LESSONS LEARNED FROM THE PREVIOUS EU ETS PERIODS

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AGENDA

Three lessons for the EU ETS

Is the current reform a sufficient answer to these lessons?

LESSON 1: POWER SECTOR IS QUITE SENSIBLE TO THE MARKET SIGNALS IT GETS

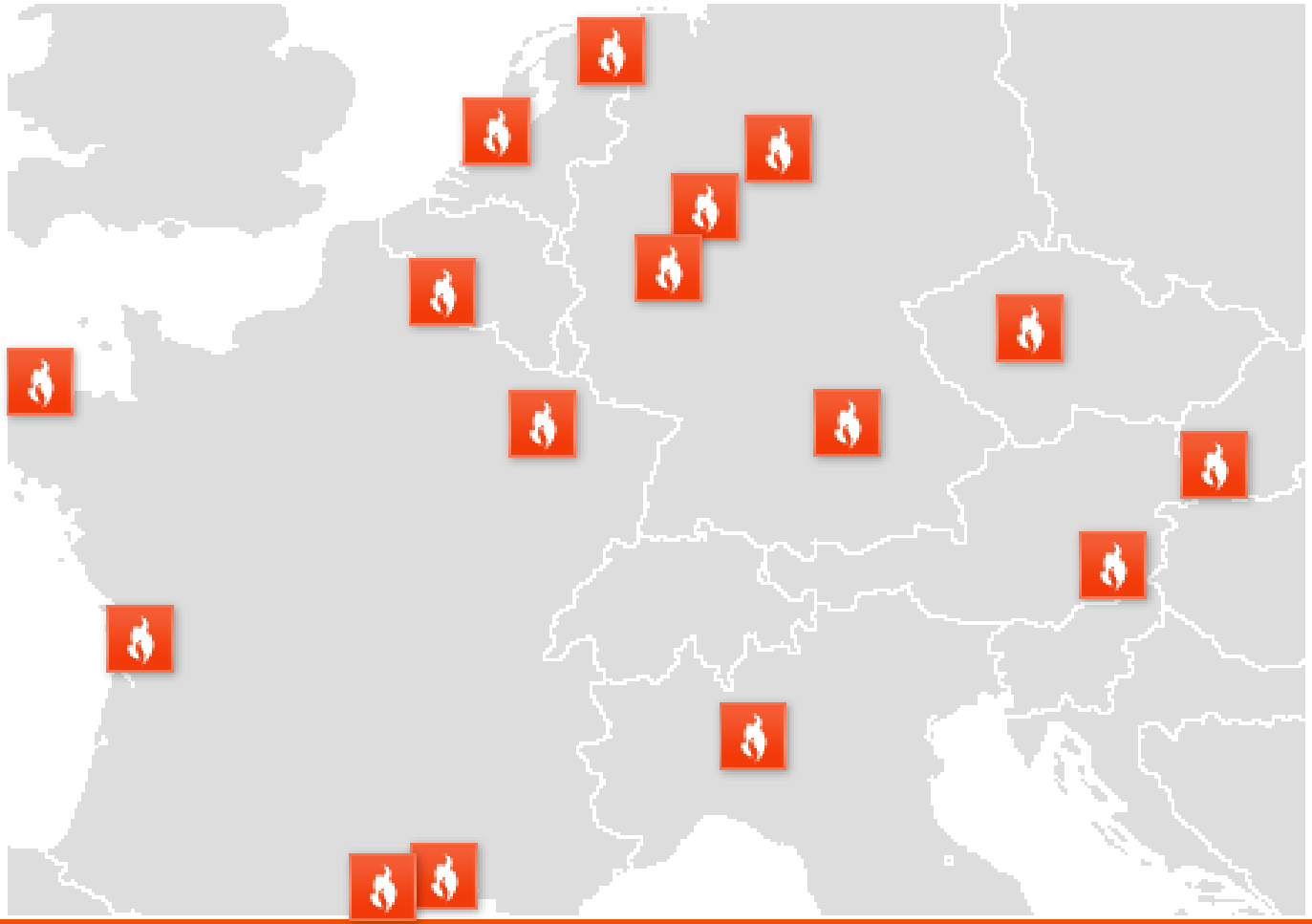
Gas plants comissioned after 2005
E.ON, RWE, Statkraft, Vattenfall, EnBW, GDF Suez, Centrica, SSE, Verbund, CEZ

- Expectations of high carbon prices led the European utilities to invest into low emission sources
- ČEZ also commissioned its CCGT project in 2013
- Moreover, some coal plants' retrofits were realized in order to decrease the CO2 intensity of the production

Source: Oxford University (2014)

LESSON 2: DYSFUNCTIONAL REGULATION IS MORE EXPENSIVE THAN NO REGULATION

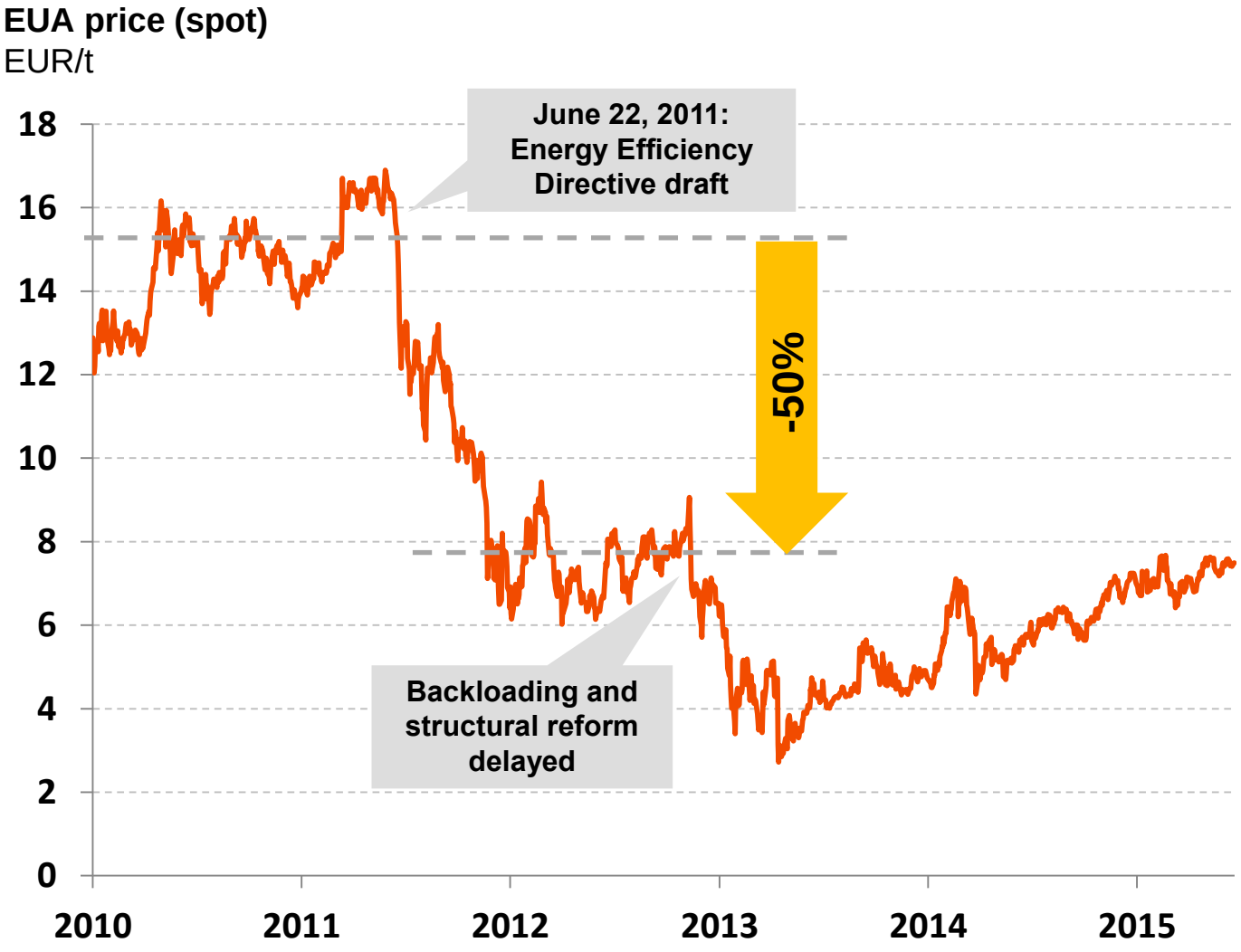
Less than 10years old CCGT plants mothballed in 2012-2013
E.ON, RWE, Statkraft, Vattenfall, EnBW, GDF Suez, Centrica, SSE, Verbund, CEZ



- Brand new CCGT plants are being mothballed almost everywhere in the CWE (at least 10GW with investment costs of more than 8bln EUR!)
- European potential to decarbonize is not being used
- Emissions decrease because of weak economy and RES support, and not because of economic incentives to generate in clean sources
- Today, it is far more profitable to generate in CO2-intensive lignite and hard coal sources

Source: Oxford University (2014), Reuters, BMWI

LESSON 3: OVERLAPPING CLIMATE POLICIES HAVE A SIGNIFICANT IMPACT ON THE EU ETS



- Complementary climate targets (renewables, energy efficiency) cannot be reached only with the EU ETS, they need their specific tools
- However, collateral effects of these tools can significantly weaken the EU ETS
- Indeed, they were one of the causes of the EU ETS collapse
- In a case of weak economic growth, they could even bring all the necessary CO2 savings without any contribution of the EU ETS

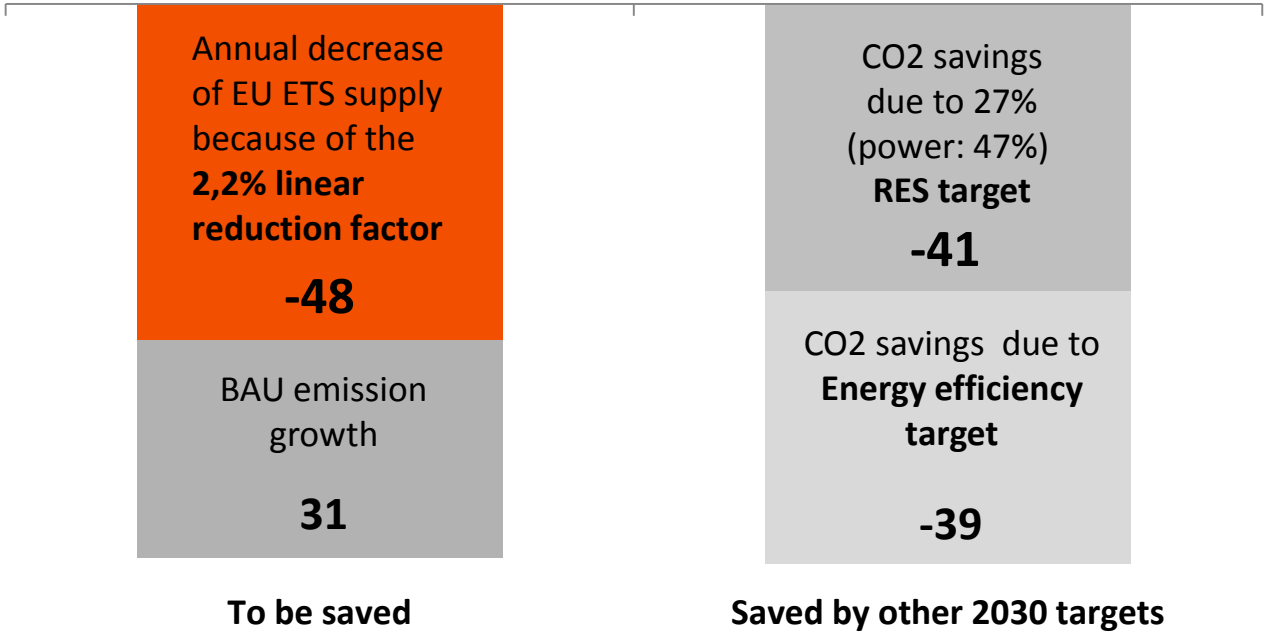
AGENDA

Three lessons for the EU ETS

Is the current reform a sufficient answer to these lessons?

EU ETS OVERLAP WITH OTHER EUROPEAN CLIMATE POLICIES SHOULD BE MITIGATED TO AVOID THE STRUCTURAL OVERSUPPLY

Annual dynamics of EUA supply and RES&EE effects after 2020
Mt



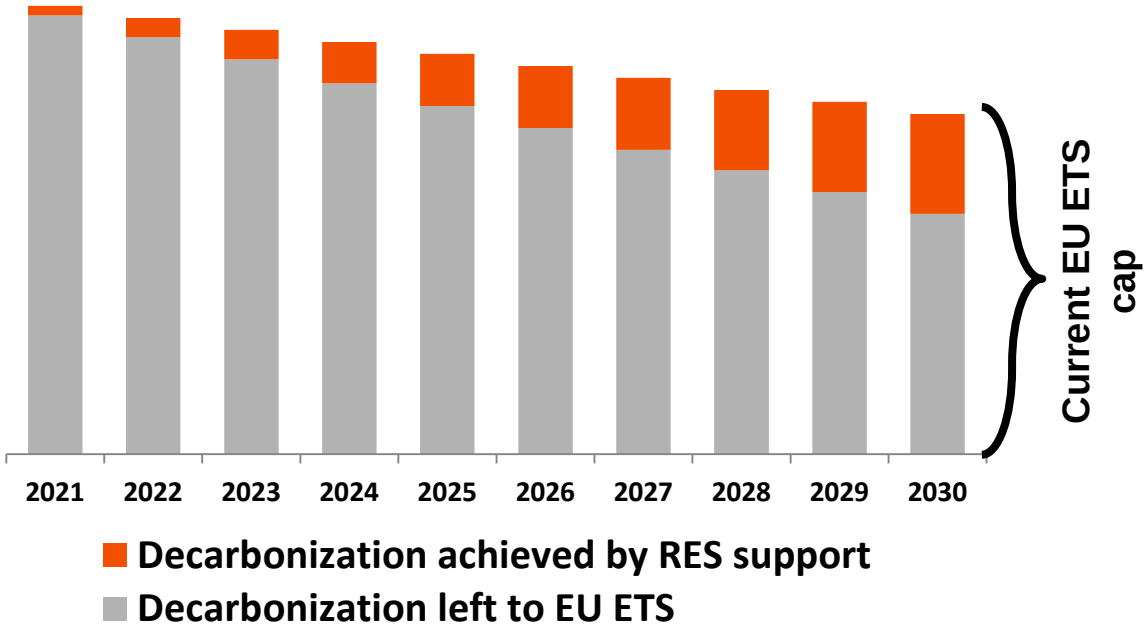
Result: the least cost operations (by accident, often the dirtiest ones) will go on

MESSAGE? NO ACTION NEEDED!

MITIGATION: DECREASE THE ANNUAL EU ETS CAP BY THE EMISSIONS SAVED DUE TO THE RES SUPPORT IN THE PREVIOUS YEAR

EU ETS cap adjustment = **RES production** in previous year × **Average emission factor** of **conventional generation** in previous year

EU ETS cap based on the linear reduction factor and effect of the RES support (illustrative)



- Non-market RES generation is withdrawn from the EU ETS
- Every year, EUA auctions are automatically decreased by the emission volumes saved by RES generation in previous year
- Adjustment separates emission savings realized thanks to the RES support and emission savings to be achieved via EU ETS

- **EU ETS is more stable and predictable as it does not depend on external, non-market tools**

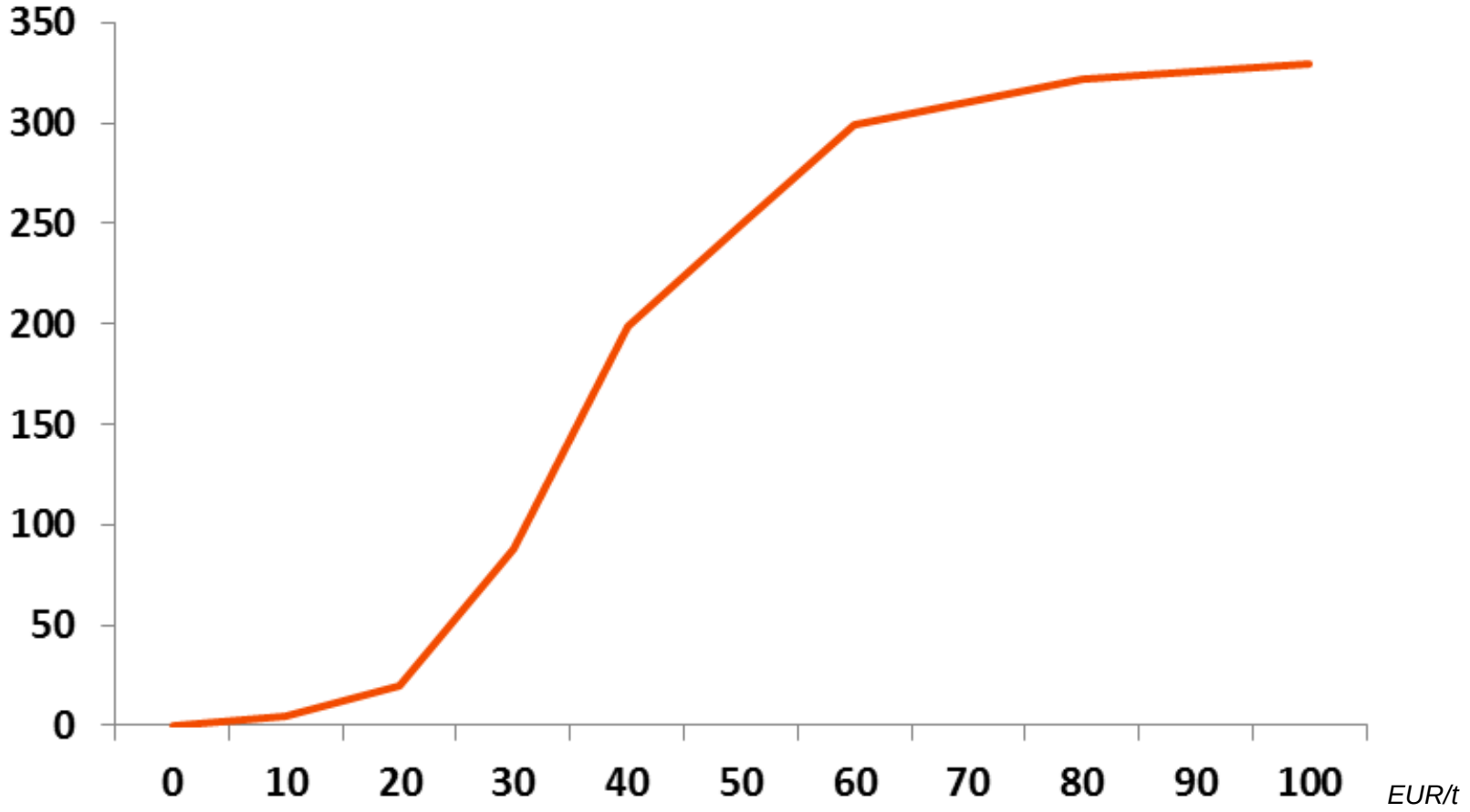
CONCLUSION

- **Power sector proved to have a high potential to decarbonize provided it has a stable and robust market signals**
- **EU ETS overlaps with other European climate policies threaten the future stability of the system**
- **MSR cannot mitigate the effect of a long term, structural oversupply**
- **EU ETS stability and predictability in the future can be improved by withdrawing savings achieved thanks to other climate policy tools from the system**

BACKUP

COAL-TO-GAS SWITCHING AND RELATED EMISSION SAVINGS START AT EUA PRICE LEVELS BETWEEN 20-30 EUR/T

CO2 savings in the energy sector as a function of price
Mt, 2021



MSR MAKES THE SYSTEM ROBUST AGAINST TEMPORARY SURPLUS, BUT IT DOES NOT SOLVE A STRUCTURAL OVERSUPPLY

ILLUSTRATIVE

Illustrative EU ETS scenario
Mt, EUR/t

	Year 0	Year 1	Year 2+
SUPPLY	1 000		
DEMAND	1 100		
SURPLUS	750		
MSR	0		
SAVINGS	100		
PRICE	25		

Market in equilibrium: required hedging volumes

Additional savings needed ⇒ positive price

- Y0: Excess of demand over supply requires additional emission savings and therefore a positive EUA price

- **Market surplus within pre-defined band, no need for the MSR to intervene**

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PRICE	25	0	

RES support causes permanent decrease of demand

No additional savings needed ⇒ no price incentive

- Y0: Excess of demand over supply requires additional emission savings and therefore a positive EUA price
- Y1: RES support decreases the EUA demand down, market is in equilibrium and no additional savings are needed

- **Market surplus still within pre-defined band, no need for the MSR to intervene**
- **Market in equilibrium without any price incentives**

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SURPLUS	750	750	750
MSR	0	0	0
SAVINGS	100	100	0
PRICE	25	25	0

Market in new long term equilibrium

Surplus in pre-defined band, MSR does not intervene

No additional savings needed ⇒ no price incentive

- Y0: Excess of demand over supply requires additional emission savings and therefore a positive EUA price
- Y1: RES support decreases the EUA demand down, market is in equilibrium and no additional savings are needed
- Y2+: market is in a new equilibrium, no need for additional savings and therefore no price

- **MSR maintains the market in the equlibrium defined by the surplus band**
- **However, MSR cannot create any need for additional CO2 savings**
- **There is no EUA price without any demand for savings**
- **No incentive for long term decarbonization investments**