6th European Grid Conference

Sustainability and the Power Grid

Innovation and Sustainibility at the heart of TSO future

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Our commitment for sustainability

INCLUSION OF TERNA IN SUSTAINABILITY INDICES

2005	2006	2007	2008	2009	2010	2011	2012-2015	2016
FTSE4GOOD	FTSE4GOOD ECPI	FTSE4GOOD ECPI AXIA	FTSE4GOOD ECPI AXIA FTSE KLD	FTSE4GOOD ECPI AXIA FTSE KLD ASPI ETHIBEL Dow Jones Sustainability Index (DJSI)	FTSE4GOOD ECPI AXIA MSCI ASPI ETHIBEL DJSI FTSE ECPI	FTSE4GOOD ECPI AXIA MSCI ASPI ETHIBEL DJSI STOXX ESG FTSE ECPI	FTSE4GOOD ECPI AXIA MSCI ASPI ETHIBEL DJSI GC100* STOXX ESG VIGEO Word e Europe FTSE ECPI	FTSE4GOOD ECPI AXIA MSCI ASPI ETHIBEL DJSI GC100 STOXX ESG STOXX Low Carbon VIGEO Word e Europe FTSE ECPI

* United Nations Global Compacy - Dal 2013

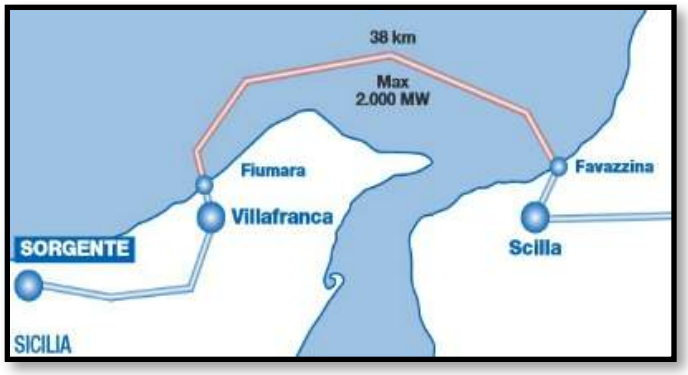
THE GROWTH OF SOCIALLY RESPONSIBLE INVESTORS IN TERNA'S CAPITAL SHARE

	FREE FLOAT (%)	INSTITUTIONAL INVESTORS (%)
2010	3,7 %	6,5 %
2012	5,2 %	8,4 %
2015	6,2 %	9,6 %

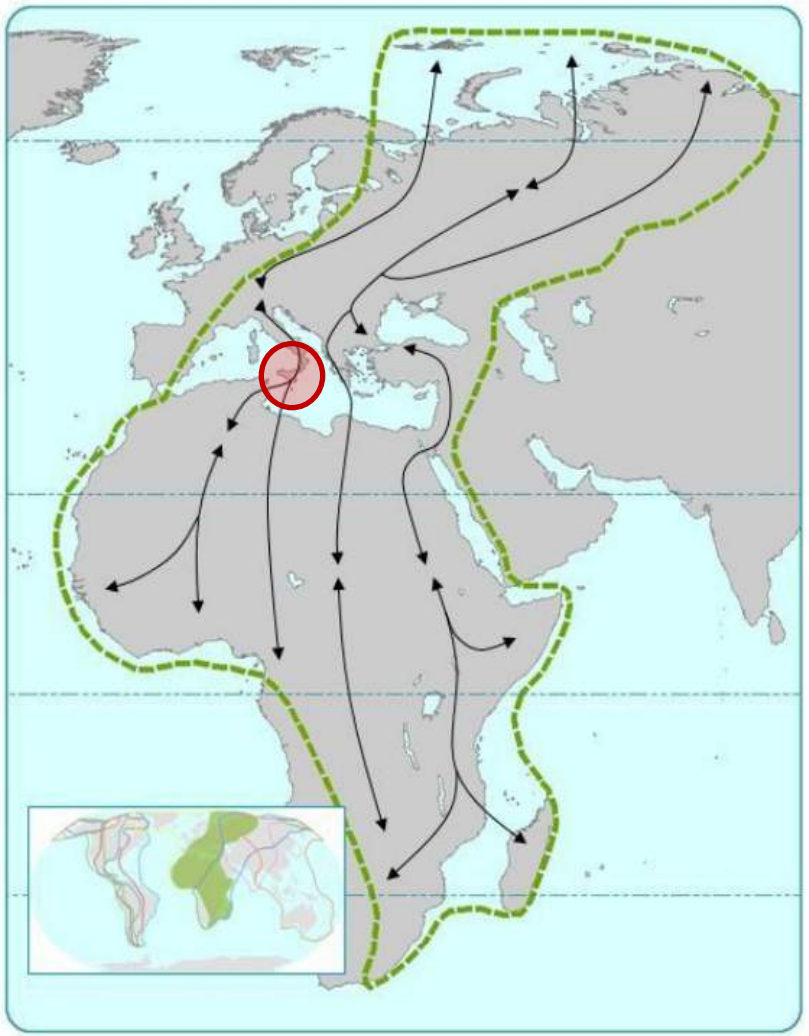
Socially Responsible Investors (SRI) choosing to invest in Terna with a sustainable approach based on the consideration of ESG (Environmental, Social and Governance) aspects.

An eco-friendly grid

SORGENTE-RIZZICONI PROJECT



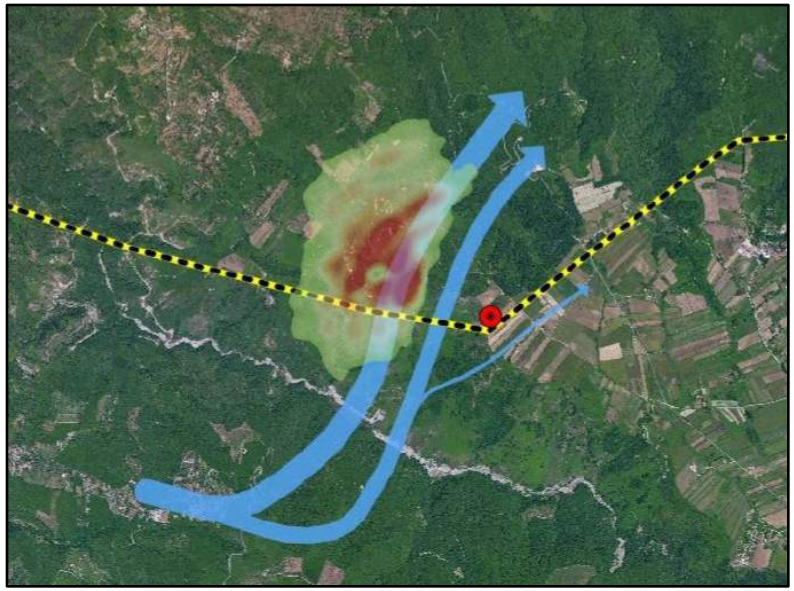
MEDITERRANEAN / BLACK SEA FLYWAY

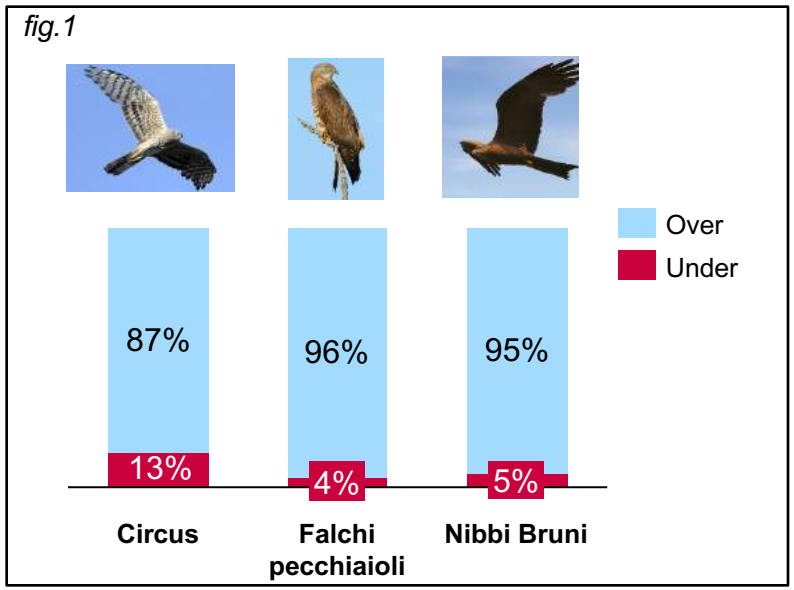


- Study on the impact of power lines on birds migratory routes through radar (Sicily and Calabria)
- ≈1,2 €mn expenditure for the period 2015 - 2017
- ≈ 100.000 monitored birds up to now
- Data collection ongoing - a valuable resource

The "Sorgente Rizziconi" project has benefited from financial support from the European Union as part of the European Energy Programme for Recovery (EEPR).

Preliminary observation data - example





Observation of a sample of 5189 raptors on Calabria side crossing perpendicularly the air space above the overhead lines.

- 4966 of them (95,7%) passed above the overhead lines, while 223 (4,3%) passed under them, with some differences between species (fig.1).
- On the total sample, only 15 elements (0,3%) showed difficulties mantaining flight attitude near the lines, generally in presence of low visibility or strong wind.
- No collision observed during the monitoring periods up to now.
- The low percentage of raptors flying under the overhead lines or showing difficulties mantaining flight attitude, let us suppose that potential collision situation are extremely rare, even with bad weather conditions.

Smart Islands Project

The approach: existing and new plant integration

TODAY

All the island's electric demand is supplied by diesel generator

Fossil fuel fired power plants has a big impact in terms of local pollution (NO_x, SO_x, PM10, noise) and global warming (CO_2 emission)

The electricity cost is subject to the commodity price fluctuations

The cost of fuel transportation also contribute to increase the total cost

The fuel supply can be difficult in case of bad weather

TOMORROW

Renewable power plants will replace the diesel generation (up to 100%)

Fuel consumptions, costs and local pollution will be cut off (almost by the same percentage)

CO_2 emissions will also be reduced

Fuel consumptions extra reduction can be achieved by the "smart components" of the project

The smart side of the project

Storage systems

- Balancing fluctuation of RES (Load Shaping)
- Maximizing efficiency of diesel generator

Active demand systems

- e.g. water desalinization
- Improving the efficiency of the system

e-mobility

- Contributing to the balance of the system

A sustainable future for the energy system

2030 TARGETS

- **40%** **reduction in greenhouse gas emissions**, compared to 1990 level
- At least **27%** share of **renewable energy consumption** in the EU
- **Electricity interconnection target** of **15%** between EU countries
- **Energy efficiency** increase of at least **27%** compared with the business-as-usual scenario

The **electric vector** is «the» enabler to achieve the european targets

From..

..a system where **economic growth is tightly connected to energy consumption growth** (and consequently to CO_2 emissions)..

To..

..a future where this bond slackens and **managing a complex energy system becomes fundamental to face challenges**

The role of the Transmission System Operator is key in promoting and managing a **sustainable and fully conscious evolution of the energy system**