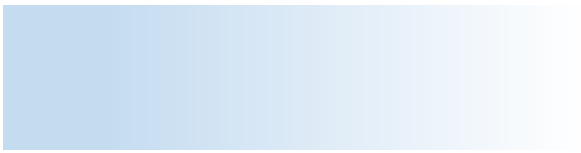




European Daily Carbon Markets methodology

Methodology last updated: 13 May 2015

Expiry date for this methodology: 13 May 2017



Introduction to European Daily Carbon Markets (EDCM)

European Daily Carbon Markets (EDCM) contains in-depth analysis on price drivers for EU allowances (EUAs) and certified emission reduction (CER) credits, as well as authoritative commentary on each day's trading activity, and daily news. Coverage for some permits stretches back as far as 2006, including ICIS OTC assessments which have now been discontinued, and a comprehensive price history database is available for this report. EDCM is published every English working day in the evening as a PDF, with data also available through an FTP feed. News stories are posted on the ICIS Dashboard throughout the day.

Settlement prices for contracts traded on the ICE Futures Europe secondary market are also included, and so are the results of the daily spot auctions held on ICE and on the European Energy Exchange.

Recent changes to this methodology

Date	Price reference	Change
13 May 2015	ERUs, EUAs, CERs	Removed some secondary data information. Added new secondary data information.
1 May 2014	All OTC assessments	Removed
20 December 2013	n/a	Adds detail
14 August 2013	EUAs, CERs	Updated secondary data information, after BlueNext closed

Primary data tables in EDCM

Spark and dark spreads

ICIS calculates its spark and dark spreads as the cost of power per MWh minus the cost of the fuel needed to generate that power. The cost of fuel is calculated using industry standard plant efficiencies to take account of energy not converted into electrical energy and therefore lost.

A positive spread means that it is theoretically profitable to generate electricity for the period in question, while a negative spread means that generation would be a loss-making activity. However, it is important to note that the spreads do not take into account additional generating charges beyond fuel and carbon, such as operational costs.

Spark spreads are calculated as the cost of power per MWh minus the cost of gas. ICIS uses the Day-ahead index for Day-ahead electricity and gas values in the UK and Germany, and the midpoint of baseload power price assessments for all other calculations from sister publication EDEM (please see EDEM methodology for an explanation of how those values are reached). Gas indices and price assessment values use data from sister publication ESGM, using the NBP for UK calculations and the TTF for German calculations, as the TTF hub is currently the most liquid gas market in the region, and is widely used as a reference for German gas prices (please see ESGM methodology for an explanation of how those values are reached).

ICIS uses the standard gas-fired plant efficiency factor of 49.13% for its spark spreads – an industry standard to allow for efficient spark spread trading – on the basis that 100,000 therms of gas could generate 60MW of power. The spark spread value is therefore the power price minus the gas price divided by 0.4913.

Spark spread = power price - (gas price/0.4913).

Dark spreads are calculated as the cost of power per MWh minus the cost of coal.

ICIS uses Baseload power price assessments for all contracts, and CIF ARA coal swaps price assessments from sister publication CSD (please see CSD methodology for an explanation of how those values are reached).

The cost of coal in US dollars per tonne is converted to local currency using forward rates constructed by ICIS using currency data from Bloomberg. The cost per tonne figure is converted to MWh by dividing by 6.978, based on the

energy content of coal CIF ARA coal swaps represent, which is 6,000kCal/kg NAR (net as received), and converted to MWh using conversion factors from the International Energy Agency.

ICIS calculates its dark spreads using the industry standard of 35% plant efficiency.

Dark spread = power price – (((coal price converted to local currency)/6.978)/0.35).

The cost of emissions for **clean spark spreads** is calculated by multiplying the cost of carbon emissions allowances published by the ICE exchange, converted to local currency where necessary, and multiplied by the emissions intensity factor.

ICIS uses the UK government natural gas conversion factor (dating from June 2013) of 0.18404 tonnes of carbon dioxide equivalent emitted per MWh on the basis of gross calorific value, in line with how gas is traded (<http://www.transco.co.uk/services/cvalue/cvinfo.htm>).

The UK government figure has been chosen on the basis that the UK has the most liquid traded spark spread market. UK government carbon dioxide emissions conversion factors are issued by the Department for Environment, Food and Rural Affairs (DEFRA): <http://www.ukconversionfactorscarbonsmart.co.uk/>

The emissions intensity factor is calculated by dividing the carbon dioxide equivalent emitted per MWh by the standard plant efficiency. For a clean spark spread for a 49.13% efficient gas plant, the emissions intensity factor used is therefore (0.18404 divided by a plant efficiency of 0.4913).

Clean spark spread = spark spread - (emissions price x (0.18404/0.4913)).

To calculate **clean dark spreads**, ICIS uses the Intergovernmental Panel on Climate Change (IPPC) emissions conversion factor (dating from 2006) of 0.34056 tonnes of carbon dioxide equivalent emitted per MWh of power generated from coal on the basis of net calorific value, in line with how coal is traded. The IPCC emissions conversion factor has been chosen as an international figure to reflect the coal market, and the resulting emissions factor is in widespread use within the power industry. The IPCC taskforce on national greenhouse gas inventories on energy emissions dating from 2006 can be found here: <http://www.ipcc-nggip.iges.or.jp/public/2006gl/vol2.html>

The emissions intensity factor is calculated by dividing the carbon dioxide equivalent emitted per MWh by the standard plant efficiency. For a clean dark spread for a 35% efficient coal-fired plant, the emissions intensity factor used is therefore (0.34056 divided by a plant efficiency of 0.35).

Clean dark spread = dark spread - (emissions price x (0.34056/0.35)).

Secondary data in EDCM

Exchange	Contract	Period	Price represented
ICE	EUA	Spot Contracts for delivery in December of the current year, year+1, year+2 and year+3	Settlement
ICE	CER	Spot Contracts for delivery in December of the current year, year+1 and year+2	Settlement

For more information see:
<http://data.theice.com/Markets/Emissions.aspx>

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