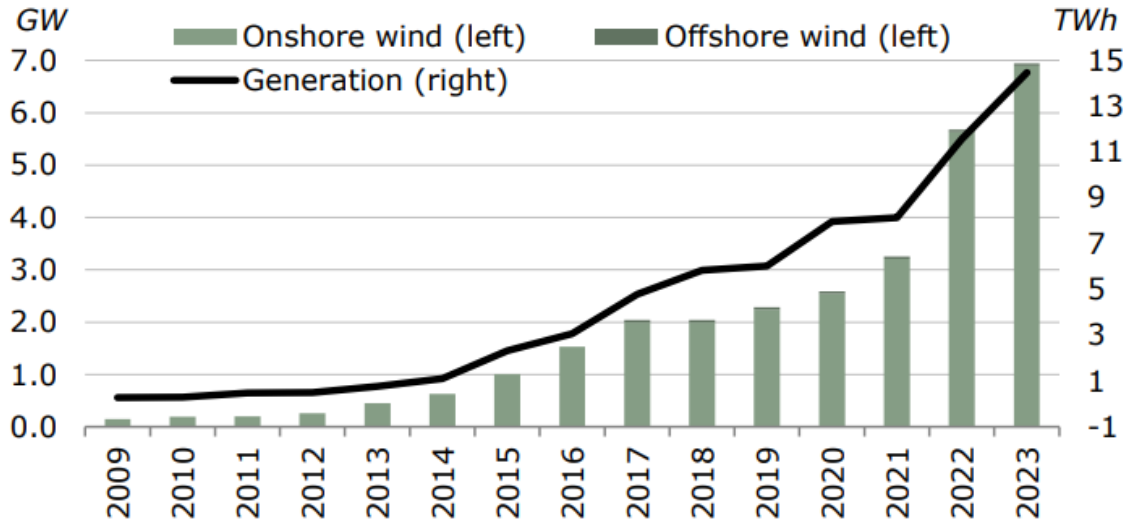
Industrial flexibility

20.01.2026

A changing generation mix is driving increased price volatility and concerns regarding capacity adequacy, but price volatility drives value in demand flexibility

Rising RES generation is driving increased price volatility

Wind power capacity and generation have increased significantly since 2021



Source: Finnish Wind Power Association, Statistics Finland.

Expected demand growth increases the importance of demand flexibility from new and existing industry

- Significant demand growth is expected in the Finnish market, and the recent ENTSOE European Resource Adequacy Assessment (ERAA) found that Finland could face a capacity adequacy crisis
- AFRY investigated the technical and economic compatibility of major Finnish industries with demand flexibility through in depth interviews with industry engineers and experts
- We also investigated future demand flxibility
- **Our study finds that existing and future industry has strong potential to support capacity adeqaucy through EBITDA-positive demand flexibility**

Understanding demand flexibility: three conditions must be met for flexibility to be pursued

1

Technical feasibility

Flexibility must be compatible with the technical characteristics of the facility

2

Economic feasibility

Flexibility must provide a positive business case

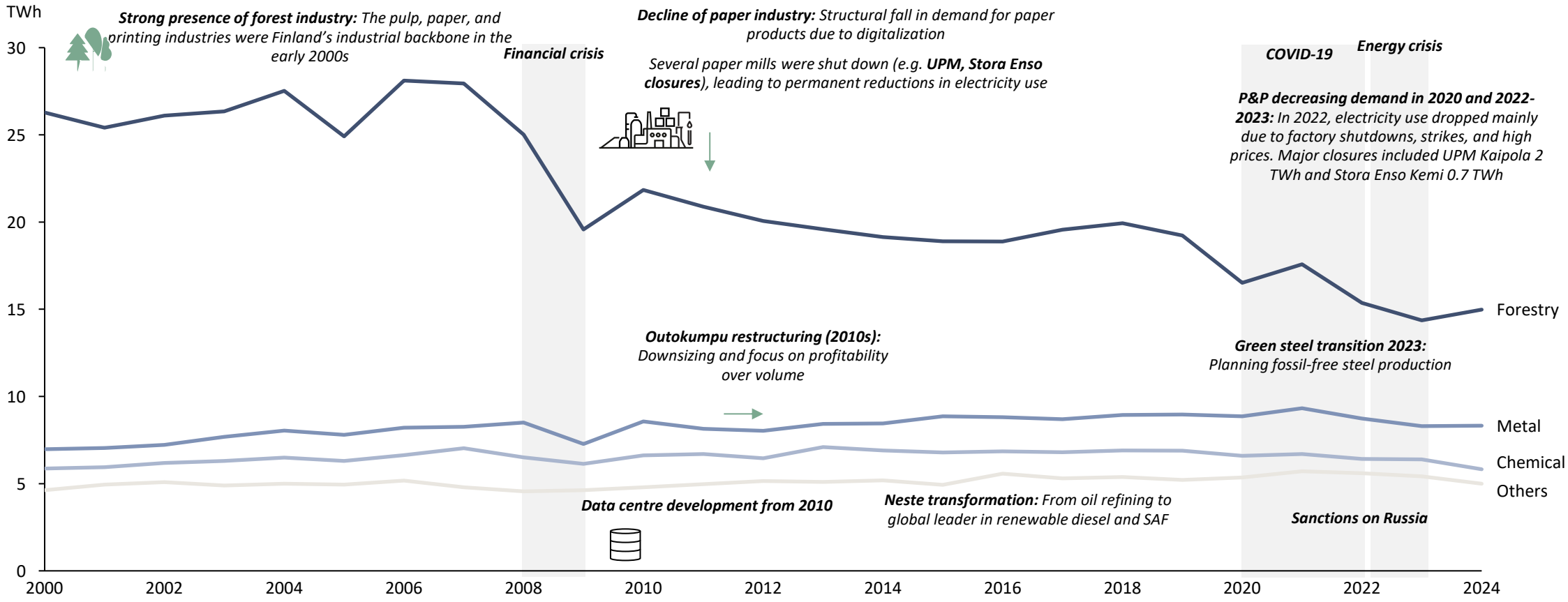
3

Willingness and knowledge

Operator must be willing to pursue flexibility

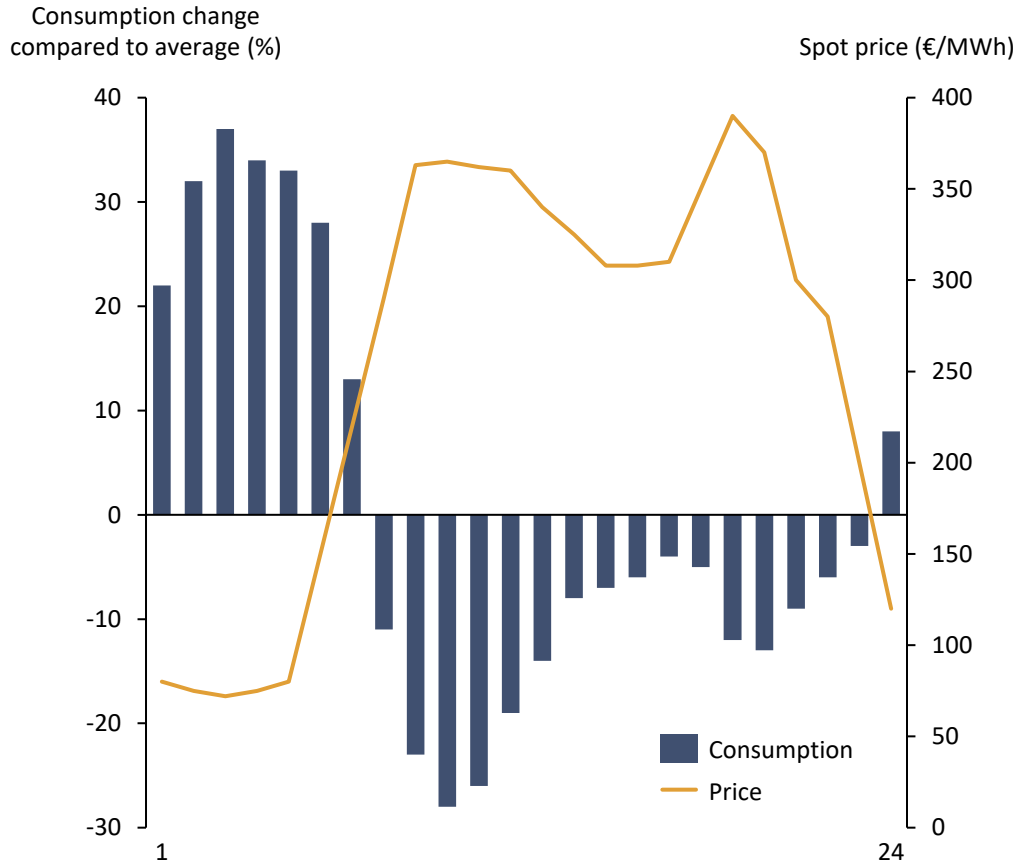
A small number of industries dominate Finnish industrial power demand

Electricity consumption in Finland by industrial segment (2000–2024), with key events highlighted

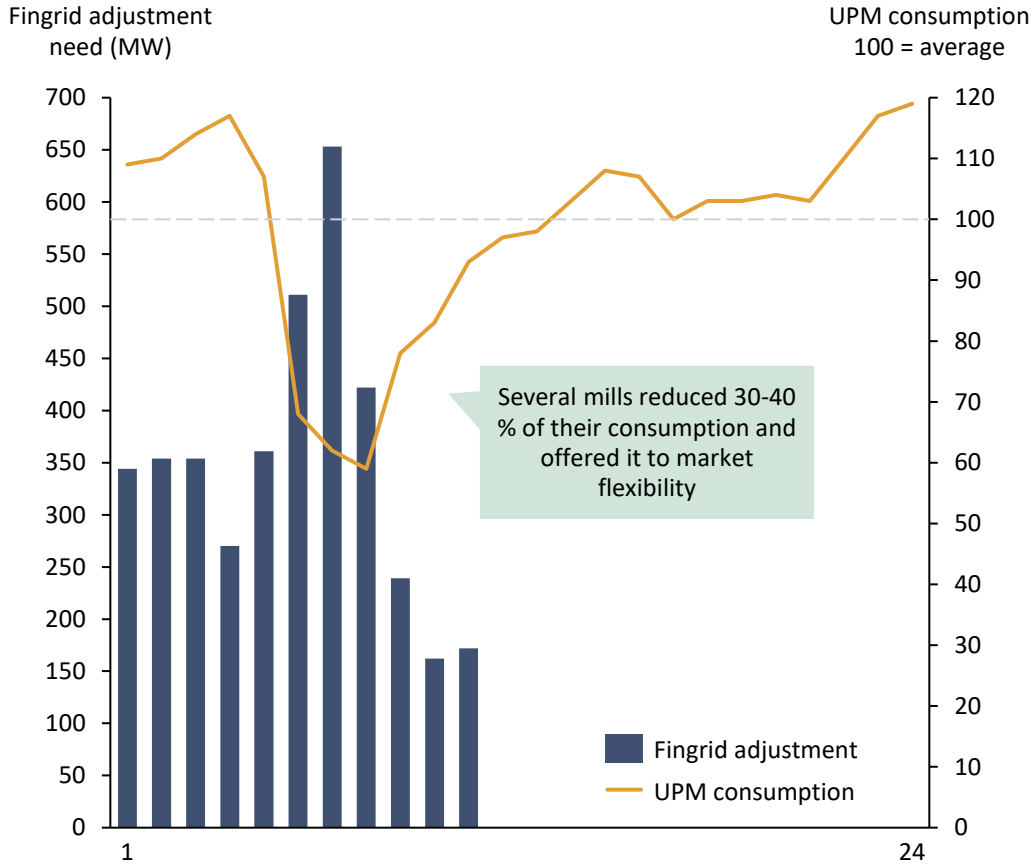


A case example: UPM shows that power consumption in existing Finnish industry can be dynamic

Example, Paper Mill, August 2022



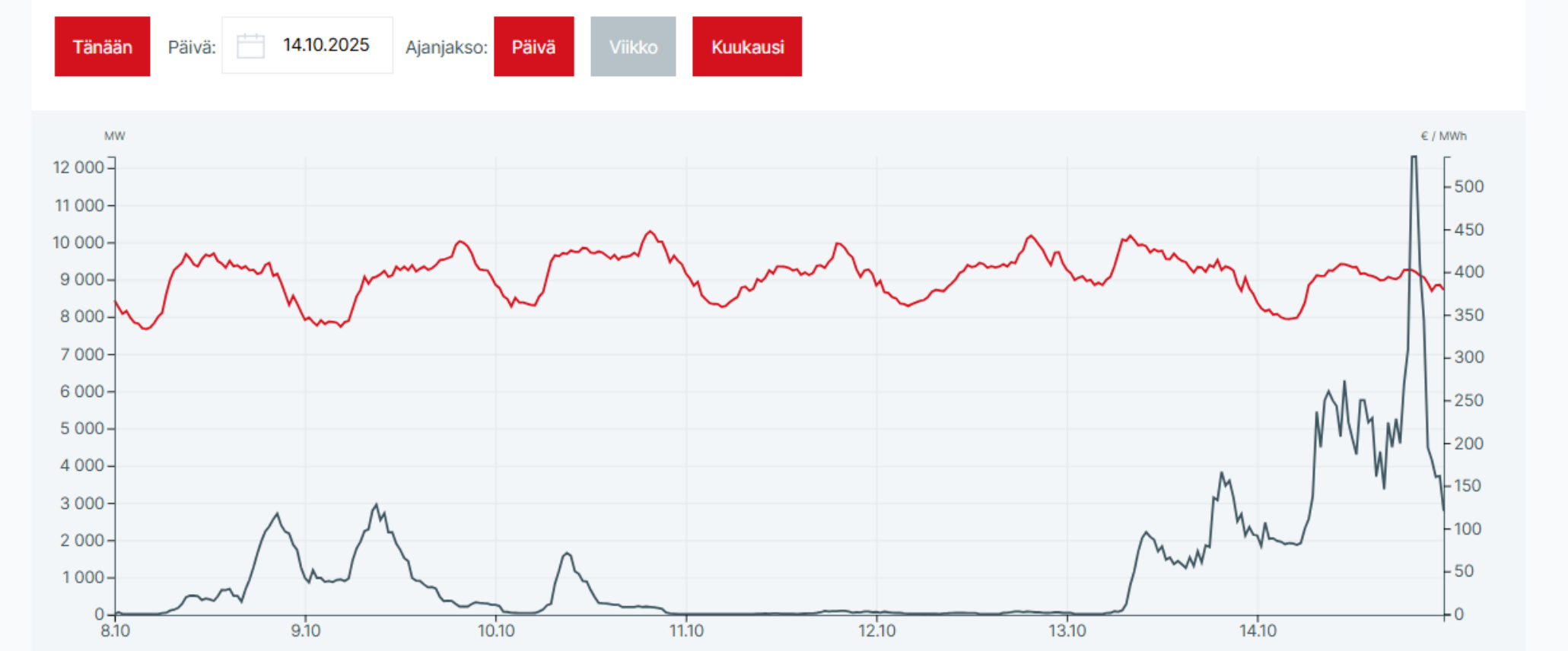
Example, UPM consumption in Finland, 8.9.2022



— Sources: Fingrid, UPM

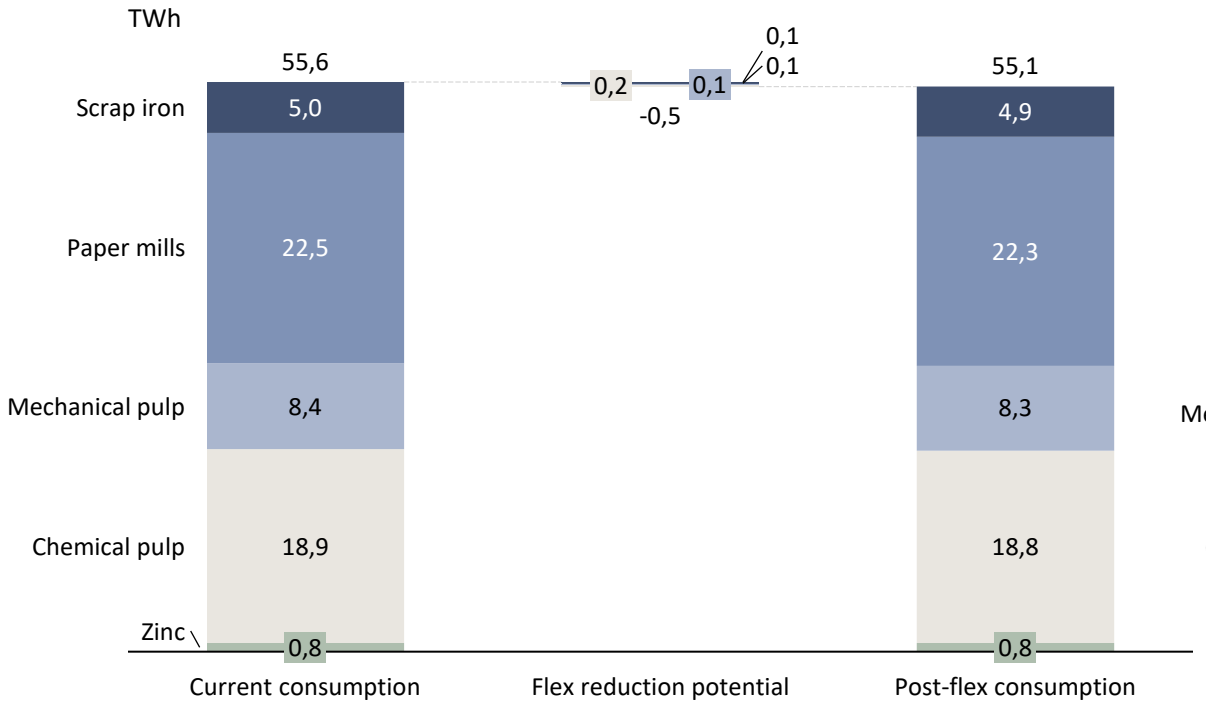
Demand behaviour in Finland reveals that flexibility is not being pursued by all market participants

Recent price spikes show the level of inflexibility in demand

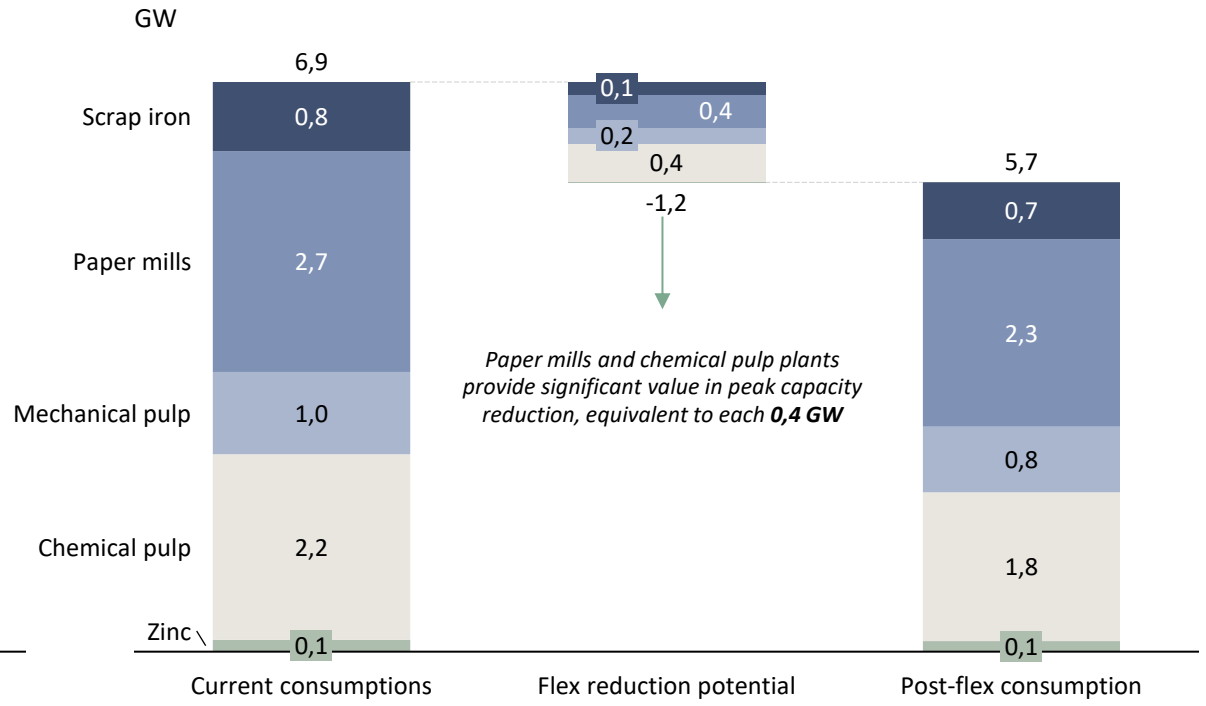


AFRY analysis shows that significant peak capacity impact can be achieved with negligible impact to overall annual consumption volumes, meaning a trivial impact on industrial production volumes

Current industrial flexibility potential (TWh)



Current industrial capacity flexibility potential (GW)

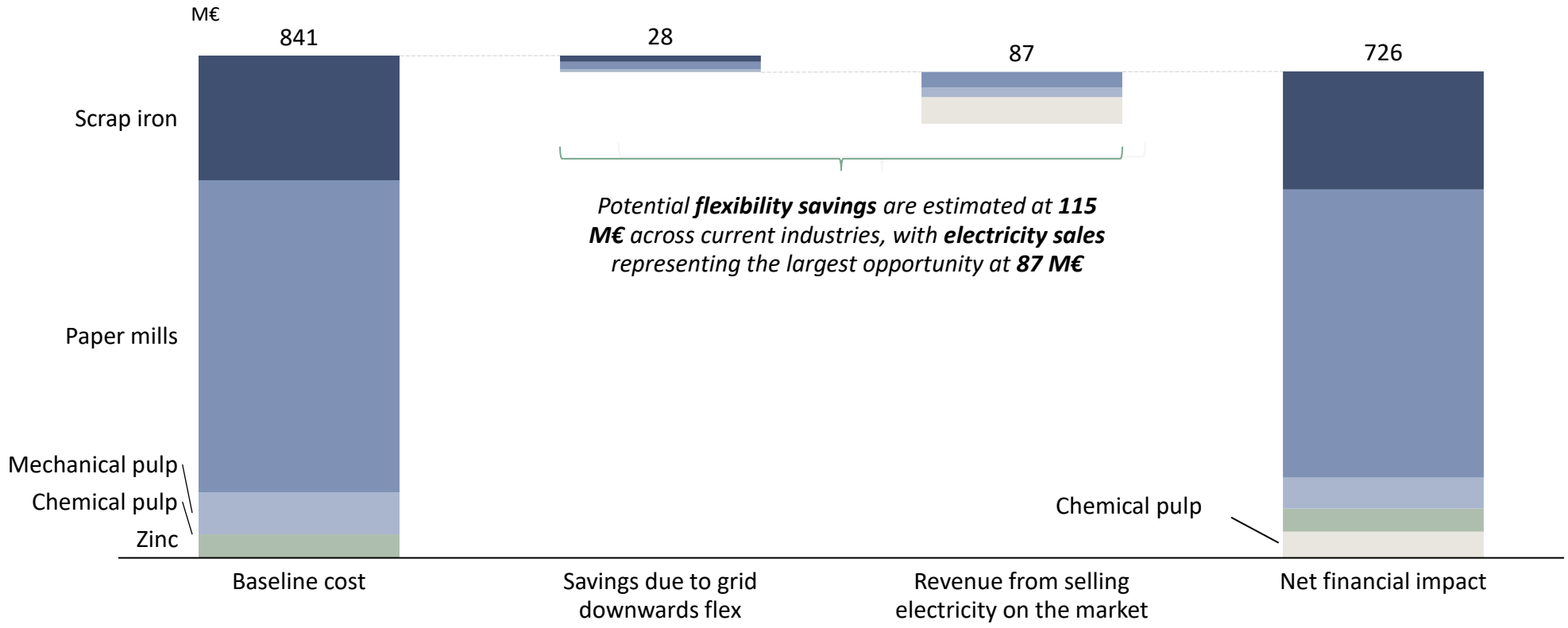


Assumption

A flexibility activation price of 200 EUR/MWh was set, resulting in 187 hours exceeding that level following 2024 observed pr ices.

While savings from consumption flexibility alone are modest across industries, the addition of incremental revenues from capacity sales creates a compelling business case

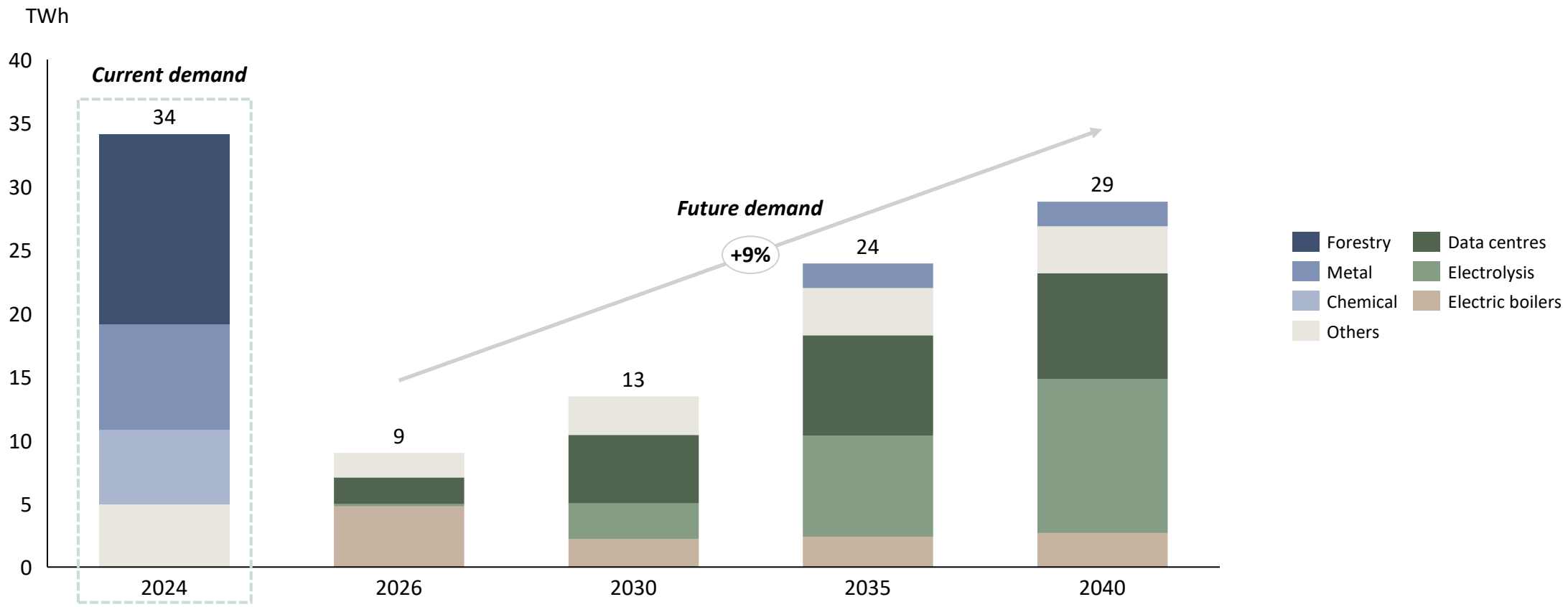
Overview of flexibility and capacity revenue on baseline costs M€



Source: AFRY Analysis | NOTE: In the revenue from selling electricity in markets, the costs of producing electricity or any other related expenses have not been taken into account

Industrial electricity demand growth is expected to be concentrated in key sectors, most have which have the potential to be flexible

Current demand and future projections for industrial electricity demand (2026-2040)



— Sources: AFRY Analysis, EMQA report 2025 Q1

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Despite strong technical feasibility and economic benefits, Finnish demand remains largely unresponsive, but significant flexibility can be unlocked

Key challenges

Knowledge gaps: Industrial actors lack awareness of benefits of flexibility and compatibility of process with flexibility. Awareness of flexibility benefits accelerates uptake

Insights

Flexibility is an untapped asset: Current operations can provide immediate value without new investments

Recommendations

Activate flexibility first: Ensure flexibility is unlocked before investing in new capacity

Close knowledge gaps: Energy sector could play a role by educating industrial actors or providing flexibility management services