

OpenADR 3 for Grid Aware Charging

For a smart, future-proof charging infrastructure system in the Netherlands

What is Grid Aware Charging?

During peak hours, when there is a risk of overloading the local electricity grid, grid operators (DSOs) temporarily request a reduction of charging capacity for electric vehicles in a specfic area. Grid Aware Charging is therefore only activated at moments when the grid needs it.

The charge point operator (CPO) then distributes the available capacity across the relevant charge points in that area. Drivers generally notice little impact, because cars are typically plugged in longer than actually required. The grid, however, does notice.

Today, the available capacity is still communicated with a static profile: DSOs and CPOs agree on fixed time blocks and power reductions. The next step is to make these reductions dynamic: only when necessary and aligned to what that specific grid area actually needs. OpenADR is required to communicate available capacity dynamically.

Why OpenADR 3?

OpenADR 3 was selected for its suitability to communicate available grid capacity in a simple, uniform, and automated way. To facilitate the Dutch approach to Grid Aware Charging, a limited message set of OpenADR 3 was selected. This enables large-scale automated messaging and reduces implementation complexity for both DSO and CPO.

OpenADR 3 provides many payload options for demand response. For Grid Aware Charging, the chosen payload is the Import Capacity Limit, forming the basis of the Dutch GAC specification.

How does it work?

- Grid operators send capacity profiles per charging cluster (a group of charge points) via OpenADR 3; these clusters are defined and targeted within OpenADR events.
- The CPO decides how to distribute the reduction across charge points in the group (typically using OCPP).
- Activation is only when needed, and with the reduction that is needed.

Where are we now?

Implementation of OpenADR 3 has started. Multiple grid operators and CPOs are preparing their IT systems to send and receive messages.

What does ElaadNL do?

ElaadNL maintains the Dutch OpenADR-based specification for Grid Aware Charging and supports implementation efforts.

More information and questions

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For more information please visit
www.openadr.org