visplore

User Success Story:

How an electricity supplier expanded its tariff offerings through identifying customer clusters from smart meter data.

Problem: Optimizing tariff offers by leveraging smart meter data

The proliferation of smart meters confronts electricity suppliers with a massively increased quantity of decentralized energy generation and consumption data. An electricity and energy supplier (EES) intended to leverage these precious data for optimizing and expanding their tariff offerings. They aimed to create new tariff models by studying customer behavior and identifying suitable criteria for creating groups of similar clients.

It was unclear how to ideally take on this task, as it was beyond the scope of established analysis procedures. Moreover, the exploration of that many time series could not quickly be addressed with the standard tools of the market experts.

Highlights

- **Screened thousands of load profiles at a glance**
- **Correlated many customers automatically**
- **Validated potential clusters interactively and fast**

Need: Identifying representative load profiles and customer clusters

The energy supplier needed to identify representative load profile features based on generation and consumption data from an initial sample of more than 2000 customers. This dataset, containing a few thousand time series over two years, had to be screened regarding characteristics and similarities in seasonal trends, weekly and daily patterns, peaks, sudden changes, and other features.

The screening required interactive exploration of the profiles and robust identification of representative customers and associated clusters. The results of this process were intended to be used for a rapid and ideally automated assignment of tens of thousands of other customers.

Benefits

- **Identified clusters within hours and without coding**
- **Optimized expenditures and increased customer satisfaction**
- **Gained in-depth understanding for efficient follow-up automatization**

Solution: Turned smart meter data into customer clusters

The energy supplier decided to use Visplore due to its unique capabilities for interactively exploring thousands of load profiles by the energy market experts directly and without coding. Intelligent overviews such as interactive heatmaps of all customer profiles revealed potential clusters at a glance. Powerful drill-down features like calendar views and high-performant time series plots enabled comparing customers and validating patterns of clusters within seconds.

Visplore's ready-to-use correlation cockpit allowed creating representative load profiles to analyze how the target customers correlated with all other profiles, resulting in ordered lists of smart meter clusters within minutes. These insights enabled the energy supplier to identify representative features and characteristic clusters within a few hours.

> *"Visplore allows for a much easier investigation of relevant patterns and structures. Our downstream analysis becomes more efficient and we gain more confidence in the results."*
>
> **Main Data Scientist,**
> **Electricity and Energy Supplier**

Result: Nine new tariff models based on identified customer clusters

Based on the results from the analysis of the initial sample of customers, the market experts were able to define nine tariff models tailored to different groups of customers. The in-depth understanding of the differences between the groups made it easy to implement automated rules for assigning all other customers to these clusters. These clusters allowed to approach most of the customers with offers, which were better attuned to the energy suppliers' cost structure and adapted to the customers' needs.

Due to changes in customer behavior over time, it was necessary to validate the clusters and the assignment from time to time. The energy supplier used Visplore for this recurring task. Today, they use Visplore for all other tasks requiring a detailed analysis of load profiles, such as calculating offers for big industrial customers.

visplore – Fast visual analytics for energy experts

- Forecast Monitoring & Diagnostics
- **Customer Clustering / Tariff Optimization**
- Troubleshooting Energy Distribution Assets

www.visplore.com office@visplore.com +43 660 10 57 150