

2nd Annual

Emissions Reduction Forum

Establishing Effective CO₂, NO_x, SO_x Mitigation Strategies for the Power Industry

NH Parque
Avenidas Hotel
Biarritz, 2 - 28028
Madrid, Spain

29th–30th
September 2008

Satisfy the **constantly escalating**
demand for **energy** and
successfully reduce
your **carbon**
footprint

This **marcus evans** forum offers an in-depth examination of the latest techniques, most advanced technologies and proven strategies to tackle the challenges involved in carbon capture and storage, NO_x and SO_x reduction. It will also centre on the legal issues surrounding the Large Combustion Plant Directive, Emissions Trading Scheme and European Climate Package

 **marcusevans**

Attending this premier **marcus evans** conference will enable you to:

- **Be updated** on the latest developments in the sphere of law and legislation for emissions, CCS and CO₂ storage
- **Find out** about the stage of development of the CCS projects competition and associated technologies
- **Learn** about the most recent CO₂ on/offshore transportation technologies
- **Gather** insightful information into the international energy generation market

Benefit from best class case studies experience:

- **Vattenfall AB** analysing the effectiveness of OXY fuels in their quest for zero emission energy production
- **StatoilHydro** scrutinising carbon storage risks and opportunities from Sleipner, Snøhvit and In Salah
- **RWE npower** eliminating the operational challenges connected with NO_x control
- **Siemens** presenting their latest technologies for the reduction of NO_x, SO_x, Dust, CO₂ in coal powered plants

In the Chair:

Michael Whitehouse
Commercial Project Coordinator
RWE npower

Your Expert Speaker Panel:

Marianne Wenning
Head of Industrial Emissions
and Protection of the Ozone Layer
European Commission

Kristin Stiegler Øye
Senior Researcher
Research Centre Trondheim,
Environment and New Energy
StatoilHydro

Michael Whitehouse
Commercial Project Coordinator
RWE npower

Dr. Helmar Rendez
SVP Group Function Strategies
Vattenfall AB

Per Arne Nilsson
VP Business Development of CO₂
IM Skaugen SE

Francisco García Peña
Deputy Director of R&D
Elcogas SA

Michael A. Sandell

Vice President of Technology
Siemens Environmental Systems & Services

John Chamberlain

Manager for New Technologies in R&D
Unión Fenosa

Aleš Laciok

CCS R&D Programme Coordinator
ČEZ AS

Prof. Mats Westermark

Senior Researcher
Royal Institute of Technology KTH

Dr. Michela Vellico

Environmental Engineer
OGS

Ton Wildenberg

CO₂ReMoVe Project Coordinator
TNO

Prof. Peter Lohmander

Swedish University of Agricultural Sciences
Department of Forest Economics

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Day 1

29th September 2008

08:30 Registration and Coffee

09:00 Opening Address from the Chair

Michael Whitehouse
Commercial Project Coordinator
RWE npower

REACHING ZERO EMISSIONS: THE LEGAL FRAMEWORK

09:10 **Special Address: European Commission**

Current and Future Legislation Concerning LCPs

- The EU's policy framework for reducing industrial emissions
- Current LCP Directive
- Revised proposal for a Directive on Industrial Emissions

Question and Answer Session

09:40 **EU Climate and Energy Package**

- General overview
- Revision of the European Emissions' Trading Scheme
- Carbon capture and storage

Marianne Wenning
Head of Industrial Emissions
and Protection of the Ozone Layer
European Commission

THE EVOLUTION OF EMISSIONS MITIGATION TECHNOLOGIES

10:10 **Advanced Technologies for the Reduction of NO_x, SO_x, Dust, CO₂ in Clean Coal Power Plants within Europe/US**

- Technologies to increase efficiencies
- State of the art emission reduction technologies
- Carbon capture technologies, capture ready/retrofit solutions and their integration into the steam power plants

Michael A. Sandell
Vice President of Technology
Siemens Environmental Systems & Services

11:00 Morning Coffee

11:30 **Case Study**

First Pilot Plant for CO₂ Capture and H₂ Production Integrated in IGCC

- Supporting flagship programme: the 14 MW pilot pre-combustion plant targets for 2009
- Discussion of pre-combustion capture integrated in IGCC facility
- Other IGCC advantages: biomass, wastes, XtL activities

Francisco Garcia Peña
Deputy Director of R&D
Elcogas SA

STRATEGIES FOR CO₂ STORAGE: POSSIBILITIES AND CHALLENGES

12:10 **Case Study**

CO₂ Storage: Lesson Learnt and the Way Forward

- The status of Sleipner, Snøhvit and In Salah
- Monitoring techniques and results
- Risk assessment
- Well integrity
- CO₂ storage: technical demonstration and associated R&D

Kristin Stiegler Øye
Senior Researcher
Research Centre Trondheim, Environment and New Energy
StatoilHydro

Booking Line

James Pretty

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12:50 Luncheon

13:50 Coffee and Networking

14:20 **Case Study**

CO₂ Shipping as Logistics Enabler

- The state of readiness for marine CO₂ transportation
- Focus on load capacity and flexibility of long distance transportation
- The importance of variables in cost estimates for CO₂ shipping

Per Arne Nilsson
VP Business Development of CO₂
IM Skaugen SE

15:00 Afternoon Tea

CLEAN ENERGY PRODUCTION: CAPTURE AND FINANCING

15:30 **Case Study**

CCS Demonstration Unit: the Czech Group Experience

- Hedging against a carbon constrained future
- Demo post-combustion capture unit and options for geological storage of CO₂ in the Czech Republic
- Financing the demonstration unit

Aleš Laciok
CCS R&D Programme Coordinator
ČEZ AS

16:10 **Panel Discussion**

Establishing Inter-Governmental Cooperation as a Strategy for Quick Progression Towards a Zero Emission Power Generation

- Assessing the need for governments to work together towards CO₂, NO_x, SO_x emissions reduction goals
- Sharing achievements in emissions mitigation technologies to maximise the overall advancement

The panel will be joined by key speakers of the day

16:50 Chairperson's Closing Remarks & End of Day One

30th September 2008

08:30 Registration and Coffee

09:00 Opening Address from the Chair

Michael Whitehouse
Commercial Project Coordinator
RWE npower

CARBON STORAGE: LEGISLATION AND SAFETY09:10 **EU Legislation for the Geological Storage of CO₂**

- The necessity of legislation regulating the long term safety issues of CO₂ storage
- The latest updates on the EC Directives
- Analysing the latest results of the CO₂ ReMoVe project

Ton Wildenberg
CO₂ReMoVe Project Coordinator
TNO

09:50 **Remote Sensing Applied to CO₂ Monitoring**

- Remote sensing technology: revealing the results of Italian research into the Latera caldera volcanic area
- Environmental and safety risks involving storage of CO₂
- Interpreting lidar, hyperspectral and orthophotos datasets

Dr. Michela Vellico
Environmental Engineer
OGS

10:30 Morning Coffee

CURRENT DEVELOPMENTS AND OPPORTUNITIES11:00 **Case Study****CO₂ Emissions – As a Part of the Problem, We Must Also Be a Part of the Solution**

- Commissioning the first zero emission power plant
- Aiming for 100% reduction of CO₂ emissions from coal-fired power plant
- The effectiveness of OXY fuel combustion and the bright future of the technology

Dr. Helmar Rendez
SVP Group Function Strategies
Vattenfall AB

11:40 **Case Study****An Operator's Perspective on the Challenges of Meeting NO_x Emissions Targets**

- Results of an EC Project on implementation of the LCPD
- Best practices for operation of plant with NO_x reduction equipment
- Methods for screening fuels to avoid operational problems

Michael Whitehouse
Commercial Project Coordinator
RWE npower

12:20 **Case Study****Unión Fenosa and the Current Developments in CCS: the Spanish Perspective**

- Improving efficiency in thermal power plants: reducing emissions of SO_x, NO_x and particles
- R&D for CCS: recent activities and future plans

John Chamberlain
Manager for New Technologies in R&D
Unión Fenosa

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13:00 Luncheon

14:00 Coffee and Networking

**CLEANER ENERGY GENERATION:
ALTERNATIVE APPROACHES TO CCS**14:30 **A Critical Evaluation of the CCS Concept**

- Why has CCS become so popular?
- Strengths, weaknesses, opportunities and threats for CCS
- The CCS experts' private opinions as expressed in interviews
- What other realistic alternatives are there?

Prof. Mats Westermark
Senior Researcher
Royal Institute of Technology KTH

15:10 Afternoon Tea

15:40 **Tools for Optimal Coordination of CCS**

- Planning of the future of the CCS strategy
- Alternative approaches to the problem of optimal coordination
- Description and analysis of the continuous time control model: resource extraction, CO₂ storage revenues and the time dependent parameters

Prof. Peter Lohmander
Swedish University of Agricultural Sciences
Department of Forest Economics

16:20 **Panel Discussion****Meeting the 3x20% Goals of EU Directives**

- Clean energy generation: discussing the necessity of implementing alternative sources of energy production in the struggle for low carbon economy
- Analysing the possibilities of reducing the European dependence on fossil fuels while meeting the growing energy demand and retaining high efficiency of energy economy

The panel will be joined by key speakers of the day

17:00 Closing Comments from the Chair and the End of Conference

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Carlyle De Coteau, e-mail: carlylec@marcusevansnl.com

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