

*Katharina Grave and Martin Pudlik*  
**ASSESSMENT OF INDUSTRIAL ELECTRICITY PRICES**

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## Overview

In the context of the German renewable energy law (EEG), there is a highly controversial debate about distributional effects of payments for electricity. In 2014, consumers pay more than six Eurocents per kilowatt-hour to finance the deployment of renewable energy sources. Energy intensive industrial consumers can apply for reduced surcharges. If specific criteria are met, they pay less than 2% of the full levy. At the same time they profit from decreasing wholesale electricity prices. These are lower than in neighbouring countries, partly because of increasing infeed from renewable energy sources (merit order effect). Full paying consumers in Germany protest, because they have to bear a higher burden. The decrease in wholesale electricity prices is overcompensated by rising levies for supporting renewable energies. There are calls to increase the levy for industrial customers. The industrial consumers point to their “real” electricity prices – because of their hedging strategies they do not profit from the spot market as fast as the politicians suggest.

## Methods

We analyse the acquisition strategies of industrial electricity consumers to base the discussion on sound numbers. From the results of questionnaires, we sketch an acquisition strategy for big energy intensive customers. The strategy combines payments for long term and short term contracts. Future prices at electricity stock exchanges are assumed to reflect prices paid for long-term contracts of up to two years. For the short term acquisition, day ahead prices are taken into account. Data from the stock exchanges EEX and EPEX are used to calculate average prices that are paid by industries in Germany. A time series analysis shows developments since 2006. In comparison to wholesale market prices, a diversified acquisition strategy balances out price differences. The drop in average electricity prices on wholesale markets is not directly lowering prices for industrial customers, but decreasing forward prices reduce payments by customers also in the future.

## Results

The answers to the questionnaires show a variety of acquisition strategies. Especially in the chemical sector, companies generate electricity and heat in their own CHP-plants (autogeneration). Companies in electricity intensive sectors like aluminium and copper have long term contracts with power suppliers, prices often depend on wholesale prices for fossil fuels. Smaller companies, e.g. textile producers, buy their electricity from retailers and only have limited influence on their acquisition strategy. A growing number of companies acquires energy at wholesale markets. They cover small shares of their demand at day-ahead spot markets, and hedge their electricity prices in forward products. Several companies indicate a planning horizon of about two years. Taking into account this information, we calculate that in 2012 industrial electricity prices have been about 20% higher than spot market prices. In 2013 this difference grew to about 24%.

## Conclusions

Electricity prices for industrial customers decrease less than the average spot market prices. The reason for this lies in price hedging strategies. In order to plan ahead, energy intensive industries work with forward contracts.

They profit from decreasing prices on wholesale markets with a time lag. A company that covers its full electricity demand at the spot market is subject to strong price volatility. These price differences hinder long term planning. Looking at prices since 2006, industrial power customers that use the sketched acquisition strategy suffer from less fluctuations in electricity prices. They have lower prices in times of high marginal costs of electricity generation, but higher prices in the current market situation of decreasing spot prices on the wholesale market.

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