EU Emissions Trading System
Latest developments

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Asset Optimisation & Trading
Source: Fortis, Sep 2014

<table>
<thead>
<tr>
<th></th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emissions</td>
<td>2,119.6</td>
<td>1,879.5</td>
<td>1,939.0</td>
<td>1,904.0</td>
<td>1,952.0</td>
<td>1,958.0</td>
</tr>
<tr>
<td>Allocation</td>
<td>1,957.1</td>
<td>1,971.2</td>
<td>1,997.0</td>
<td>2,015.9</td>
<td>2,124.7</td>
<td>1,032.2</td>
</tr>
</tbody>
</table>

Source: ICIS / Tschach Sep 2014 based on official figures such as Union Registry
History

Verified Emissions for 2005: the market is long

Recession

Hedging stabilizes demand

Backloading

Phase I 2005-2007
Phase II 2008-2012
Phase III 2013-2020

- Start-up phase
- National Allocation Plans
- Free allocation of allowances
Over-allocation! No Banking!

- More stringent National Allocation Plans
- Free allocation
- 2008 cap is 6.5% below 2005 verified emissions

Harmonise and Stabilise! Banking!

- No NAPs, single EU cap
- -21% by 2020 to 2005
- 100% auction for power
- New: petrochemicals, aluminium, aviation
January 2014 EU 2030 framework with 40% GHG in 2030 goal

ETS structural reform establishing market stability reserve (MSR)

2014
Backloading (900 million EUA)

2016
EU 2030 framework adopted

2018
Reintroduction of backloaded volumes

2020
MSR start

2022
Discussions commence on 2040 targets
Surplus

Historic surplus development
Source: ICIS/Tschach 2014

Surplus forecast
Source: Öko-Institut June 2014
Market Stability Reserve (MSR)

Source: ICIS/Tschach April 2014
## 2030 Targets

- Leaked EU Council draft (1 Sep 2014): **Triple Target 40/30/30** for 2030
- EU Commission Impact Assessment (June 2014): **Triple Target 11 €/t vs. 40 €/t Single Target**
- EU Council Meeting 23-24 Oct + Env ministers 28 Oct

<table>
<thead>
<tr>
<th>EU-Commission Impact Assessment (June 2014)</th>
<th>CURRENT POLICY 37.5% emissions cut (EU ETS only)</th>
<th>SINGLE TARGET 40% emissions cut</th>
<th>TRIPLE TARGET 40% emissions 30% renewables 30% energy efficiency</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO₂ reduct. 2030 vs 1990 (%)</td>
<td>32</td>
<td>40 (Little effect but high cost)</td>
<td>40</td>
</tr>
<tr>
<td>Renewables share 2030 (%)</td>
<td>24</td>
<td>27</td>
<td>30</td>
</tr>
<tr>
<td>Energy savings 2030 relative to 2007 baseline (%)</td>
<td>21</td>
<td>25</td>
<td>30</td>
</tr>
<tr>
<td>Energy efficiency cost [€/toe]</td>
<td>181</td>
<td>184</td>
<td>693</td>
</tr>
<tr>
<td>Renewables cost [€/MWh]</td>
<td>34</td>
<td>34</td>
<td>134</td>
</tr>
<tr>
<td>CO₂-price [€/t]</td>
<td>35</td>
<td>40</td>
<td>11</td>
</tr>
</tbody>
</table>

Source: EU Commission Impact Assessment (June 2014)
Exchange

Auctions/allocation:
EUA, EUAA

Secondary market:
EUA futures (most liquid Dec-14, Dec-15, …)
CER (Kyoto Clean Development Mechanism)
ERU (Kyoto Joint Implementation)
Derivatives (Options on EUA+CER; EUA-CER Swap, etc.)
EUAA futures

**Table:**

<table>
<thead>
<tr>
<th>Product</th>
<th>EUAs (European Union Allowances)</th>
<th>CERs (Certified Emission Reductions)</th>
<th>ERUs (Emission Reduction Units)</th>
<th>EUAAs (European Union Aviation Allowances)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Futures</td>
<td>16,433</td>
<td>146</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Daily Futures</td>
<td>246</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Options</td>
<td>862</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>UK Auctions</td>
<td>1,215</td>
<td>0</td>
<td>0</td>
<td>To be confirmed</td>
</tr>
</tbody>
</table>

*Volume in Lots. 1 Lot = 1,000 tonnes CO2

Source: ICE, Sep 2014

**Graph:**

Daily EUA Exchange Volume

Source: ICE, EEX, NordPool, 2014
Fuel switching price

Source: Schäuble, Jacobs, Töpfer (2014)