



ERG

# **ERG Power & Gas**

**Giuseppe Gatti**

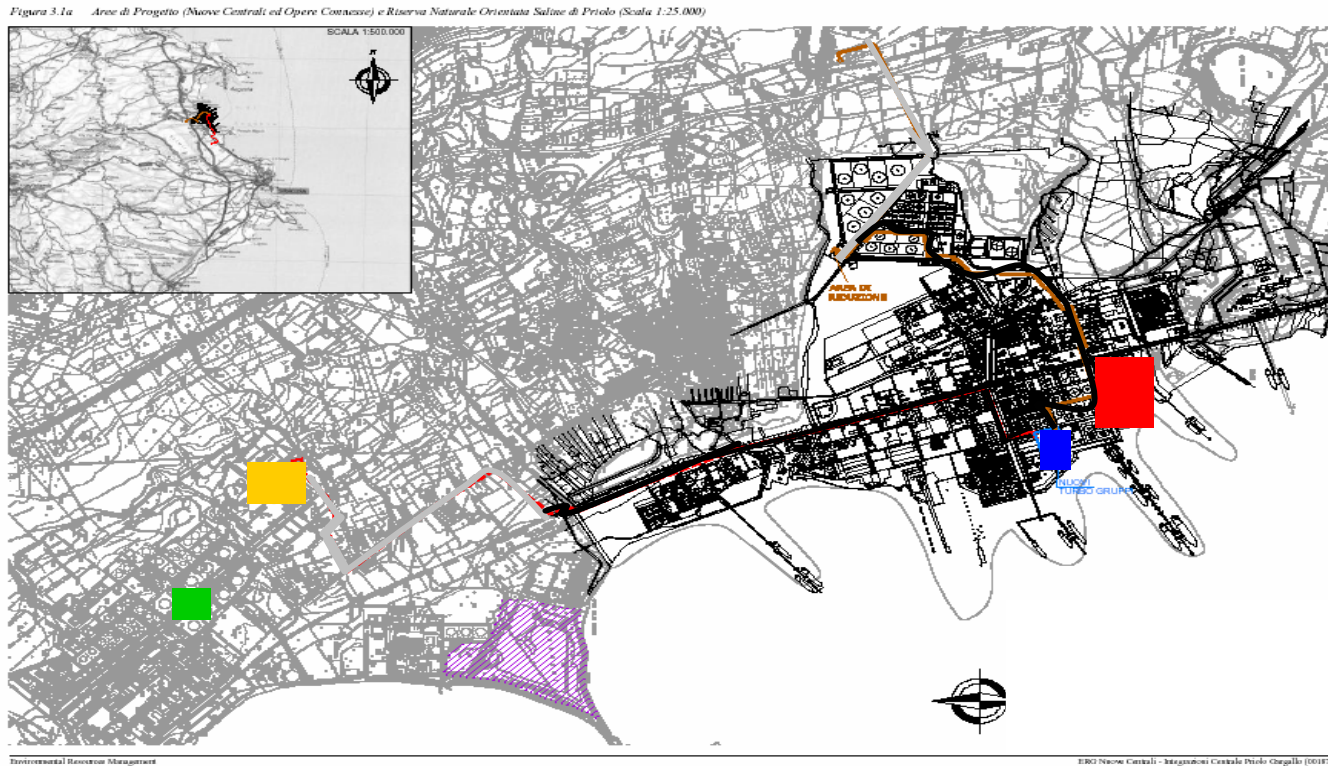
# Table of Contents



- **Priolo Supersite**
- **ISAB Energy**
- **Nuce Sud**
- **Nuce Nord**
- **LNG Project**

Priolo supersite  
ISAB Energy  
Nuce Sud  
Nuce Nord  
LNG project

# Priolo Super-Site



**ISAB Energy**  
IGCC - 528 MW  
51% ERG & 49% International Power Mitsui

**NuCe Sud**  
99 MW (780 GWh & 2.2m tons/yr)  
100% ERG

**NuCe Nord Repowering**  
CCGT - 480 MW (3,6 TWh & 3m tons/yr)  
100% ERG

**Ionio Gas**  
8 billion m<sup>3</sup> gas  
50% ERG – 50% Shell

## ISAB Energy: 2006 Disruption and Mitigation Plan



### Transformer

April, 10, 2006: the combined cycle of the IGCC Train 1 tripped, due to transformer breakdown

← 210 MW

May, 6, 2006 first mitigation action: substitution of gas turbine transformer with steam turbine transformer

← 425 MW

June, 25, 2006 second mitigation action: installation of a temporary transformer from Turbigio

← 515 MW

January 2007: repaired gas turbine transformer will be available

June 2007: transformer to be installed during planned maintenance, shutdown. New spare transformer to be delivered.

← 528 MW

### Generator

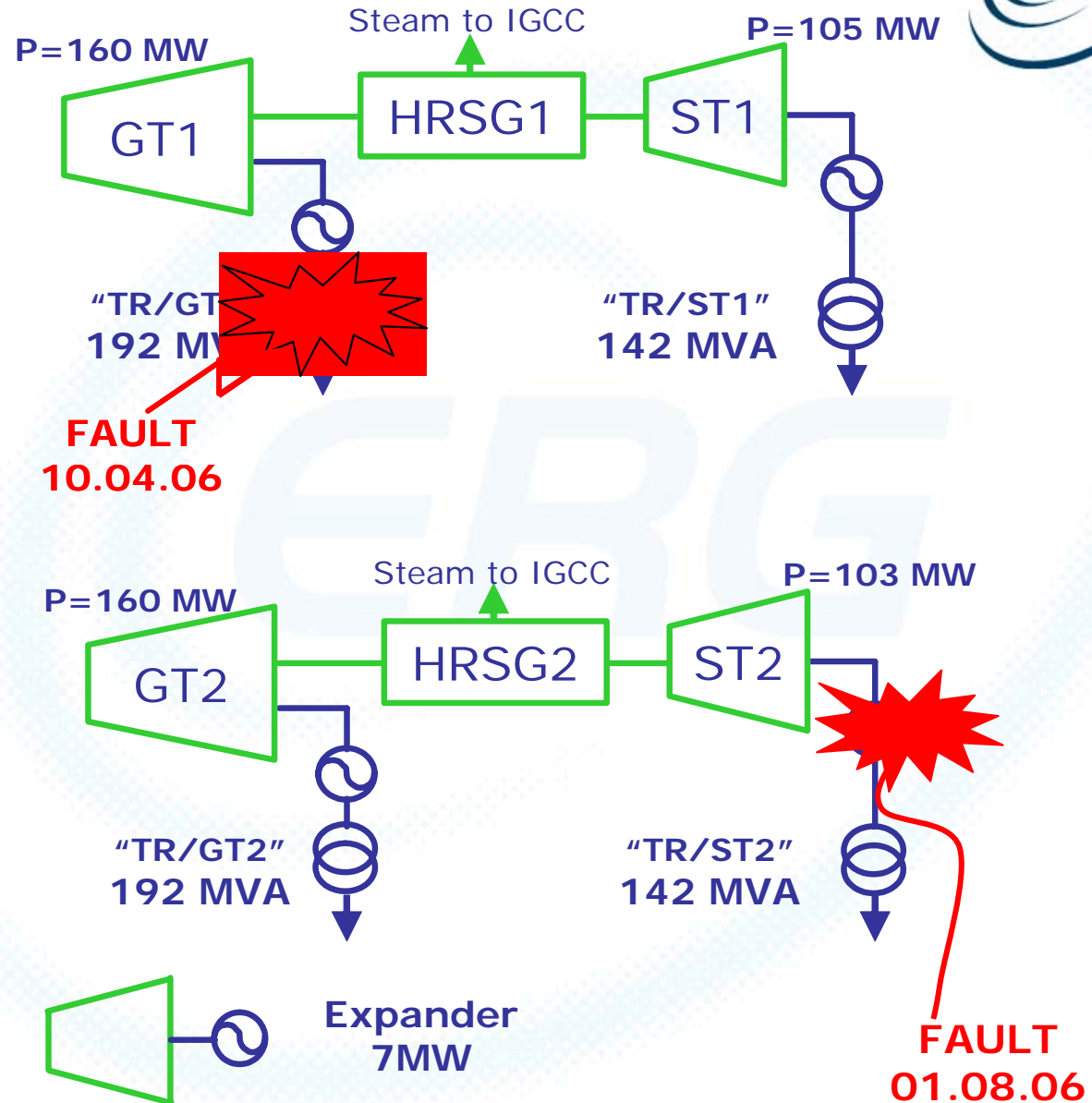
August, 1st, 2006 the disruption to a generator due to isolation failure ("STG2")

← 420 MW

September, 4th, 2006: re-commissioning of repaired STG2 (only 38 days to be repaired)

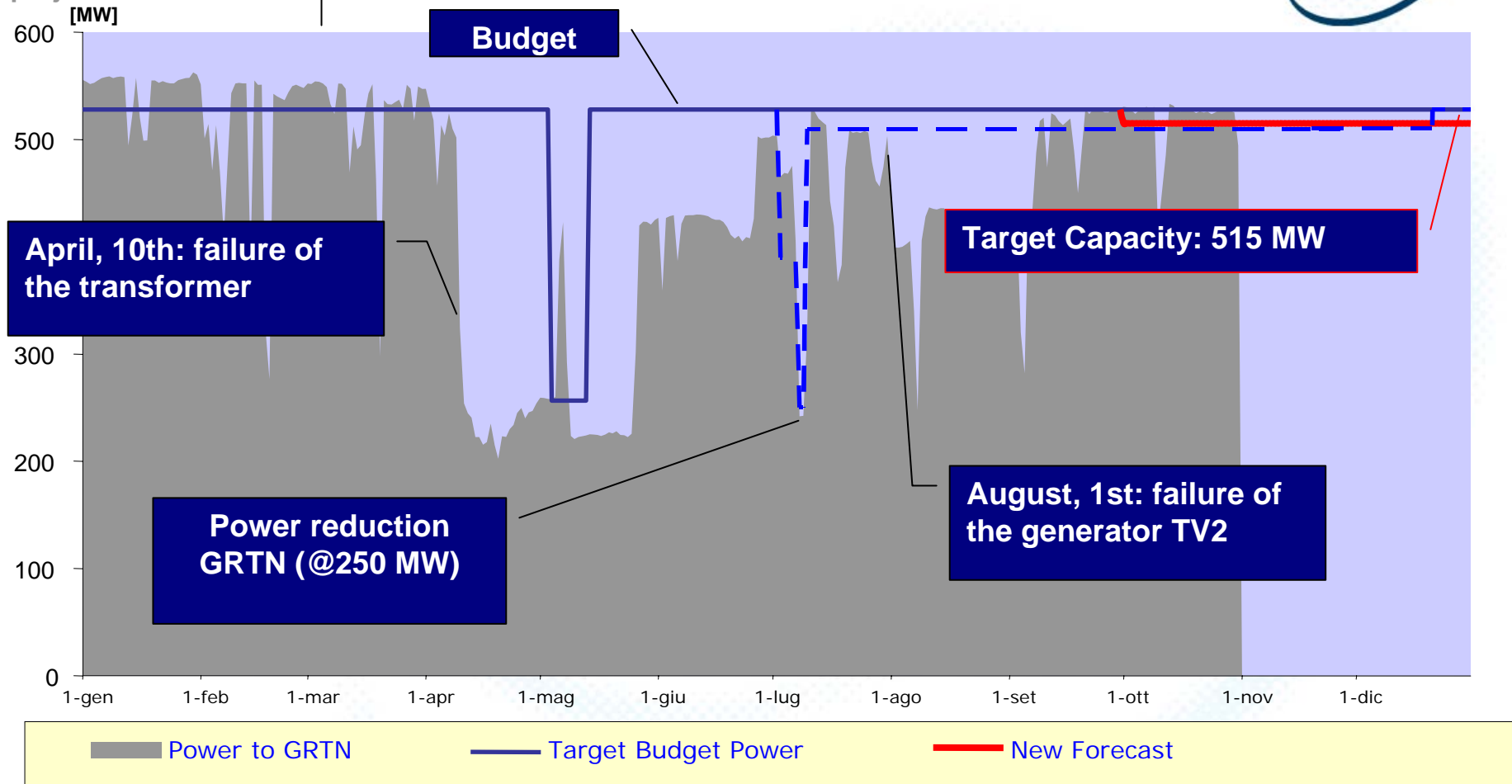
← 515 MW

# ISAB Energy – Plant disruption



Priolo supersite  
ISAB Energy  
Nuce Sud  
Nuce Nord  
LNG project

# ISAB Energy – Production Trend

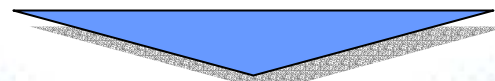


April, 10th: failure of the transformer

Power reduction GRTN (@250 MW)

Target Capacity: 515 MW

August, 1st: failure of the generator TV2



In a few months, thanks to the high commitment and fast reaction times, the ISAB Energy plant has reached its target production level of 528 MW



## NuCe Sud



### Location & Layout

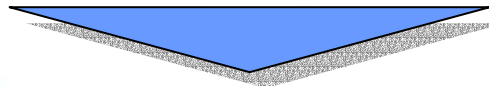
- Located inside the ISAB refinery south plant site
- 2 existing backpressure plants connected to a new 70 MW gas turbine (GE technology – Frame 6a)

### Investment

- Capex ~ Euro 60 million
- IRR ~ 10%

### Technical aspects

- **New CCGT production:**
  - Authorised capacity            99 MW
  - Electricity production            780GWh/year
  - Steam production                2.2 million tons/year

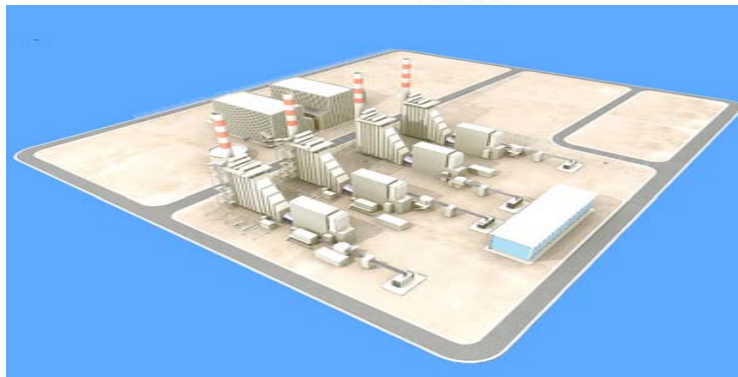


**First firing during this week**

## NuCe Nord – key data



- ▶ Completion of permitting process      October 12th 2005
- ▶ Investment:      Euro 350 million
- ▶ Start-up of construction:      September 2006
- ▶ Turbogas General Electric:      4 x PG6111FAe+ (70 MW) (order placed Aug. 2005)
- ▶ Steam Turbine:      Ansaldo (92MW) (order placed Sept.2005)
- ▶ Engineering:      Snam Progetti (order placed Oct. 2005)
- ▶ Start-up Commercial operation:      by July 2008
- ▶ Capacity:      480 MW (Electricity = 3,6 TWh; Steam = 3 million tons)
- ▶ Status:      - Engineering = 78%  
- Procurement = 47%



Stato Futuro



# NuCe Nord New Forecast of Investment Cost



- Start up of the construction activities has been postponed to September 2006 due to environmental problems
- Cost increase due to environmental issues and increased construction costs
- Start-up postponed until July 2008
- Current cost estimates:

<b>Euro millions</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>Total</b>
Current estimate	19	131	183	17	350
Previous estimate	23	202	91	0	316
Difference	(4)	(71)	92	17	34

- New forecast investment cost: Euro 350 million
- IRR on investment still above 11%

## NuCe Nord Operational strengths



### Cogenerativity

- The plant will be supplying steam to the site customers (Isab nord refinery and ENI petrochemical plant) and is defined as “cogenerative” due to very high efficiency

### Green certificates

- Being cogenerative, the plant will not have to acquire Green Certificates

### Despatching priority

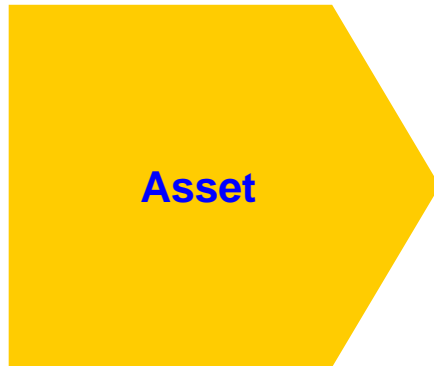
- Being cogenerative, the plant will have priority on despatch if the grid becomes congested

### Site supply

- A large part of production (all the steam and some 80MW of electricity) will be supplied to the onsite customers ensuring a stable cash flow

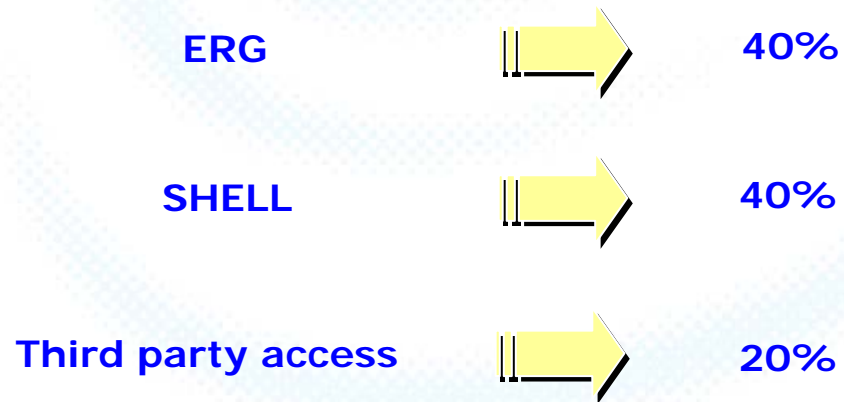
**NuCe Nord is one of the most competitive new production plants among those under construction in Italy**

# LNG Project structure



Ionio Gas objectives are:

- to develop, build, own, and operate the LNG terminal
- to lease the re-gasification capacity



# LNG Project overview



## Schedule

Construction start-up: early 2008

Terminal ready for start up date early 2011

---

## Technical features

### ► Layout

- Inland: 110.000 m<sup>2</sup>
- Seaworks: Jetty inside Augusta Harbour

### ► Throughput

- Phase 1: 8 bcm/y (approx 6 million tonnes per annum)
- Phase 2: 12 bcm/y
- 2 x 150,000 m<sup>3</sup> LNG full containment tanks
- Designed to accommodate 70,000 – 200,000 m<sup>3</sup> carriers
- Cold will be shared with the ERG Power Plant and other

### ► Permitting

- NOF received June 28th, 2006
  - VIA documents ready for submission November, 2006
  - A.U. documents ready for submission in March, 2007
-