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Digitization to create transparency in the distribution network

Dr. Michael Schöpf – Strommarkttreffen Berlin

The well-known issue of electrical heaters might cause severe issues in the winter

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BUSINESS

Sale of electric heaters in Germany surges amid gas shortage fears

Germany has seen a huge rise in sales of electric heaters as the winter draws nearer. Many fear there will not be enough gas around to heat homes.

https://www.dw.com/en/sale-of-electric-heaters-in-germany-surges-amid-gas-shortage-fears/a-63266215

Angst vor Blackouts

Netzagentur warnt vor Heizlüftern im Winter

Gas dürfte in diesem Winter ein knappes Gut bleiben. Viele Bürgerinnen und Bürger decken sich deshalb mit Heizlüftern ein. Keine gute Idee, warnt die zuständige Behörde.

10.09.2022, 23.19 Uhr

Spiegel Online

How Millions Of 'Cheap' Electric Heaters Could Crush Germany's Power Grid

By ZeroHedge - Sep 13, 2022, 12:00 PM CDT

https://oilprice.com/Energy/Energy-General/How-Millions-Of-Cheap-Electric-Heaters-Could-Crush-Germanys-Power-Grid.html

Hamsterkäufe für den Winter

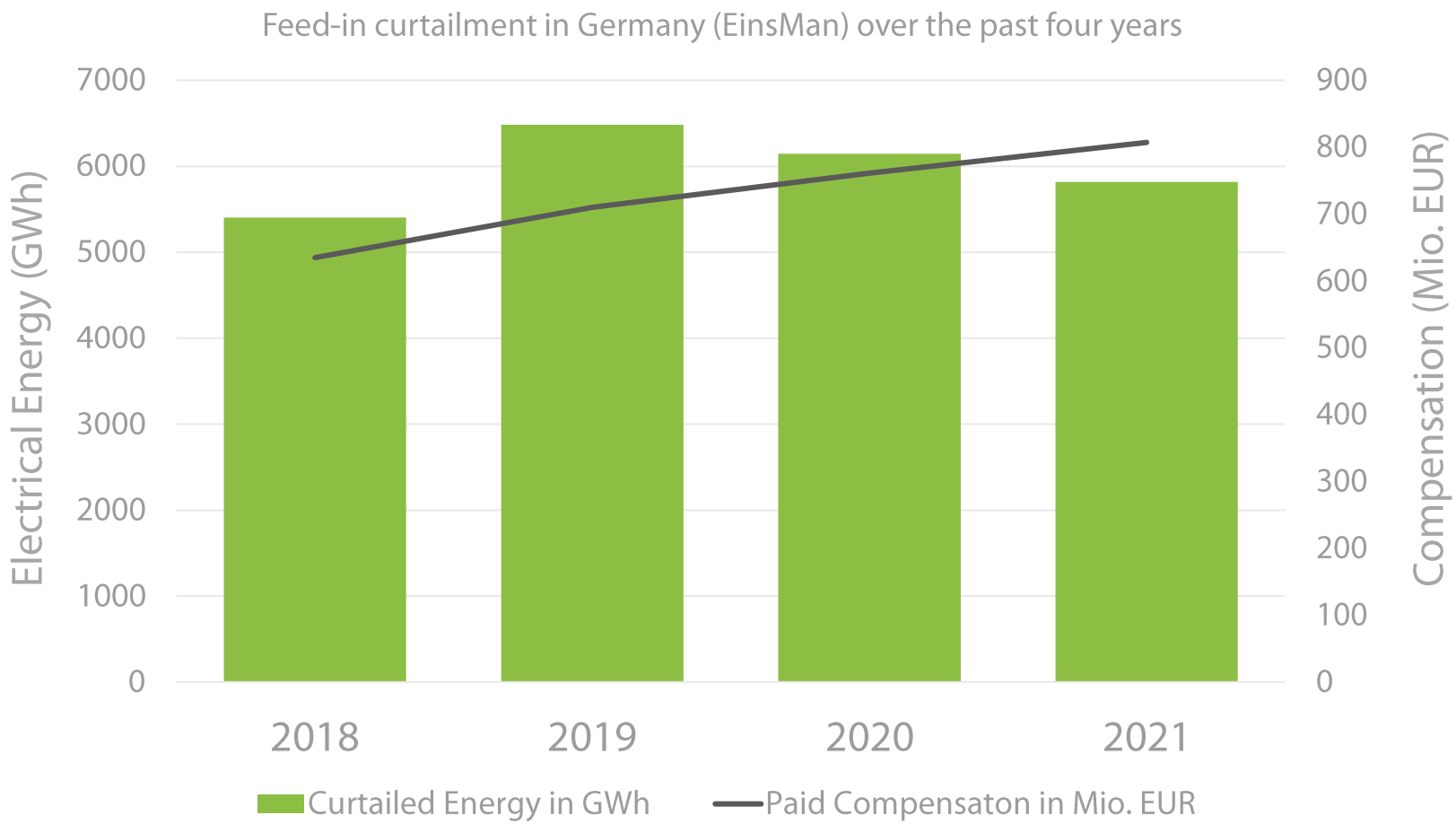
Teure Heizlüfter verschärfen Gasmangel

Die Mitteilungen über steigende Gaspreise überfluten die Briefkästen. Die Reaktion der Deutschen: Hamsterkäufe bei Heizlüftern. Die Folge: mehr Schaden als Nutzen.

27.09.2022, 15.12 Uhr

Spiegel Online

On higher voltage levels, a lack of grid capacity is not a new problem…



Source: BNetzA (2022)

Redispatch 2.0 was introduced to address this issues

Since October 2021, distribution system operators are to be given a new role in the elimination or avoidance of grid bottlenecks (redispatch) and are to be actively involved in the process

Basis

Netzausbaubeschleunigungsgesetz (NABEG) from May 13th 2019

Affected

- All EEG & CHP plants > 100kW
- All remote controllable plants < 100kW
- In planning: lowering the plant size to 50kW or even 30kW

New billing processes

- For financial compensation
- Loss of electricity production per plant
- Between DSO & BTR

New market roles emerge

- EIV – "Einsatzverantwortlicher" = Responsible for operations
- BTR – "Betreiber der techn. Ressource" = Operator of the technical asset

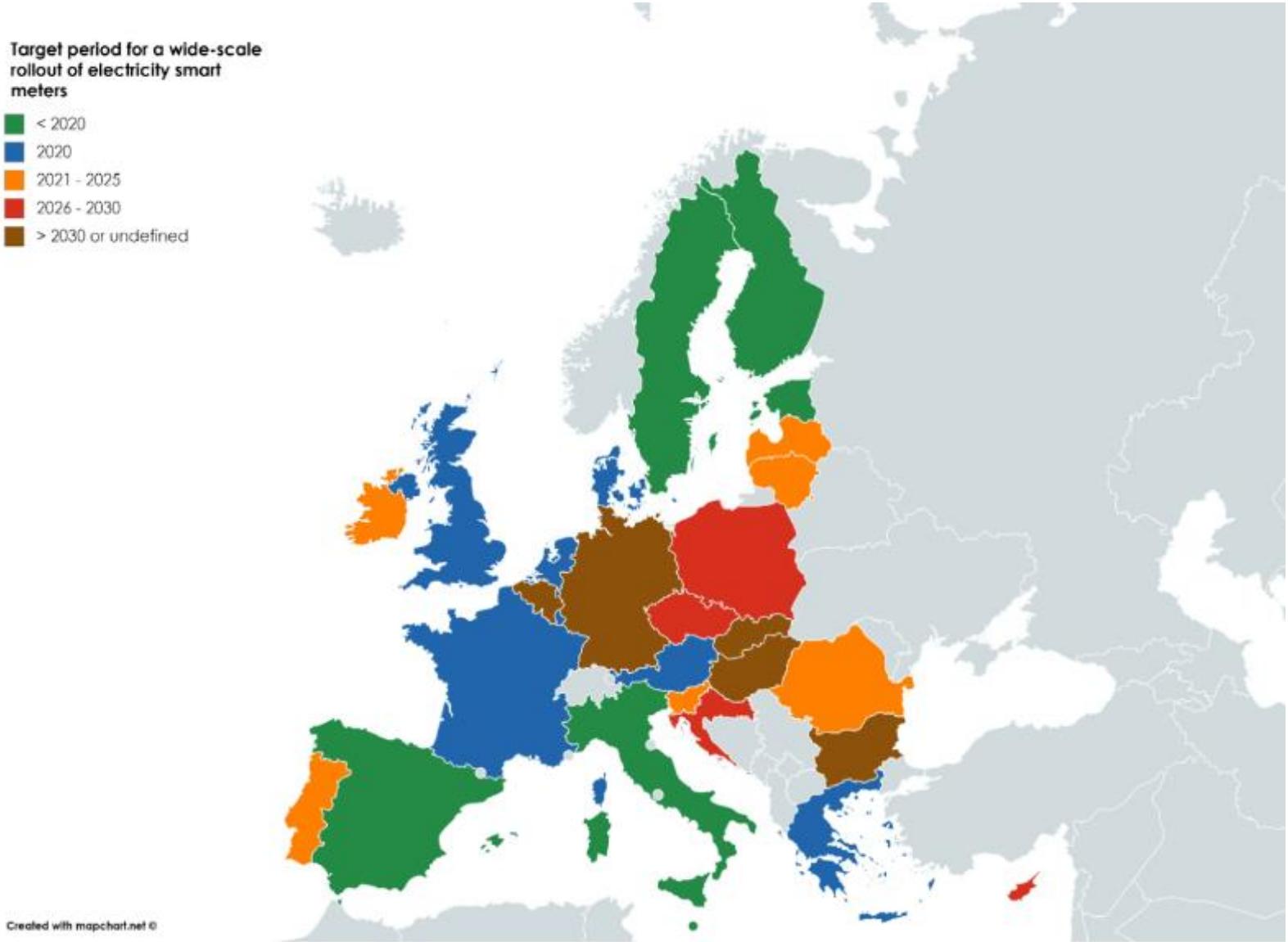
Advanced balancing processes

- Adjustments to all market roles
- Balance sheet adjustment
- New redispatch balancing group

New responsibilities for the DSO

- Predictive network condition analysis
- Forecast & elimination of network bottlenecks
- Coordination with neighboring and upstream NBs
- Financial balance sheet compensation for redispatch measures

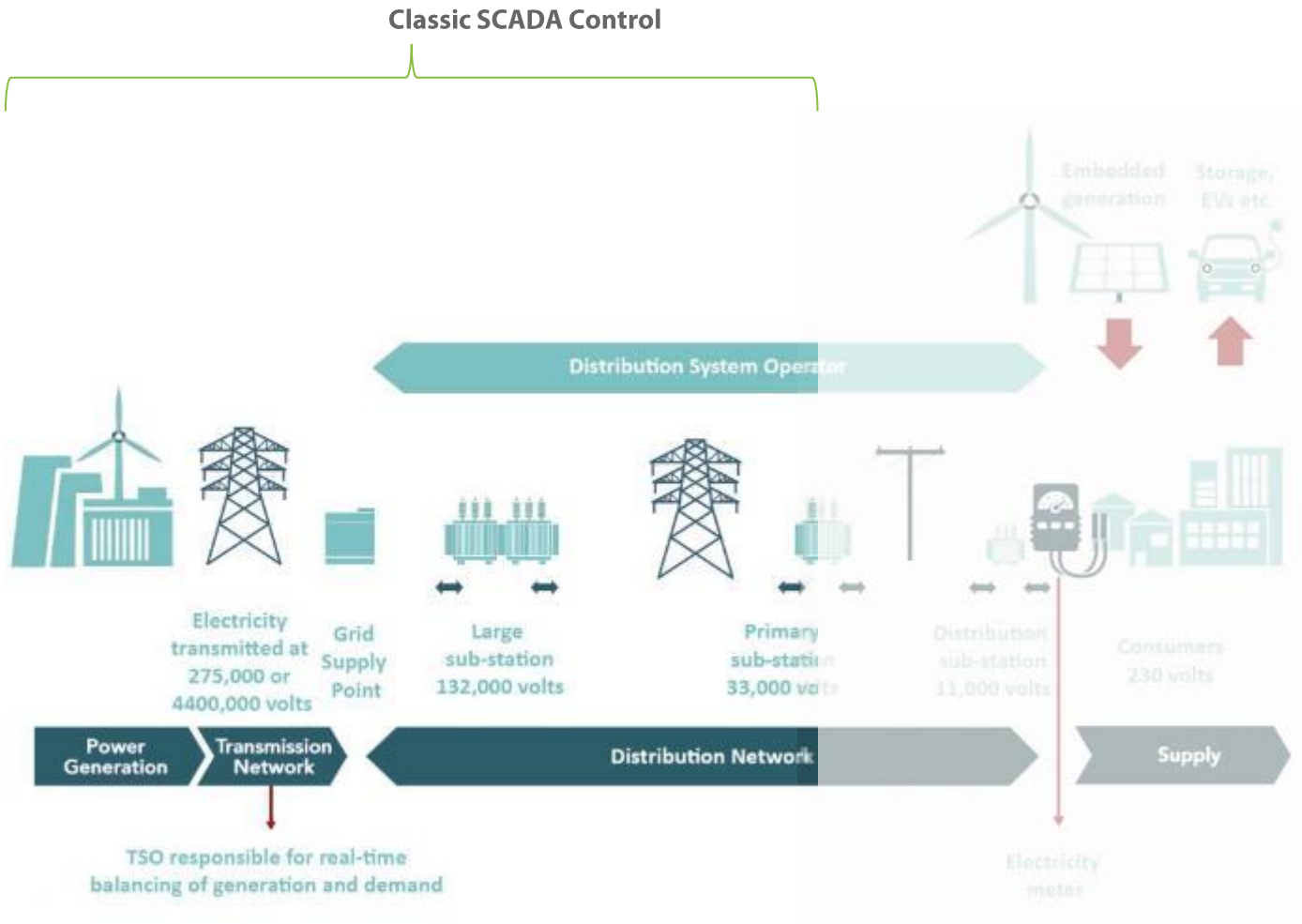
Major parts of the low voltage grid are still a blind spot for grid operators in Germany



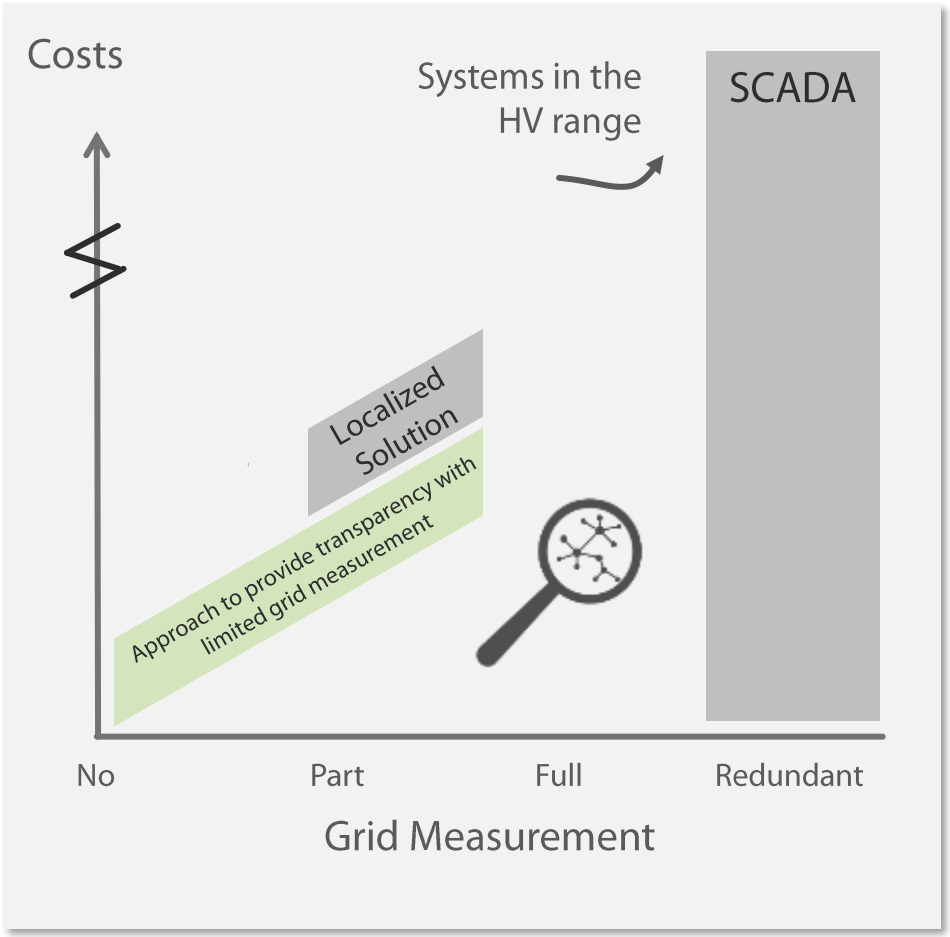
Source: European Commission, Directorate-General for Energy, Alaton, C., Tounquet, F., Benchmarking smart metering deployment in the EU-28 : final report, Publications Office, 2020, https://data.europa.eu/doi/10.2833/492070

DSO/DNO view today

With an increasing decentralized and complex energy grid, there is a need to gain greater insight and control in the medium and lower voltage grids in order to efficiently combine the sectors electricity, heat, and mobility (sector coupling).



SCADA systems are designed for save operation with highly reliable, redundant data



An approach to allow for grid transparency with only limited data measurements

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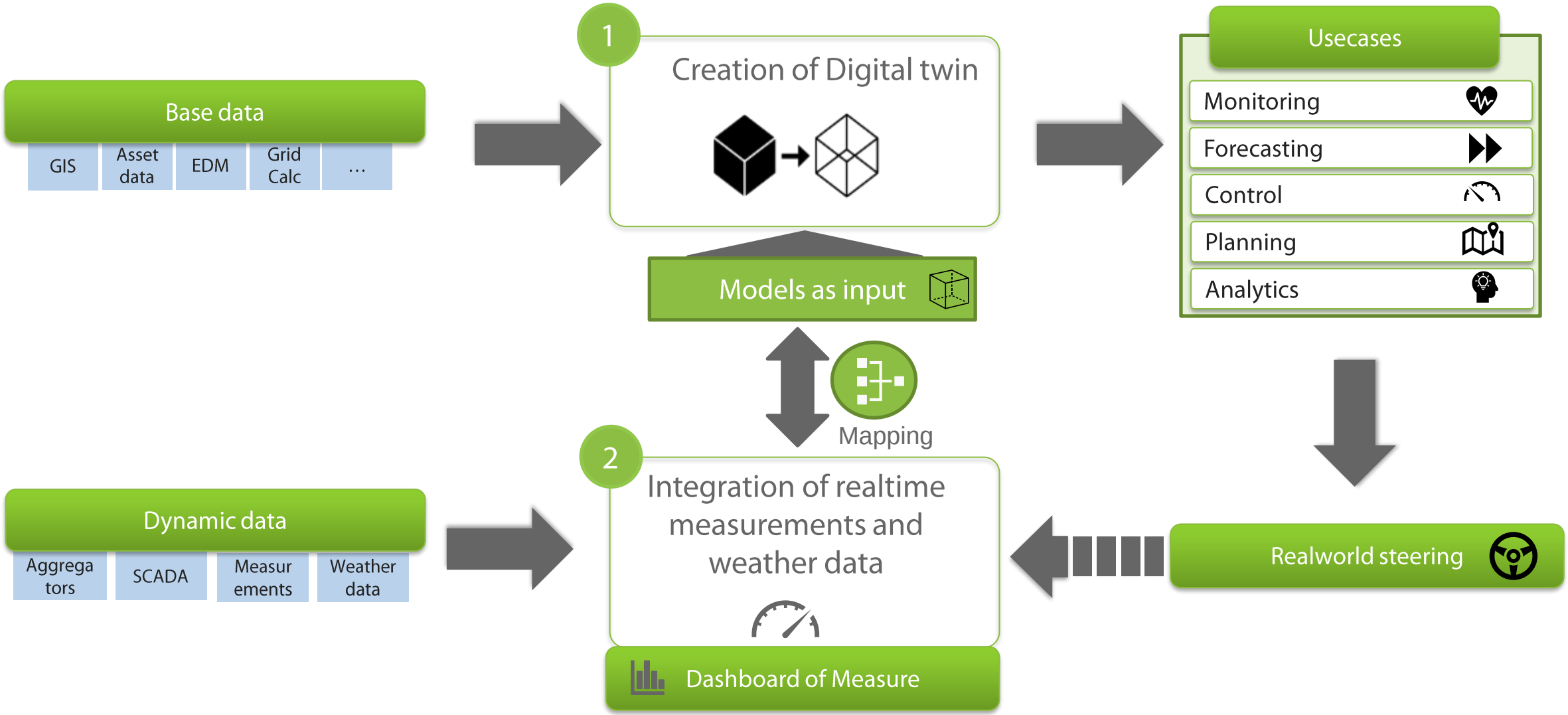

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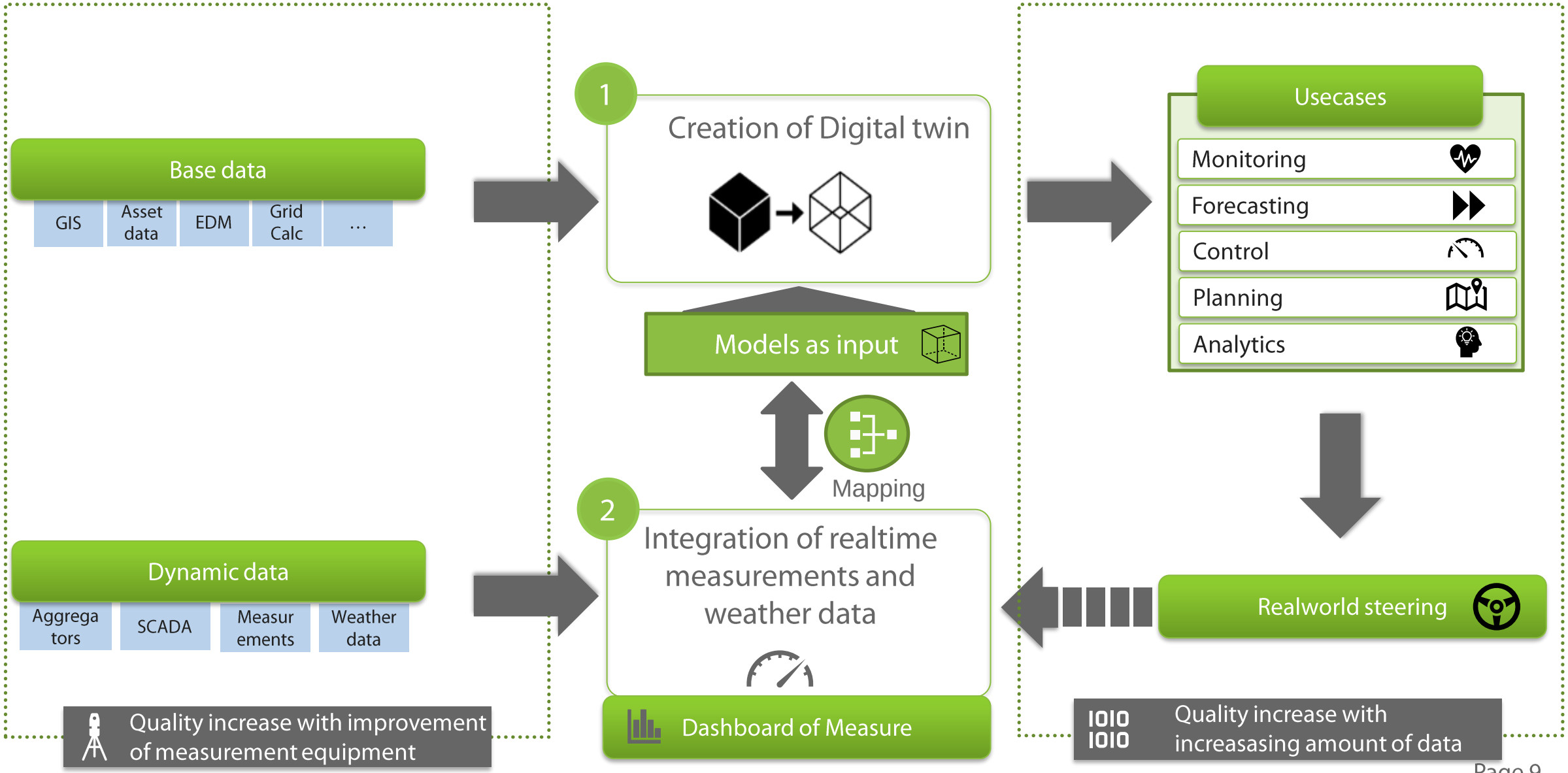

Visualization as one key to give full transparency over the grid status

Upcoming challenges for grid transparency

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Short-term

- Usage of electrical heaters in the winter season 2022/23 yet unclear
- Possible shifts in electricity consumption share between industry, commercial and residential sector due to extreme electricity prices

Medium-term

- An increase of short term price elasticity of consumers will challenge SLP assumption fundamentally
- New transparency and process requirements for DSOs according to § 8 EEG and §14e EnWG
- Modelling of increasing EV penetration and (fast) charging behavior

Long-term

- Flexibility markets for the DSOs?
- Sector coupling – Combinded Modelling of heat, gas, electricity and transportation networks

Contact us!

Dr. Michael Schoepf
Business Development Manager
michael.schoepf@venios.de
+49 (0) 160 9709 3251
Schumannstraße 34b, DE-60325 Frankfurt