

Rethinking electricity retail contracts for leveraging flexibility

Prof. Dr. Ir. Damien ERNST and Dr. Ir. Antonio Sutera



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Retailers of electricity

Retailers are the bridge between the electricity markets and end consumers.

Most retail electricity contracts are either fixed-price contracts or variable-price contracts. For variable-price contracts, the price per kwh is generally updated month by month, based on a weighted average of the prices observed on the spot market.

Very few retail contracts charge for electricity by multiplying the quantity consumed per market period with the spot price per market period (a dynamic price tariff).

The problems with existing contracts

Most of the existing contracts do not offer incentives for consuming at the “right moment”.

And even when they do, these contracts are very basic and do not reach the full potential of what retailers could propose to their customers who are more and more caring about a sustainable future. They know that green electricity contracts are just “*green washing*”. They would like to have electricity contracts allowing them to *better participate in energy transition*.

By offering virtually identical (“unsophisticated”) contracts, retailers mainly compete only on price. This leads to market consolidation, which in turn leads to less competition, and even less choice in terms of electricity contracts and higher prices.

Organisation of this presentation

1. Dynamic electricity prices work for domestic customers: return of experience from a Haulogy use case.
2. Generic constitutive elements for defining electricity retail contracts.
3. A few examples of innovative electricity contracts that, among others, leverage domestic flexibility.

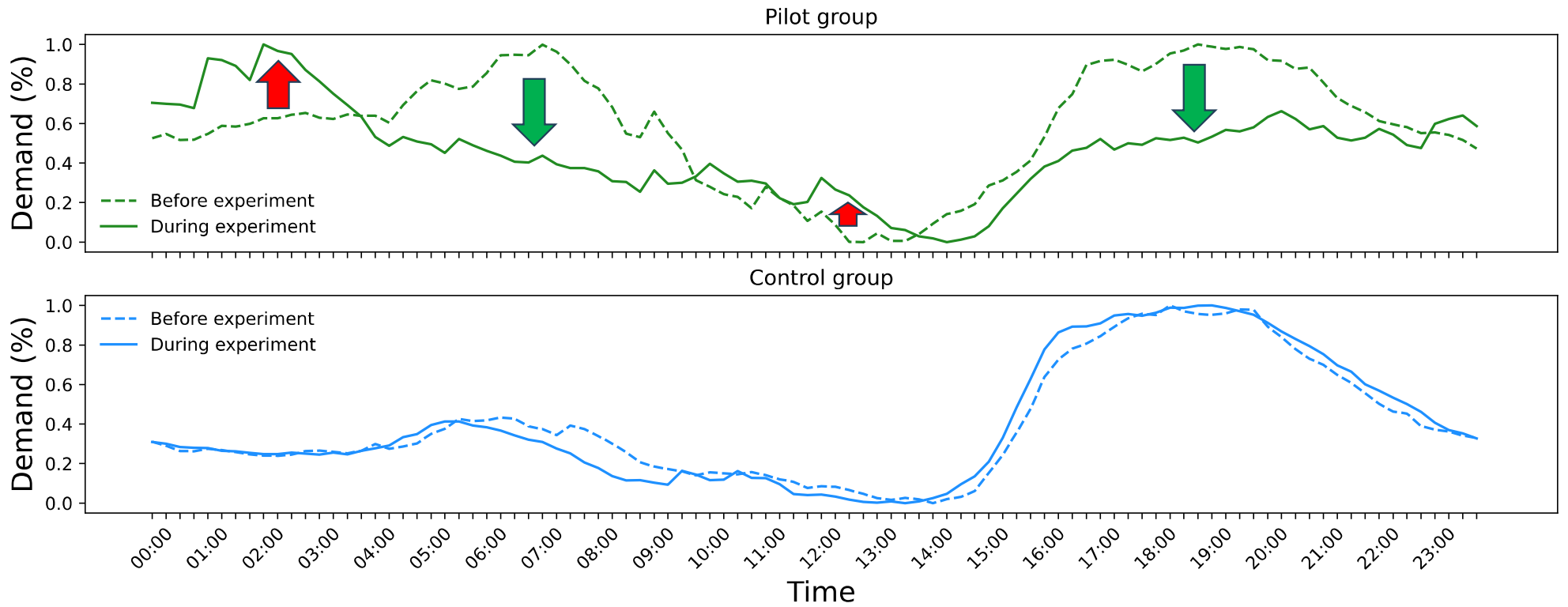
1. Dynamic electricity prices work for domestic customers: return of experience from a Haulogy use case.

Description of the experience

1. Two groups: one is made aware in advance of the hourly dynamic tariff while the other is not (= control group). Metering data of the two groups of consumers are collected and compared.
2. Based on these hourly dynamic prices, customers decide by themselves how to steer their demand, i.e., when they should reduce their consumption and when they should consume.
3. Experiment carried out on approximately 300 consumers.

Note: The retailer should take into account this flexibility when nominating on commodity markets.

Results



Three main observations

Significant modification of the behaviour of the customers as soon as they are exposed to a dynamic tariff, with respect to the control group.

The consumption peaks are shifted towards the off-peak hours.

Typical reduction in the price paid for commodity for a domestic customer exposed to dynamic price: around 20%.

2. Generic constitutive elements of electricity contracts.

Three main constitutive elements

The three constitutive elements are electricity contracts are:

- 1. Electricity supply products;**
- 2. Marketplaces;**
- 3. Decision support tools.**

Other elements - such as the user interface - also participate in the definition of electricity contracts but we are choosing to focus only on these three elements. By defining these elements the correct way, and combining them, it is possible to create new types of retail electricity contracts.

1. Electricity supply products

Three main types of product:

P1. Products not related to the consumption (e.g., calendar product, PPA, etc.);

P2. Products related to consumption (e.g., 80% of the volume consumed for every market period is bought at a fixed price);

P3. Residual products (e.g., volumes not covered by P1 and P2 are charged at the imbalance or day-ahead price plus any associated fee).

2. Market place

Each electricity supply product participating in the definition of an electricity contract is associated with a marketplace. A marketplace is defined as that place where the consumer can obtain a specific supplied product.

Example for a PPA supply product: The marketplace could consist of a simple list of PPA contracts to which the consumer has access and a mechanism allowing them to select one of these PPAs (a one-sided market).

3. Decision support tools

There are three types of decision support tools:

T1. Tools to help with the purchase of market products;

T2. Tools for dynamic load management;

T3. Support tools for off-platform investments (e.g., a tool that gives recommendations about the optimal size of the PV installation and battery in which to invest to minimize the energy bill).

3. A few examples of innovative electricity contracts that, among others, leverage domestic flexibility.

Building a retail electricity contract using these three constitutive elements

Designing an electricity contract “amounts” to specifying its three main constitutive elements.

We will now, by way of example, define three new contracts for EV users that we call:

- The dynamic price EV contract;
- The dynamic price EV contract with domestic PPA and smart charging;
- The dynamic price contract for EVs with community energy exchange.

The dynamic price EV contract

Main description: The EV user pays for electricity at the day-ahead market price. They are also given advice about when to charge their car and on possible investment opportunities in renewable energy and storage.

1. Electricity supply products:

P1. Products not related to consumption: None;

P2. Products related to consumption: The whole volume is bought at the day-ahead market price plus a fee for the retailer;

P3. Residual products: None.

2. Market places:

The consumers gets direct access to P2 by signing their contract.

3. Decision support tools:

T1. Tools to help purchase market products: None;

T2. Tools for dynamic load management: An app that indicates after the clearing of the day-ahead market the 24 price options for electricity for the next day;

T3. Support tools for off-platform investments. An email sent to the customers once per year with a report describing the different possibilities they would have for reducing their electricity bill by investing in PV and batteries.

The dynamic-price EV contract with domestic PPA and smart charging

Main description: The EV user pays for their electricity at the day-ahead market price. They also have access to domestic PPAs. When their EV is plugged in, it is charged in a smart way so as to minimize the CO2 emissions related to its electricity consumption.

1. Electricity supply products:

P1. Products not related to the consumption: None;

P2. Products related to energy consumption: Domestic PPAs;

P3. Residual products: Residual is priced at the day-ahead market price plus a fee for the retailer.

2. Market places:

The consumer has access to a one-sided market to select the domestic PPAs they want to buy.

3. Decision support tools:

T1. Tools to help with the purchase of market products: A tool that advises the user about which PPAs they should buy to cover a high-percentage of its electricity with green energy;

T2. Tools for dynamic load management: Control the charging of their EV to minimise their CO2 emissions;

T3. Support tools for off-platform investments. None.

The dynamic-price contract for EVs with community energy exchange

Main description: The EV is part of a community of consumers having an EV and/or PV panels. They buy/sell electricity to the community and their residual on the day-ahead market. Their car is charged to minimise their electricity bill.

1. Electricity supply products:

P1. Products not related to the consumption: None;

P2. Products related to energy consumption: PV electricity sold/bought to/by the community.

Volumes exchanged are computed according to a system of repartition keys, similar to those used in Renewable Energy Communities. Prices for the electricity bought are higher than the price of the electricity sold. Prices are fixed;

P3. Residual products: Residual is priced at the day-ahead market price plus a fee for the retailer.

2. Market places:

The consumer has access to a list of communities they may want to join. Once they join a community, they will automatically benefit from the electricity product P2. Product P2 may change from one community to another.

3. Decision support tools:

T1. Tools to help to purchase market products: None;

T2. Tools for dynamic load management: Control of the charging of their EV to minimise the electricity bill;

T3. Support tools for off-platform investments. None.



Haulogy is a software company that has developed an advanced generic software platform for retailers.

It can accommodate a large class of electricity supply products, marketplaces and decision support tools that define retail electricity contracts.

With this platform, retailers can now easily design new electricity contracts to meet the different needs of their customers (among others, electric vehicle (EV) owners) and improve their brand image.