

Grids and Bits – how DSO’s can profit from innovative data & energy analytics

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Abstract

Traditionally, gas and electricity grid expansion as well as their operation has been primarily driven by innovations from energy technologies. Recently however, exponentially growing amounts of data obtained from the grid operation pose new challenges and opportunities for the grid operators.

Innogy SE—one of Germany's major electricity and gas DSO—owns a broad set of historical and real-time data from grid planning, operation, and maintenance. In addition to internal process optimization and optimizations in the areas of maintenance and availability, these data-sets also enable new business models. As a consequence, the role of innogy changes from a traditional network operator to a smart grid company that creates and uses an own data hub.

In our contribution, we elaborate on new data-driven business opportunities, using the example of distribution grid planning under the premise of increasing diffusion of battery electric vehicles in the near future. Against the background of the national German efforts to reduce mobility related CO₂ emissions this is not an academic approach but a practical means to effectively cope with changing load patterns. Here, geo-referenced census information—such as the distribution of income, age structure or household type and size in a certain area—is used to derive a probability where charging infrastructure is required. Grid operators can use this information to plan grid expansion accordingly. Additionally, the presentation will emphasize other data-based use cases, such as the assessment of failure risks of 110 kV transformer stations and reliability prediction of ageing underground cables.