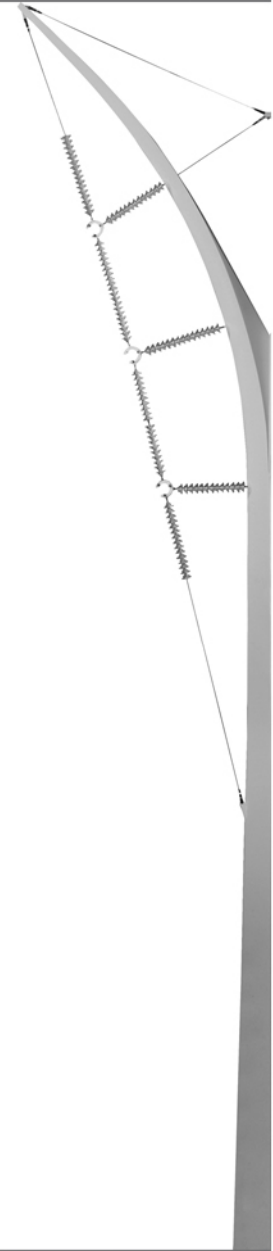

Architecture and electrical infrastructure

Ing. Massimo Rebolini
Chairman CIGRE Italia
Head of technology development
Engineering Dept.



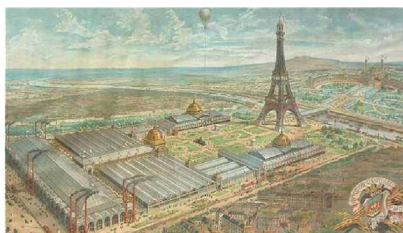


Before WWI

Between WWI and WWII

Between 1945 and 1989

From 1989 to Today



Exposició Internacional de París, 1889, vista general



Cast-iron architecture

Deconstructivism

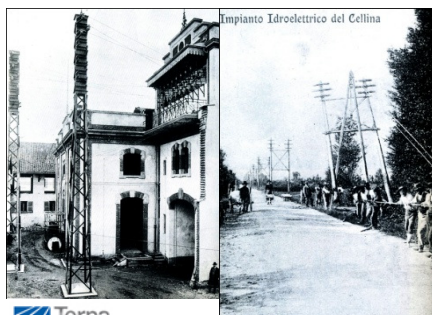
Constructivism

Brutalist

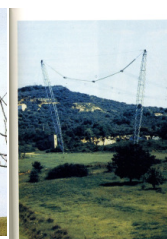
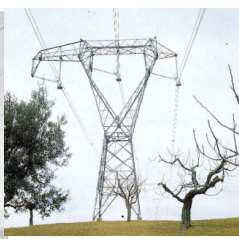
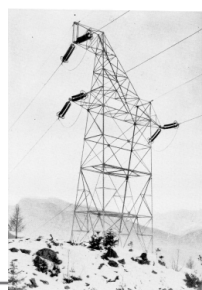
High tech

Rationalism

Architecture

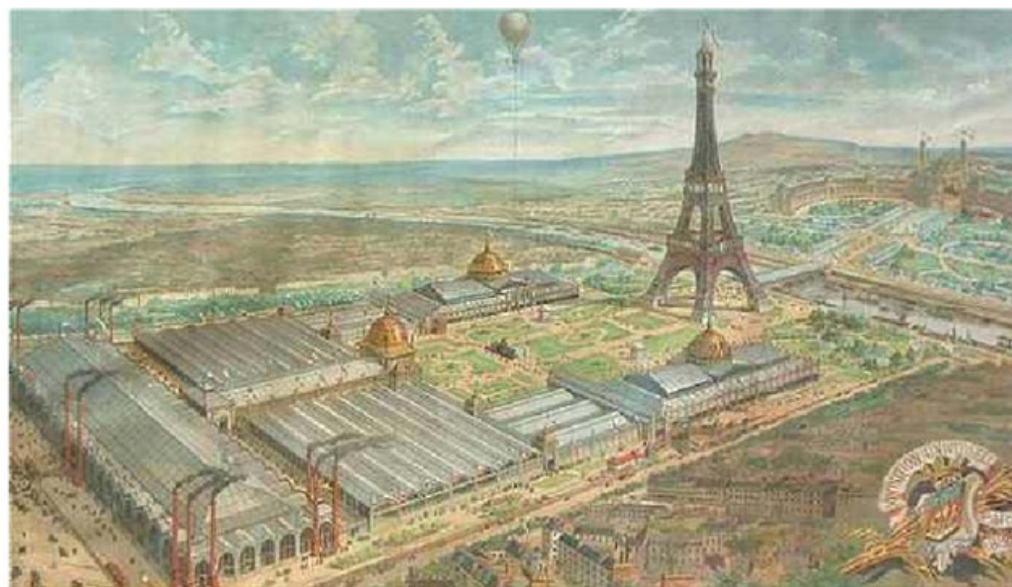
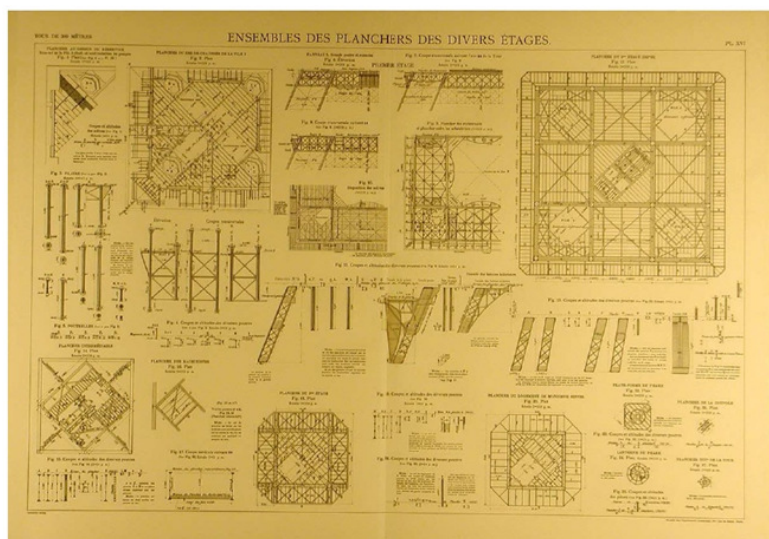
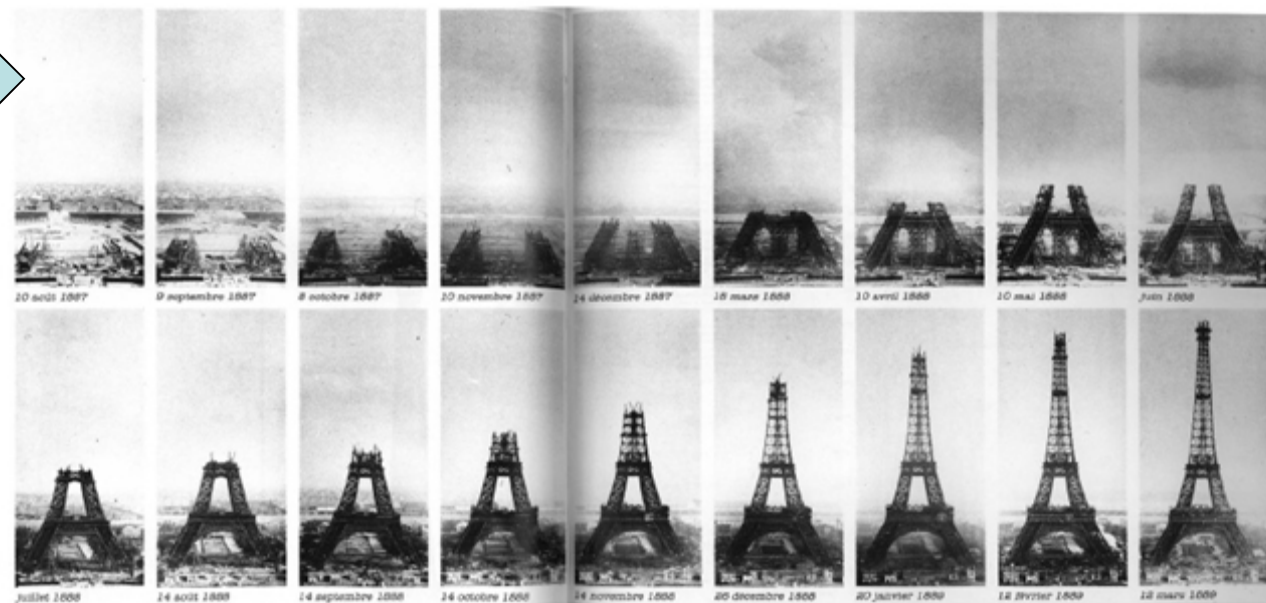


Impianto Idroelettrico del Cellina



Cast Iron Architecture

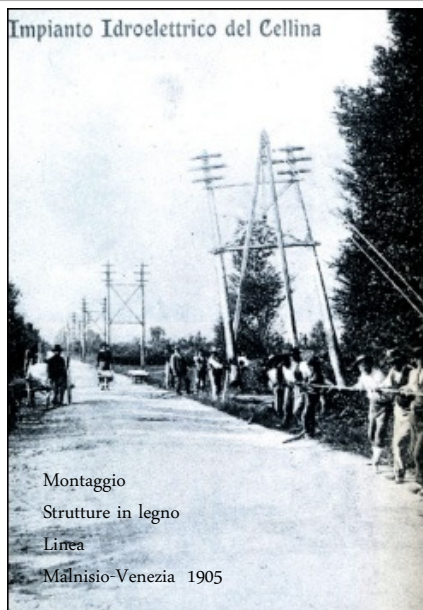
The Eiffel Tower
(1889 exp. Paris)



Exposició Internacional de París, 1889, vista general

Cast Iron Architecture Steel Pylons

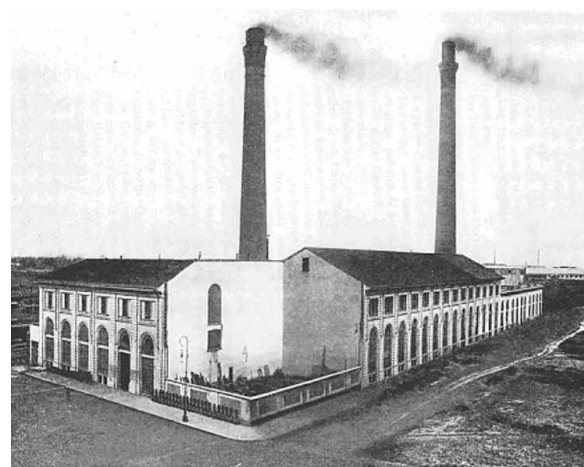
From invention to practical application of electric power transmission; evolution from wood poles to Iron lattice towers.
(Paderno-Milano 32 km / 13 kV 1898)



Paderno-
Milano 1898

Porta Volta power plant in Milan (1898)

Centrale Comunale di piazza Trento (Milan 1908)



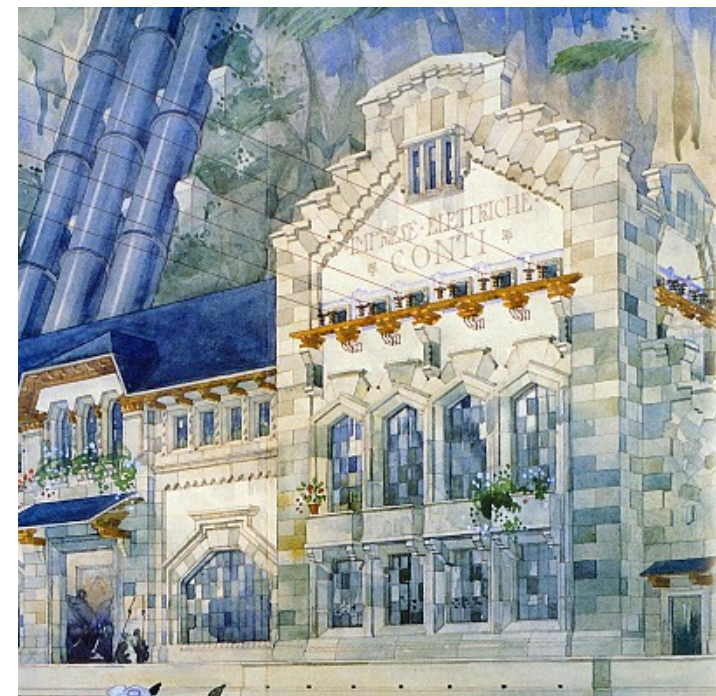
Between WWI
and WWII

Ricevitrici Nord e Sud Milano
1932 - 1934



C.le di Crego Ossola 1916-19

Arch. Portaluppi (1888-1967)

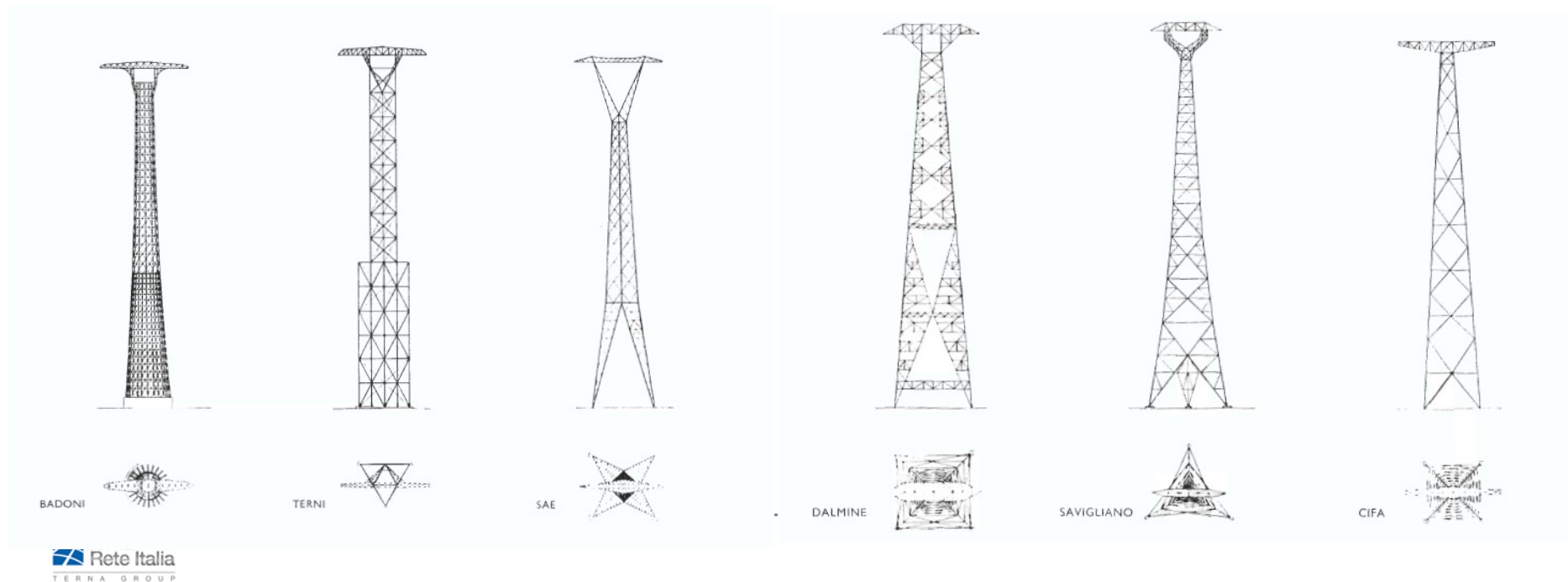


Between WWII and 1989

Strait of Messina crossing (220 kV)

- Original idea in Ferrando (1921) at 132 kV
- Preliminary study in 1936 (Dalmine / SGES) stopped due to WWII
- Project restarted in 1945
- Authorization in 1951
- In service in 1955

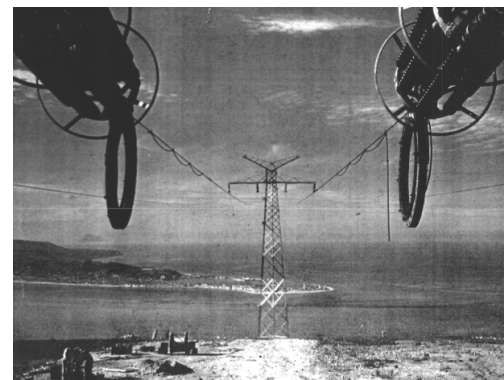
6 different projects from 6 different manufacturers:



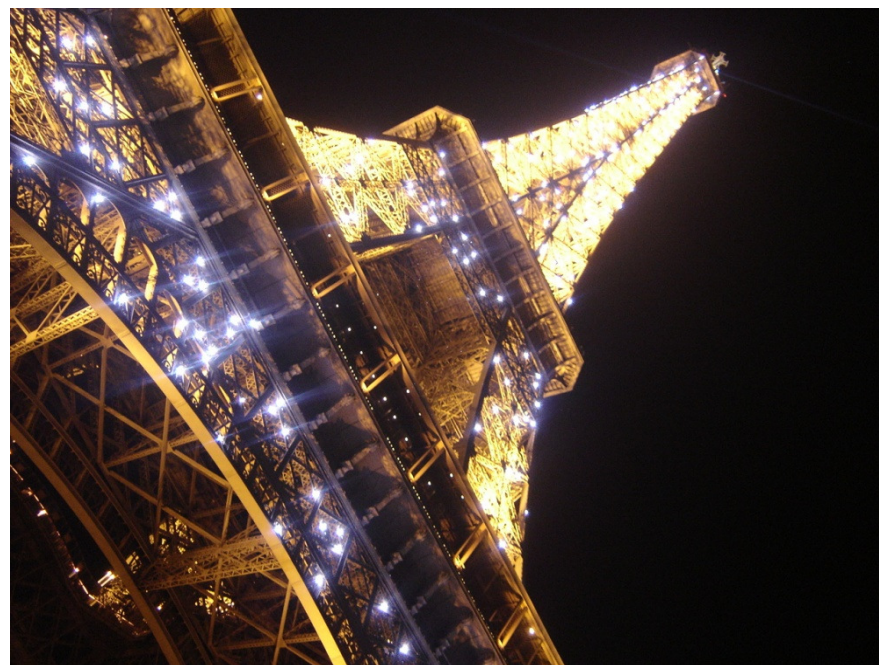
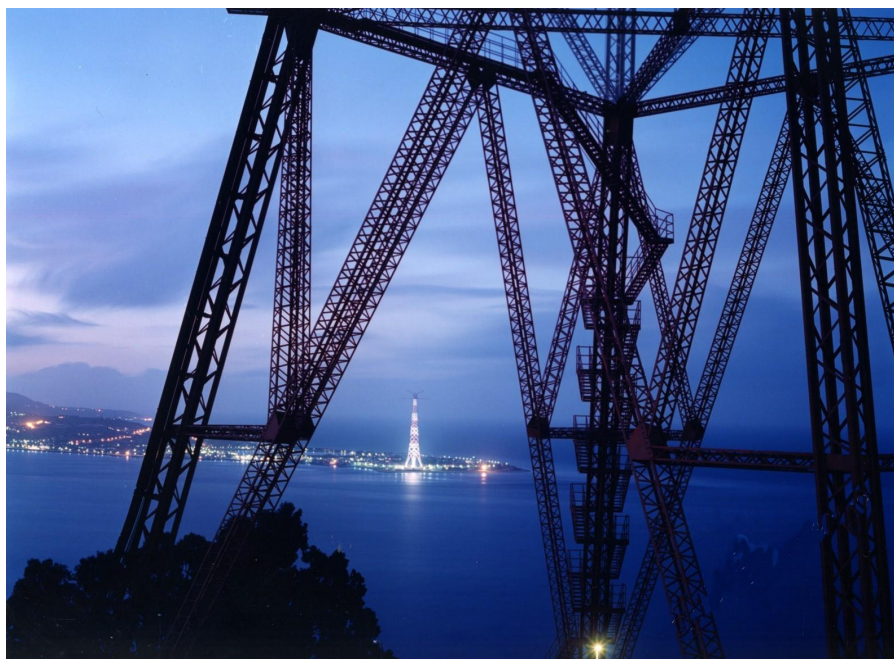


Main data

- ◆ 220 kV double circuit line (300 MW)
- ◆ Single span (3.600 m) with two suspension towers (224 m)
- ◆ In service between 1955 and 1985
- ◆ Still the longest span ever built for HV lines
- ◆ Presently the pylons remain with protected status as historical monuments



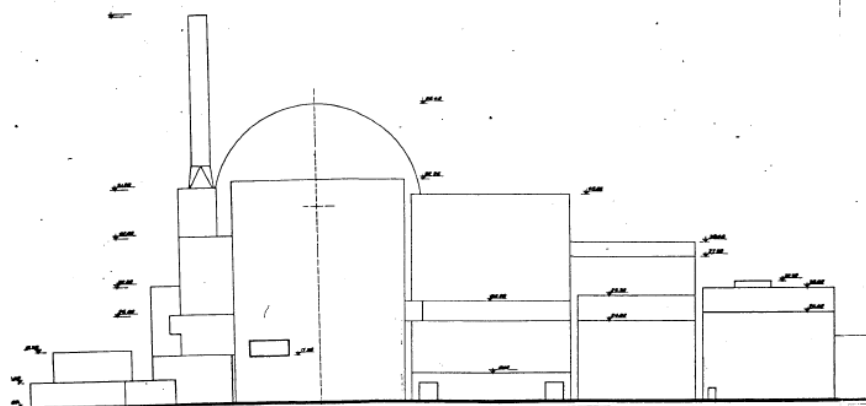
Sometimes eco-monsters become symbols



Between WWII and 1989

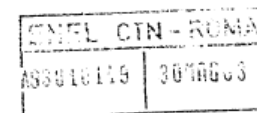
CENTRALE NUCLEARE ALTO LAZIO

STUDI MORFOLOGICI DELLE SUPERFICI ESTERNE E DEI VOLUMI
DEGLI EDIFICI DELLA CENTRALE

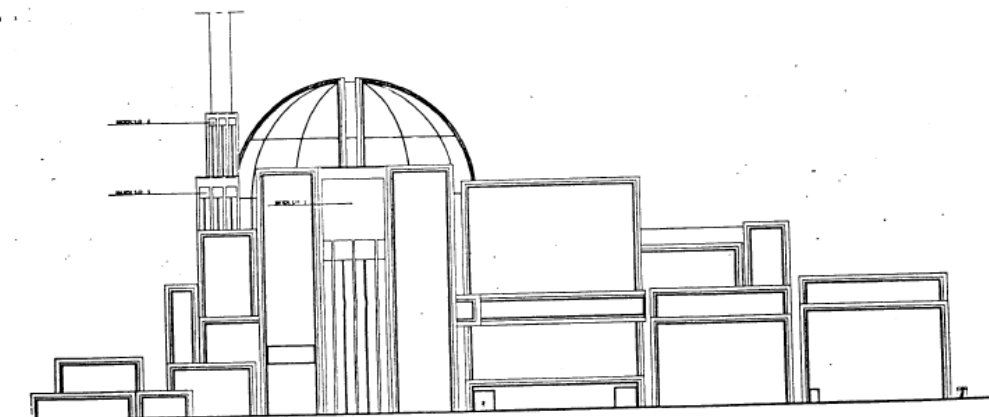


RELAZIONE GENERALE

PROF. ARCH. PAOLO PORTOGHESI
ROMA - 1983



PROSPETTO DEL PROGETTO ENEL

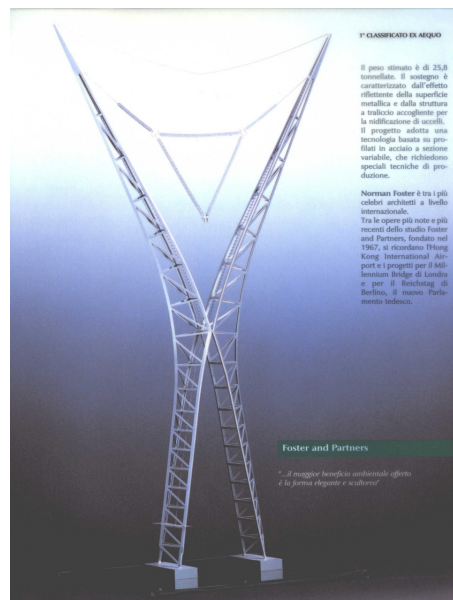


PROSPETTO DELL'ELABORAZIONE ARCHITETTONICA DELL'ARCHITETTO PORTOGHESI

TODAY

Since 2001 TERNA
carried out
«beauty contest» on
power line pylons.

Foster



Castiglioni – De Lucchi



TODAY

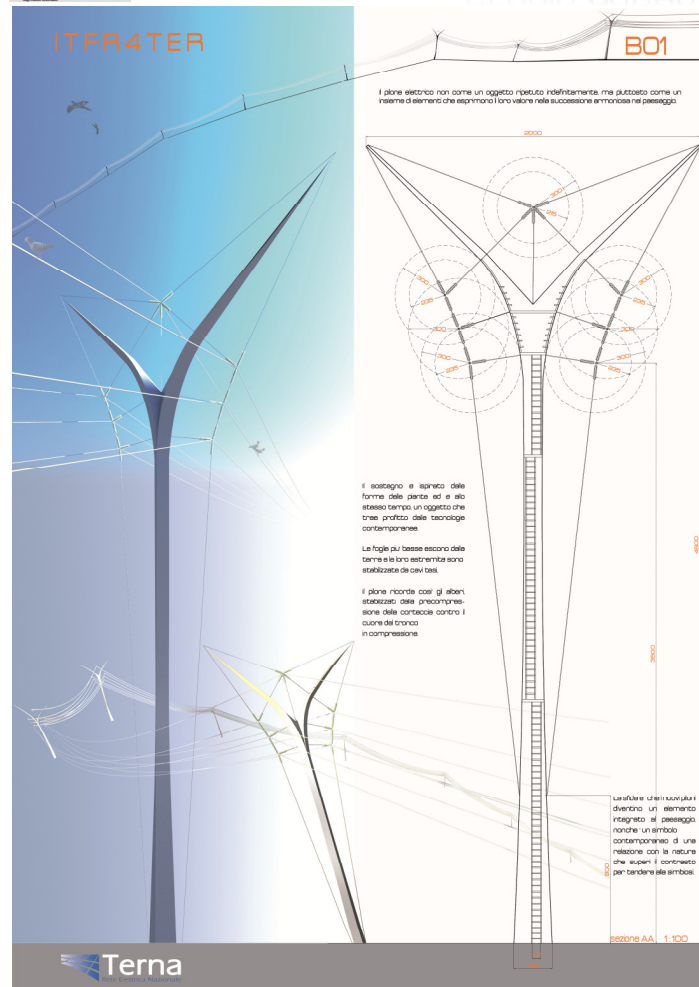
2007 :Second Pylon beauty contest

“Germoglio “

Giugiaro



HDA



studio rosental

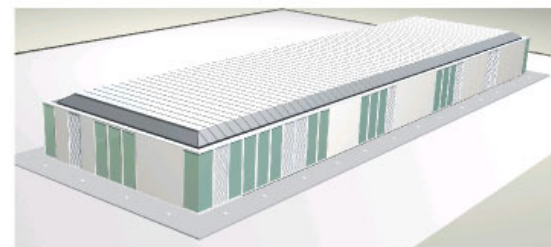
Frigerio Design Group



TODAY

Mitigation of Substation environmental impact

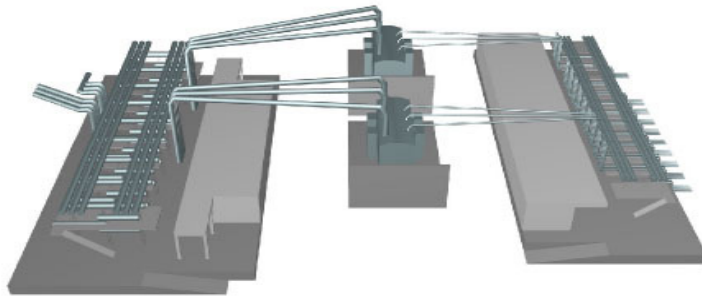
Control building design study (De Lucchi – Quell)



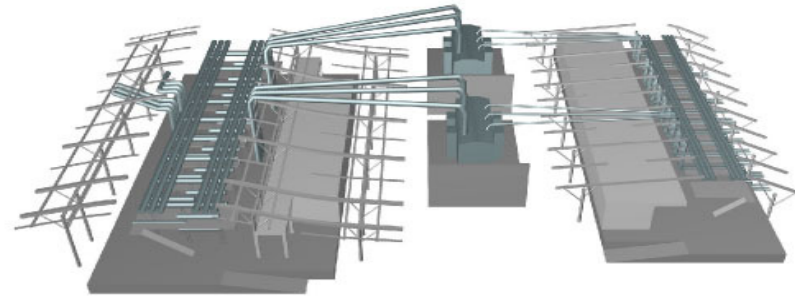
TODAY

Mitigation of Substation environmental impact

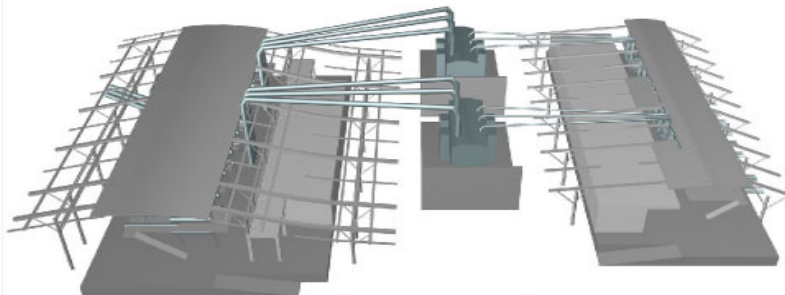
SF6 400 / 132 kV interconnection station (De Lucchi – Quell)



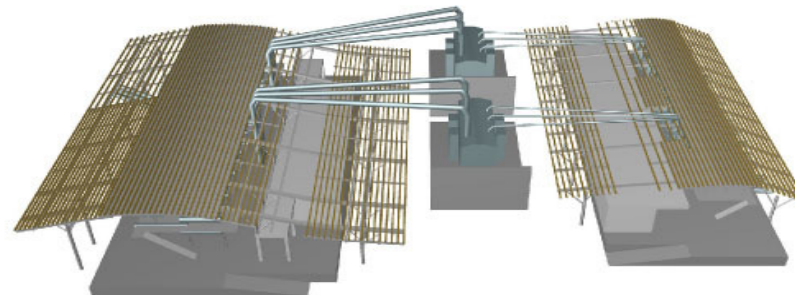
SF6 switchgear



Steel structure



Steel cover



Laminate wood cover



TODAY

Mitigation of Substation environmental impact

Visual impact mitigation of Maleo 400 kV /132 kV substation



Before substation construction



Without visual impact mitigation



With visual impact mitigation

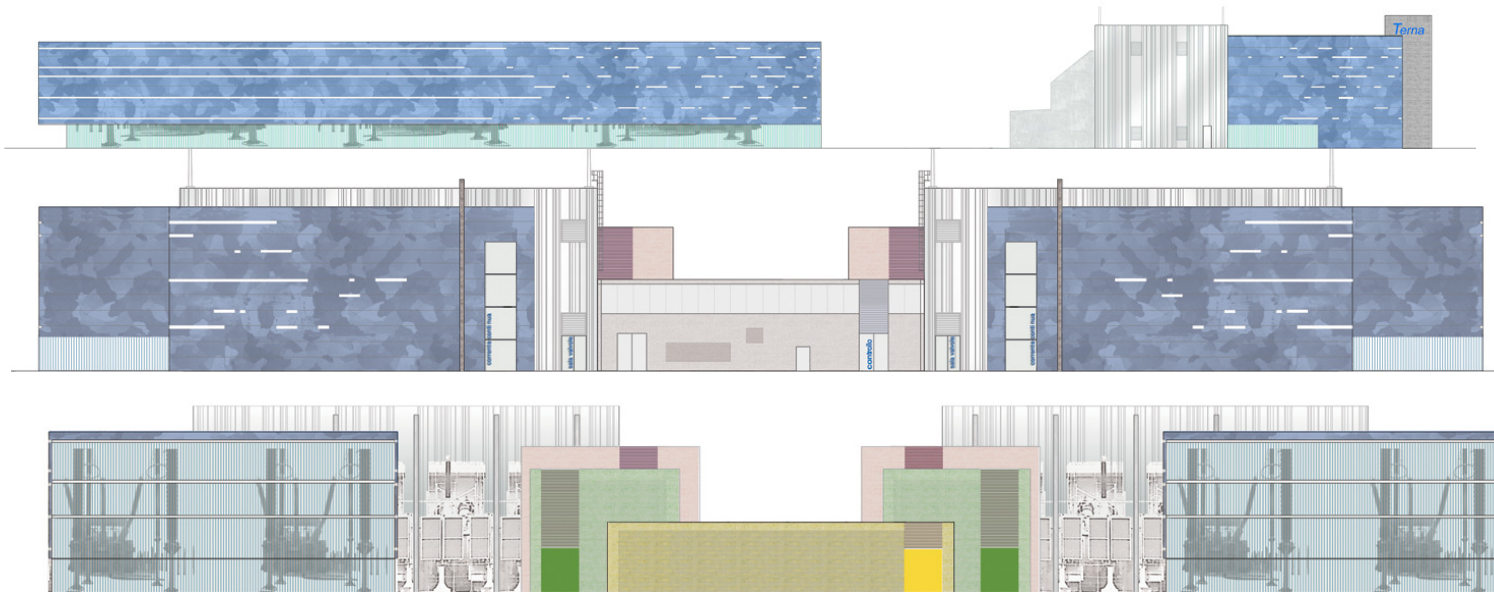


TODAY

SAPEI CONVERTER STATIONS

SAPEI converter Stations (Latina and Fiumesanto) design by STUDIO COSTA & PARTNERS srl (Capogruppo) and STUDIO LS ARCH.TTI LEONELLI E STRUZZ.

Innovative materials (Zinc-Titanium alloy) for integrating the new converter station into the existing industrial environment.



TODAY

Latina Converter Station





TODAY

Latina Converter Station



TODAY

Fiumesanto converter Station: between a coal power plant and wind farms.

The Sapei allows for a safe integration of renewable energy sources (windfarms and photovoltaic plants) in the Sardinian Network.

