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Via Gioberti 5 - 20123 Milano
Tel. +39 02 4344101 - Fax +39 02 43441027
Info@ref-online.it – www.ref-online.it

Deregulated Wholesale Electricity Prices in Italy*

Bruno Bosco[†], Lucia Parisio[†], Matteo Pelagatti[‡]

[†]Department of Legal and Economic Systems

[‡]Department of Statistics

University of Milan-Bicocca

Piazza Ateneo Nuovo, 1

20126 Milan, Italy

Abstract

In this paper we analyze the time series of daily mean prices generated in the Italian electricity market, which started to operate as a Pool in April 2004. The objective is to characterize the high degree of autocorrelation and multiple seasonalities in the electricity prices. We use periodic models with GARCH disturbances and leptokurtic distribution and compare their performance with more classical ARMA-GARCH processes. The within-year seasonal component is built using the low frequencies components of physical quantities, which are very regular throughout the sample. Results reveal that much of the variability of the price series is explained by deterministic multiple seasonalities which interact with each other. Periodic AR-GARCH models seem to perform quite well in mimicking the features of the stochastic part of the price process.

Keywords: Electricity auctions, Periodic Time Series, Conditional Heteroskedasticity, Multiple Seasonalities.

JEL classification: D44, C32, L94, Q40.