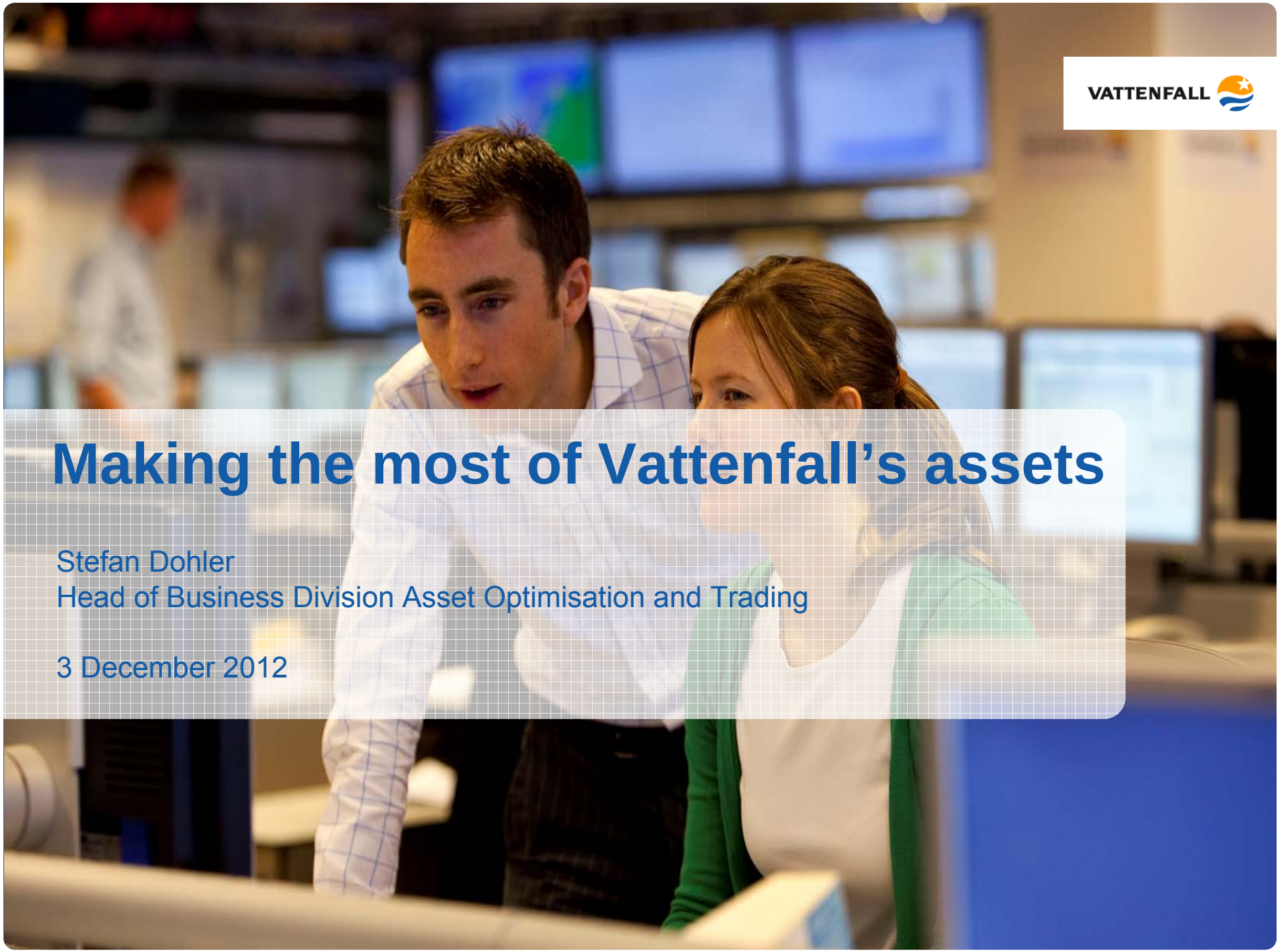


Making the most of Vattenfall's assets

Stefan Dohler
Head of Business Division Asset Optimisation and Trading

3 December 2012

Today's focus

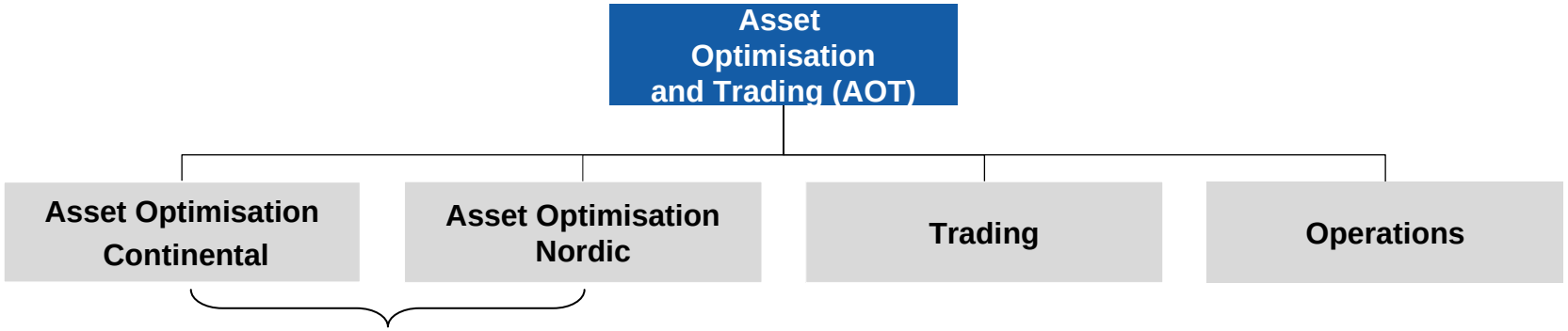
- Organisation and key figures
- AOT's main business activities
- AOT's role within Vattenfall
- Vattenfall's hedge-objective and -strategy
- Market developments
- Future challenges

Organisation and key figures

Key figures

- Employees: 660 (FTE)
- Nationalities: 25+

Trading Volume (external) 2011	
Electricity (TWh)	2,010
CO_2 (EUA and CER) mn tonnes	480
Gas (bcm)	104
Number of counterparts	~650
Transactions per day	>1,250



- Optimisation and Dispatch of Assets
- Hedging and Hedging Strategy
- Interface to Assets

- Market Access
- Prop Trading
- Fuel Sourcing
- Origination

- Analysis
- Models and systems
- IT operation
- AOT common processes

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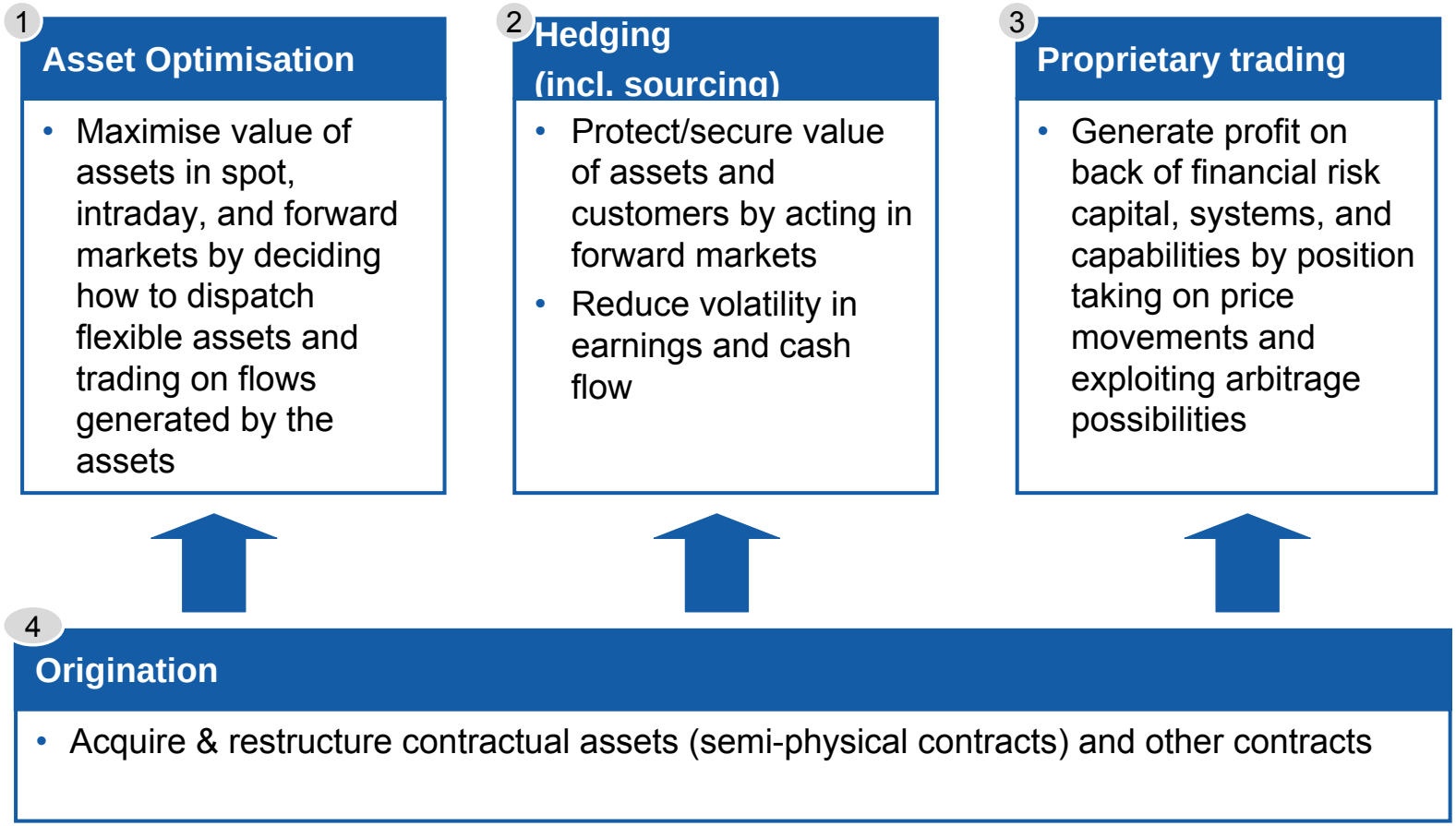
AOT's main business activities



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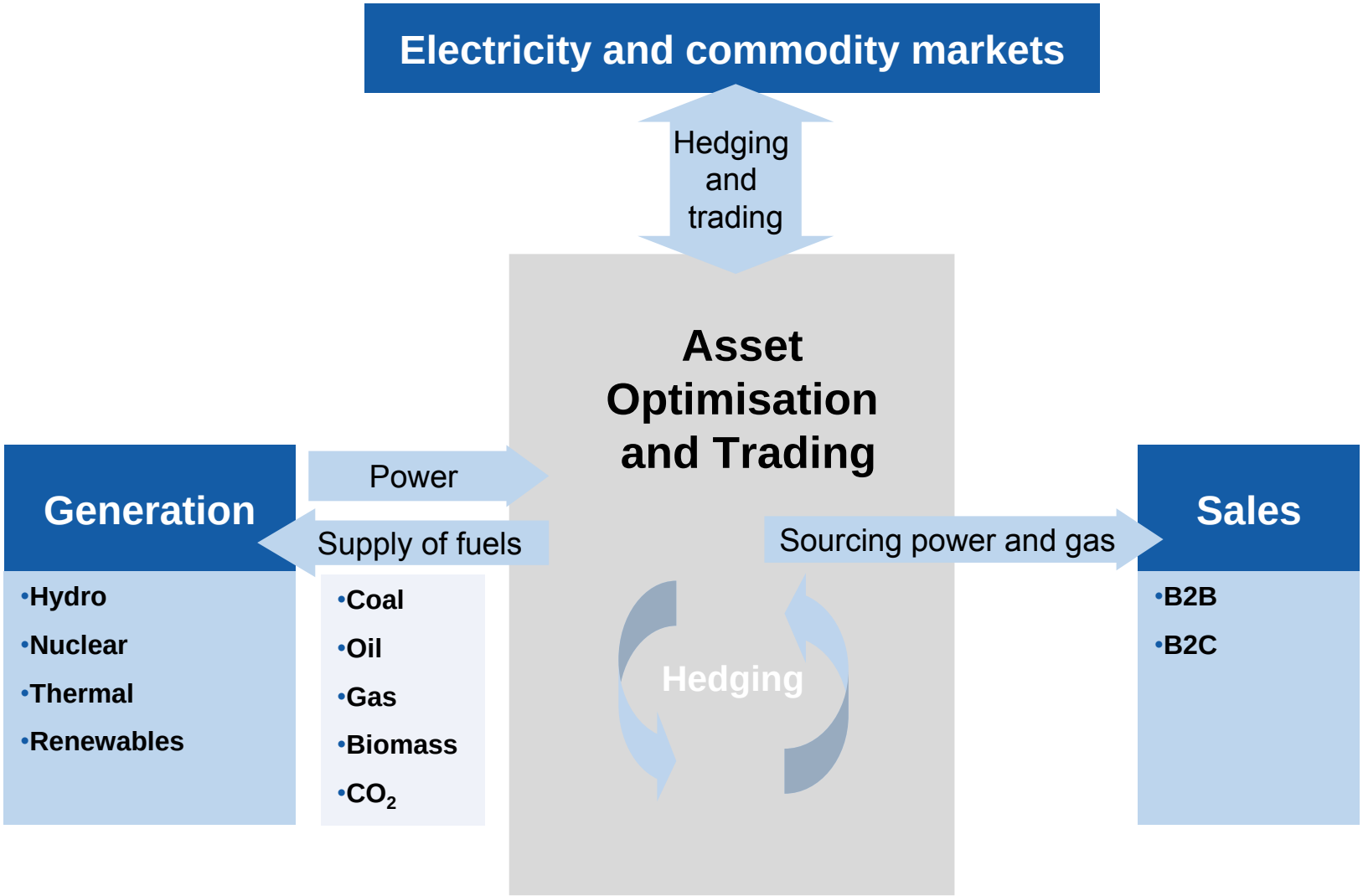
AOT's role within Vattenfall



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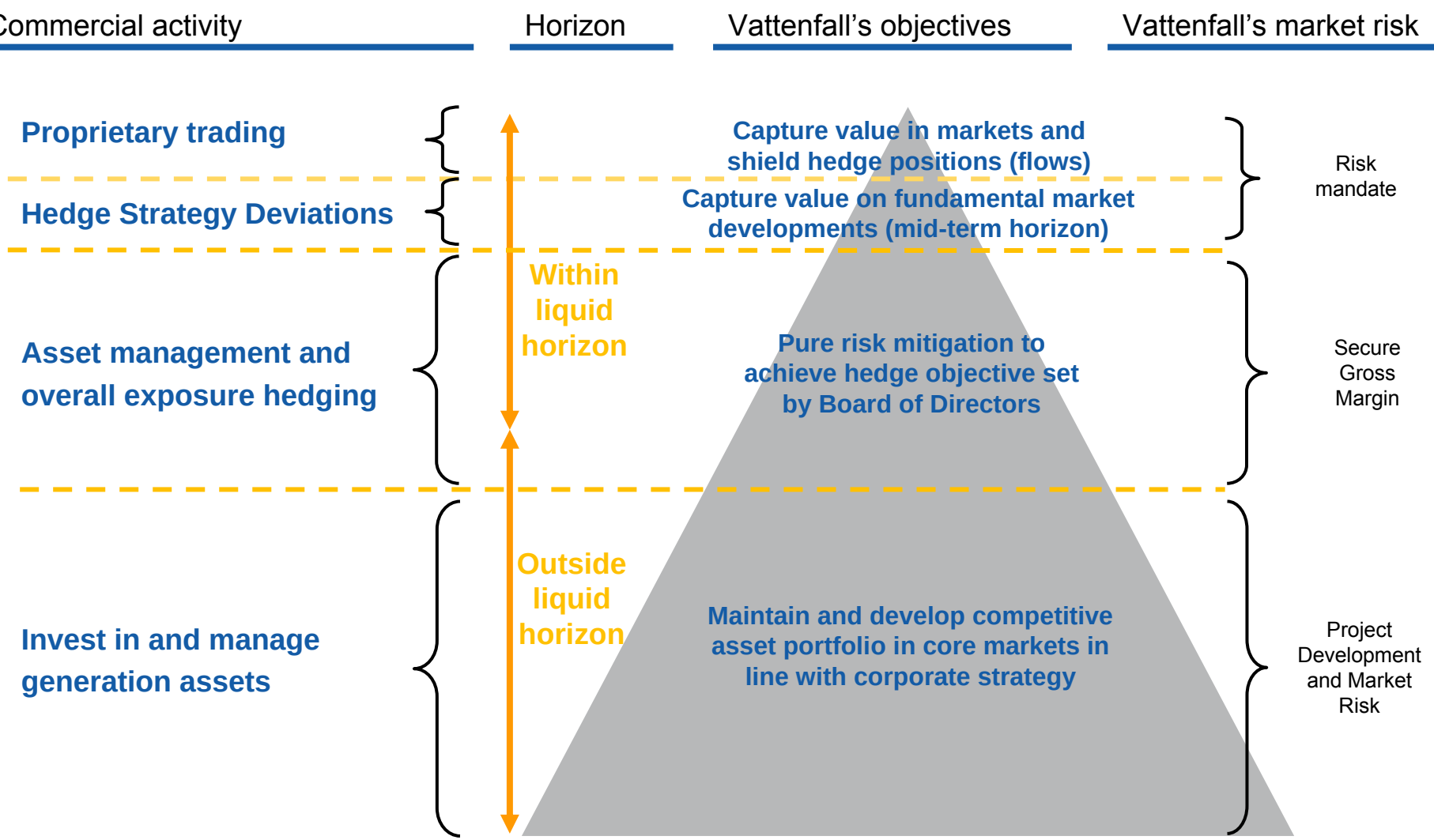
Perspectives on trading and commercial risk taking in Vattenfall



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Vattenfall's hedge objective and strategy

The hedge strategy process follows four steps and is generally initiated once a year in relation to the business planning process*

*) Or when assumptions on which the hedge strategy rests appear not to be valid any longer

Identification and Management decision on hedge objectives

Transforming Group's financial figures and hedge objectives into a commodity risk profile and Management decision on intended risk

Analyse impact of different hedge strategies and Management decision on appropriate hedge strategy

Implementation and review of hedge strategy

Focus of hedging

- financial aspects and requirements explicitly incorporated when deciding the hedge strategy
- focus is derived from an overall Group perspective whilst taking national level requirements into account

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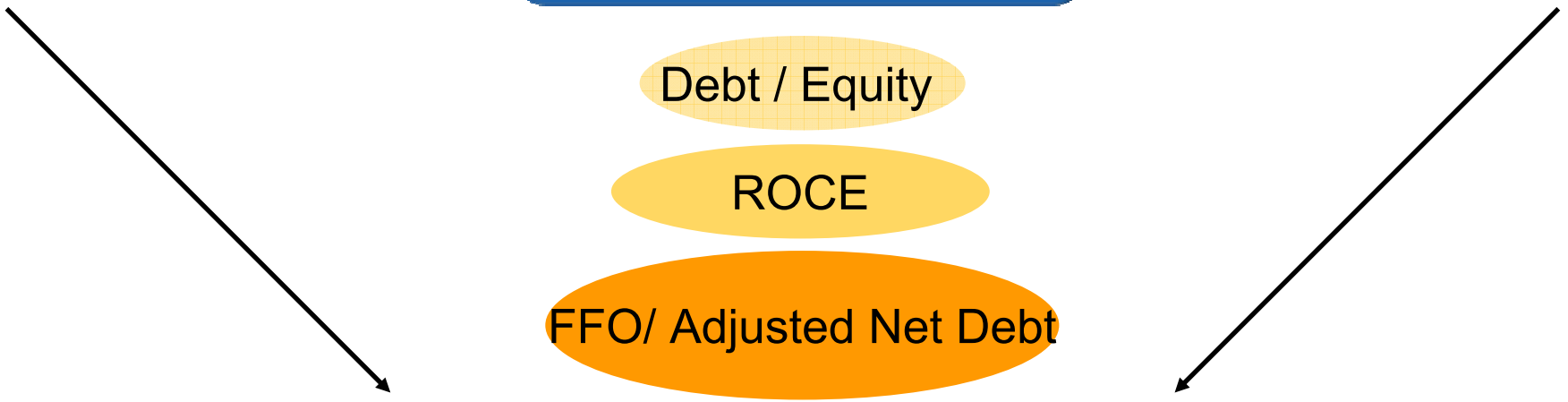
Hedge objectives

Protection against financial downside

Support financial targets given by the owner

Reduce volatility in earnings and cash flow



Relevant key indicators are monitored and deliver the basis for calibration of the corporate asset strategy.
FFO can be effected sufficiently by hedging.

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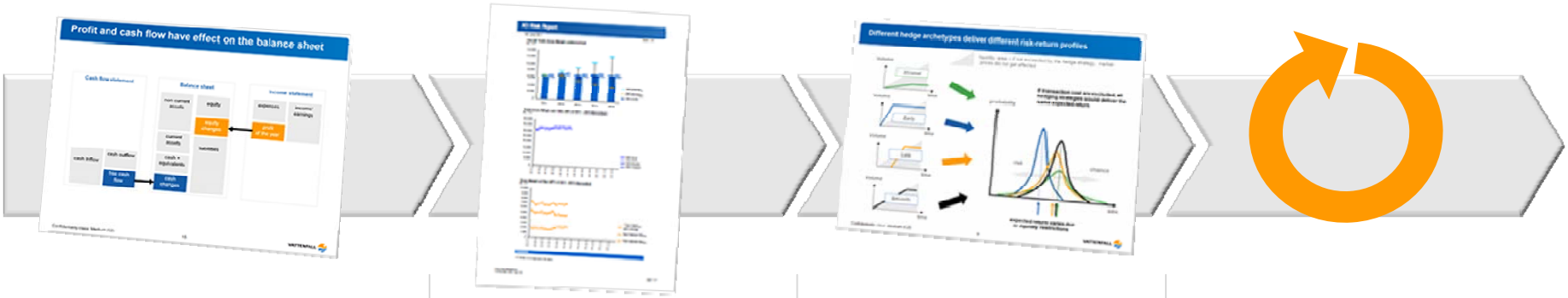
From hedge objectives to a hedge strategy



Group Finance calculates balance sheet and financial performance based on business plan in a forward looking manner

Financial model is stress-tested and minimum profit/cash flow required is calculated to maintain important financial indicators

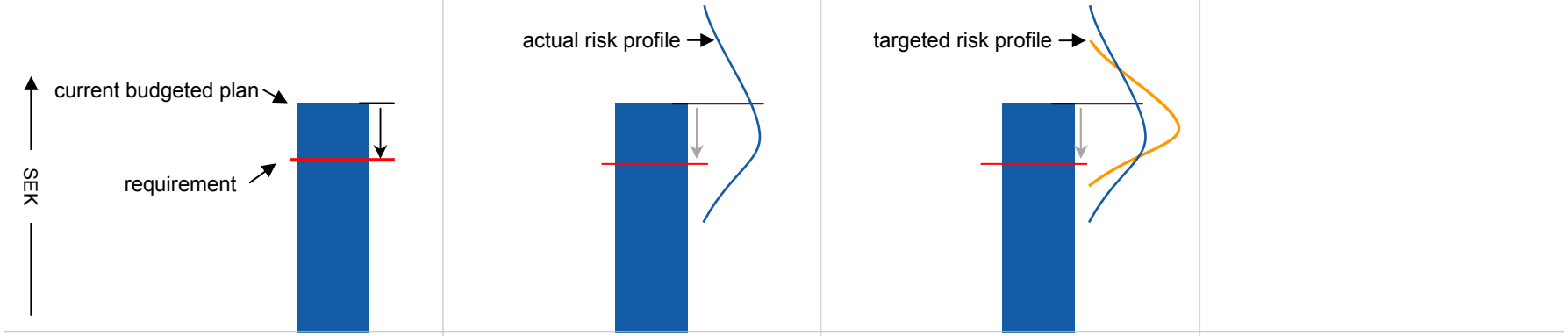
Group Risk has tools to asses risks in various hedge strategies

The risk of not meeting financial requirements is calculated

Top Management sets a risk boundary to guide the choice of a hedge strategy

Asset Optimisation analyses and proposes to Top Management a suitable hedge strategy for approval

Asset Optimisation conducts a feedback loop by regular reviews of hedge strategy performance



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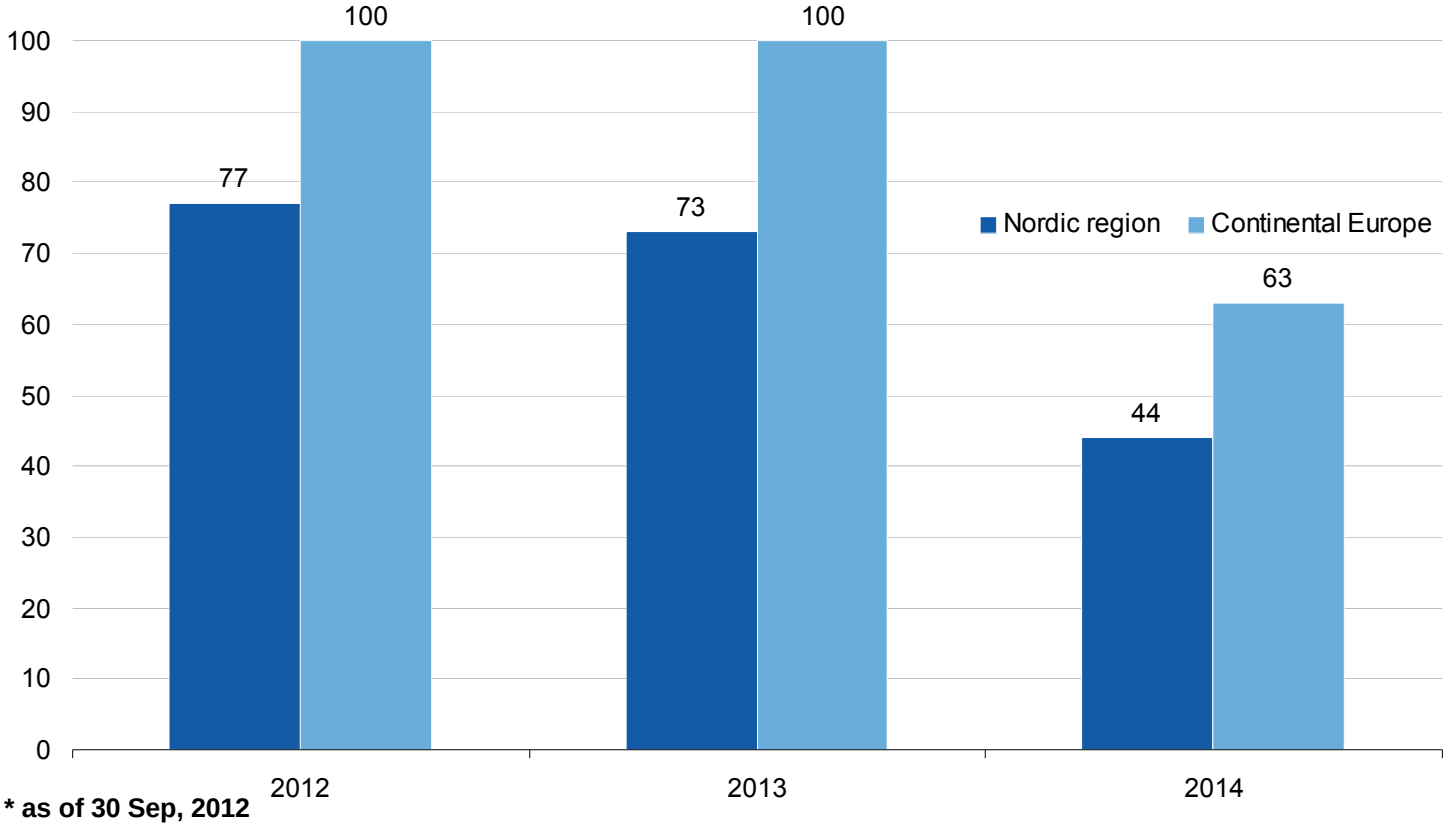
Vattenfall's hedging position as of 30 Sept 2012

EUR/MWh	2012	2013	2014
Nordic region	47	46	44
Continental Europe	55	55	53

% hedged of planned electricity generation (2012: remaining part of the year)*



*** as of 30 Sep, 2012**

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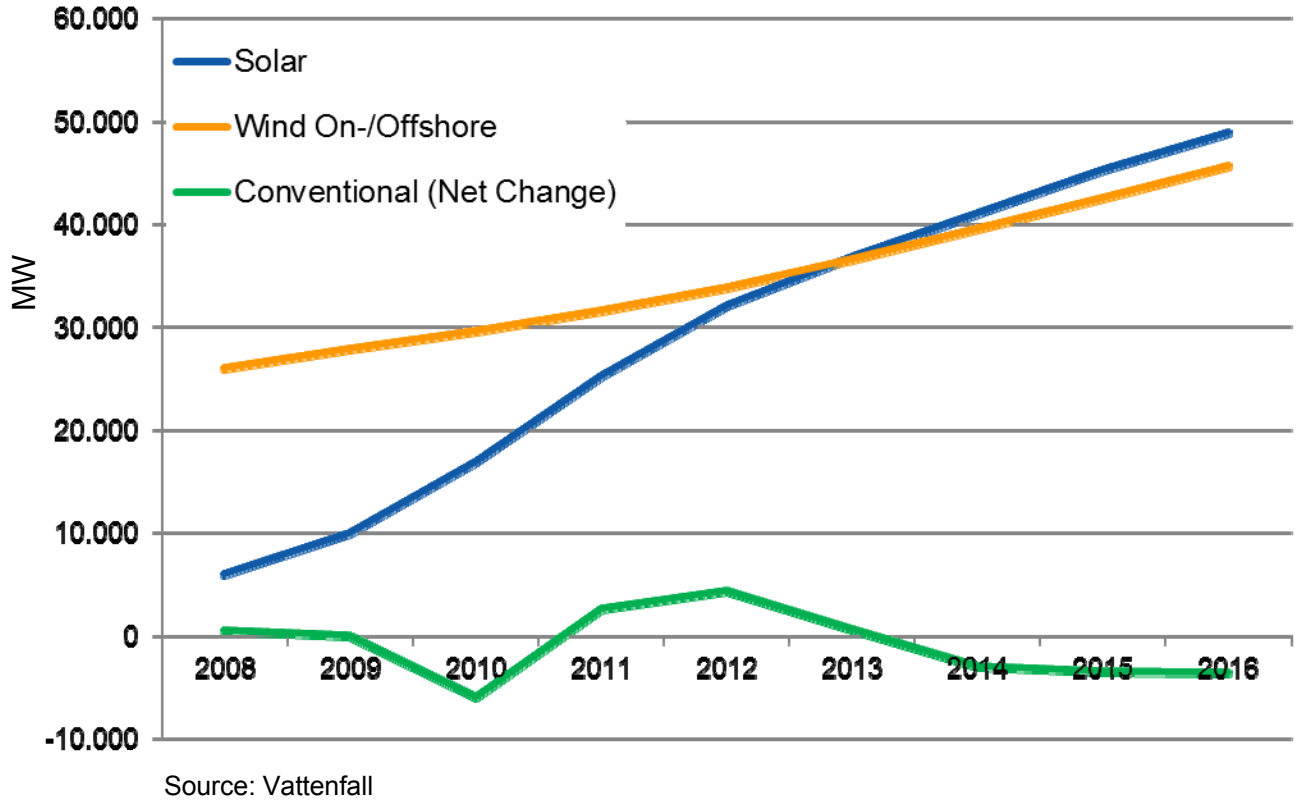
Growth of renewables affects the merit order curve

Installed capacity GER & NL (2008-2016)



Source: Vattenfall

Comments

- Renewables expected to grow further despite decreasing subsidies
- Reduction of conventional power plants exceeds new-builds 2014 ff

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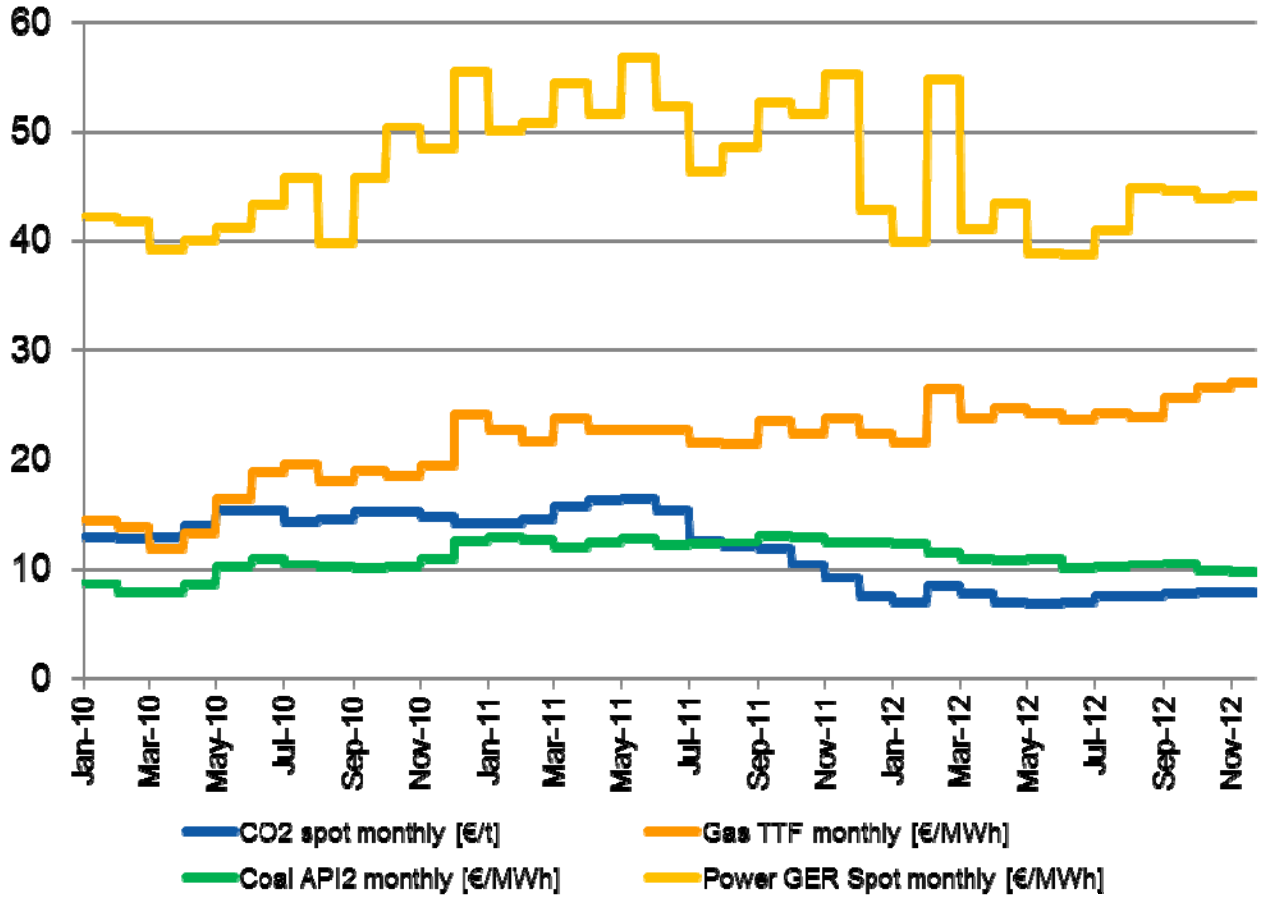
European gas prices firm while power, CO2 and coal prices look bearish

Development of power, fuels and CO2 (2010-2012)



Comments

- Power spot prices back at the level in the beginning of 2010
- CO2 prices have almost halved from 2010 to 2012
- Gas prices doubled
- Coal prices slightly above level of January 2010

Source: EEX, Vattenfall

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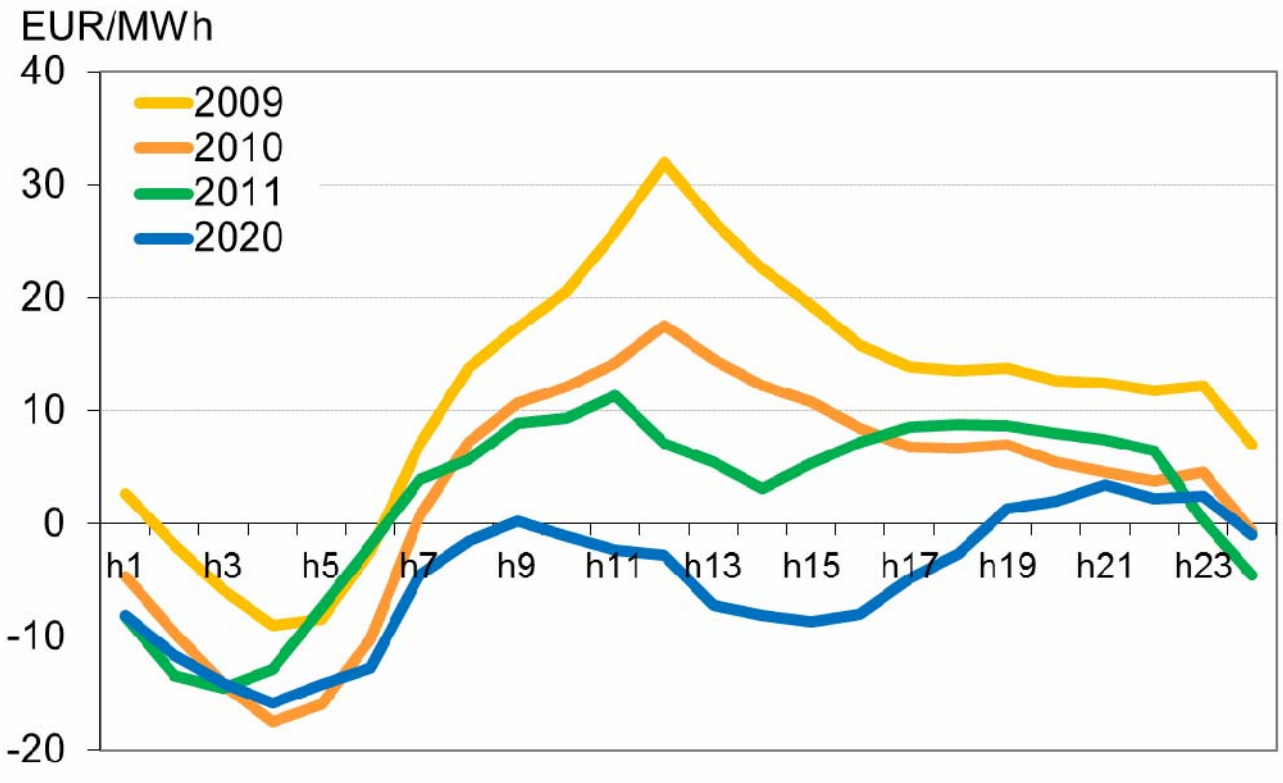
Gas-fired plants suffer especially in peak hours

Clean Spark Spread on average summer weekday 2009-2020*



Comments

Supply

- Maximum feed-in of PV and Wind in Germany since 2011: ~ 35,000 MW
- max Wind: ~25,000 MW
- max PV: ~22,000 MW

Demand

- Off-peak demand: ≥ 40 GW (except on public holidays)
- Peak demand: ≥ 70 GW

⇒ Noon peak (2009) has changed to an afternoon valley (2012)

⇒ PV max at peak times means that renewables more and more often cover for 1/3 up to 1/2 of total demand

Source: EEX, Vattenfall

* Example of a modern combined-cycle gas turbine, 60%

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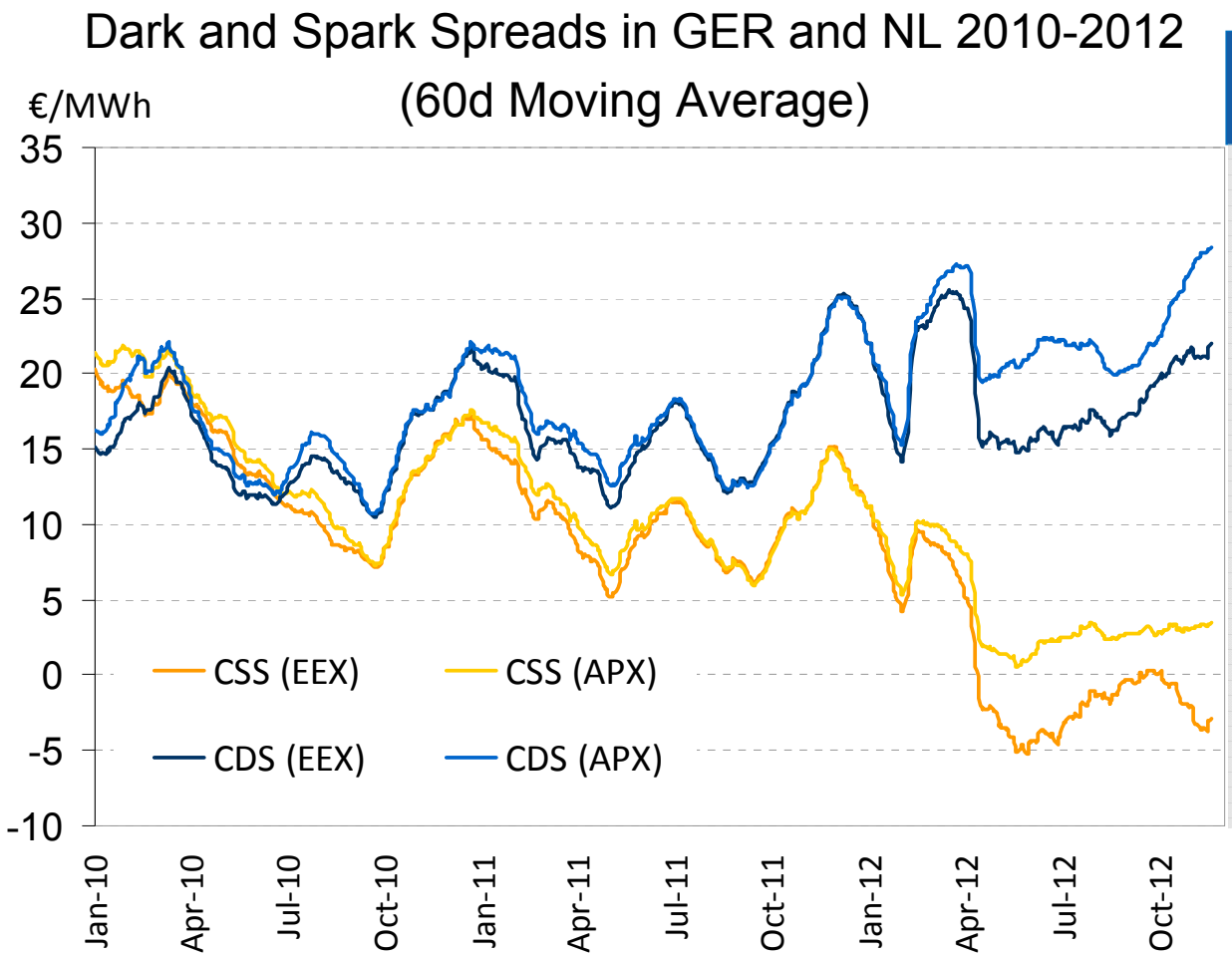
Profitability of gas and coal plants has diverged since February 2012



Comments

- Coal / gas spread has significantly diverged since February (2011: 6.6 €/MWh; today: 20 €/MWh)
- High coal switching price (CO_2 > 45 EUR/tonne)
- Prices in Germany are mainly set by coal-fired plants while Dutch power prices are set by gas-fired plants
- Transmission capacities can not fully mitigate price difference between GER and NL

⇒ The tendency is not expected to reverse this year

Source: EEX, Vattenfall

* Example of a modern combined-cycle gas turbine, 60%

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Industry and market trends are reshaping energy commodity trading markets in Europe

EU policy driving to one single market

Shift to CO_2-free generation

New financial regulations (EMIR, MiFID)

	Impact on energy commodity market	*Impact on energy commodity traders*
Short-term market	• **Increasing volatility** – Due to increased share of intermittent energy • **Increasing market efficiency** – High volatility will attract many players, in turn leading to increasing liquidity • **Decreasing cross-country spreads** – Driven by market coupling	• **Extrinsic value of flexible fleet will increase** • **Arbitrage opportunities will decrease in mature markets**
Long-term market	• **Less liquidity likely** – Increased costs of trading – Financial regulations (EMIR and MiFID) • **Lower volatility** – Oversupply driven by economic downturn and renewable energy – Prices set at flat merit order curve • **Decreasing wholesale market volumes** – Increasing share of renewables with feed-in tariffs • **Decreasing OTC trading** – Increasing clearing requirements	• **More difficult to hedge** • **Less opportunities for standard prop trading**

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