

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

# PROGRAM 2019

Time	Topic	Chair	Venue			
08:30	Welcome by Nils A. Røkke, Conference Chair, SINTEF		F1			
08:40	Conference opening by Mr. Kjell-Børge Freiberg, Minister of Petroleum and Energy, Norway	Chaired by Nils A. Røkke	F1			
09:00	Keynote 1: Myles Allen, Professor, Oxford University					
09:20	Keynote 2: Liv Monica Stubholt, Partner Advokatfirmaet Selmer AS and Chairman of Board Fortum Oslo Varne					
09:40	Keynote 3: Tim Dixon, General Manager, IEAGHG					
10:00	Coffee break					
10:30	Keynote 4: Trude Sundset, CEO, Gassnova, Norway	Chaired by Marie Bysveen	F1			
10:50	Keynote 5: Stephen Bull, Senior Vice President, Equinor ASA, Norway					
11:10	Keynote 6: Oscar Graff, Vice President, Head of CCUS, Aker Solutions					
11:30	Keynote 7: Mona J. Mølnvik, Research Director, SINTEF Energy Research, Norway					
11:50	Lunch		Hangaren			
13:00	<b>A1: Absorption pilot operations and new constructions</b> Chaired by Prof. Philip Fosbøl (Venue F1)	<b>B1: Membranes</b> Chaired by Prof. Liyuan Deng (Venue EL2)	<b>C1: CCS whole system issues</b> Chaired by Ms. Praveen Bains (Venue EL3)	<b>D1: International R&amp;D activities</b> Chaired by Daniel Benrath (Venue EL5)	<b>E1: Geomechanics and induced seismicity</b> Chaired by Dr. Elin Skurtveit (Venue EL6)	
13:00	<b>A very compact CO<sub>2</sub> absorption-desorption plant</b> Presented by Prof Dag Eimer	<b>Advanced membraned and membrane assisted processes for pre- and post combustion CO<sub>2</sub> capture</b> Presented by Dr Jose Luis Viviente	<b>CCS: Mature technology and known costs - implement in large-scale now</b> Presented by Dr Torleif Holt, Dr Erik Lindeberg	<b>CCUS: HeidelbergCement's innovative approaches</b> Presented by Mr Jan Theulen	<b>Effect of CO<sub>2</sub> injection-induced stress rotation in overburden on the fault stability and induced seismicity: Numerical investigation</b> Presented by Dr Jung Chan Choi	
13:20	<b>Application of sequential design of experiments (SDoE) to a pilot-scale MEA-based CO<sub>2</sub> capture process</b> Presented by Dr Joshua Morgan	<b>Physically cross-linked amino acid-based PVA/CNC membranes for enhanced CO<sub>2</sub> separation</b> Presented by Ms Jing Deng	<b>Toward improved guidelines for cost evaluation of CO<sub>2</sub> capture technologies</b> Presented by Mr Simon Roussanly	<b>BASRECCS - a network of CCUS expertise in the Baltic Sea region</b> Presented by Ms Ingvild Ombudstvedt	<b>Shear enhanced decompaction weakening and its effects on formation of seismic chimney</b> Presented by Dr Lawrence Hongliang Wang	
13:40	<b>Intensified post combustion, solvent based carbon capture in a rotating packed bed absorber and rotating regenerator and reboiler</b> Presented by Dr Jonathan Lee	<b>Advanced membrane technologies for CO<sub>2</sub> capture and utilization</b> Presented by Mr Howard Meyer	<b>Electrification of heat: Prospects and challenges for the UK</b> Presented by Ms Pooya Hoseinpoori	<b>CHEERS project: Development of a multi modal megawatt scale chemical looping combustion (CLC) demonstration unit for CCUS</b> Presented by Dr Florent Guillou	<b>CO<sub>2</sub> leakage potential as a result of induced seismicity</b> Presented by Dr Victor Vilarrasa	
14:00	<b>A2. Absorption pilots and demonstration</b> Chaired by Mr. Thomas de Cazenove (Venue F1)	<b>B2. Calcium looping</b> Chaired by Prof. Matteo Carmelo Romano (Venue EL2)	<b>C2: CCS whole system issues</b> Chaired by Mrs. Isabelle Czernichowski (Venue EL3)	<b>D2: Hydrogen production and use</b> Chaired by Mr. Mijndert van der Spek (Venue EL5)	<b>E2: Well integrity</b> Chaired by Dr. Ying Guo (Venue EL6)	
14:00	<b>Boundary Dam 3 - Review and update</b> Presented by Mr Michael Monea	<b>Post-combustion CO<sub>2</sub> capture using carbonate looping and catalytic combustion</b> Presented by Prof kumar Rout	<b>BECCS as part of a future CO<sub>2</sub> neutral energy system - A case study from Aalborg, Denmark</b> Presented by Dr Stefania Osk Gardarsdottir	<b>Delivering negative emissions from biomass derived hydrogen and CCS</b> Presented by Dr Di Zhang, Dr Mai Bui	<b>Near well-bore sealing in the Bečej CO<sub>2</sub> reservoir: Field tests of a silicate based sealant.</b> Presented by Dr Bernd Wiese	
14:20	<b>2nd Generation CCS - Feasibility of implementing CCS on SaskPower's Shand Power Station</b> Presented by Mr Corwyn Bruce	<b>CO<sub>2</sub> capture from waste to energy plants: Techno-economic assessment of novel integration concepts of calcium looping technology</b> Presented by Mr Martin Haaf	<b>The Role of CCS in the UK: A spatial analysis</b> Presented by Ms Praveen Bains	<b>Values and limitations of hydrogen in decarbonising heat in the UK</b> Presented by Ms Pooya Hoseinpoori	<b>Pore-scale investigation of caprock-cement integrity for CO<sub>2</sub> storage</b> Presented by Dr Amir Jahanbakhsh	
14:40	<b>Practical techniques for operating carbon capture systems: lessons learned from operating the TCM amine plant</b> Presented by Dr Leila Faramarzi	<b>The influence of SO<sub>2</sub> &amp; H<sub>2</sub>O at concentrations relevant for heavy fuel oil-fired power plants on CO<sub>2</sub> &amp; SO<sub>2</sub> capture by calcium looping</b> Presented by Ms Sally Homsy	<b>Northern Lights - "open source" access to transport and storage service</b> Presented by Dr Knut Bakke	<b>Hydrogen production using membrane-assisted auto-thermal reforming integrated with chemical looping air separation</b> Presented by Dr Mohammed Nazeer Khan	<b>Open-hole outflow for CO<sub>2</sub> injection wells</b> Presented by Dr Filip Neele	
15:00	<b>Reducing CO<sub>2</sub> capture cost by 30% using advanced KM CDR process</b> Presented by Mr. Takashi Kamijo	<b>Integration of a flexible calcium looping CO<sub>2</sub> capture system in a back-up power plant</b> Presented by Prof Carlos Abanades	<b>The robust value of carbon capture and sequestration in a deeply decarbonised electricity system</b> Presented by Mr Yoga Pratama	<b>Hydrogen production with integrated CO<sub>2</sub> capture</b> Presented by Dr Markus Lesemann	<b>Dynamic simulation of CO<sub>2</sub> injection wells taking the near-well reservoir into account</b> Presented by Dr Svend Tollak Munkejord	
15:20	Poster session with coffee (Venue Registration area)					
16:00	<b>A3. Absorption solvents</b> Chaired by Helena Svensson (Venue F1)	<b>B3. CO<sub>2</sub> utilization with permanent storage and industrial applications</b> Chaired by Dr. Richard Blom (Venue EL2)	<b>C3: CCS whole system issues</b> Chaired by Mrs. Isabelle Czernichowski (Venue EL3)	<b>D3: Hydrogen CCS chain</b> Chaired by Dr. Svend Tollak Munkejord (Venue EL5)	<b>E3: Geophysical monitoring methods</b> Chaired by Dr. Peter Frykman (Venue EL6)	
16:00	<b>Post-combustion CO<sub>2</sub> capture via chemical absorption with amino acid salts solutions</b> Presented by Mr Antonio Conversano	<b>DMX Demonstration in Dunkirk: 3D project granted by H2020: scope and objectives</b> Presented by Dr Maxime Lacroix	<b>Experience from Tomakomai CCS demonstration project</b> Presented by Mr Yoshihiro Sawada	<b>Accelerated decarbonization of Europe's energy system - how case studies are applied in the ELEGANCY project to secure adaption of improved technologies, knowledge and tools to national and regional business case opportunities for hydrogen - CCS chains</b> Presented by Dr Gunhild Reigstad	<b>Utilizing compressive sensing techniques to reduce geophysical monitoring costs at CO<sub>2</sub> injection site</b> Presented by Dr Jim White	
16:20	<b>On the mass transfer of CO<sub>2</sub> in enzyme enhanced solvents - Comparison with conventional solvent systems</b> Presented by Philip Fosbøl	<b>Characterizing multiphase flow in heterogeneous carbonates</b> Presented by Dr Sajwal Manoorkar	<b>Road transport decarbonization via reforming based hydrogen coupled with CCS - a Life Cycle Assessment</b> Presented by Mr Christian Bauer	<b>Public acceptance of H2/CCS chains in Germany</b> Presented by Ms Sabrina Glanz	<b>Joint inversion of synthetic monitoring data for a realistic model from CaMI Field Research Station (FRS), Canada</b> Presented by Dr Michael Jordan	
16:40	<b>Precipitating absorption systems using 2-amino-2-methyl-1-propanol</b> Presented by Ms Hanna Karlsson	<b>The CCUS knowledge sharing network - supporting implementation of CCUS in Europe</b> Presented by Dr Kristin Jordal	<b>Capacity investments in a CCS value chain with operational uncertainty</b> Presented by Mr Vegard Skonseng Bjerketvedt	<b>A systematic assessment of low-carbon hydrogen and CCS options for the decarbonisation of heat</b> Presented by Mr Nixon Sunny	<b>Feasibility of marine CSEM for CO<sub>2</sub> storage monitoring: North Sea model building and resistivity time evolution imaging</b> Presented by Dr Joonsang Park	
17:00	<b>Piperazine and methylol-diethanolamine interrelationships in CO<sub>2</sub> absorption by aqueous amine mixtures</b> Presented by Prof Renzo Di Felice	<b>Electrocatalytic reduction of CO<sub>2</sub> into fuels and value chemicals using metal porphyrins and nanoparticles</b> Presented by Dr Mikko Salomäki	<b>Planning CO<sub>2</sub> transport and storage infrastructure in the Netherlands offshore</b> Presented by Dr Ton Wildenborg	<b>Decarbonization of petrochemical industrial sites: evaluation of technology combinations for reaching 50% and 95% CO<sub>2</sub> emission reduction.</b> Presented by Dr Rajat Bhardwaj	<b>Combining monitoring data and flow simulations for improved CO<sub>2</sub> storage security</b> Presented by Dr Francesca Watson	
18:30	Concert in Nidarosdomen Cathedral					
19:30	Dinner at the Hotel Scandic Nidelven					

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

# PROGRAM 2019

Time	Topic	Chair	Venue			
08:30	Opening address. Johan E. Hustad, Director, NTNU Energy		F1			
08:40	Keynote 8: Niall Mac Dowell, Reader in energy systems, Imperial College London, UK	Chaired by Johan Hustad	F1			
09:00	Keynote 9: Andrea Gruber, Senior Research Scientist, SINTEF Energy Research, Norway and James Dawson, Professor, NTNU, Norway					
09:20	Keynote 10: Katherine D Romanak, Research Scientist, University of Texas at Austin, USA					
09:40	SINTEF and NTNU CCS Award winner's lecture (to be announced)					
10:00	Coffee break					
10:20	<b>A4: Materials development - Techno-economics</b> Chaired by Dr. Jana Jakobsen (Venue F1)	<b>B4: Membranes</b> Chaired by Dr. Juliana Monteiro (Venue EL2)	<b>C4: CO<sub>2</sub> utilization with permanent storage and industrial applications</b> Chaired by Dr. Pierre Cerasi (Venue EL3)	<b>D4:</b> Chaired by Dr Mai Bui (Venue EL5)	<b>E4: Storage site characterization</b> Chaired by Dr. Filip Neele (Venue EL6)	
10:20	<b>CO<sub>2</sub> capture opportunities in the Norwegian silicon industry</b> Presented by Dr Anette Mathisen	<b>A combined computational and experimental approach to ultra-high permeability mixed matrix membranes for post-combustion CO<sub>2</sub> capture</b> Presented by Dr David Hopkinson	<b>CO<sub>2</sub> sources, transportation and storage possibilities in Serbian oil and gas fields</b> Presented by Mr Slavko Nesic, Mr Dusan Karas	<b>An overview of risk perceptions and social acceptance of CCS: a missing piece of the puzzle</b> Presented by Dr Farid Karimi, Ms Ingvild Ombudstvedt	<b>In situ quantification of capillary pressure during spontaneous imbibition in carbon storage reservoirs</b> Presented by Dr Christopher Zahasky	
10:40	<b>IEAGHG-IEA technical study: Homogenized cost review of CO<sub>2</sub> capture in the cement and iron and steel industries</b> Presented by Dr Mónica García	<b>Potimization of post-combustion carbon dioxide capture by use of a facilitated carrier membrane</b> Presented by Mrs Natsayi Chiwaye	<b>Modelling bio-electrochemical CO<sub>2</sub> reduction to methane</b> Presented by Mr Anirudh Bhanu Teja Nelabhotla	<b>Millennials and CCS: Persuasive messaging for CCS engagement</b> Presented by Ms Torund Bryhn	<b>Perspectives of offshore CCS from the northern Gulf of Mexico, USA</b> Presented by Dr Tip Meckel	
11:00	<b>Techno-economic study of the CCMS technology for CO<sub>2</sub> capture from ferro-silicon production</b> Presented by Dr Heidi Nygård	<b>The challenges of using the resistance in series model when modelling membrane contactor using viscous solvents for CO<sub>2</sub> capture</b> Presented by Dr Luca Ansaroni	<b>Techno-economic evaluation of technologies for CO<sub>2</sub> capture in the cement industry</b> Presented by Dr Stefania Osk Gardarsdottir	<b>Is public debate around carbon capture and storage changing? Exploring statements and visual frames used in Dutch newspapers</b> Presented by Dr Emma ter Mars	<b>The SRMS: Solving the volumetric vs dynamic CO<sub>2</sub> storage capacity dilemma</b> Presented by Dr Sylvain Thibeau	
11:20	<b>Scenario for near-term implementation of partial capture from blast furnace gases in Swedish steel industry</b> Presented by Mr Maximilian Biermann	<b>Green bio-based membranes for CO<sub>2</sub> separation with tuneable separation properties</b> Presented by Mr Saravanan Janakiram	<b>Mineral carbonation processes for recycled concrete aggregate</b> Presented by Mr Johannes Tiefenthaler	<b>Communicating the value of CCS for climate and carbon market support</b> Presented by Benjamin Heras	<b>Svelvik CO<sub>2</sub> Field Lab: A small-scale laboratory for development of equipment and CO<sub>2</sub> monitoring techniques</b> Presented by Dr Cathrine Ringstad	
11:40	Lunch					
12:40	<b>A5: Absorption solvent degradation and corrosion</b> Chaired by Dr. Solrun Johanne Vevelstad (Venue F1)	<b>B5: Adsorbents</b> Chaired by Dr Thijs Peters (Venue EL2)	<b>C5: CO<sub>2</sub> transport</b> Chaired by Dr. Zhilin Yang (Venue EL3)	<b>D5: Direct air capture</b> Chaired by Dr. Monica Garcia (Venue EL5)	<b>E5: CO<sub>2</sub> injectivity and EOR</b> Chaired by Mrs. Katherine Romanak (Venue EL6)	
12:40	<b>De-oxygenation as counter-measure for the reduction of oxidative degradation of CO<sub>2</sub> capture solvents</b> Presented by Ms Roberta Figueiredo	<b>Adsorbent screening for novel swing adsorption reactor cluster (SARC) in post combustion CO<sub>2</sub> capture</b> Presented by Mr Chaitanya Dhoke	<b>Identifying optimal conditions for transport of CO<sub>2</sub> by ship</b> Presented by Mr Simon Roussanly	<b>Biogas reforming with CCS and DACCS: A life cycle assessment of carbon dioxide removal from the atmosphere</b> Presented by Mrs Karin Treyer	<b>Permeability reduction by salt precipitation during CO<sub>2</sub>-injection</b> Presented by Dr Aruature Omekeh	
13:00	<b>Degradation potential of aqueous and water-lean MEA</b> Presented by Ms Karen Karolina Heisæter	<b>Evaluation of MOFs for post-combustion CO<sub>2</sub> capture</b> Presented by Dr David Danaci	<b>Implementation of a Gibbs energy explicit seawater equation in helmholtz mixture models to represent the interaction of brines with CCS-relevant fluids</b> Presented by Mr Benedikt Semrau	<b>The cost of delaying or missing CCS and BECCS deployment ambitions to the benefit of direct air capture</b> Presented by Dr Ozgu Turgut	<b>Mobility control of CO<sub>2</sub> during aquifer storage</b> Presented by Dr Albert Barrabino	
13:20	<b>Investigation of corrosion-related failure of reboiler at Technology Centre Mongstad</b> Presented by Dr Attila Palencsar	<b>Development of 3D printed amine grafted silica adsorbents for CO<sub>2</sub> capture - adsorbent preparation, performance and potential applications</b> Presented by Dr Richard Blom	<b>Fracture propagation control in CO<sub>2</sub> pipelines: Sensitivity of a coupled FE-CFD model to fluid equation of state</b> Presented by Dr Stéphane Dumoulin	<b>The world's first carbon dioxide removal plant enabled by direct air capture</b> Presented by Dr Daniel Sutter	<b>Understanding reactive flow in porous media for CO<sub>2</sub> storage applications</b> Presented by Mrs Shima Ghanaatian	
13:40	<b>Corrosivity of degraded methanol solvent and fresh solvent added organic acids and salts</b> Presented by Dr Kjell-Arne Solli	<b>A heat integrated solid-sorbent based fluidized bed process for post-combustion CO<sub>2</sub> capture</b> Presented by Dr Yong-Ki Park	<b>Combining CO<sub>2</sub> streams from different emitters - a challenge for pipeline transportation</b> Presented by Dr Heike Ruetters	<b>Evaluation of a direct air capture process combining wet scrubbing and bipolar membrane electrodialysis</b> Presented by Mr Francesco Sabatino	<b>Fluid distribution in immiscible two-phase fluid displacement for CO<sub>2</sub> storage</b> Presented by Ms Rumbidzai Nhunduru	
14:00	Coffee break					
14:20	<b>A6: Pre-combustion capture absorption, adsorption and membranes</b> Chaired by Dr. Luca Ansaroni (Venue F1)	<b>B6: Calcium and chemical looping</b> Chaired by Dr Jochen Ströhle (Venue EL2)	<b>C6: CO<sub>2</sub> Transport - experiments and modeling</b> Chaired by Dr. Svend Tollak Munkejord (Venue EL3)	<b>D6: CCS future</b> Chaired by Mrs. Ingvild Ombudstvedt (Venue EL5)	<b>E6: CO<sub>2</sub> Storage miscellaneous</b> Chaired by Dr. Aage Stangeland (Venue EL6)	
14:20	<b>Optimal process design of MDEA CO<sub>2</sub> capture plant for low-carbon hydrogen production</b> Presented by Mrs Cristina Antonini	<b>CLEANER - Clean clinker by calcium looping process for low-CO<sub>2</sub> cement production - Overview and current stage</b> Presented by Dr Fantini Martina, Prof Matteo Carmelo Romano	<b>Vessel depressurization of CO<sub>2</sub>-rich streams - from experiments to simulations</b> Presented by Mr Guillaume Vaillant	<b>A narrative guide to communicating the potential of CCS in decarbonising European industry</b> Presented by Mr Ana Serdoner	<b>Effect of geochemical integrity of binding cement on sandstone permeability at carbon storage conditions</b> Presented by Dr Omid Shahrokhi	
14:40	<b>Mixed gas separation performance and upscaling of PolyPOSSimide membranes for H<sub>2</sub> purification</b> Presented by Dr Thijs Peters	<b>Design of integrated NOx and SOx removal in pressurized flue gas systems for carbon capture applications</b> Presented by Dr Fredrik Normann	<b>Alting out effect on the solubility of hydrogen in brines under geological-storage conditions</b> Presented by Dr Geraldine Torin Ollarves	<b>Carbon capture and storage (CCS): The way forward</b> Presented by Dr Mai Bui	<b>Noble gases as monitoring tracers: Sampling campaigns at capture sites echnology Center Mongstad and Melkøya</b> Presented by Mr Ulrich Weber	
15:00	<b>Development of silica sodalite with enhanced porosity via topotactic synthesis approach for pre-combustion CO<sub>2</sub> capture</b> Presented by Ms Christin Eden	<b>Solid fuels operation in a 150 kWth CFB-based chemical looping combustion pilot unit</b> Presented by Mr Øyvind Langørgen	<b>Flow assurance from oil and gas to CO<sub>2</sub> transport and injection</b> Presented by Dr Zhilin Yang	<b>Approaching zero CO<sub>2</sub> emissions from future oil and gas production offshore</b> Presented by Dr Gelein De Koeijer	<b>Dimensioning the storage concepts to support the proposed H21 North of England Hydrogen Project</b> Presented by Dr Philip Ringrose	
15:20	<b>Development of nano-structured materials through a novel multi-scale modelling framework for energy conversion with CO<sub>2</sub> capture</b> Presented by Dr Shareq Mohd Nazir	<b>Cold flow experimentation of 1.5 MW chemical looping combustion unit</b> Presented by Dr Sina Tebianian	<b>Network design and flexibility for low-pressure depleted gas reservoirs: hot or cold CO<sub>2</sub>?</b> Presented by Dr Aris Twerda	<b>Review of current and emerging CO<sub>2</sub> capture technologies</b> Presented by Dr Mónica García	<b>What's next? Storage resources for future European CCS deployment; a roadmap for a Horda Storage Hub, offshore Norway</b> Presented by Dr Ane Lothe	
15:40	Closing remark. Dr. Hanna Knuutila					
15:50	End of Conference					