Copenhagen Economics

DESIGNING THE FUTURE OF POWER IN FINLAND AND SWEDEN

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CLEAN POWER, SMARTER MARKETS

Finland and Sweden are setting the pace in the global energy transition. Their ambitions are clear:

- Achieve self-sufficiency in clean energy;
- Double the electricity production to meet growing demand;
- Decarbonise the economy.

TODAY'S POWER MARKET DESIGN STANDS IN THE WAY. **HOW CAN THESE COUNTRIES TRANSITION TO CLEAN POWER AFFORDABLY AND AT SCALE?**

Our study, commissioned by Fortum, sheds light on how Finland and Sweden can unlock large-scale, cost-effective electrification by rethinking how power markets are designed.

QUANTIFYING OPPORTUNITIES

We use our global climate economic model, **INTERSECT**, to simulate **three economic scenarios** towards 2040:

Delayed electrification
no new policy development

Ambitious decarbonisation
Finland and Sweden meet their climate targets

Electricity doubling
Finland and Sweden achieve climate targets and double their electricity production

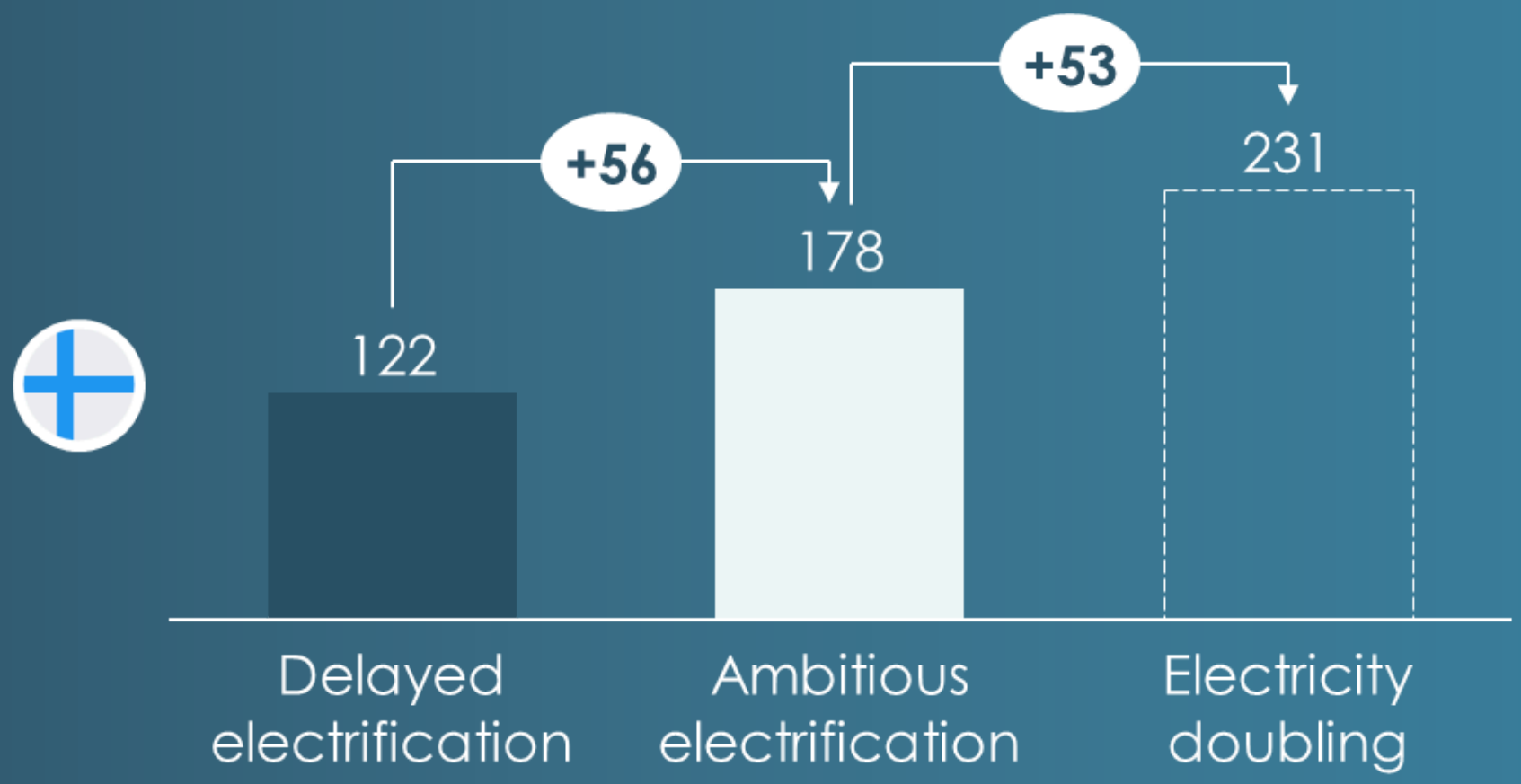
Using these, we estimate economic gains from electrification. These include investments, jobs added, gross value added, and tax revenue.

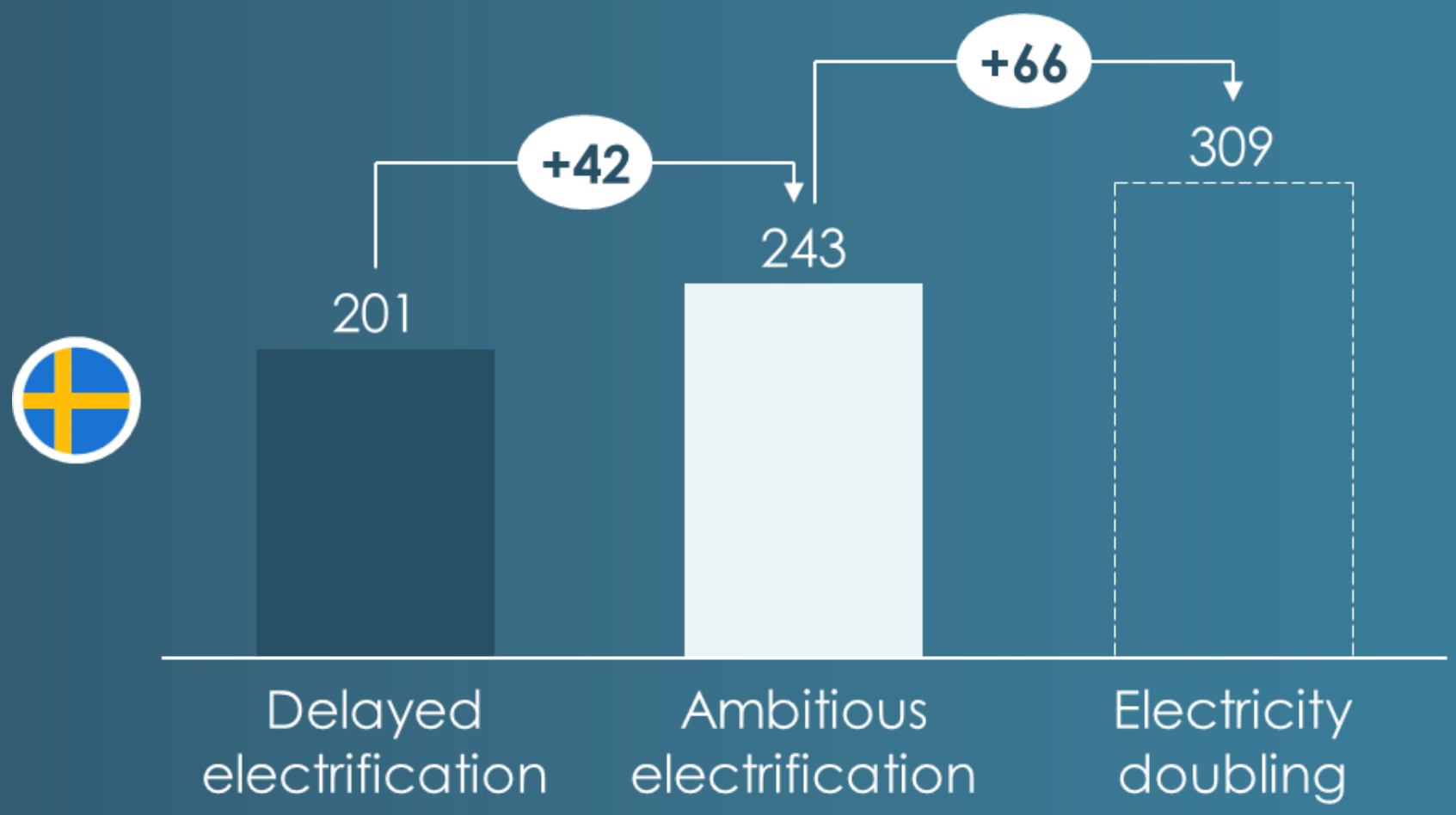
We assess the state of the Finnish and Swedish power markets and provide recommendations on changes that enable Finland and Sweden to meet their goals.

WE FIND THAT, COMPARED TO A DELAYED-ELECTRIFICATION SCENARIO, **AMBITIOUS DECARBONISATION CAN UNLOCK ELECTRIFIED INDUSTRIES** IN 2040 THROUGH:

New investments	€56 billion	€42 billion
Jobs in electrified industries	19,000	19,000
Gross value added	€4.7 billion	€3.8 billion
Tax revenue	€1.1 billion	€1.0 billion

AN ELECTRICITY-DOUBLING SCENARIO INCREASES INVESTMENTS IN ELECTRIFICATION SIGNIFICANTLY





Accumulated investments 2025-2040 in the delayed electrification scenario and additional investment generated to reach an ambitious electrification scenario
(EUR billion)

THESE BENEFITS CAN BE UNLOCKED BY THE RIGHT MARKET DESIGN

We assess six market instruments and find that a market-wide capacity renumeration mechanism (CRM), publicly backed power purchasing agreements, and a two-way Contract for Difference mechanism deliver the best market outcome for Finland.

Together, these instruments can effectively mitigate capacity risk, price and counterparty risk, and other risks.

We find that political priority, stable policies, coupled with a CRM instrument will deliver the best outcome for Sweden.

SEEING THE BIGGER PICTURE

ALIGNING EFFORTS TO POWER THE GREEN TRANSITION

Market design

Economic opportunities

European self-sufficiency

Improving competitiveness

Climate goals

ARE CURRENT MARKET DESIGNS HOLDING BACK YOUR CLEAN ENERGY INVESTMENTS?

INTERSECT

INTERSECT℠ is a dynamic Computable General Equilibrium (CGE) model integrating economic theory with real-world data. Covering 30 sectors and 18 regions, this innovative model enables simulations up to 2050, meticulously tracking flows, technology development, and investments. Notably, it incorporates carbon emissions at its core, offering detailed insights into decarbonisation paths.

With a market-leading approach, INTERSECT℠ combines top-down and bottom-up methodologies, ensuring a global, consistent, and comprehensive perspective on economic activities, investments, and responses to climate and energy dynamics in various scenarios.

The INTERSECT℠ model was co-developed by **Copenhagen Economics** and **Bain & Company**.

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