Integrating energy community flexibility in grid planning: central vs decentral approaches

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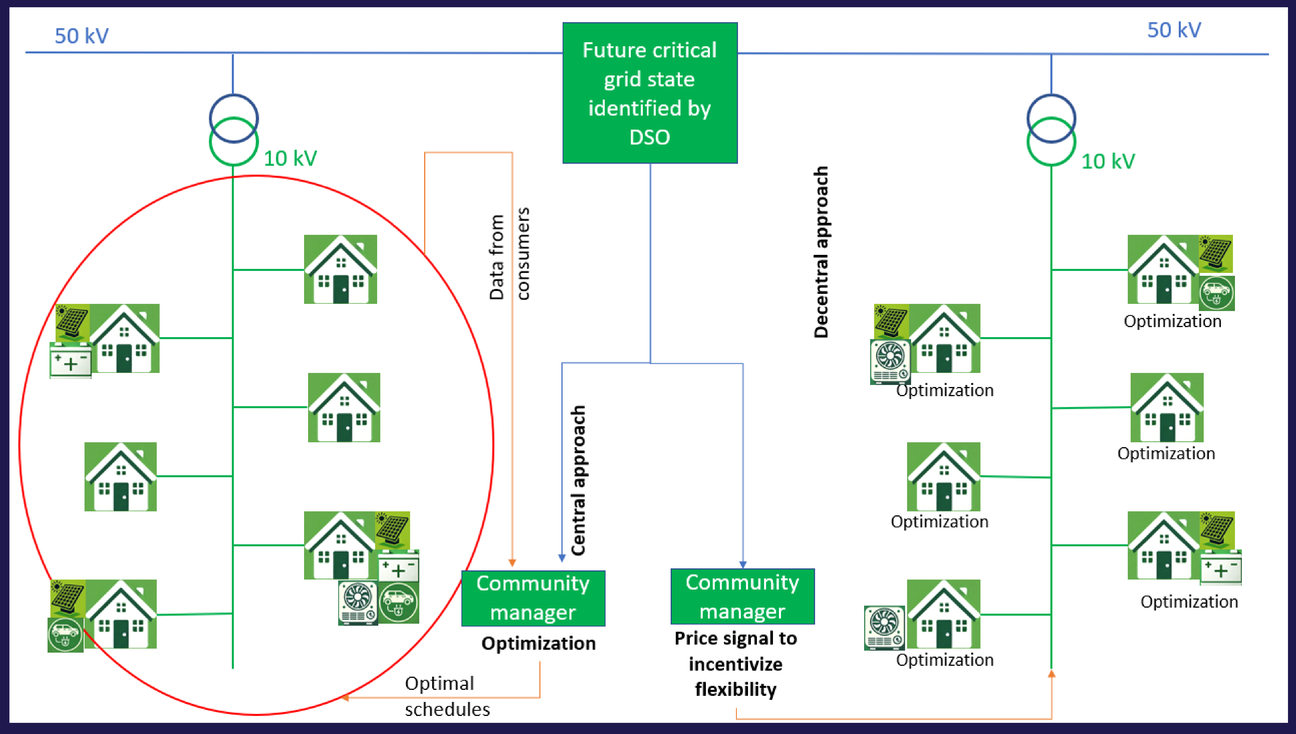
How to integrate flexibility from energy communities in grid planning:

- Identifying critical situations of the distribution grid by forecasting of:
  - Transformer loading.
  - Electricity consumption.
  - Heating demand.
- Use of flexibility from controllable loads (batteries, heat pumps, electric vehicles) as countermeasure.
- Scheduling of controllable loads via optimization (central or decentral).

What should be chosen and why ? Centralized or decentralized coordination

Schemes for central and decentral optimization



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GrEnCo

Central approach:

Global optimum reached.

Long calculation times.

Data protection issues.

Decentral approach:

Faster computation times.

Household information handled locally

No guaranty of reaching a system's optimality .

Project Partners:

OLI

badenova NETZE
Zuverlässig und vor Ort

Hochschule Offenburg

IMTEK

INATECH
Institut für nachhaltige technische Systeme

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