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**ELECTRICITY DEMAND IN ITALIAN PRODUCTIVE SECTORS:
TRENDS OF ECONOMIC AND TECHNOLOGY DRIVERS**

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Overview

The electricity consumption of the productive sectors depends on the combination of economic and technology drivers such as the Added Value and the Electric Intensity, being the first one a proxy for the level of energy services required and the latter an indicator of both the equipment specific consumption and the penetration of electricity among the energy end uses.

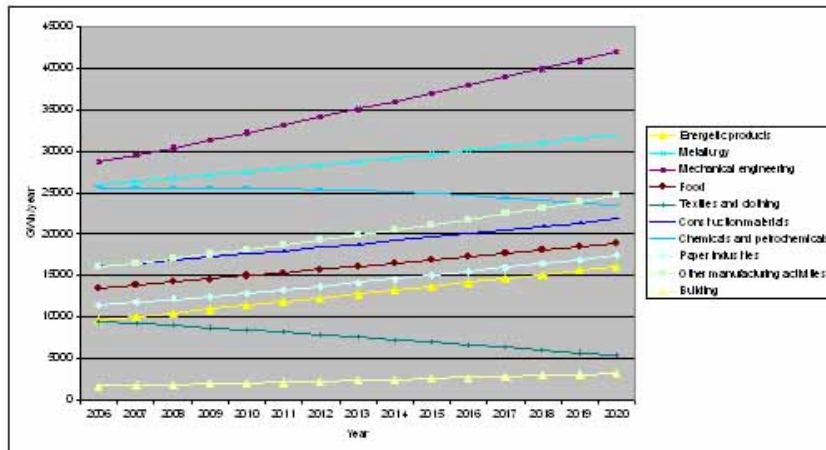
This paper analyses the trends in Italy of the above mentioned drivers, both at national and regional level, to the aim to produce updated electricity consumption forecasts for the most important Industrial sectors and the Tertiary.

Methods

The methodology applied to forecast the Added Values implements an innovative approach that jointly takes into account both historical data and possible future scenarios about the economic expectations for the country. Trends of Electric Intensity are obtained through linear and non-linear models that best fit the time series.

Results

The result of the work is the evolution of the consumptions drivers and the amount of energy demand underlying a given economic growth. The analysis is performed both at regional level and for the main consumption drivers. The following figure represents the national electricity demand forecast, obtained by combining a given economic scenario and the Electric Intensity inferred with the study.



National electricity consumption forecast of the main Industrial sectors

Under a given growth scenario, it is expected that Industry, Agriculture and the Tertiary sector will jointly need in 2020 about 380 TWh, with a very sharp increase of the Tertiary demand (average rate: + 4.95% per year).

Conclusions

Trending techniques are flexible instruments to perform demand forecasts for a short to medium term. The horizon can be extended to 10-15 years when, as outlined in this paper, a reference growth scenario can be merged with the time series to produce a “constrained trend”.

For longer term forecasts it is necessary to resort to simulation methods that can take into account new events and variables, that do influence the demand but are not fully incorporated into the time series.

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