



## E.ON Carbon Sourcing experience to tackle climate change in Russia

Presentation for AEB Conference titled “Kyoto Protocol  
Implementation“

Elliano Russo, Maryna Odeska, Moscow, September,

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# Agenda

- 1 Overview E.ON Group
- 2 E.ON Carbon Sourcing
- 3 JI/CDM Market overview and Russia's emission reduction potential
- 4 E.ON Market Unit Russia (OGK-4 JI Projects)

# E.ON – One of the world’s largest electricity and gas energy service providers



## Key figures for the year 2008<sup>1</sup>

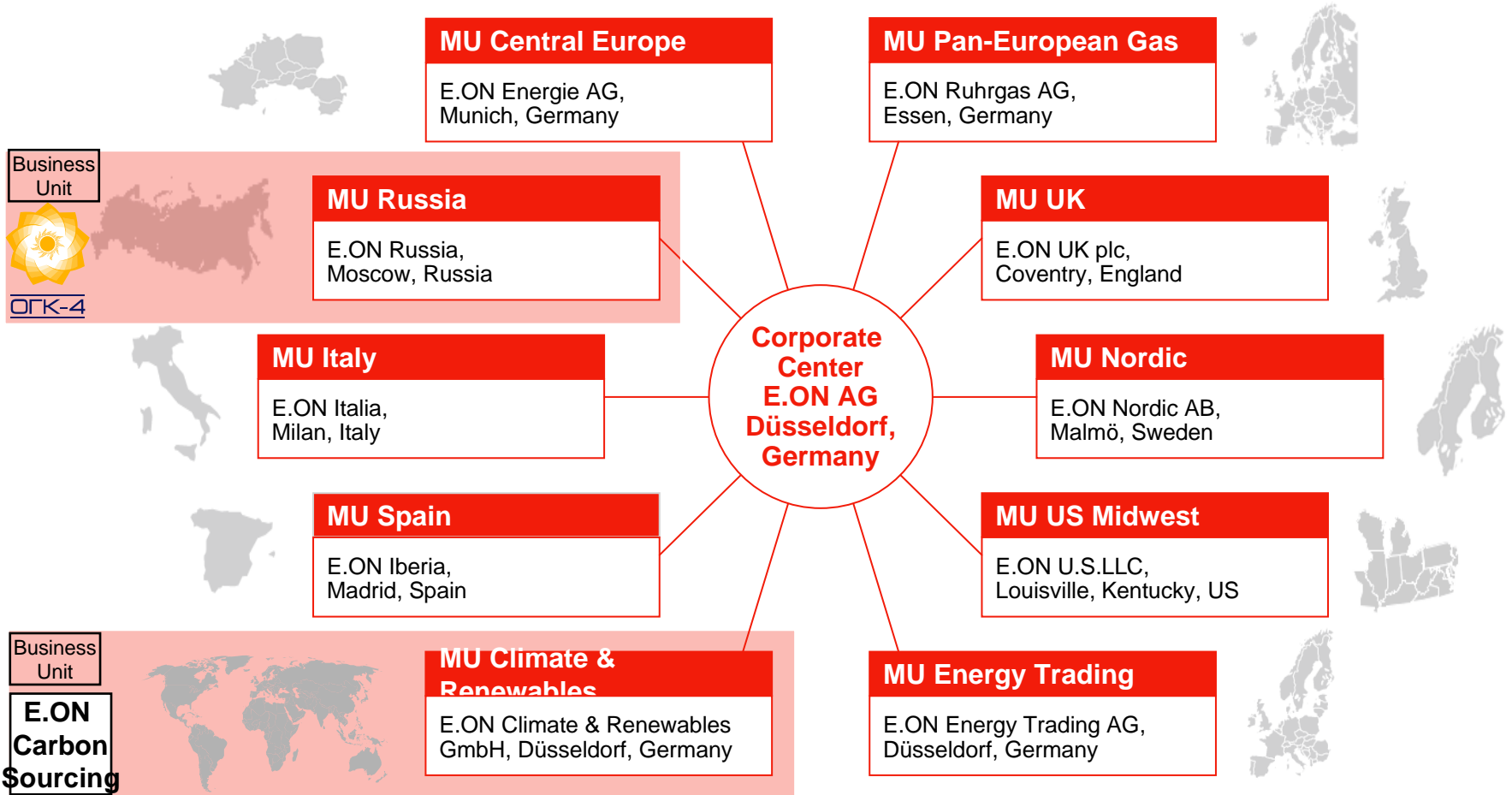
Sales	€86.8 billion
Adjusted EBIT	€9.9 billion
Electricity sales volume <sup>2</sup>	614.6 billion kWh
Gas sales	1,224.0 billion kWh
Employees	93,538

- Activities in conventional power and gas markets all over Europe and US – Renewable Energy and Carbon Sourcing worldwide
- Vertically and horizontally integrated business ranging from power generation and gas production to trading, distribution and customer sales
- Power generation capacity of 74 GW including nuclear, fossil and renewable energy

<sup>1</sup> According to the 2008 Annual Report.

<sup>2</sup> Unconsolidated figures.

# E.ON Group structure: combination of geographic and functional units



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E.ON Market Unit Russia (OGK-4 JI Projects)

# E.ON committed itself to CO<sub>2</sub> emission targets and set up a functional climate protection and renewable energy unit

## Vision set 2007

*“Our vision is to make E.ON a global leader in renewables and climate protection...”*  
(Wulf Bernotat, May 2007)

## E.ON's Commitment

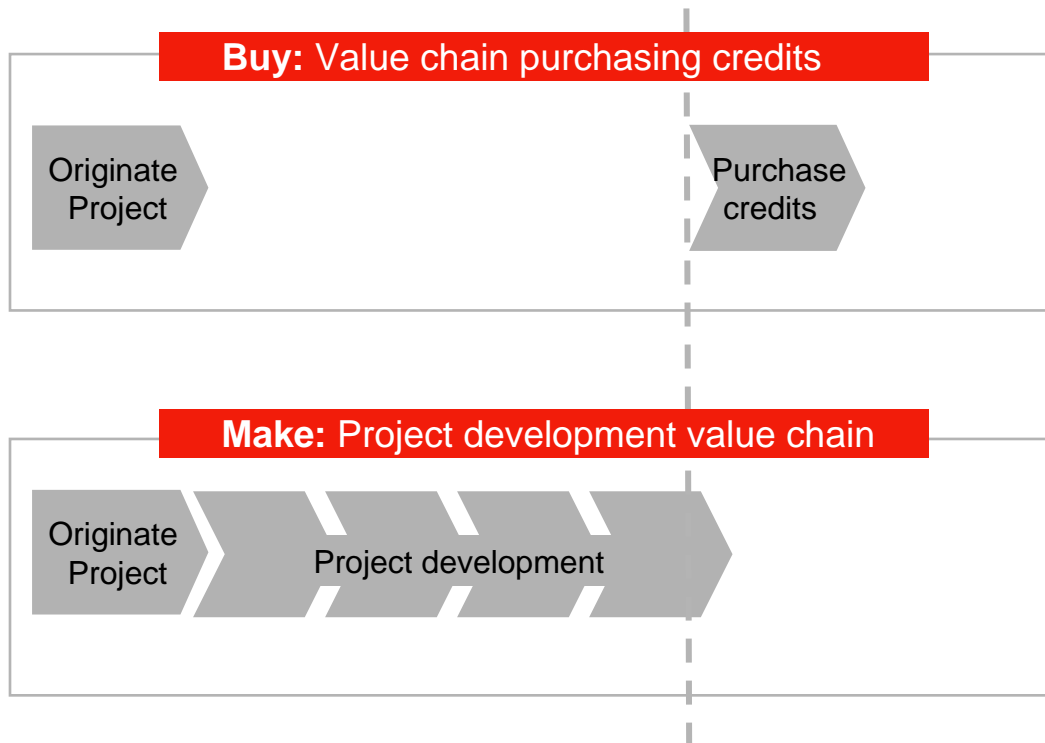
- Establish a new Renewables & Climate Protection unit (EC&R)
- Invest EUR 6 bn until 2010
- Decrease specific CO<sub>2</sub> emissions/kWh by 50% until 2030 vs. 1990

## EC&R tasks

- For all renewable activities: strategy, portfolio, investment and operation
- **Carbon sourcing for the entire E.ON group (use of JI/CDM mechanisms)**
- Driving E.ON's key growth aspirations
- Spearheading E.ON's activities in emerging markets

# There are two main business models in the Carbon Sourcing market

## Carbon Sourcing Value Chain



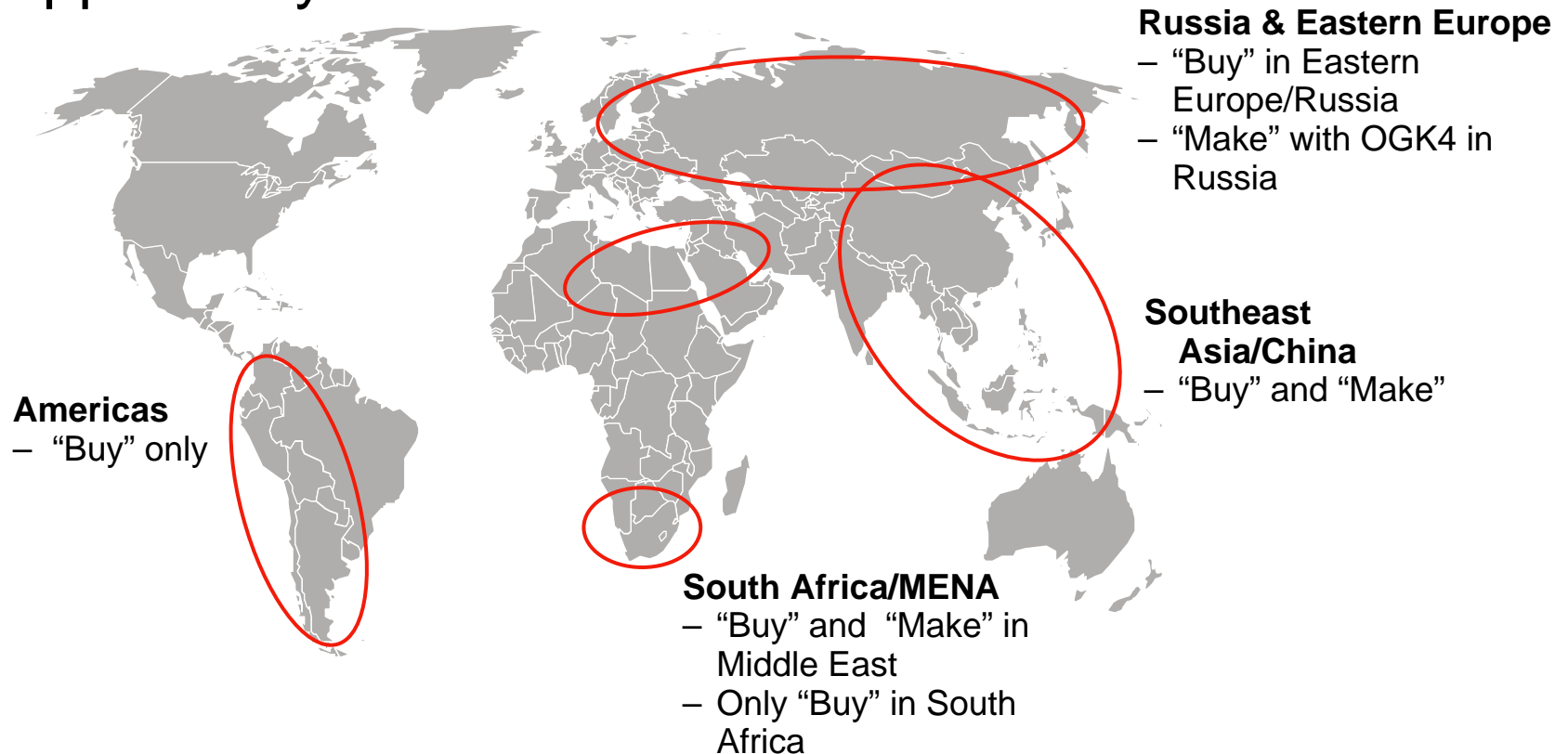
## Costs of credits



Upstream

Midstream

# Geographical focus: “Make” focus driven by market’s attractiveness and accessibility; “buy” focus by opportunity



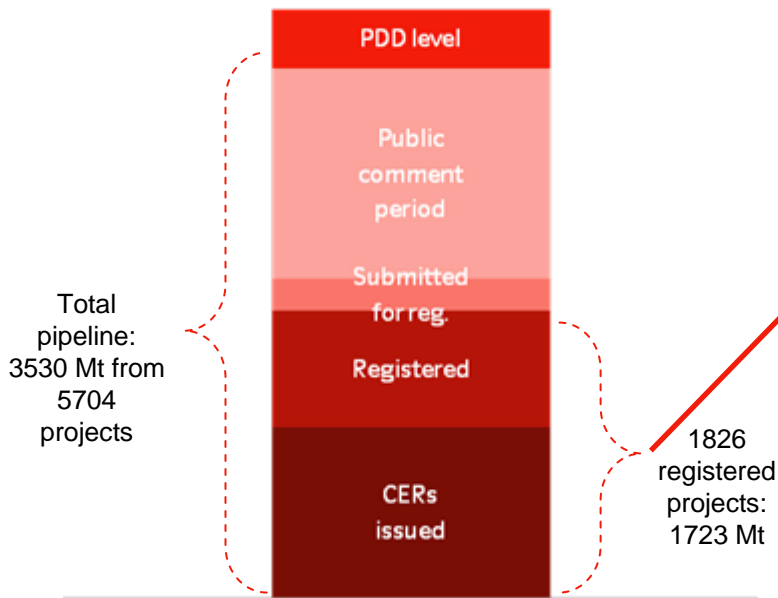


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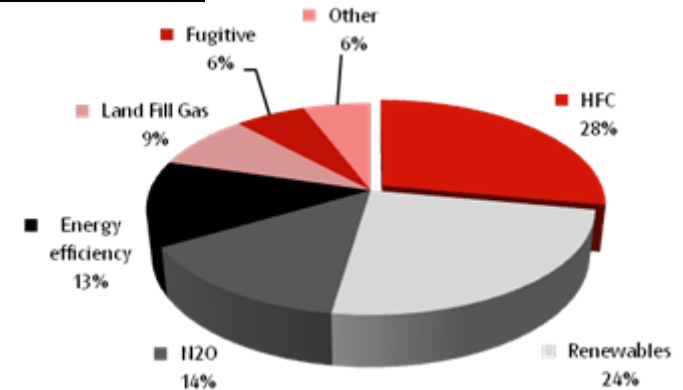
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# Global project pipeline

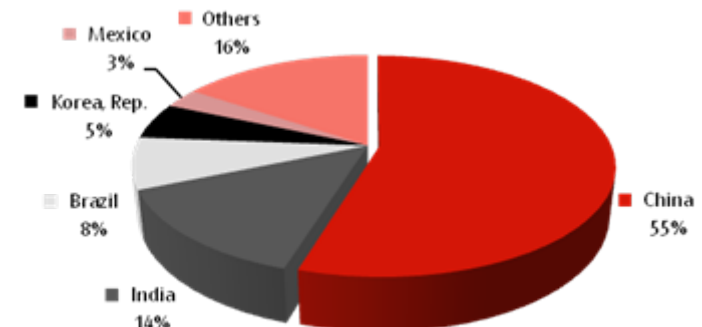
CDM project pipeline – Potential volume until 2012 (Mton CO<sub>2</sub>eq)



## Technology

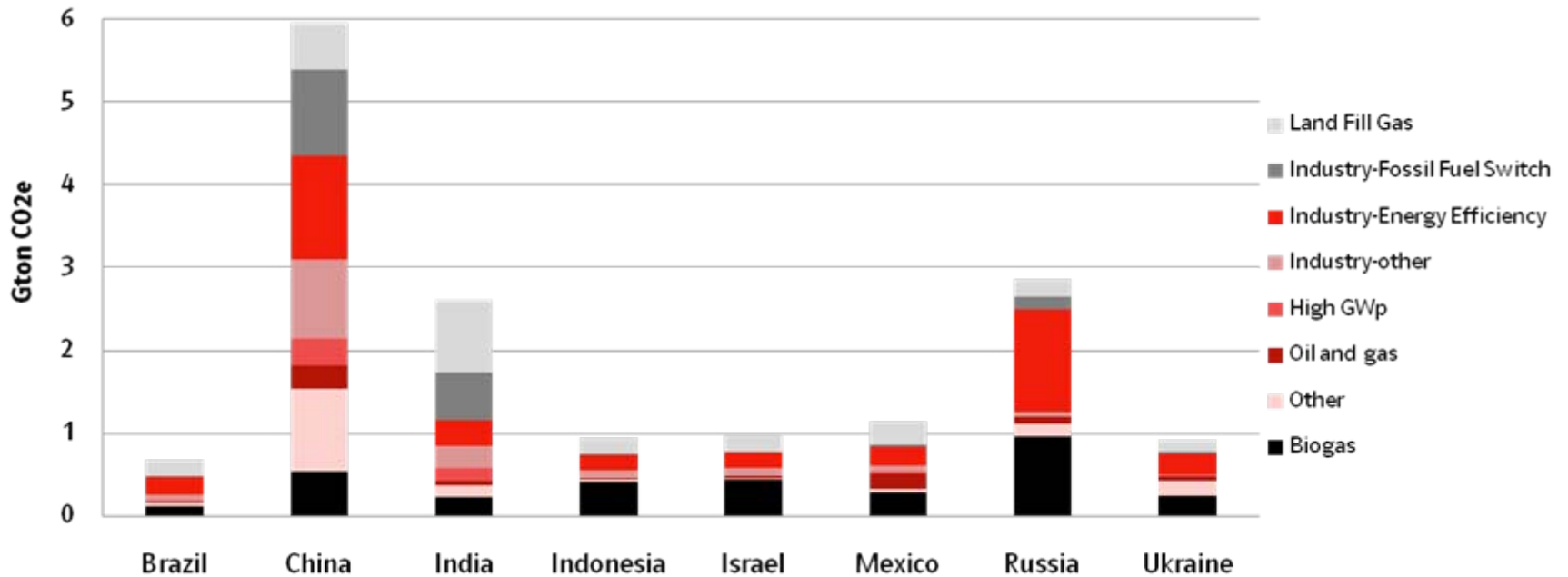


## Country



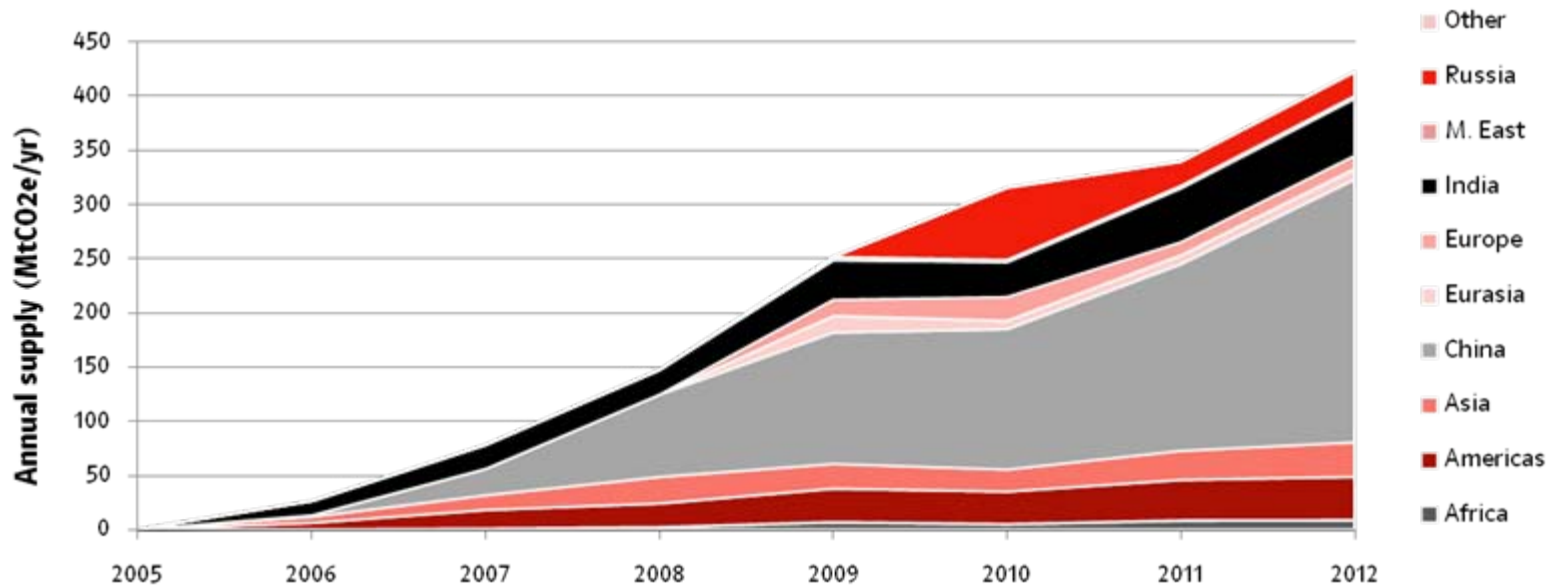
- Total CERs issued to date is 330 Mton from 559 projects
- Market to date is highly dominated by India and China and projects from industrial gases
- China currently covers more than half of the global market (close to 1 Gton from over 600 projects)

# PDD potential per country 2009-2020 (excluding renewable energy)



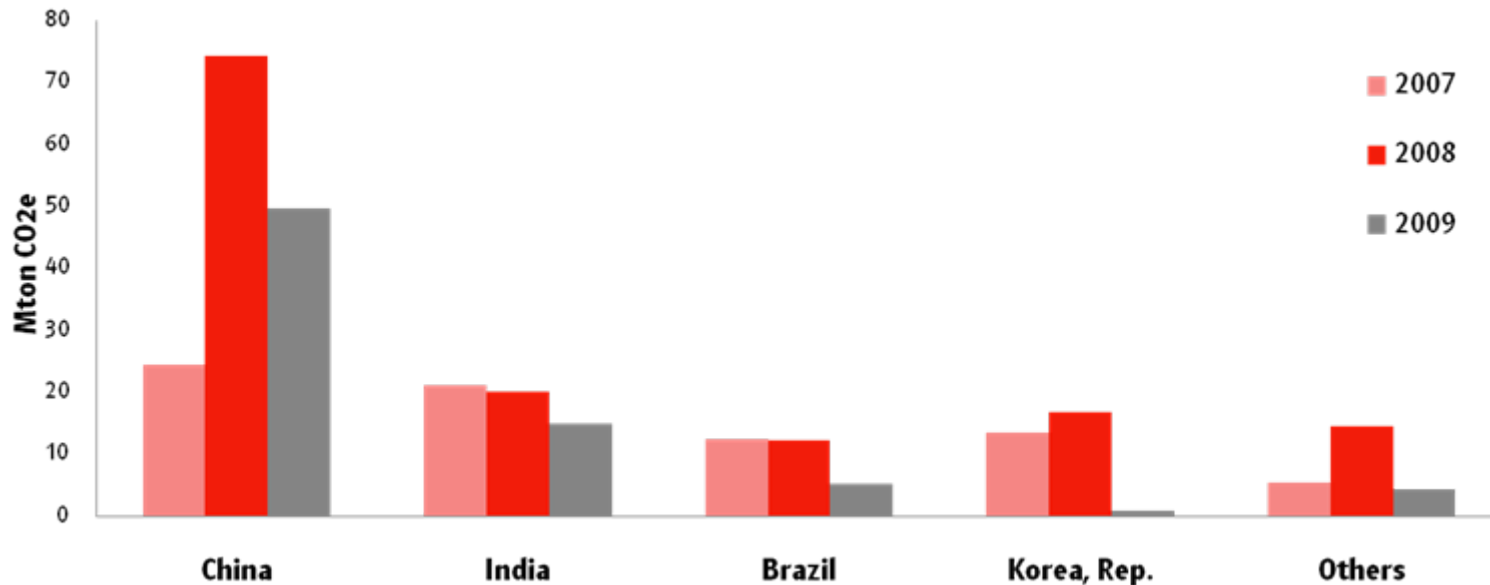
Russia ranks within the top countries in the world on total PDD potential

## Expected CER / ERU supply within Kyoto period (2008-2012)



- Total expected supply of CER/ERUs 2005-2012: China 768 Mton, India, 228 Mton, Russia 111 Mton
- Credit supply from Russia is expected to be only half of that of India, where PDD potential is comparable

## Issued CERs by country



- Chinese and Indian businesses have generated generated over 94 Mton of CERs in 2008
- Considering an average CER price in 2008 of 17,4 €/ton\* these CERs represent a market value of over 1.6 Billion €

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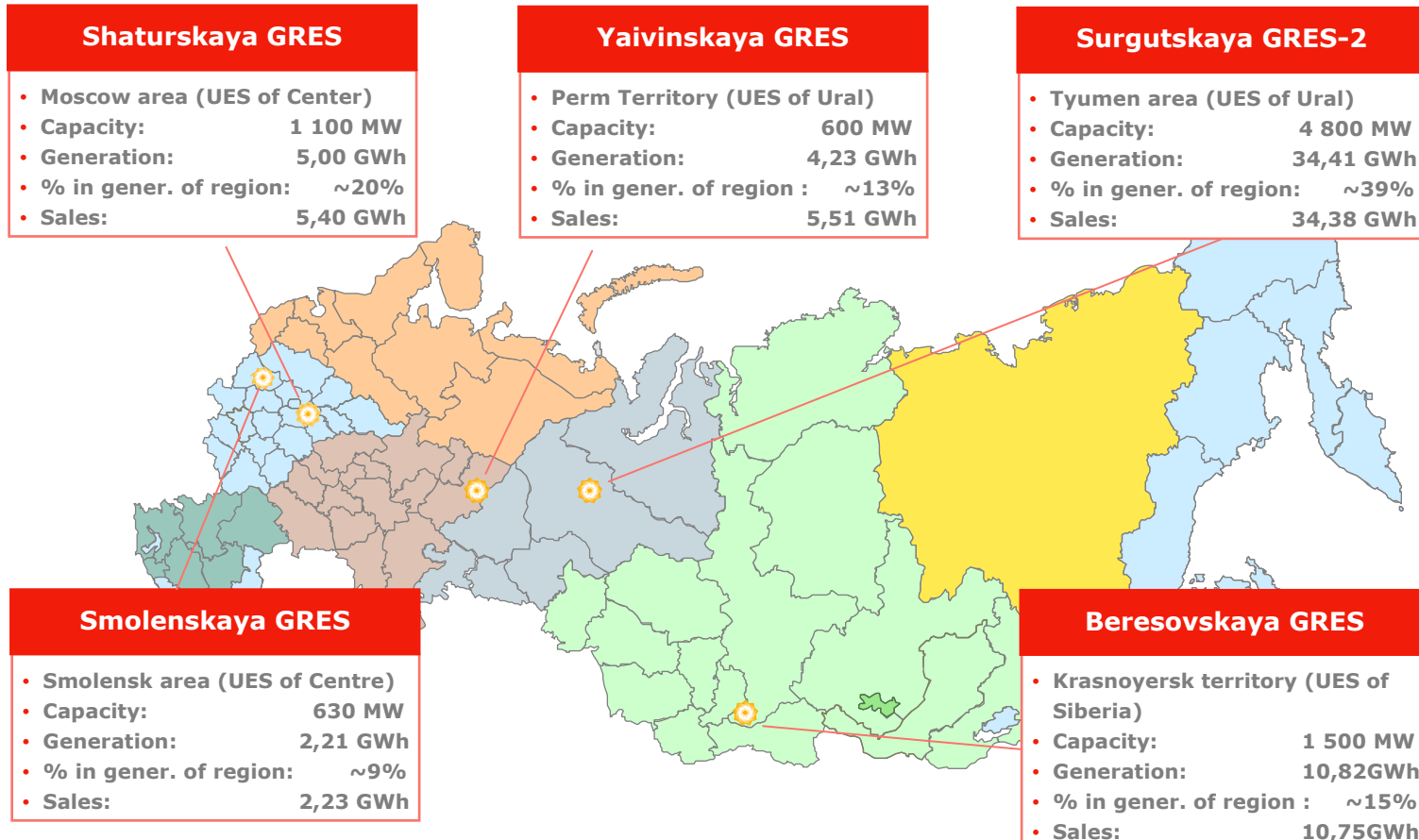
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E.ON Market Unit Russia (OGK-4 JI Projects)

# Overview of OGK-4 current assets

- 3.9% of total energy capacity of Russia
- 5.3% of total energy generation of Russia

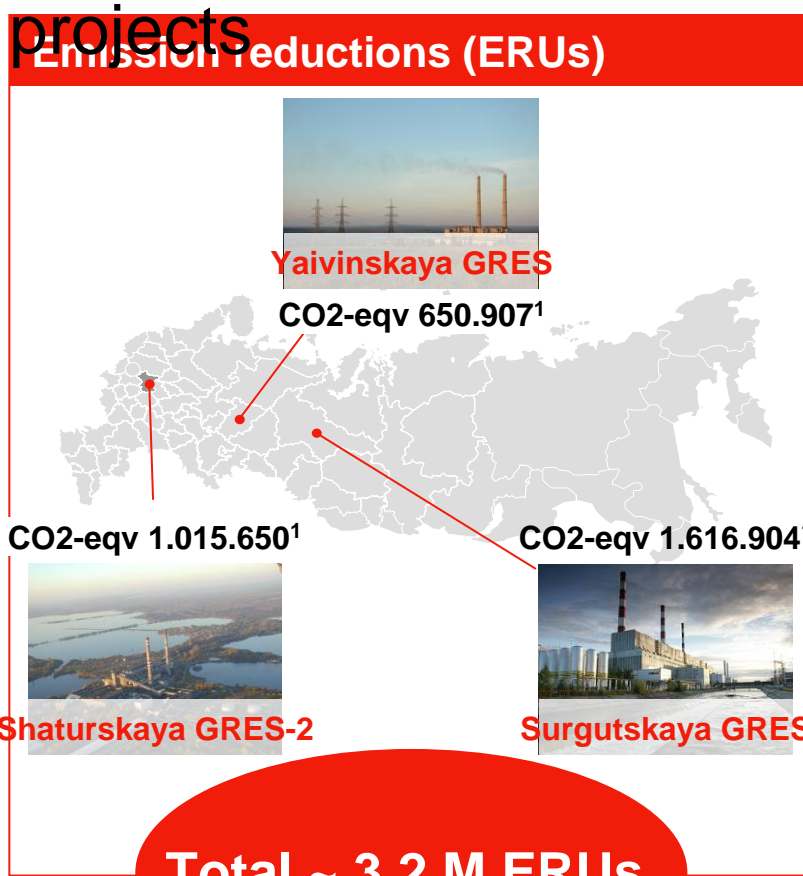


## Overview JI Projects at OGK-4

	<u>Shaturskaya GRES</u>	<u>Surgutskaya GRES-2</u>	<u>Zaivinskaya GRES</u>
<b>Combined-Cycle unit (MW)</b>	400 MW	Two 400 MW each	400 MW
<b>Commissioning (=start generating ERUs)</b>	3 <sup>rd</sup> quarter 2010	2 <sup>nd</sup> quarter 2011	3 <sup>rd</sup> quarter 2011
<b>Estimated total amount of ERUs until 2012</b>	CO2-eqv 1.015.650 <sup>1</sup>	CO2-eqv 1.616.904 <sup>1</sup>	CO2-eqv 650.907 <sup>1</sup>



# CCGT projects at OGK-4 are eligible to be Kyoto projects



## Executive summary

- The installation of modern Combined-Cycle Gas Turbines at OGK-4 assets can be registered as JI-projects. CCGTs are not “business-as-usual” for RF and it is the fact that CCGTs are much more efficient and thus CO2-saving in comparison with Russian baseline scenario
- ERUs can be generated starting from the commissioning date of the project till the end of 2012
- The project type: increasing of the efficiency of energy generation

# Current status of construction

## CCGT-400 Shaturskaya GRES



Preparation for start-up and commissioning works

## 2xCCGT-400 Surgutskaya GRES-2



Delivery of the equipment to the construction site; Installation works

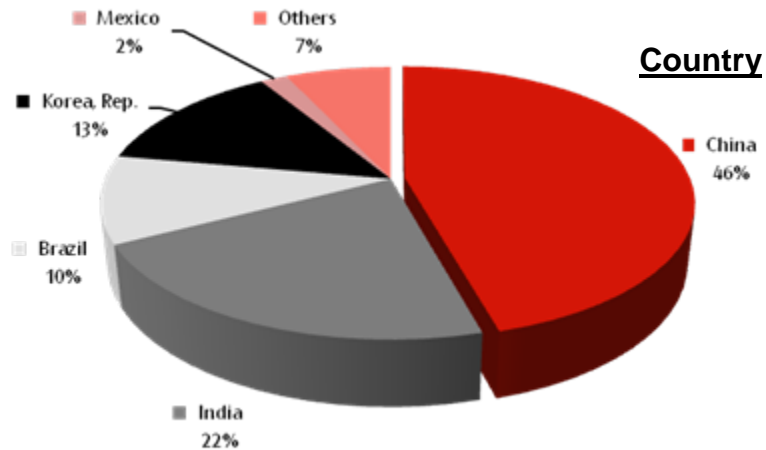
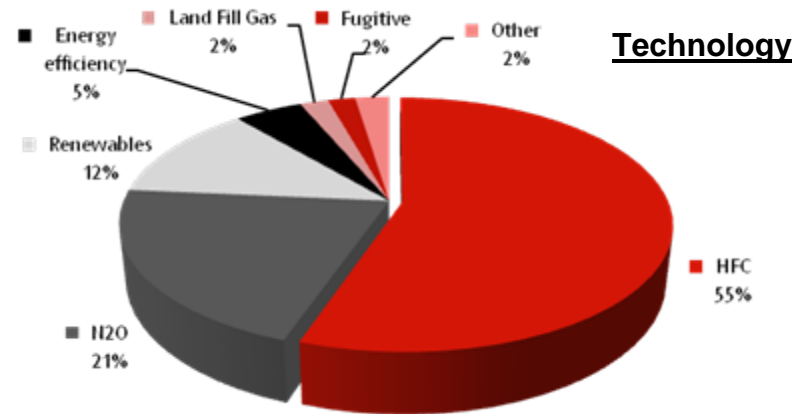
## CCGT-400 Yaivinskaya GRES



Foundation works completed; Start of installation of metal structures framework

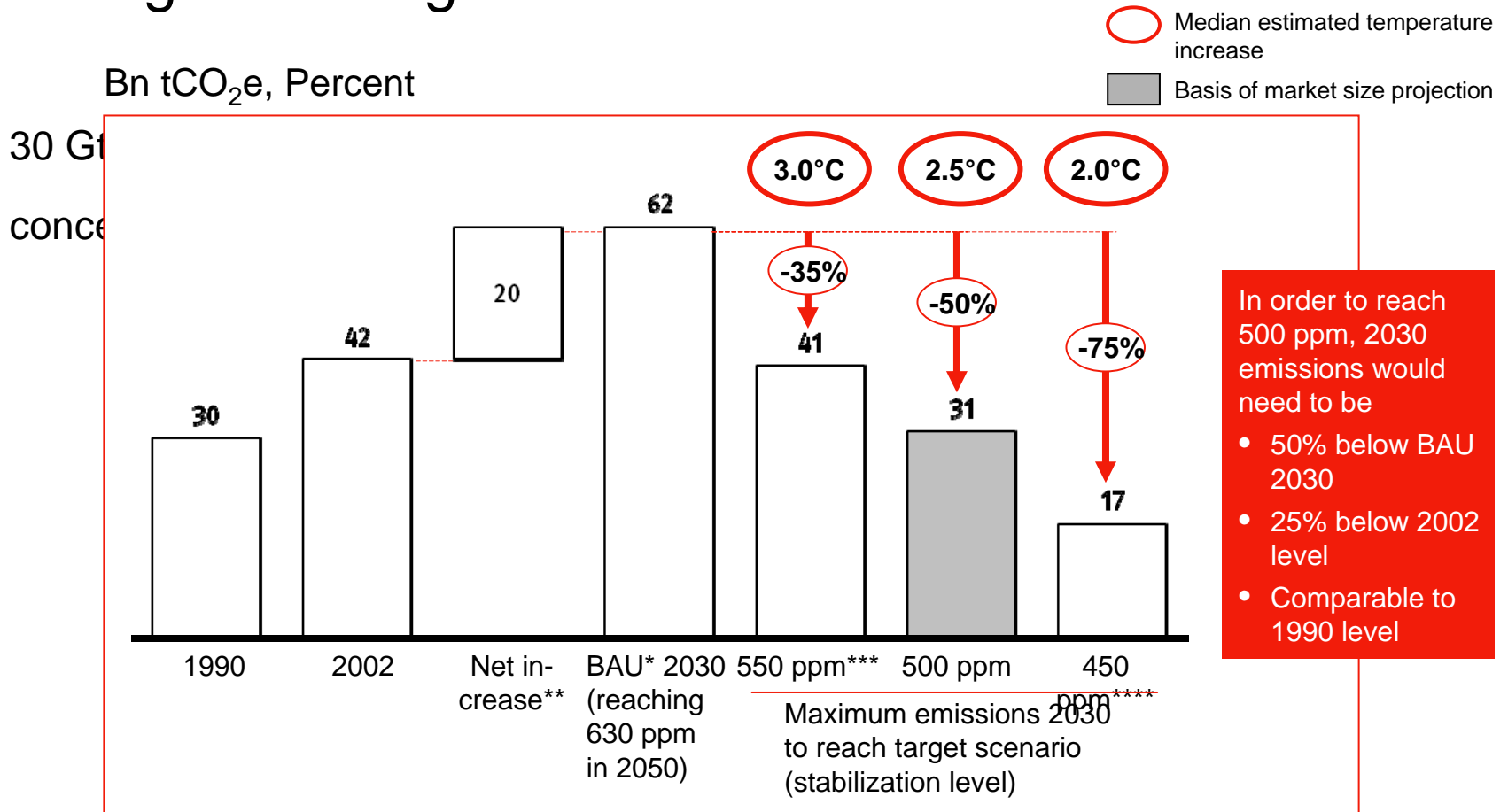
# Backup

# Issued CERs/ERUs by technology and country



Technology	Number of projects that issued
Renewables	337
Energy Efficiency	73
Land Fill Gas	39
HFC	17
N2O	14
Fugitive	7
Other	72
<b>Total</b>	<b>559</b>

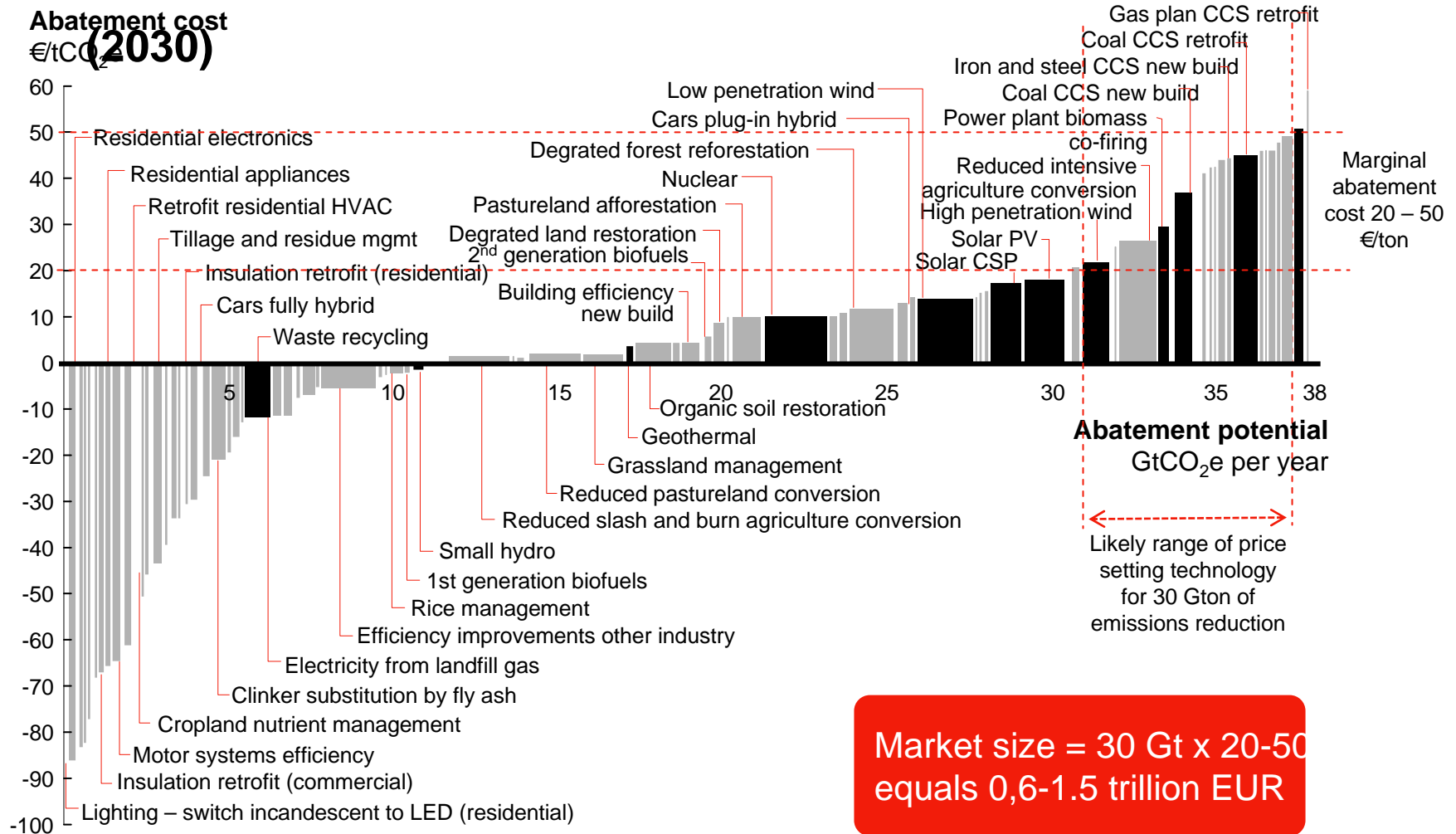
# Core beliefs – Scientific consensus on climate change challenge



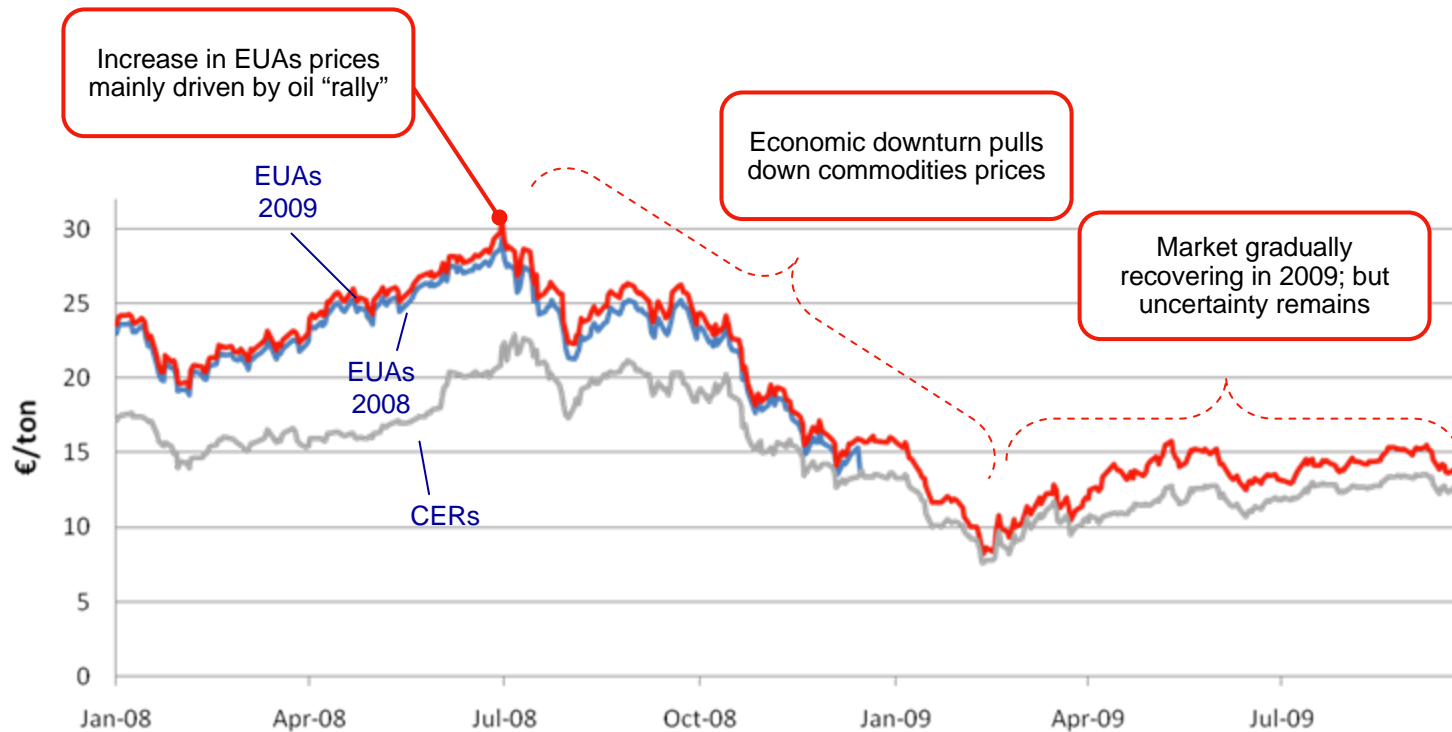
\* Business as usual      \*\*\* E.ON scenario "Climate concerns"

\*\* After BAU-decarbonization      \*\*\*\* E.ON scenario "Green World"

# Global GHG abatement cost curve beyond business as usual



# Price exposure is subject to high volatility



- CERs traded at discount vs. EUAs (very likely to be the same in the future)
- Bankability options prevent price collapse despite economic downturn and revised emissions forecast
- More opportunities and rewarding options available upstream (primary contracts and project development)