

# ITEC™

## The REF - Morgan Stanley index based on the average thermoelectric costs in Italy

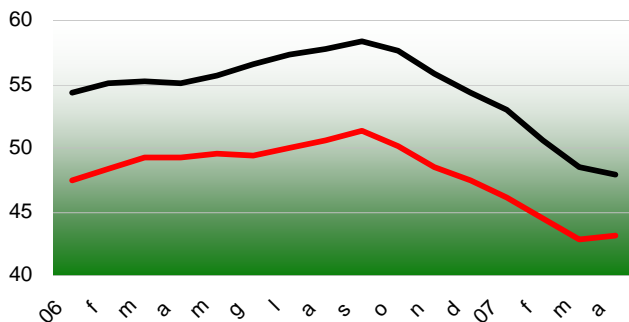
[www.ref-online.it/itec1.asp](http://www.ref-online.it/itec1.asp)

### What is ITEC™ ?

The Italian electricity market has been unable to produce a benchmark price index that can be used in contracts, and after the abolition of the energy authority's *Ct* formula, there is no longer any global reference indicator for power contracts in Italy.

ITEC™ is an index representing the average thermoelectric costs for the electricity production in Italy, constructed by REF and Morgan Stanley using Platts data. ITECccgt™ is the ITEC component which represents the average variable cost of natural gas plants. Indexes are updated on a monthly basis following the changes in the fuel prices. ITEC could be very useful as a benchmark to which long term contracts can be indexed.

#### ITEC and ITECccgt (€/MWh)



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### Why ITEC™ ?

ITEC™ and ITECccgt™ give you:

- **Transparency:** the formula used to construct and update it is made public and it can be reconstructed by users.
- **Simplicity and cost reflectivity:** the formula reproduces changes in production costs on the basis of the fuels used by the Italian thermoelectric power plants park, and the average efficiency of the plants. The formula is structured to take in account the effects of the forthcoming plant investment cycle.
- **Independence:** REF guarantees the independence of the construction and the updating of the index with respect to single operators in the sector.
- **Liquidity and ease of hedging:** ITEC™ is constructed using commodities widely traded on the international markets, and the liquidity of the financial hedging contracts (swaps and options) on ITEC™ and ITECccgt™ will be guaranteed by Morgan Stanley.

- **Reliability:** REF and Morgan Stanley will publish the index until the end of 2009, when it may be continued. At least six months notice will be given before any changes in the formula.

### The formula

$$ITEC_t = a_{car} \times \frac{P_{t,car}}{h_{car}} + a_{olio} \times \frac{P_{t,olio}}{h_{olio}} + a_{gas} \times \frac{P_{t,gas}}{h_{gas}}$$

$$ITECccgt_t = \frac{P_{t,gas}}{h_{gas}} \text{ where:}$$

- *a* is the percentage of the respective production from coal, oil and gas.
- *h* is the average efficiency of the respective production technologies.
- *P* is the price index of the respective fuels.

The parameters *a* and *h* are based on REF estimates of the thermoelectric production for 2007 and 2008 performed using the El-fo optimum dispatching model.

### The fuels

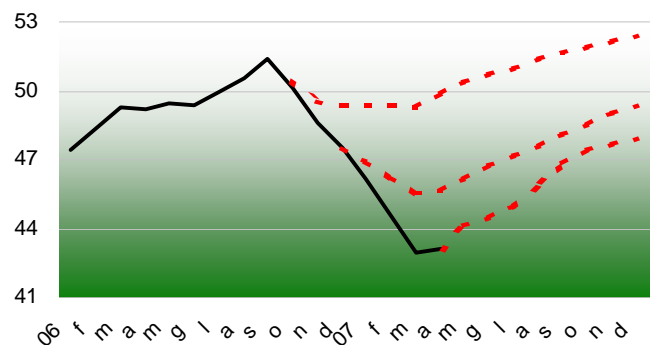
Platts 0.2%S Gasoil Rotterdam FOB Barges (starting 1<sup>st</sup> July 2008 it will be replaced by Platts 0.1%S Barges FOB Rotterdam); Platts No.6 1.0%/LSFO Rotterdam FOB Barges; Platts Brent Dated; Platts Coal CIF CIM ARA

### Use of ITEC™

The use of ITEC™ is restricted by License, and potential subscribers must sign a contract to use it, except for genuine end-users.

The subscription also gives the right to receive a weekly report on the various fuel prices expectations used for ITEC, based on Morgan Stanley's assessment of the forward curves.

#### ITEC forwards at different dates (€/MWh)



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ITEC\* has been constructed by **REF** and **Morgan Stanley** in co-operation with numerous operators in the Italian electricity and gas markets.

The index provides Italian consumers, distributors and electricity producers with a reliable, transparent and public benchmark for electricity prices.

The formula for the index is based on the main thermoelectric costs that affect electricity prices in Italy, and it also provides a liquid and transparent indicator for forward prices.

**REF** is an independent research and consulting institute with in-depth knowledge of the Italian energy sector.

- The Energy Observatory founded by REF in 1999 monitors electricity prices in Italy and on the main European stock exchanges and produces short and medium term scenarios.
- REF simulation models are tools used for evaluation of investment plans for both conventional production and generation using renewable energy sources.
- The expertise and experience accumulated by REF and its constant dialogue with operators on the electricity market constitute the underlying foundations of the new ITEC index.

**Morgan Stanley** possesses the expertise and skills required to offer advantageous swaps and options hedging strategies based on the ITEC index.

- Morgan Stanley is a well known "market maker", who trades large volumes of the four commodities (coal, fuel, gasoil, Dated Brent) used for the ITEC index.
- Financial derivatives such as swaps and options can assist electricity consumers, producers and traders to manage their price risk exposure.
- Morgan Stanley will provide the market with liquidity, and real time quotes, for swaps and options based on ITEC.

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