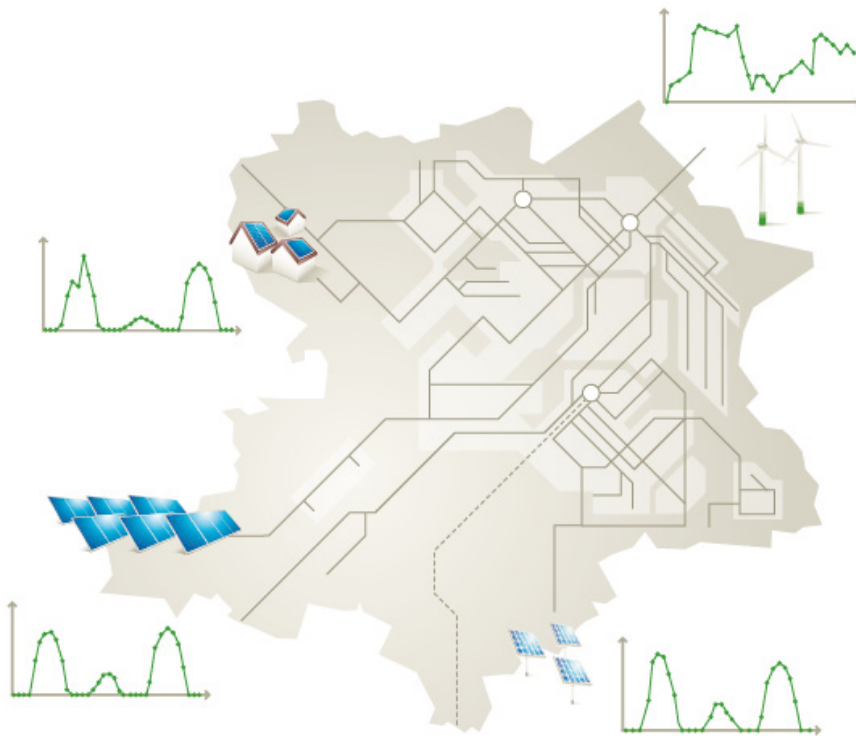


## Forecasts to feed-in photovoltaics energy at the network node

enercast's network node forecast, to optimize the electricity grid workload and prevent grid congestion.



### Benefits for the operators of distribution networks

- early recognition of congestion
- fewer switch-offs and capacity reductions
- simple certification according to EEG §12 Abs. 2.
- prevention or delay of elaborate investments into the network (e.g. transformer station)
- reduction of interventions
- better cooperation between the network control team and the operators of the photovoltaics plants.

## Challenge

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If distribution networks cover a large territory, consisting of rural and urban areas, energy flows occur between electricity generating photovoltaics plants, wind power plants and consumers.

ovag Netz AG wants to inform the operators of wind- and PV plants in advance about planned measures, such as the switch-off or capacity reduction of a given plant. So far information was generated in prophylactic manner on the previous day, even if no measure resulted on the subsequent day.

## Solution

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A network node forecast, enables the grid management of the distribution network operator to recognize relevant energy flows on the previous day, and to consequently plan optimal capacity circuits.

To generate the network node forecast, enercast calculates the feed-in of every photovoltaics plant, allocated to the respective node. This is done, according to the forecasted radiation, solar altitude and cloud coverage. At the node, the feed-in capacities of the individual plants are summed up.

The resulting forecast is updated four times per day, in order to react to short-term meteorological changes and transfer the most recent information. The network control associates the photovoltaics forecast with the expected feed-ins and outputs of the node- it recognizes congestion before it occurs and can evaluate whether a switch-off is necessary, or whether the congestion can be circumvented with an alternative set of circuits.

## Benefit

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The employees at network control can determine the expected energy quantity of a given photovoltaics plant two days in advance. „Through the introduction of the new process, using forecasts, we are able to make more precise predictions on the necessity for measures on the following day.“, comments Christian Weber, head of ancillary services of ovag Netz, the advantage of enercast forecasts. „As a result we avoid unnecessary correspondence and only inform the operators, if we actually conduct a switch-off or a capacity reduction.“

The forecasts are also utilized to support the operators in planning maintenance windows. Ideally these should be scheduled in periods with low energy generation.

## Perspective

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In the event of a further construction of wind- and photovoltaics plants, resulting network congestion will generate a need for feed-in management, until the grid is appropriately expanded. Renewable energy law (EEG) requires informing the operators of wind- and PV- plants, before conducting feed-in measures. When employing the forecasts, these measures can also be predicted in a precise manner.

„In the future, we can also use enercast’s forecasts for precise circuit planning during maintenance procedures in the overhead line and for functionality inspections of the circuit breakers or the transformer.“, concludes Weber.

## Client | ovag Netz AG



Ovag Netz AG is a distribution grid operator and was founded on 01.07.2006 as a complete subsidiary to the Oberhessische Versorgungs- und Verkehrsgesellschaft mbH (OVVG). The ovag Netz AG leased the electricity grid from the Oberhessische Versorgungsbetriebe AG (OVAG) and assumed managerial responsibility.

Rolf Gnadel is executive director of ovag Netz AG. Ovag Netz AG is responsible for operation, maintenance and extension of the distribution network. At the same time, it has complete discretion in decisions, concerning regulatory specifications with respect to the network's contractual relationships.

The network domain of approximately 2.700 km<sup>2</sup> includes the administrative districts Gießen, Vogelsbergkreis, Wetteraukreis and Main-Kinzig-Kreis. In the region, some 220.000 customers and 5 subordinate municipal utilities are connected to the distribution network. The network's maximum load amounts to approximately 372 MW, given an outlet of about 2 TWh.

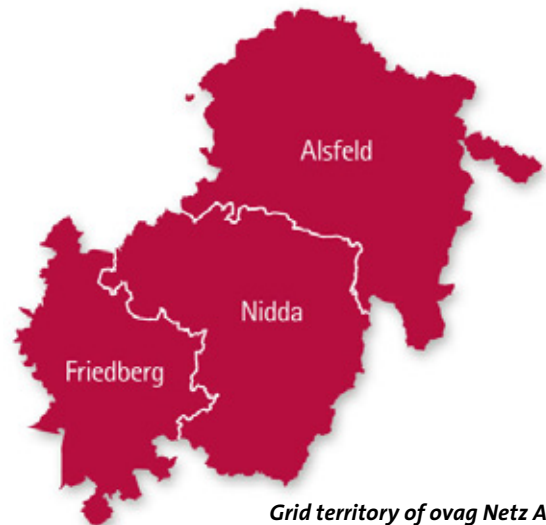
Furthermore, the distribution network is connected to E.ON Netz GmbH's upstream 110-kv network, via 21 transformer stations. ovag Netz AG ensures in a reliable, efficient and environmentally friendly manner, that households, corporations and municipal partners receive the electricity they require.

„Using enercast forecasts, we are able to make more precise predictions on the necessity for measures on the following day“



**Christian Weber**

ovag Netz AG



*Grid territory of ovag Netz AG*

## Services



### Power forecasts for energy providers and municipal utilities

With enercast city you can render renewable energy sources projectable and integrate them into your processes.



### Direct marketing of forecasts for wind- and solar electricity

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### enercast Smart Energy

Power forecasts and extrapolations for Virtual-Power-Plants, PV-Monitoring-Systems, Smart Home and the e-mobility.



### Solar Forecast

The online service enercast offers power forecasts by the hour up to 72 hours ahead.



### Wind Power Forecast

The online service enercast.de offers precise forecasts for wind energy, using the wind-power-forecasting model.

## convincing



With its forecasting services for the energy sector, enercast GmbH is one of the 365 „Selected Landmark 2012“.



The WRG (Wirtschaftsförderung Region Göttingen) conferred Enercast GmbH with the Innovation Award 2011. Enercast GmbH came in third in the services category.



The web service enercast placed third for the Innovation-IT Award 2011 in the category industry software which is awarded by the Initiative Mittelstand.

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