Marknadsseminarium 2017, Arlanda, 31. Maj 2017

FINNS DET HOPP FÖR ELCERTIFIKATMARKNADEN?

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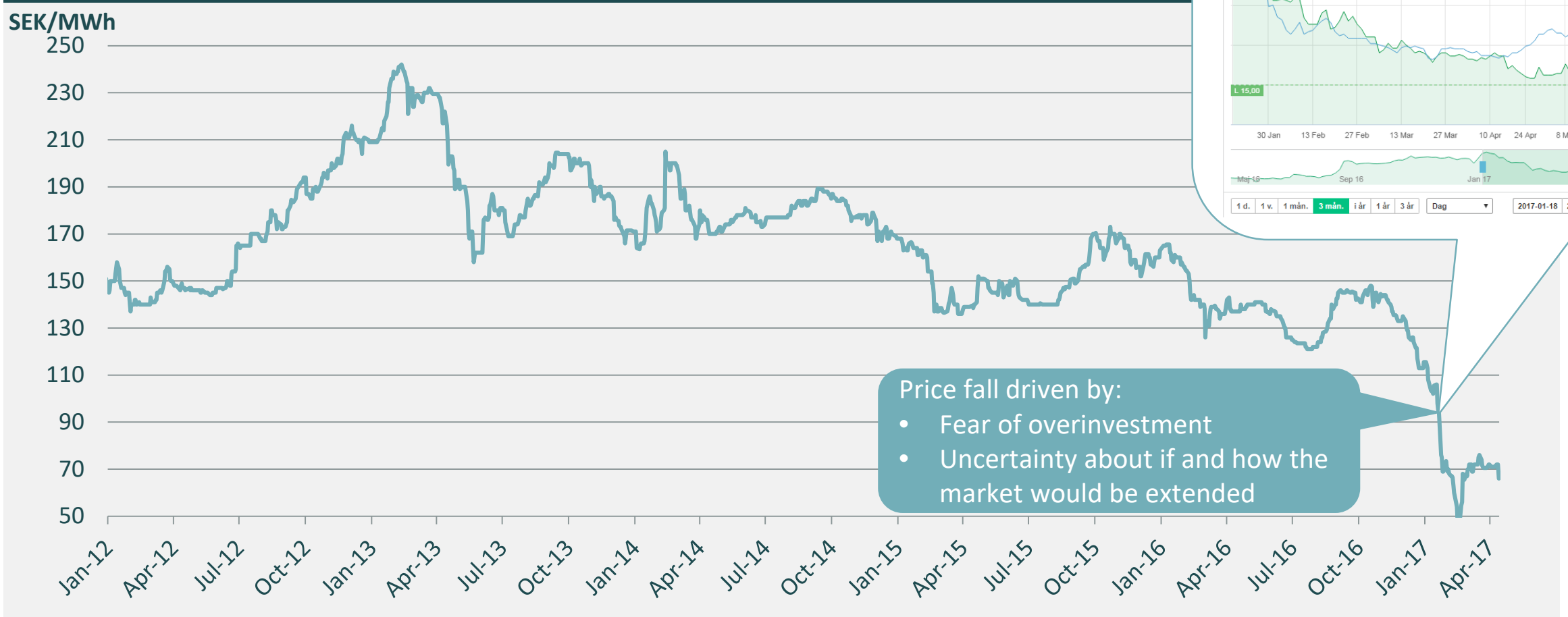
THE ELCERTIFICATE PRICE AT AN ALL TIME LOW

GREATLY REDUCING THE INCOME OF ELCERT ELIGIBLE RENEWABLE POWER PROJECTS

Elsert price (SEK/MWh)



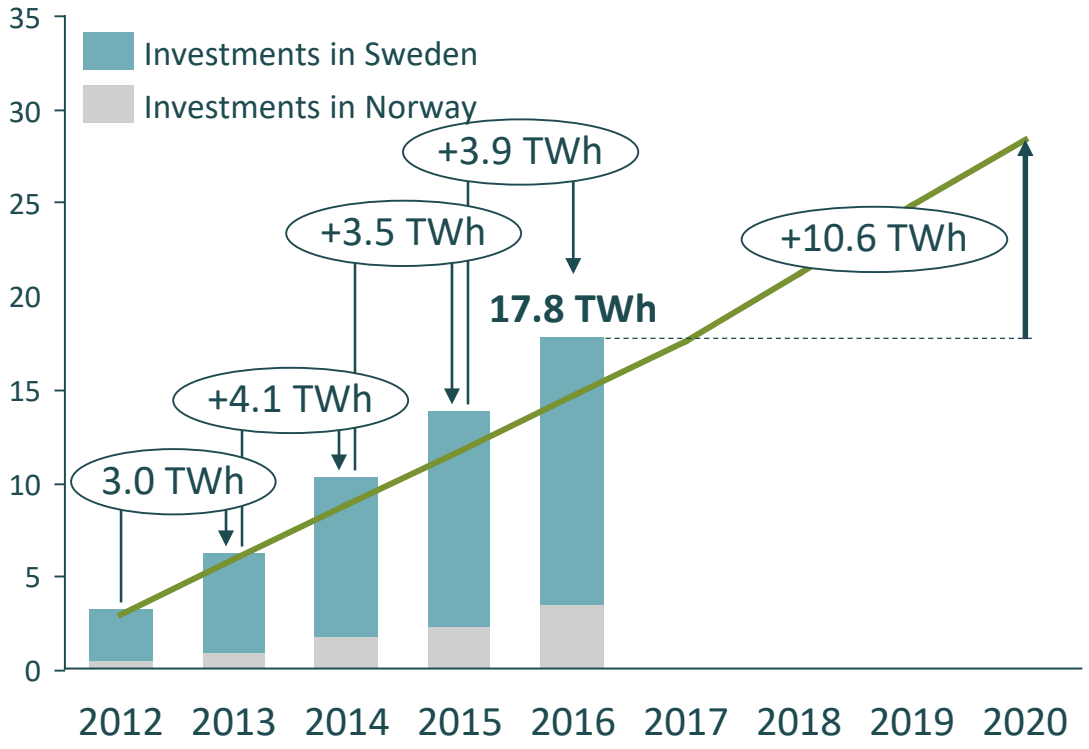
Price fall driven by:

- Fear of overinvestment
- Uncertainty about if and how the market would be extended

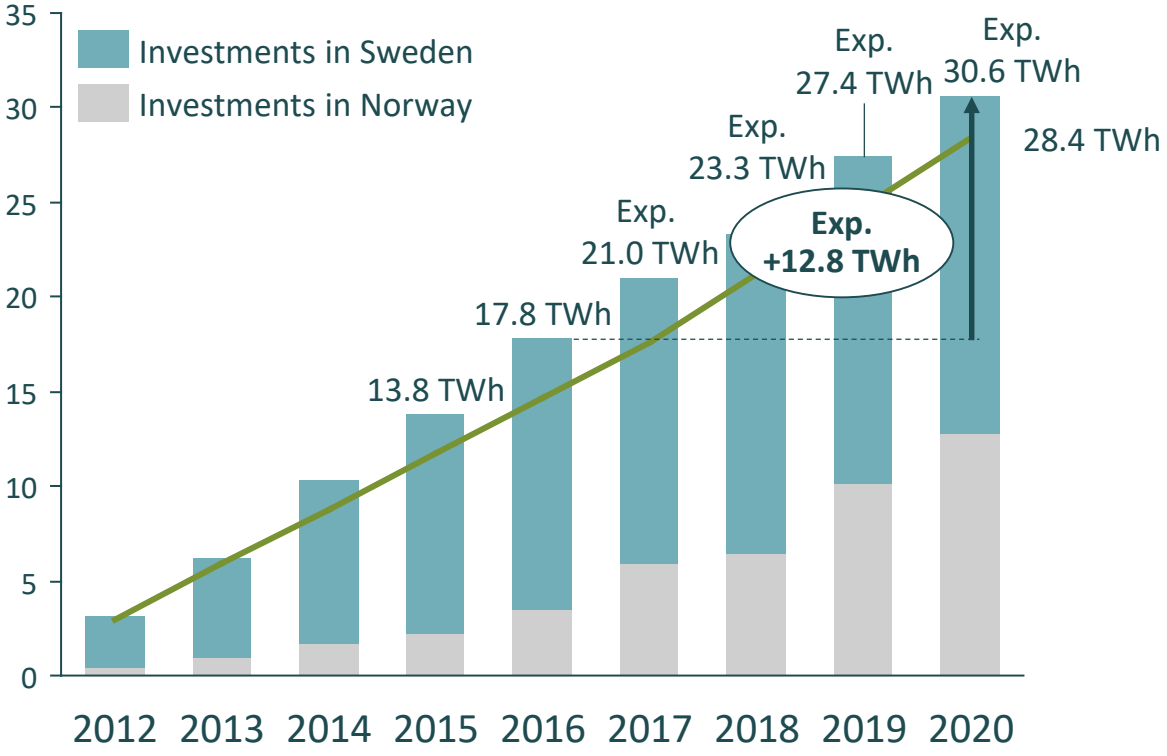
Share price development Eolus and Arise

THE PRICE FALL CAME AS A RESULT OF (FEAR OF) OVERINVESTMENTS

End of 2016: an additional 10.6 TWh was required…



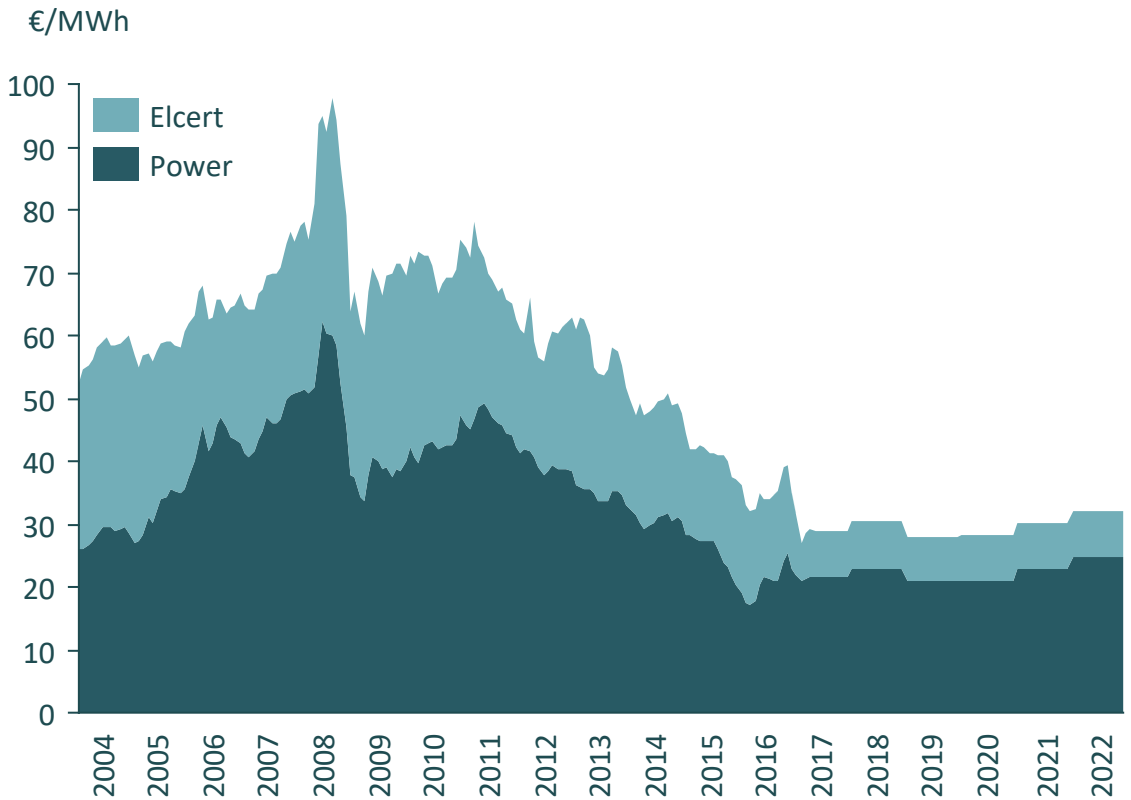
…but in reality we were overinvested



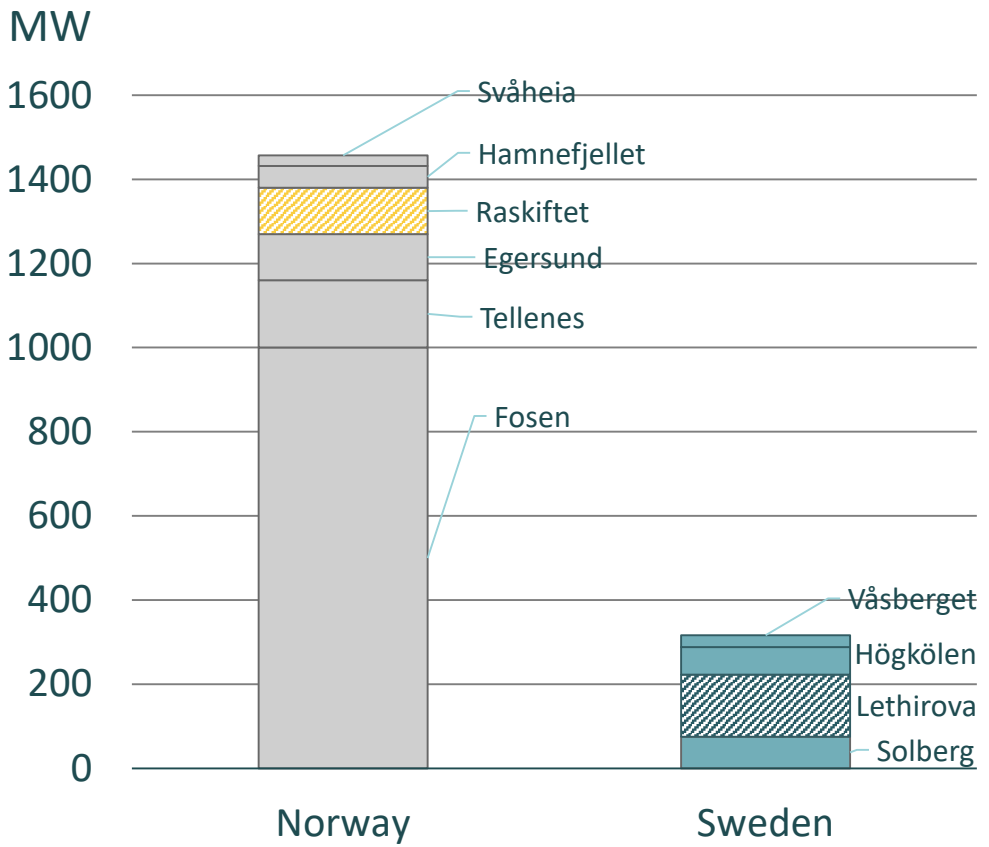
LOW POWER AND ELCERTIFICATE PRICES DID NOT SCARE INVESTORS

A NUMBER OF INVESTMENT DECISIONS FOR LARGE WIND FARMS WERE MADE IN 2016

Historic and forward power and elcert prices (nominal)



Investment decisions for 6 projects in Norway and 4 projects in Sweden made in 2016



LEHTIROVA REALISED WITH DEVELOPER, FINANCIAL INVESTOR AND A PPA

Developed by OX2

OX2 develops, builds, finances and manages renewable energy plants in the Nordic countries.

- Most projects realized in partnership with financial institutions or major electricity users

We strive towards a 100 % sustainable and renewable energy sector.

Bought by Aquila Capital

Strong presence in the Nordics

- RES projects with a total installed capacity of more than 800 MW
- Small scale hydro (Norsk Grønnkraft, Småkraft)
- Wind

"Scandinavia is a highly attractive location for onshore wind investments, offering great conditions [...] for institutional investors with the required market know-how"

PPA with Google

Clear criteria for the purchase of PPA's

- The contracts must ensure realization of a new renewable power plant
- Production must be in the same grid area as the data centre

"The goal is to be 100% self-sufficient with renewable energy for all our activities"

RASKIFTET WIND FARM REALIZED WITH STADTWERKE MUNICH

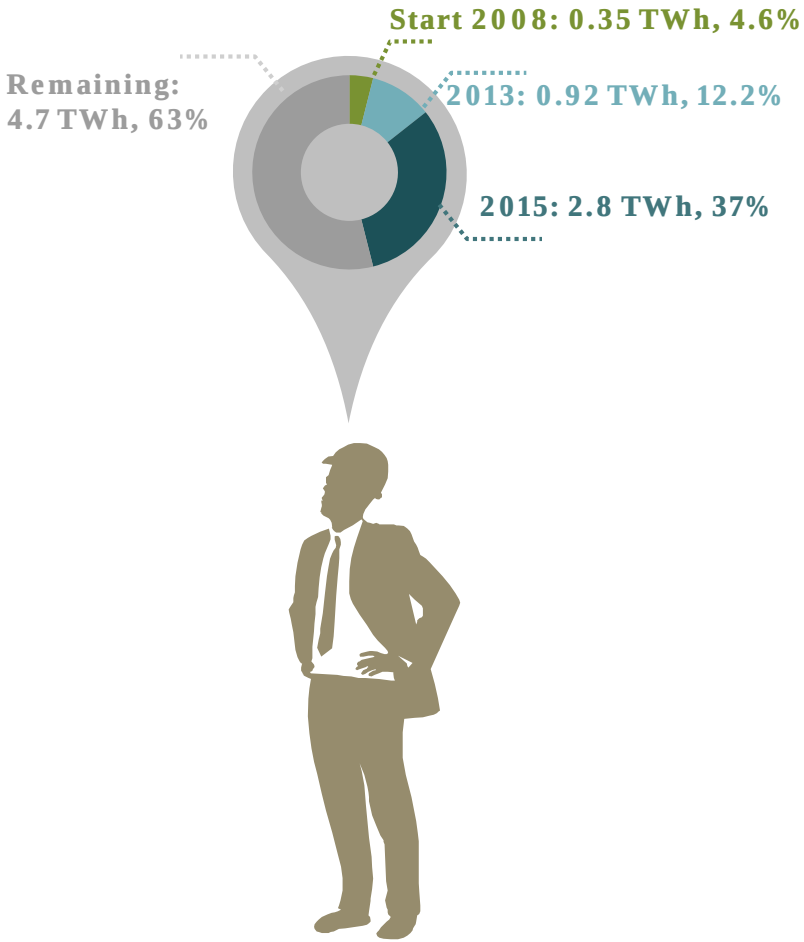
STADTWERKE MUNICH WILL COVER THE CITY'S ENERGY NEEDS WITH RES CAPACITY BY 2025

100% Renewable Power Production by 2025

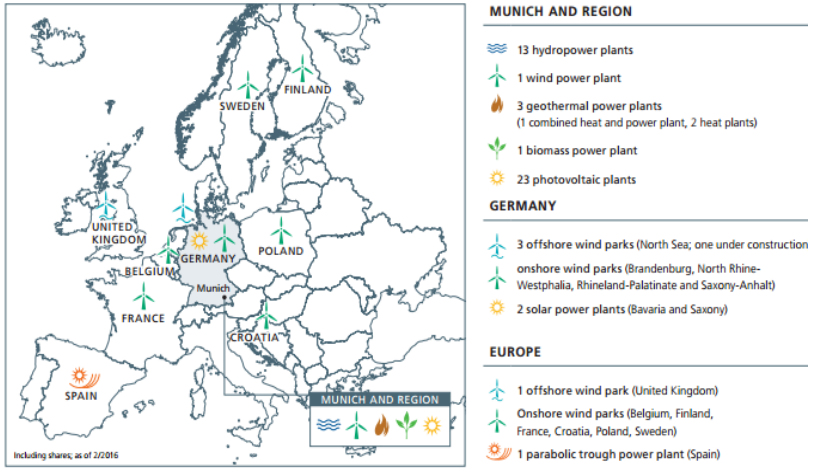
- Power consumption in the city is roughly 7.5 TWh
- Population of 1.35 million
- 800,000 households with a consumption of 2,500 KWh /yr
- Large industrial consumers like BMW, Siemens, Munich RE, Allianz Insurance, Linde, MAN and 90,000 other companies

Goal of being the first metropolis in the world that uses only renewable energy

Today household consumption and public transport is covered with renewable power



SWM's power plants are built where the best projects are located; Munich and the region, Germany and Europe



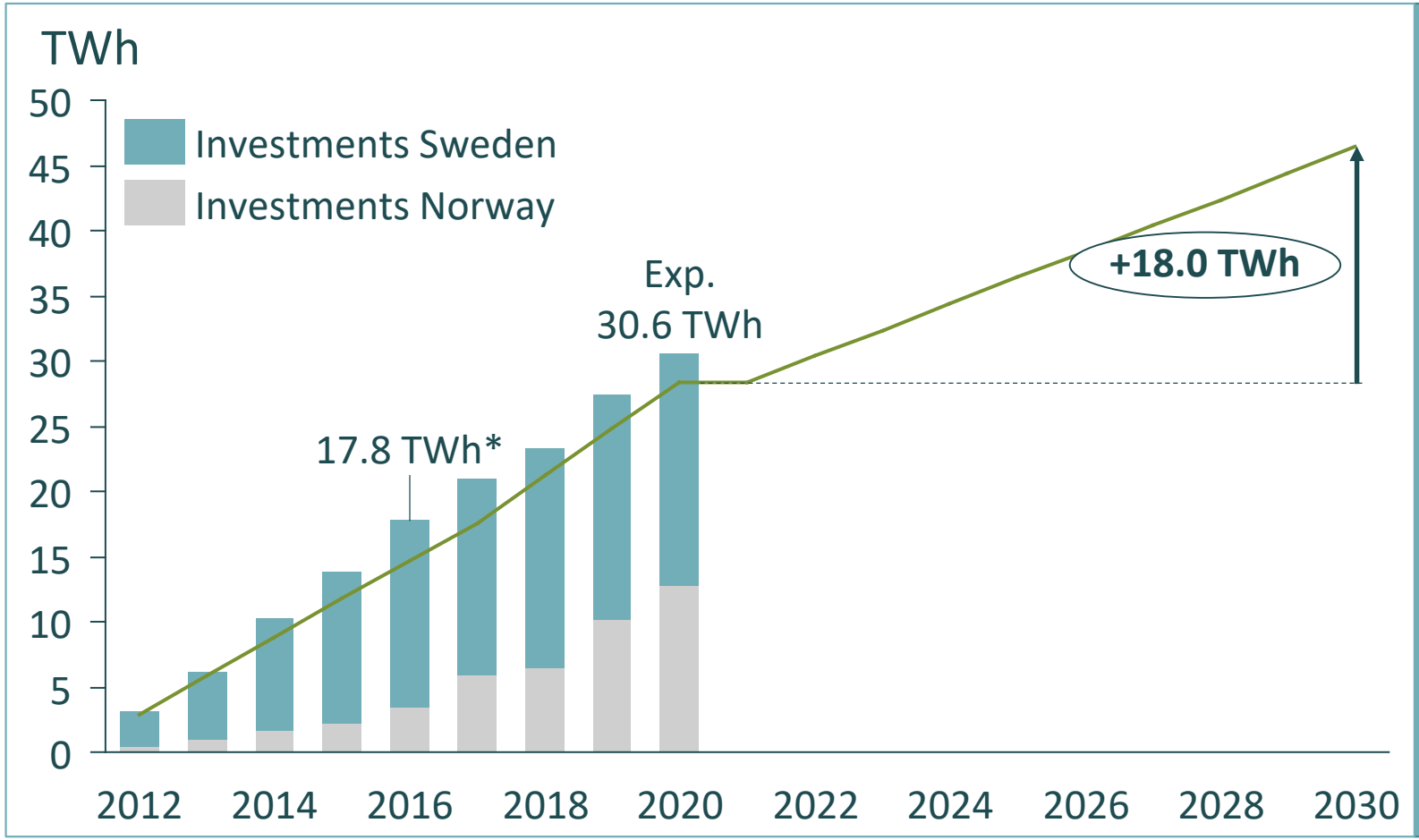
- It is invested in a variety of technologies and countries
- Common European market - SWM will find the best renewable projects regardless of country
- Renewable - SWM will find the best renewable projects regardless of technology

Latest investment:
Raskiftet wind farm in Norway 370 GWh /yr
SWM (60%), Eidsiva (20%) and Gudbrandsdalen Energi (20%)

Kilde: SWM

AGREEMENT: TARGET INCREASED BY 18 TWh WITH A LINEAR QUOTA CURVE

NEW TARGET AND QUOTA CURVE



THE AGREEMENT IN SHORT

- The Swedish target increased with 18 TWh
- Norway will not contribute, but keeps the current target of 13.2 TWh to 2020
- Elcertificates received for production in both countries will be fully tradable to 2046
- Norwegian projects coming online by December 31st 2021 will be eligible for elcertificates
- Sweden shall propose a stop mechanism for the system by 2020
- Sweden may shift some of the agreed adjustments to the quota curve forward to 2018-20
- New renewable production to be reported under the Renewable Energy Directive equally split until Norway has achieved its 13.2 TWh target

A POSITIVE AGREEMENT, BUT IT DOES NOT SOLVE MARKET DESIGN ISSUES

What does it mean?

- Pushes the likelihood of a zero-price scenario resulting from an overinvestment out in time
  - Leads to more investments in Norway
- Avoiding an investment rush to be among the 13.2 first TWh in Norway
- Power and elcertificate prices are at historically low levels
  - Difficult to reach profitability at today's price levels for traditional utilities with high WACC
  - More trade in second hand market
  - More joint investments between traditional utilities and foreign funds or utilities
  - New innovative business models

What has not been addressed?

- No stop mechanism established
  - Date stop?
  - Volume stop?
  - Other?
- Currently, a large surplus of elcertificates putting a downward pressure on elcetificate prices
  - Sweden is allowed to push some of the agreed quota curve adjustments forward to the 2018-2020 period
  - Will draw the surplus somewhat down, but the effect of more investments in Norway towards 2021 might counteract this and lead to an increase in the elcertifcates surplus from 2020/2021 onwards

SUMMING UP:

MARKET PARTICIPANTS SHOULD OVERALL BE PLEASED WITH THE AGREEMENT

Higher elcertificate prices	• By extending the system the fear of overinvestment and a price collapse is pushed forward • Elcertificate prices has increase and could continue to do so
Power price effects negligible	▪ Clear RES targets in Sweden ▪ Larger power surplus puts downward pressure on power prices ▪ But other support measures would have been used if the elcertificate market was not extended
Marked design issues still present	▪ The profitability of new investments depends on the design of the stop mechanism ▪ Technological progress pushes down prices and encourages late investments

THEMA

CONSULTING GROUP