European power prices

Set to bounce back?

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GROUPE BPCE

Summary-conclusion

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Following the 5th Infraday staged by Natixis last Tuesday, we consider below recent developments affecting the level of electricity wholesale prices in Germany and France.

In both countries, wholesale prices started to recover in Q2 2016, this for much the same reasons as caused these prices to set all-time lows in Q1 2016 (€21/MWh in Germany, €26/MWh in France for Y+1 forwards). In a nutshell, there now exists a triangular relationship between crude oil prices, coal prices and electricity prices. Crude oil prices influence directly coal prices through a variety of channels (coal extraction and transport costs, change in exchange rates of exporting countries, which are also generally crude oil producers). At the same time, coal prices influence directly electricity prices in Germany and, to a lesser extent, in France, given the "marginal" role of this fuel in the merit order determining the formation of wholesale prices. Through these mechanisms, prices for Brent depressed electricity wholesale prices in Q1 2016, but are now fuelling their recovery.

In France, these swings have come when structural changes are affecting the electricity sector, bearing in mind three benchmarks still co-exist: (1) wholesale prices, the Y+1 forwards having recently broken above €40/MWh after EDF announced it expected a 5% decrease in nuclear production in 2017; (2) the ARENH tariff, a mechanism introduced to provide alternative suppliers with access to part of EDF's production in a move to open up the supply side to competition (as ARENH is €42/MWh, i.e. higher than the current price in the wholesale market, this mechanism has fallen out of favour with alternative suppliers, who prefer to buy directly in the wholesale market) and (3) regulated sale tariffs, which are still being charged to some residential customers and small business customers (30%-35% of French consumption vs. 60% in 2014). Regulated tariffs comprise an energy component (€44.7/MWh) derived for around 75% from the ARENH tariff and for around 25% from market prices (base and peak load). With the reduction of the proportion of sales at regulated sales tariffs and with alternative suppliers turning to purchases on the wholesale market (instead of at the ARENH tariffs from EDF), EDF is more exposed now to fluctuations in wholesale prices than was the case before.

As indicated in a recent study devoted to Repsol and Total entitled "Too big to fail?", prices for Brent are expected to extend their rebound, in turn driving up electricity wholesale prices. However, the extend of the recovery in electricity wholesale prices is difficult to predict because of the uncertainties at regulatory level (features of the price support mechanism for carbon allowances to be introduced in France, possible transposition at a later date in Germany) and at operational level (change in supply-demand balance) in both countries.

For the main electricity producers in our coverage universe, the impact of a continuing recovery in wholesale prices is likely to vary. The main beneficiary should be EDF, mainly because the near-perfect alignment of wholesale prices on regulated sale tariffs greatly reduces the risk of market share being lost by France's incumbent operator. For electricity producers in or exposed to Germany in our coverage universe (i.e. E.ON, RWE and Vattenfall), the short-term impact should be limited, on two counts: (1) the hedging strategies in place, which means that nearly all of their 2017 and 2018 production has already been pre-sold; and (2) changes in the composition of these groups, reducing their exposure to wholesale prices (Uniper spinoff at E.ON, sale by Vattenfall of its lignite assets, i.e. mines and power plants). Vattenfall).

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1 German prices: a pivotal role

German prices: lasting rebound underway?

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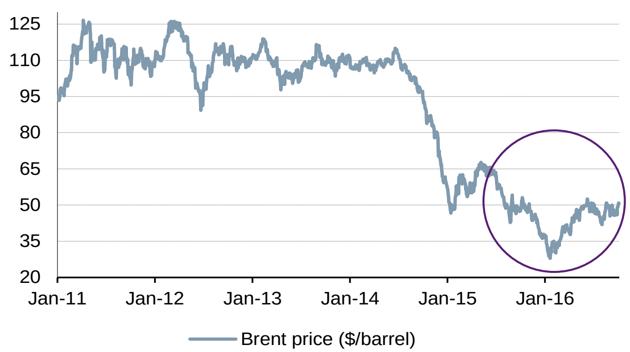
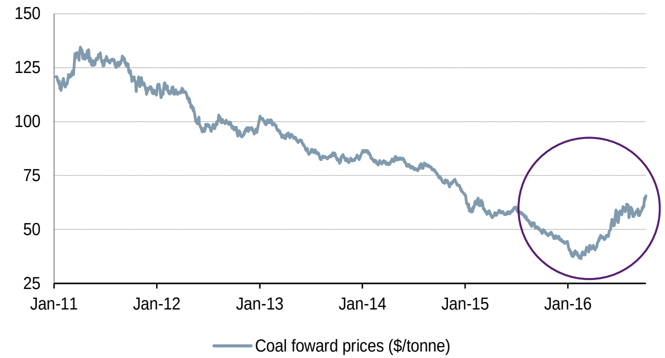
Oil prices and power prices: an indirect connection… (1)

- ✓ Oil prices indirectly influence power prices through coal prices…
- ✓ … with a clear correlation between these three commodity prices in the downside as well as in the upside

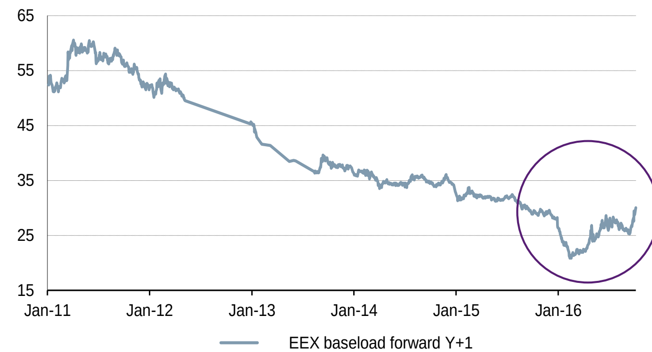
Oil
Brent price
$/barrel



World:
Coal forward prices
$/tonne



Germany:
Baseload forward price Y+1
€/MWh



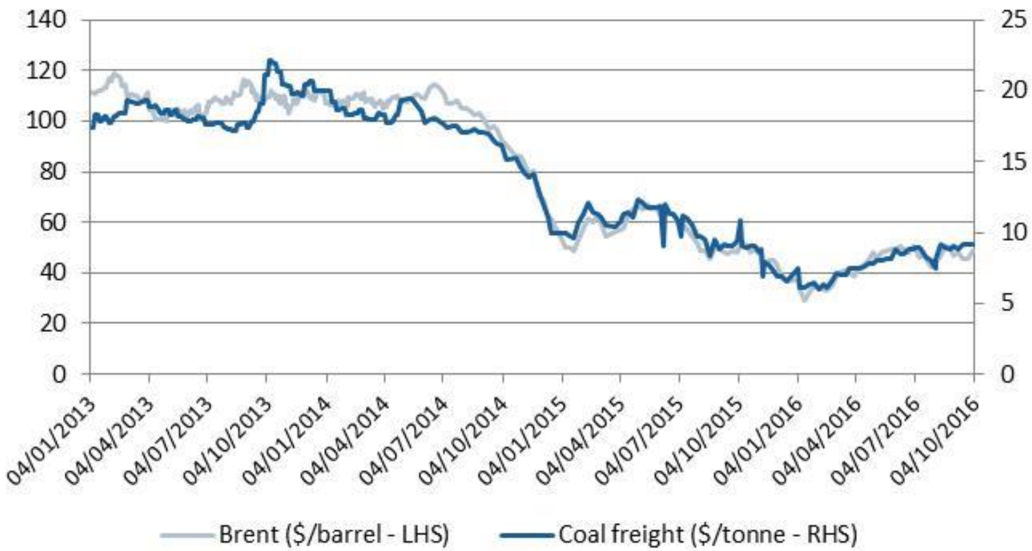
Source: Bloomberg

German prices: lasting rebound underway?

Oil prices and power prices: an indirect connection… (2)

✓ Oil prices influence coal prices through extraction and transportation costs…

Oil prices & coal freight costs

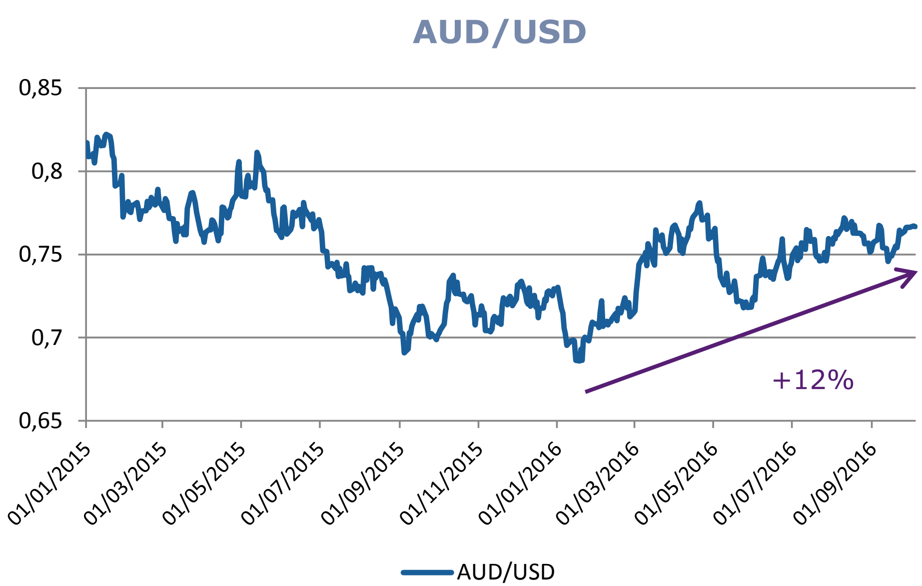


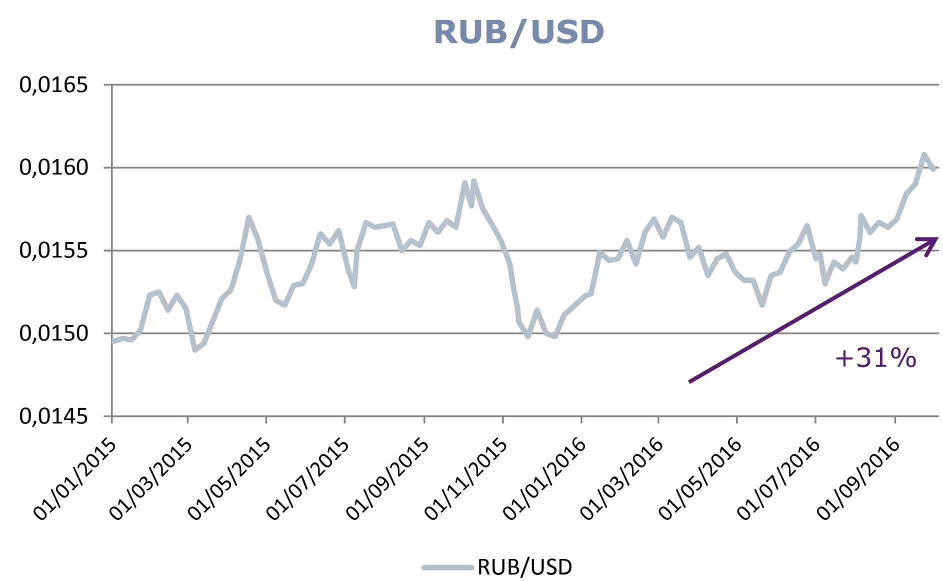
Source: Bloomberg

German prices: lasting rebound underway?

Oil prices and power prices: an indirect connection… (3)

✓ … along with other factors specific to coal exporting countries (currency movements partly influenced by currency inflows in relation to oil prices – see below)…





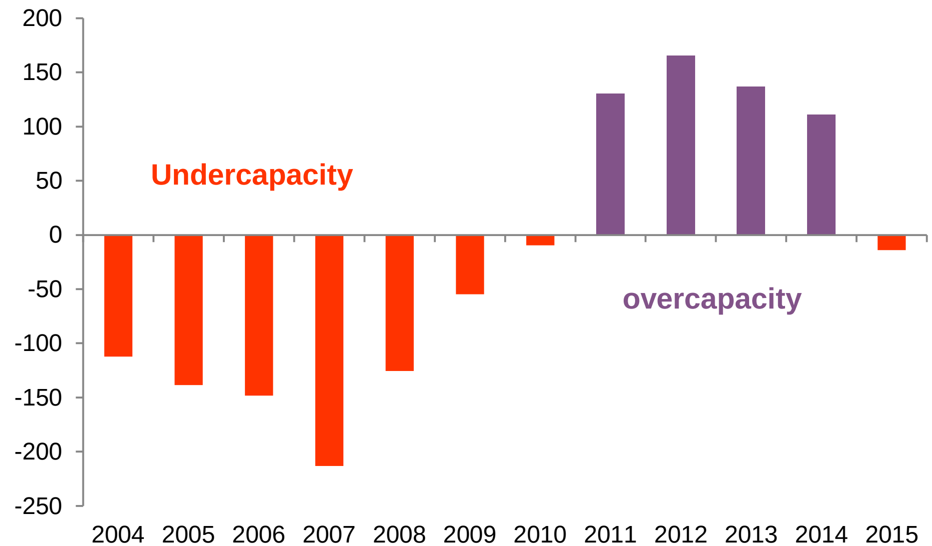
Source: Bloomberg

German prices: lasting rebound underway?

Oil prices and power prices: an indirect connection… (4)

- ✓ … and the evolution of worldwide supply-demand balance (rebalancing since 2013 resulting in demand slightly exceeding supply in 2015)

Worldwide coal market: evolution of supply-demand balance (millions of tons - 2004-2015)



Sources: BP, Natixis

German prices: rebound underway?

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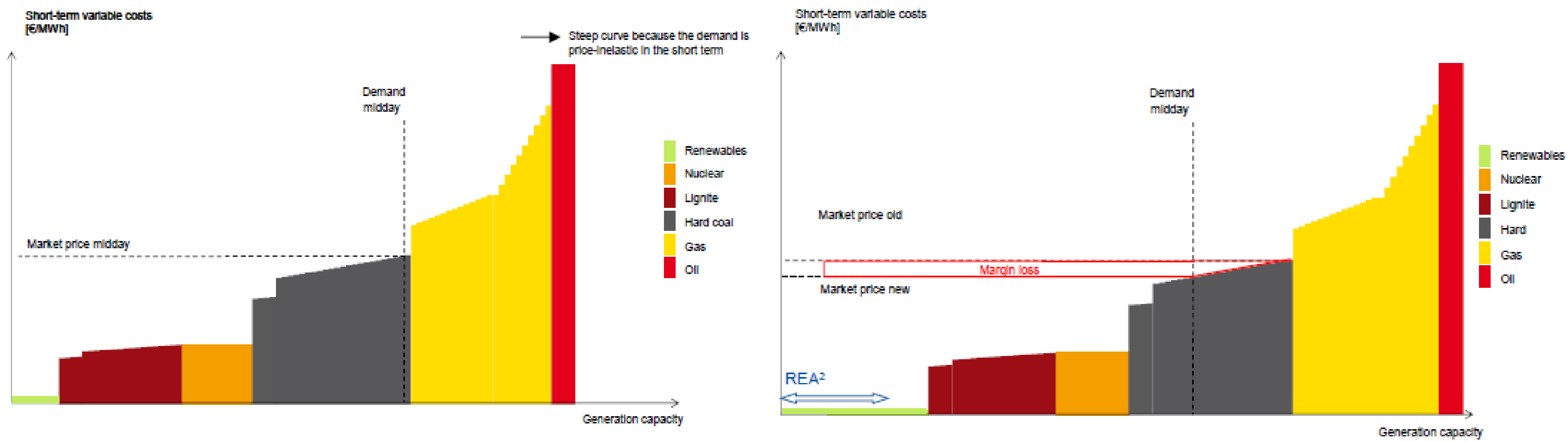
… amid structural changes in the European power sector

- ✓ With the growth of renewables in the most European countries' electricity mixes…
- ✓ … coal (instead of gas) has become the price-setting technology

Germany: electricity supply curve
Without and with feed-in of electricity under the Renewable Energy Act (REA)



Source: RWE

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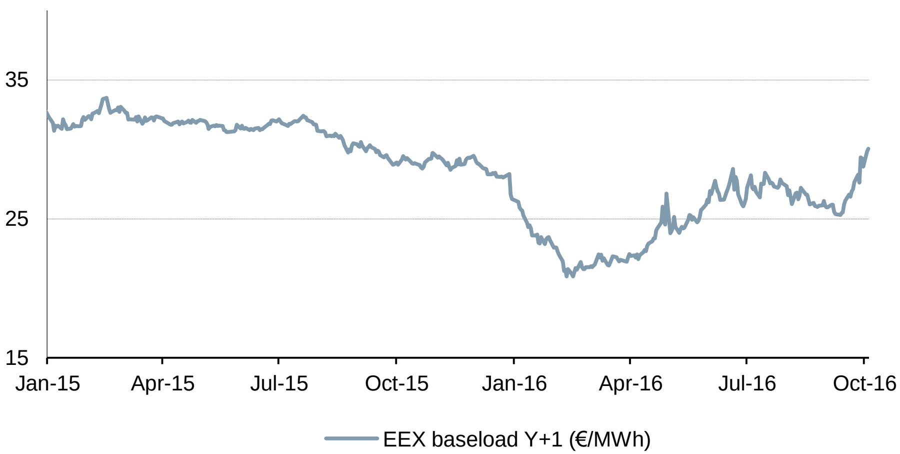
2 French prices: a world appart?

French prices are also bouncing back

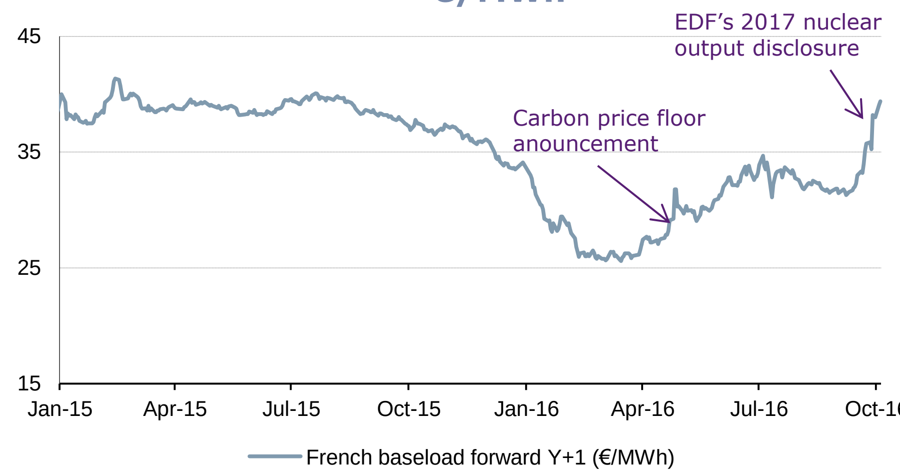
A pattern similar to that shown by EEX* prices… albeit with specific drivers

- ✓ Strong correlation with EEX but with a positive 5-7 €/MWh price difference…
- ✓ … as well as factors specific to the French market (CO_2 prices, nuclear output, etc…)

Germany:
Baseload forward price Y+1
€/MWh



France:
Baseload forward price Y+1
€/MWh



Source: Bloomberg

*** German organised wholesale market**

The French market: a specific pricing environment

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A market structured around three different price indicators (1)

- ✓ **Remaining regulated tariffs** (TRV) for residential customers and SMEs (~30%/35% of national consumption): energy component of TRVs for residential customers now at €44.7/MWh, o.w.
  - ~75% is determined in reference to the ARENH price
  - ~25% in reference to a 'market' component including baseload as well as peakload products

- ✓ **ARENH price**: €42/MWh

- ✓ **Wholesale prices**: baseload forward Y+1: €39.6/MWh

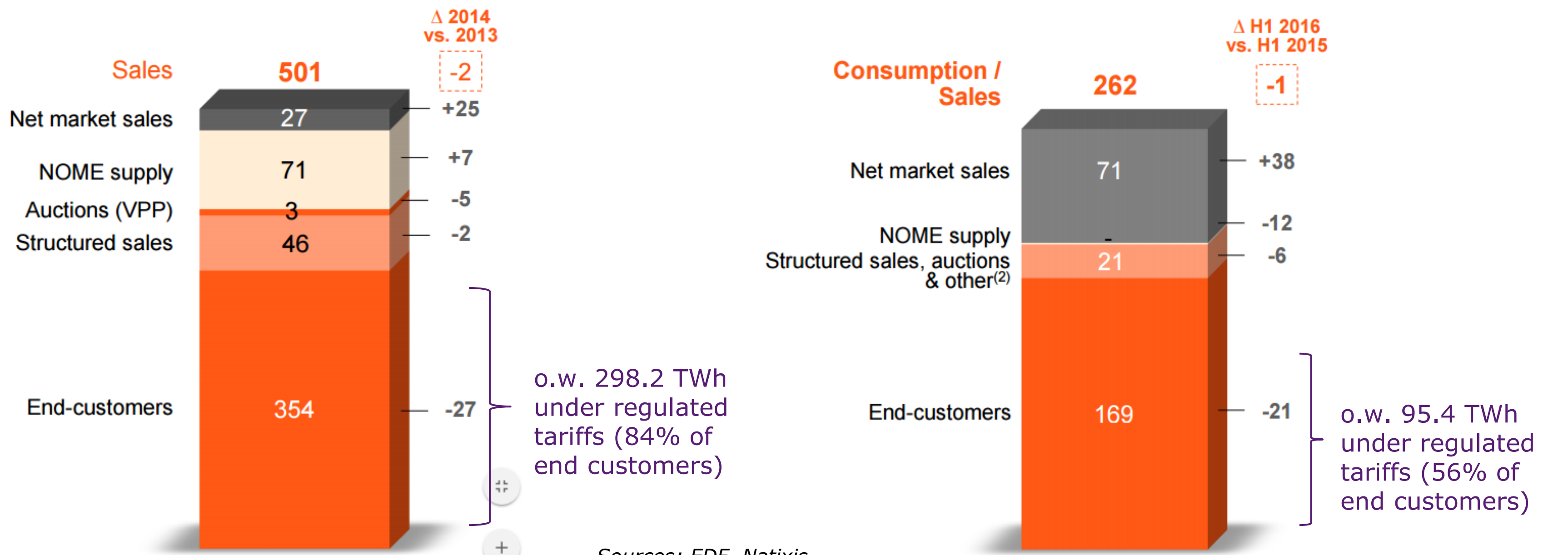
The French market: a specific pricing environment

RESEARCH BY NATIXIS

A market structured around three different price indicators (2)

- ✓ Structural changes since end-2014…
- ✓ … resulting in EDF's baring higher exposure to wholesale prices

EDF's French operations:
Breakdown of electricity sales (TWh): FY 2014 vs. H1-16



Sources: EDF, Natixis

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3 Conclusions

The 'knowns' and the 'unknowns'

- ✓ The recovery of oil prices underway is good news for power prices in Europe and should fuel a recovery from the record low levels reached last January

- ✓ Our central scenario is based on oil prices averaging 44 $/bbl in 2016, 55 $/bbl in 2017 and 70 $/bbl in 2018 with a possible acceleration in the coming months should OPEC's recent announcements of supply reduction materialise

- ✓ In France, the magnitude of this recovery could be affected by exogenous factors (nuclear fleet availability in case of a further output target reduction by EDF, features of the carbon price mechanism to be introduced)

- ✓ In Germany, the magnitude of the potential recovery is difficult to determine in light of the counterbalancing supply factor (continuing renewable capacity additions) and the uncertainties around potential additional measures at Federal level to further "de-carbonise" the power sector

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