## Tuesday, 18<sup>th</sup> June

## **PROGRAM 2019**

08:30						
08:40	Welcome Chaired By Nils A Røkke	rae Freiberg Minister of notroleuro	and Factors Names			Venue F1
08:40		rge Freiberg, Minister of petroleum Oxford University. Chaired By Nils A				F1
09:20	Keynote 2: tbd. Chaired By Nils A F					F1
09:40		Manager, IEAGHG. Chaired By Nils	A Røkke			F1
10:00	Coffee break					
10:30	,	assnova, Norway. Chaired by Dr. Mo				F1
10:50 11:10	, , , , , , , , , , , , , , , , , , , ,	Norway. Chaired by Dr. Marie Bysve dent, Head of CCUS, Aker Solutions				F1
11:30	,	arch Director, SINTEF Energy Resea		Bysveen		F1
11:50	Lunch			,		Hangarer
13:00	A1. Absorption pilot operations and new constructions Chaired by Prof. Philip Fosbøl (Venue F1)	B1. Membranes Chaired by Prof. Liyuan Deng (Venue EL2)	C1: CCS whole system issues Chaired by Ms. Praveen Bains (Venue EL3)	D1: International R&D activities Chaired by Daniel Benrath (Venue EL5)	E1: Geomechanics and induced seismicity Chaired by Dr. Elin Skurtveit (Venue EL6)	
13:00	A very compact CO2 absorption-desorption plant Presented by Prof Dag Eimer	Advanced membraned and membrane assisted processes-for pre- and post combustion CO2 capture Presented by Dr Jose Luis Viviente	CCS: Mature technology and known costs – implement in large-scale now Presented by Dr Torleif Holt, Dr Erik Lindeberg	CCUS: HeidelbergCement's innovative approaches Presented by Mr Jan Theulen	Effect of CO2 injection- induced stress rotation in overburden on the fault stability and induced seismi- city: Numerical investigation Presented by Dr Jung Chan Choi	
13:20	Application of sequential design of experiments (SDoE) to a pilot-scale MEA-based CO2 capture process Presented by Dr Joshua Morgan	Physically cross-linked amino acid-based PVA/CNC membranes for enhanced CO2 separation Presented by Ms Jing Deng	Toward improved guidelines for cost evaluation of CO2 capture technologies Presented by Mr Simon Roussanaly	BASRECCS - a network of CCUS expertise in the Baltic Sea Region Presented by Ms Ingvild Ombudstvedt	Shear enhanced decompaction weakening and its effects on formation of seismic chimney Presented by Dr Lawrence Hongliang Wang	
13.40	Intensified post combustion, solvent based carbon capture in a rotating packed bed absorber and rotating regenerator and reboiler Presented by Dr Jonathan Lee	Advanced membrane technologies for CO2 capture and utilization Presented by Mr Howard Meyer	Electrification of heat: Prospects and challenges for the UK Presented by Ms Pooya Hoseinpoori	CHEERS project: Development of a multi modal megawatt scale Chemical Looping Combustion (CLC) demonstration unit for CCUS Presented by Dr Florent Guillou	CO2 leakage potential as a result of induced seismicity Presented by Dr Victor Vilarrasa	
14:00	A2. Absorption pilots and demonstration Chaired by Mr. Thomas de Cazenove (Venue F1)	B2. Calcium looping Chaired by Prof. Matteo Carmelo Romano (Venue EL2)	C2: CCS whole system issues Chaired by Mrs. Isabelle Czernichowski (Venue EL3)	D2: Hydrogen production and use Chaired by Mr. Mijndert van der Spek (Venue EL5)	E2: Well integrity Chaired by Dr. Ying Guo (Venue EL6)	
14:00	Boundary Dam 3 - Review and Update Presented by Mr Michael Monea	Post-combustion CO2 capture using Carbonate Looping and Catalytic Combustion	BECCS as part of a future CO2 neutral energy system - A case study from Aalborg, Denmark	Accelerated decarbonization of Europe's energy system – how case studies are applied	Near well-bore sealing in the Bečej CO2 reservoir: Field tests of a silicate based	
		Presented by Prof kumar Rout	Presented by Dr Stefania Osk Gardarsdottir	in the ELEGANCY project to secure adaption of improved technologies, knowledge and tools to national and regional business case opportunities for hydrogen - CCS chains Presented by Dr Gunhild Reigstad	sealant. Presented by Dr Bernd Wiese	
14:20	2nd Generation CCS – Feasbility of Implementing CCS on SaskPower's Shand Power Station Presented by Mr Corwyn Bruce	CO2 capture from waste to energy plants: Techno- economic assessment of novel integration concepts of calcium looping technology Presented by Mr Martin Haaf	The Role of CCS in the UK: A Spatial Analysis Presented by Ms Praveen Bains	Public Acceptance of H2/CCS chains in Germany Presented by Ms Sabrina Glanz	Pore-scale investigation of caprock-cement integrity for CO2 storage Presented by Dr Amir Jahanbakhsh	
14:40	Practical Techniques for Opera- ting Carbon Capture Systems: Lessons Learned from Opera- ting the TCM Amine Plant Presented by Dr Leila Faramarzi	The Influence of SO2 & H2O at Concentrations Relevant for Heavy Fuel Oil-Fired Power Plants on CO2 & SO2 Capture by Calcium Looping Presented by Ms Sally Homsy	Northern Lights - "open source" access to transport and storage service Presented by Dr Knut Bakke	A systematic assessment of low-carbon hydrogen and CCS options for the decarbonisation of heat Presented by Mr Nixon Sunny	Open-hole outflow for CO2 injection wells Presented by Dr Filip Neele	
15:00	Reducing CO2 Capture Cost by 30% Using Advanced KM CDR Process Presented by Mr. Takashi Kamijo	Integration of a flexible calcium looping CO2 capture system in a back-up power plant Presented by Prof Carlos	The robust value of carbon capture and sequestration in a deeply decarbonised electricity system Presented by Mr Yoga Pratama	Decarbonization of petrochemical industrial sites: evaluation of technology combinations for reaching 50% and 95% CO2 emission	Dynamic simulation of CO2 injection wells taking the near-well reservoir into account Presented by Dr Svend Tollak	
		Abanades		<b>reduction.</b> Presented by Dr Rajat Bhardwaj	Munkejord	
15:20 16:00	Poster session with coffee (Venue A3. Absorption solvents Chaired by Helena Svensson (Venue F1)	B3. CO2 utilization with permanent storage and industrial applications	C3: CCS whole system issues Chaired by Mrs. Isabelle Czernichowski	D3: Hydrogen CCS chain Chaired by Dr. Svend Tollak Munkejord (Venue EL5)	E3: Geophysical monitoring methods Chaired by Dr. Peter Frykman	
		Chaired by Dr. Richard Blom (Venue EL2)	(Venue EL3)	(veriue EL3)	(Venue EL6)	
16:00	Post-combustion CO2 capture via chemical absorption with amino acid salts solutions Presented by Mr Antonio Conversano	DMX Demonstration in Dunkirk: 3D project granted by H2020: scope and objectives Presented by Dr Maxime Lacroix	Experience from Tomakomai CCS demonstration project Presented by Mr Yoshihiro Sawada	Delivering negative emissions from biomass derived hydrogen and CCS Presented by Dr Di Zhang, Dr Mai Bui	Utilizing compressive sensing techniques to reduce geophysical monitoring costs at CO2 injection site Presented by Dr Jim White	
16:20	On the mass transfer of CO2 in enzyme enhanced solvents - Comparison with conventional solvent systems Presented by Philip Fosbøl	Characterizing multiphase flow in heterogenous carbonates Presented by Dr Sojwal Manoorkar	Road transport decarboni- zation via reforming based hydrogen coupled with CCS – a Life Cycle Assessment Presented by Mr Christian Bauer	Values and limitations of hydrogen in decarbonising heat in the UK Presented by Ms Pooya Hoseinpoori	Joint inversion of synthetic monitoring data for a realistic model from CaMI Field Research Station (FRS), Canada Presented by Dr Michael Jordan	
16:40	Precipitating absorption systems using 2-amino-2- methyl-1-propanol Presented by Ms Hanna Karlsson	The CCUS knowledge sharing network - supporting implementation of CCUS in Europe Presented by Dr Kristin Jordal	Capacity investments in a CCS value chain with operational uncertainty Presented by Mr Vegard Skonseng Bjerketvedt	Hydrogen production using membrane-assisted auto- thermal reforming integrated with chemical looping air separation Presented by Dr Mohammed Nazeer Khan	Feasibility of marine CSEM for CO2 storage monitoring: North Sea model building and resistivity time evolution imaging Presented by Dr Joonsang Park	
		Electrocatalytic reducation	Planning CO2 transport and	Hydrogen production with integrated CO2 capture	Combining monitoring data and flow simulations	
17:00	Piperazine and methyldiet- hanolamine interrelationships in CO2 absorption bu aqueous amine mixtures Presented by Prof Renzo Di Felice Concert in Nidarosdomen Cathed	of CO2 into fuels and value chemicals using metal porphyrins and nanoparticles Presented by Dr Mikko Salomäki	storage infrastructure in the Netherlands offshore Presented by Dr Ton Wildenborg	Presented by Dr Markus Lesemann	for improved CO2 storage security Presented by Dr Francesca Watson	

## Wednesday, 19<sup>th</sup> June

## PROGRAM 2019

09:00								
	•		on, UK. Chaired by Professor Johan		- NITNII N	bu Durkana I I I I I I I	F1 F1	
	Keynote 9: Andrea Gruber, Research Scientist, SINTEF Energy Research, Norway and Dr. James Dawson, Professor, NTNU, Norway. Chaired by Professor Johan Hustad  Keynote 9: Katherine D Romanak, Research Scientist, University of Texas at Austin, USA. Chaired by Professor Johan Hustad							
_		ner's lecture (to be announced). Ch		25501 001	iuii nustuu		F1 F1	
	Coffee break	ier s recture (to be armounted). en	alica by Froiessor contain nastaa					
0:20	A4: Materials development - Techno-economics Chaired by Dr. Jana Jakobsen (Venue F1)	<b>B4: Membranes</b> Chaired by Dr. Juliana Monteiro (Venue EL2)	C4: CO2 utilization with permanent storage and industiral applications Chaired by Dr. Pierre Cerasi (Venue EL3)	<b>D4:</b> Chaired by		<b>E4: Storage site characterization</b> Chaired by Dr. Filip Neele		
1	CO2 capture opportunities in the Norwegian silicon industry Presented by Dr Anette Mathisen	A combined computational and experimental approach to ultra-high permeability mixed matrix membranes for post-combustion CO2 capture Presented by Dr David Hopkinson	CO2 sources, transportation and storage possibilities in serbian oil and gas fields Presented by Mr Slavko Nesic, Mr Dusan Karas	10:20	An overview of risk perceptions and social acceptance of CCS: a missing piece of the puzzle Presented by Dr Farid Karimi, Ms Ingvild Ombudstvedt	In situ quantification of capillary pressure during spontaneous imbibition in carbon storage reservoirs Presented by Dr Christopher Zahasky		
	IEAGHG-IEA technical study: Homogenized cost review of CO2 capture in the cement and iron and steel industries Presented by Dr Mónica García	Potimization of post- combustion carbon dioxide capture by use of a facilitated carrier membrane Presented by Mrs Natsayi Chiwaye	Modelling bio-electrochemical CO2 reduction to methane Presented by Mr Anirudh Bhanu Teja Nelabhotla	10:30	Millennials and CCS: persuasive messaging for CCS engagement Presented by Ms Torund Bryhn	Perspectives of offshore CCS from the northern Gulf of Mexico, USA Presented by Dr Tip Meckel		
	Techno-economic study of the CCMS technology for CO2 capture from ferro-silicon production Presented by Dr Heidi Nygård	The challenges of using the resistance in series model when modelling membrane contactor using viscous solvents for CO2 capture Presented by Dr Luca Ansaloni	Techno-economic evaluation of technologies for CO2 capture in the cement industry Presented by Dr Stefania Osk Gardarsdottir	10:40	Is public debate around carbon capture and storage changing? Exploring statements and visual frames used in Dutch newspapers Presented by Dr Emma ter Mors	The SRMS: Solving the volumetric vs dynamic CO2 storage capacity dilemma Presented by Dr Sylvain Thibeau		
	Scenario for near-term implementation of partial capture from blast furnace gases in Swedish steel industry Presented by Mr Maximilian Biermann	Green bio-based membranes for CO2 separation with tuneable separation properties Presented by Mr Saravanan Janakiram	Mineral carbonation processes for recycled concrete aggregate Presented by Mr Johannes Tiefenthaler	Panel discussion		Svelvik CO2 Field Lab: A small-scale laboratory for development of equipment and CO2 monitoring techniques Presented by Dr Cathrine Ringstad		
_	Lunch	25.4.1	ar ann.					
,	A5: Absorption solvent degradation and corrosion Chaired by Dr. Solrun Johanne Vevelstad (Venue F1)	B5: Adsorbents (Venue EL2)	C5: CO2 transport Chaired by Dr. Zhilin Yang (Venue EL3)	D5: Direct air capture Chaired by Dr. Monica Garcia		E5: CO <sub>2</sub> Injectivity and EOR Chaired by Mrs. Katherine Romanak (Venue EL6)		
	De-oxygenation as counter- measure for the reduction of oxidative degradation of CO2 capture solvents Presented by Ms Roberta Figueiredo	Adsorbent screening for novel swing adsorption reactor cluster (SARC) in post combustion CO2 capture Presented by Mr Chaitanya Dhoke	Identifying optimal conditions for transport of CO2 by ship Presented by Mr Simon Roussanaly	Biogas reforming with CCS and DACCS: A life cycle assessment of carbon dioxide removal from the atmosphere Presented by Mrs Karin Treyer		Permeability reduction by salt precipitation during CO2-injection Presented by Dr Aruoture Omekeh		
1	Degradation Potential of Aqueous and Water-Lean MEA Presented by Ms Karen Karolina Høisæter	Evaluation of MOFs for post-combustion CO2 capture Presented by Dr David Danaci	Implementation of a Gibbs energy explicit seawater equation in helmholtz mixture models to represent the interaction of brines with CCS-relevant fluids Presented by Mr Benedikt Semrau	The cost of delaying or missing CCS and BECCS deployment ambitions to the benefit of Direct Air Capture Presented by Dr Ozgu Turgut		Mobility control of CO2 during aquifer storage Presented by Dr Albert Barrabino		
!	Investigation of Corrosion- Related Failure of Reboiler at Technology Centre Mongstad Presented by Dr Attila Palencsar	Development of 3D printed amine grafted silica adsor- bents for CO2 capture – adsor- bent preparation, performance and potential applications Presented by Dr Richard Blom	Fracture propagation control in CO2 pipelines: Sensitivity of a coupled FE-CFD model to fluid equation of state Presented by Dr Stéphane Dumoulin	The world's first carbon dioxide removal plant enabled by direct air capture Presented by Dr Daniel Sutter		Understanding reactive flow in porous media for CO2 storage applications Presented by Mrs Shima Ghanaatian		
1	Corrosivity of degraded mea solvent and fresh solvent added organic acids and salts Presented by Dr Kjell-Arne Solli	A Heat Integrated Solid- sorbent Based Fluidized Bed Process for Post-Combustion CO2 Capture Presented by Dr Yong-Ki Park	Combining CO2 streams from different emitters - a challenge for pipeline transportation Presented by Dr Heike Ruetters	Evaluation of a direct air capture process combining wet scrubbing and bipolar membrane electrodialysis Presented by Mr Francesco Sabatino		Fluid distribution in immiscible two-phase fluid displacement for CO2 storage Presented by Ms Rumbidzai Nhunduru		
	Coffee break							
1	A6: Pre-combustion capture absorption, adsorption and membranes (Venue F1)	B6: Calcium and chemical looping Chaired by Dr Jochen Ströhle (Venue EL2)	C6: CO <sub>2</sub> Transport - experiments and modeling Chaired by Dr. Svend Tollak Munkejord (Venue EL3)	D6: CCS future Chaired by Mrs. Ingvild Ombudstvedt (Venue EL5)		E6: CO2 Storage miscellaneous Chaired by Dr. Aage Stangeland		
1	Optimal Process design of MDEA CO2 Capture Plant for Low-Carbon Hydrogen Production Presented by Mrs Cristina Antonini	CLEANKER - Clean clinker by Calcium Looping process for low-CO2 cement production - Overview and current stage Presented by Dr Fantini Martina, Prof Matteo Carmelo Romano	Vessel depressurization of CO2-rich streams - from experiments to simulations Presented by Mr Guillaume Vaillant	A narrative guide to communicating the potential of CCS in decarbonising European industry Presented by Mr Ana Serdoner		Effect of geochemical integrity of binding cement on sandstone permeability at carbon storage conditions Presented by Dr Omid Shahrokhi		
	Mixed gas separation performance and upscaling of PolyPOSSimide membranes for H2 purification Presented by Dr Thijs Peters	Design of integrated NOx and SOx removal in pressurized flue gas systems for carbon capture applications Presented by Dr Fredrik Normann	Alting out effect on the solubility of hydrogen in brines under geological-storage consitions Presented by Dr Geraldine Torin Ollarves	Carbon capture and storage (CCS): The way forward Presented by Dr Mai Bui		Noble gases as monitoring tracers: Sampling campaigns at capture sites echnology Center Mongstad and Melkøya Presented by Mr Ulrich Weber		
1	Development of silica sodalite with enhanced porosity via topotactic synthesis approach for pre-combustion CO2 capture Presented by Ms Christin Eden	Solid fuels operation in a 150 kWth CFB-based Chemical Looping Combustion pilot unit Presented by Mr Øyvind Langørgen	Flow assurance from oil and gas to CO2 transport and injection Presented by Dr zhilin yang	Approaching zero CO2 emissions from future oil and gas production offshore Presented by Dr Gelein De Koeijer		Dimensioning the storage concepts to support the proposed H21 North of England Hydrogen Project Presented by Mr Rune Thorsen		
	Development of nano- structured materials through a	Cold flow experimentation of 1.5 MW Chemical Looping	Network design and flexibility for low-pressure depleted gas	ging CC	of current and emer- D2 capture technologies ed by Dr Mónica García	What's next? Storage resources for future European CCS deployment; a roadmap		
5:20 :	novel multi-scale model- ling framework for energy conversion with CO2 capture Presented by Dr Shareq Mohd Nazir	Combustion unit Presented by Dr Sina Tebianian	reservoirs: hot or cold CO2? Presented by Dr Aris Twerda	Presenu	ea sy si monica carda	for a Horda Storage Hub, offshore Norway Presented by Dr Ane Lothe		