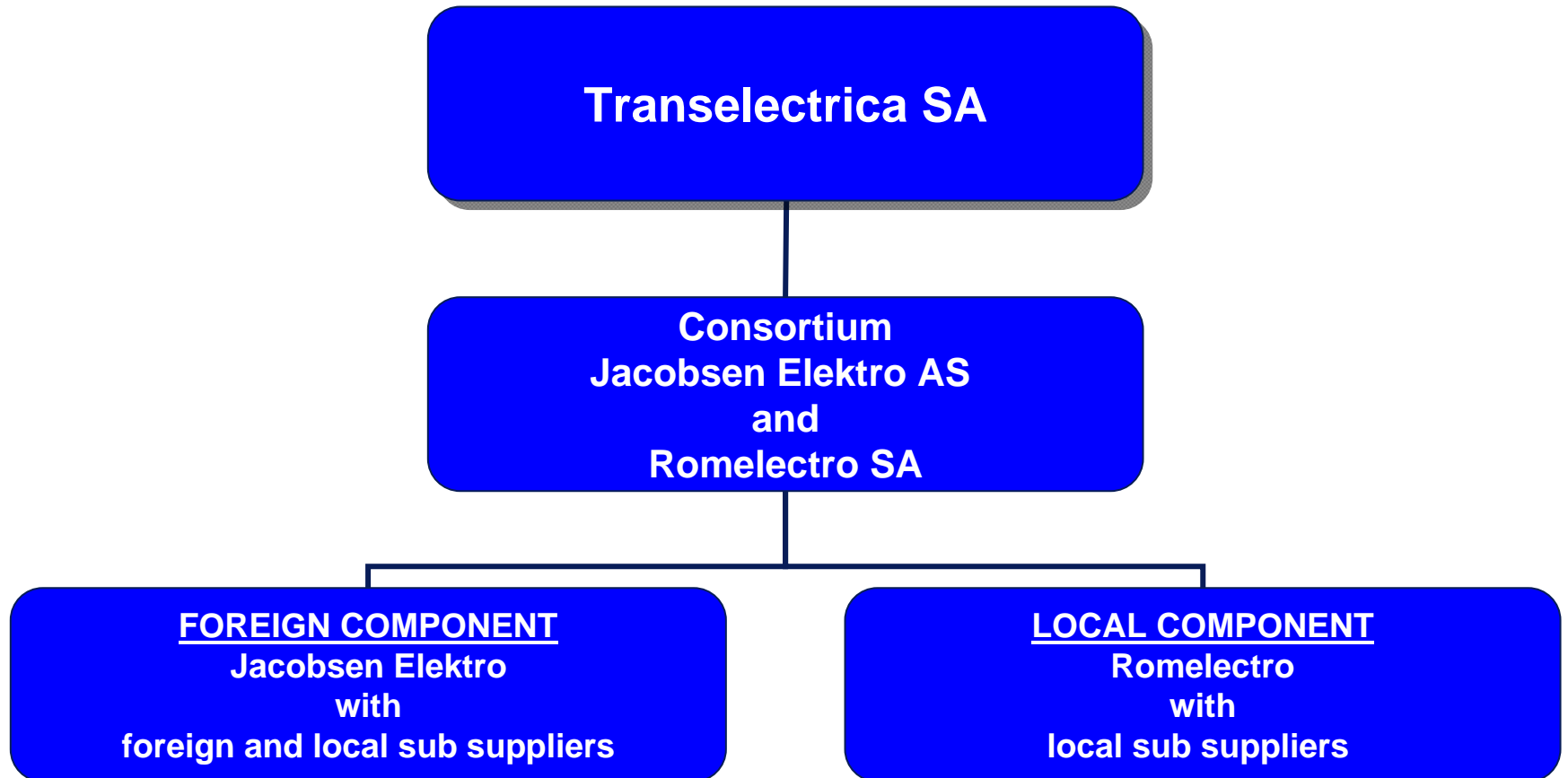
Physical size of the substation

436 m



 The size of a football arena

Rosiori 400/220kV Substation Project



Rosiori 400/220kV Substation Project



FOREIGN COMPONENT

- ❑ **Jacobsen Elektro**
with sub-suppliers:
 - Project Management
 - Design
 - Supervision of Erection
 - Commissioning
 - MV Equipment
 - HV Equipment
 - Control & Protection
 - Auxiliary System

LOCAL COMPONENT

- ❑ **Romelectro**
with sub-suppliers:
 - Civil Works
 - Erection Works
 - Other local services

Jacobsen Elektro – Experience in Romania



EXPERIENCE WITH PROJECT EXECUTION

❑ Client:

- Technically very well educated, professional and highly qualified
- The projects have a priority according to an intensive investment and strategy plan
- Quality-conscious
- Language skills in the main office are good, but the language “barrier” is sometimes a problem when communicating to other parts of the organisation
- Bureaucratic and “old” routines for technical and financial decisions often create delays in project execution
- Centralized decisions
- Close cooperation and frequent meetings for easier project execution is important

Jacobsen Elektro – Experience in Romania



EXPERIENCE WITH PROJECT EXECUTION

❑ Sub-suppliers:

- Very serious and hard working companies
- Companies not used to trade with EU countries often have bureaucratic routines and chain of command and have difficulties to adapt to foreign trade
- In general the technical skill level is good but in some cases the staff is not updated on the latest technology
- In some companies the staff does not speak English. This is a challenge and is some times creating difficulties
- Distance to Norway could some times be an obstacle in spite of easy use of telephone and electronic communication
- Short cuts to client and other sub suppliers

Jacobsen Elektro – Experience in Romania



EXPERIENCE WITH PROJECT EXECUTION

❑ Consortium Partner:

- The project was executed in a consortium with a clear scope and clear cut of responsibilities
- Very serious and we can give our full support and best references

Rosiori 400/220kV Substation Project



Before refurbishment

Switchyard



After refurbishment



Before refurbishment

Control room



After refurbishment

Rosiori 400/220kV Substation Project



220kV Switchyard

Before refurbishment



After refurbishment



400kV Switchyard

Before refurbishment



After refurbishment

Jacobsen Elektro – Experience in Romania



SUMMARY

- ❑ **The over-all experience is very good**
- ❑ **Some time consuming bureaucracy in approval procedures still existing**
- ❑ **Jacobsen Elektro is considering closer co-operation with companies where the starting point of the co-operation was the Rosiori Substation project**
 - This is based on the good and serious co-operation and the proven quality of sub supplies and services
- ❑ **We are looking forward to continue working with projects in Romania**



Jacobsen elektro