



SPE COPENHAGEN IS 40!



FROM THE SECTION CHAIRMAN

DEAR SPE COPENHAGEN MEMBERS,

A big welcome to the second half of the 23/24 season!

I hope you enjoyed the Christmas festivities and found the time to unwind and 'hygge' with family and loved ones. I personally had a blast... my family friend hosted us and 6 other families to a large, sumptuous Christmas Eve dinner including singing carols (with yours truly providing guitar accompaniment) and gift opening with the kids. It was indeed an unforgettable evening. A week later on New Year's Eve, we watched Queen Margarethe's annual 'Nytårstale' where she thanked all for 2023 and wished us a great 2024, while saving the best for the last - a bombshell announcement of her abdication from the throne!

SPE Copenhagen pays tribute to the outgoing Queen and wishes the new incoming King, Crown Prince Frederik, a successful reign.

SPE CPH Monthly Events

SPE Copenhagen has organized a number of events so far and I want to thank you all for your participation and engagement.

We in the SPE CPH Board, continuously look to organize meaningful events for our professional, YP and student members. We acknowledge that it is an increasingly challenging task due to the reduced number of core Oil & Gas industry players present in Denmark and this means we must adapt. The good thing is, the growing Renewable Energy Sector owes a lot to the skills and knowledge transferred in by hiring oil and gas employees and this means we can collaborate. This adaptation has reflected in the way our events have evolved over the last few years, from core Oil & Gas to more of related energy industries.



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Looking back on the first half of this season, I am glad that it ended on a great note with the memorable presentation and networking event at **GEUS**. We also wish to thank **NOV Subsea** for giving us a tour of their facilities and hosting us in October.

We will kick off 2024 at INEOS, where we will host a Distinguished Lecturer event. Rick Chalaturnyk, Professor of Geotechnical Engineering in the Department of Civil and Environmental Engineering at the University of Alberta, will be visiting to deliver a lecture on *CO₂ Injection Behaviour*. This will be followed in February with presentations by Simon Ivar Andersen and Charlotte N. Larsen at **DTU Offshore**. Also in February, **Noble Corporation** will provide members and non-members the opportunity to visit the Noble Highlander jackup rig while it is in Esbjerg.

In April, you can expect to participate in a presentation and panel discussion with **Rystad Energy**. I encourage you all to attend. Remember to sign up for all these events!

Celebration time!

SPE Copenhagen is 40!

As alluded to in my previous newsletter article, SPE CPH will celebrate its 40-year anniversary in March. As a section, we have come a long way through various boom – bust cycles in the Oil & Gas industry. Yet, we still stand firm and for this I am proud! Preparations are ongoing to commemorate this milestone.

Details of the remaining events for the rest of the season will be made available once arrangements are finalized. Our YP chapter also has a few targeted events and initiatives planned, and the SPE CPH board will continue to support them.

DTU Student Chapter

On a sour note, it appears that despite our best efforts, the continued operation of the SPE DTU Student Chapter might be coming to an end.

Only 3 years ago in 2020, the DTU Petroleum Engineering program was recognized as 3rd best in the world together with Stanford University according to the prestigious QS World University rankings. However, due to a combination of factors including low enrolment numbers, and quite disappointingly, the Danish government's decision to significantly reduce English-speaking courses at Danish universities, it was decided to discontinue the program. This obviously affects the

membership numbers of the SPE DTU Student Chapter since it is made up mainly by PE students and engineering students who take PE related courses. If after reading this, you feel there is something that can be done, please feel free to reach out and your suggestions will be actively considered.

There is good news though, on the Young Professionals front and this is in no small measure due to the support from the Board. Ex SPE Student Chapter members are gradually transitioning into our section's Young Professionals (YP) and with this, activities have been picking up. Led by Patryk Bijak, they have organized 2 events. Just before the Christmas break, I also showed up for their end-of-year event. It was fun hanging out with them!

We need your input and contributions

In conclusion, I wish to restate the commitment of this Board to continue to find ways of enhancing the experience of being an SPE member. However, this must be a 2-way street. We need to see more engagement with our section membership through the various social media channels available: LinkedIn, spe-cph.dk, SPE DTU and YP LinkedIn pages. We would like you to contribute articles, engage in quizzes, suggest events, activities, and initiatives. We are open to discussing with you. If you have any suggestions or constructive feedback, feel free to contact any of the Board Members via



Membership Renewal

We look forward to you continuing your SPE membership. There is no doubt that we are all facing the effects of inflation, war and the energy crisis among other challenges but through it all, we have continued to inspire and support each other. We as a Board will continuously work towards bringing greater value to your membership.

To renew your membership via



I look forward to seeing you over the next few months.

Yours Sincerely,

Adebowale Solarin
SPE Copenhagen Section Chairman



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THE BOARD

2023-2024 SEASON

THE BOARD

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DO NOT UNDERESTIMATE THE COMPLEXITY OF CO₂ INJECTION BEHAVIOUR FOR FULL SCALE PROJECTS



Speaker

Rick Chalaturnyk, Professor of Geotechnical Engineering in the Department of Civil and Environmental Engineering at the University of Alberta and holds an NSERC/Energi Simulation Industrial Research Chair in Reservoir Geomechanics.

ABSTRACT

The Aquistore CO₂ Storage Project is an integral component of SaskPower's Boundary Dam CO₂ Capture Project located in southeastern Saskatchewan, Canada. Operational synergies between the capture facility (supply) and CO₂-EOR (demand) also require excess CO₂ to be transported via pipeline to the Aquistore site where it is injected into a hyper-saline fluid filled sandstone formation at approximately 3300 m depth. The reservoir temperature is approximately 120 °C, and average reservoir pressure is 35 MPa. Preliminary laboratory measurements on core plugs gave average values of porosity and permeability, 6% and 5 mD respectively. The Aquistore site includes one injection well and one observation well approximately 150m offset from the injection well. Both wells are completed with various measurement and monitoring equipment, including distributed temperature sensing lines (DTS), distributed acoustic sensing line (DAS) and tubing/casing-conveyed pressure gauges at different levels to measure pressure and temperature changes downhole during to CO₂ injection.

This presentation focuses on dynamic responses that have been recorded since the completion of the CO₂ injection well and the start of CO₂ injection began on April 16, 2015 and discusses issues ranging from well integrity to reservoir simulation to seismic monitoring. This unprecedented opportunity to collect monitoring data on the dynamics of phase changes (i.e. supercritical to liquid to gas phase shifts) from the wellhead to the geological formation associated with CO₂ injection. Real time monitoring data of these phase changes in the injection stream under fully integrated operational conditions provides unparalleled information for understanding geological storage under these conditions and optimizing completion systems.

PROGRAM

17:00 - 18:00 - NETWORKING

18:00 - 19:00 - PRESENTATION BY SPE DISTINGUISHED LECTURER RICK CHALATURNYK

19:00 - 21:00 - DINNER AND INEOS PRESENTATION

THURSDAY, 18 January

Please sign-up no later than 15 January 2023

Register **HERE**

INEOS OIL & GAS DENMARK | TEKNIKERBYEN 5, 1. SAL. | 2830 VIRUM



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VISIT THE DRILLING RIG NOBLE HIGHLANDER IN ESBJERG

AGENDA

- 07:30 Departure Lyngby
- 11:00 Arrival Highlander
- 14:00 Departure Highlander
- 17:30 Arrival Lyngby

During the travel to Esbjerg, participants can be picked up at agreed-upon locations enroute.

The tour is done with assistance from Noble Cooperation and EOS.

REGISTRATION AND COSTS

Please register at:

<https://spe-cph.nemtilmeld.dk/62>

no later than 5. February 2024
at 08:00.

Ticket costs:

- Student: DKK 150
- SPE Member: DKK 300
- non-SPE Members: DKK 400

SPECIAL NEEDS DURING THE EVENT

If you have any questions or special needs regarding this event, please contact the host:

Søren Weiss Hartmann
soren@sorenhartmann.com

Seize the opportunity to visit the Noble Highlander while it is in Esbjerg. Learn about the drilling process and explore all the equipment on board.

At the tour on the Highlander, we will explore the entire rig, witnessing all the drilling equipment and understanding how it is possible to drill a hole that is 10 km long and point in any direction with a few meters of accuracy.

Ample time will be provided for questions, whether they are technical or at an organisational level.

The tour guide will be our Events Chairman, Soren Hartmann, who boasts more than 30 years of experience in the drilling industry. The tour will be conducted in English and Danish.

PRACTICALITIES

Participants can join us at Esbjerg or along the route to Esbjerg at agreed locations.

WiFi is available on the bus.

Sandwiches and cold drinks will be served while onboard the Highlander.

Warm outdoor clothing and suitable footwear as there will be many stairs and no high-heeled shoes.

Hard hats and safety glasses will be provided.

ABOUT THE HIGHLANDER

The Noble Highlander is a jack-up drilling rig built in Singapore in 2015 and has been operated by the former Maersk Drilling for Total Energies UK. Noble Drilling is the largest drilling contractor in the market, providing services worldwide.

www.noblecorp.com/our-fleet/fleet/fleet-details/2020/Noble-Highlander/default.aspx

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THE DANISH OFFSHORE O&G INDUSTRY AND THE ENERGY TRANSITION

Speaker

Charlotte N. Larsen is working as Programme Manager for the CO₂-Storage Research Programme and the Abandonment Research Programme at DTU Offshore. Before joining DTU Charlotte worked 20 years with Maersk Oil and Gas as Lead Drilling Engineer and Well Project Manager amongst other roles. Through her career Charlotte has worked in Denmark, Qatar and Turkmenistan and has a Master degree in Civil Engineering from DTU.



MAIN PRESENTATION

ABSTRACT

Navigating the Environmental Implications of Energy Transition: Understanding the impact of Oil & Gas Decommissioning and CO₂ Storage.

Denmark's energy transition is rapidly gaining momentum, and a significant portion of this transformation will involve activities in the North Sea. Simultaneously, the end of oil and gas production is approaching, necessitating the subsequent abandonment or re-purposing of offshore assets. Collectively, these activities will inevitably impact the marine environment.

Before embarking on the transition journey, it is important to take a holistic view on related activities like CO₂ storage and Oil & Gas decommissioning to ensure that the chosen path forward minimizes environmental harm.

CO₂ storage presents a viable opportunity for re-utilisation of decommissioned oil and gas infrastructure. Depleted subsurface reservoirs and suspended wells could be used to store captured carbon dioxide, contributing to Denmark's efforts to mitigate climate change.

This presentation will focus on the essential building blocks for mitigating and monitoring leakage from abandoned wells and CO₂ storage sites and identification of key knowledge gaps. It also explores methodologies for understanding the environmental impact of CO₂ storage and decommissioning activities on the marine ecosystem.

By addressing these critical aspects, we can navigate the energy transition landscape with an improved awareness of its environmental consequences and thus help implement responsible practices to safeguard our marine environment.

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HOW THREE “EX-STUDENTS” FROM THE SAME GROUP AND COUNTRY MET IN THE MIDDLE OF THE SEA



Different paths,
one destination

One day, on 10th of November 2023, they all met in one place, quite peculiar place and not so easily accessible: the drilling rig. Specifically, it was the Noble Resolve where they greeted each other with huge smiles and shared their stories and unique career experiences. Each of them in different roles and with different work experiences in a backpack.

They all are very glad about their workplaces and shortly all of them will be working offshore. The possibility of another reunion remains a prospect that adds excitement to their shared journey. Who knows, maybe all the three of them will meet again soon? Maybe on another rig? Maybe on another sea?

Jan, Bartosz &
Michal

Jan, Bartosz and Michal started studying together at the Technical University of Denmark in 2020. They come from the same country; Poland and chose to pursue a Master's in Petroleum Engineering as they believed in an importance of the Oil & Gas Industry worldwide..., and they still believe.

They could see that the green transition can't just happen from day to day, and for a foreseeable future, people will continue rely on oil and gas to supply energy; to heat homes; and provide fuel for vehicles, ships and airplanes to carry goods and people all over the world. Above all, they had the opportunity to learn during their studies how exciting and challenging the work in this industry can be.

After a year of studying, Jan chose to step into the field, becoming a Roustabout at Noble. Bartosz, upon completing his studies, joined INEOS as a Wellsite Engineer Trainee, while Michal began his career as a Drilling Engineer Trainee at Noble.





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The SPE Copenhagen Section Awards



SPE AWARDS - ACTIONS REQUIRED!

The SPE has a long-running system of awards and recognition, which we, in Denmark, hardly ever participate in. This seems a shame, given the tradition of innovation and overcoming challenges that is at the heart of the Danish Oil and Gas Industry, and which is now turning towards other Energies and CCS. Perhaps it is our Danish culture, or perhaps we just need a bit of a push!

actions required

In Copenhagen, we held our first Section awards at the last AGM - congratulations again to Natalya and Ida - and will now try to make this recognition a normal first step towards the SPE Regional awards, but to do this, **we need your help**.

Firstly, **the SPE Regional awards:**

Nominations for the SPE Regional awards are open and the **deadline is Feb 15th** - but don't wait, there are several steps to complete. Details of the process can be found at www.spe.org/en/awards/spe-regional-awards or feel free to contact a

Copenhagen Board member for advice or support. You cannot self-nominate for the SPE Regional awards and they follow the categories given below.

Secondly, **the Copenhagen Section awards:**

Last year everything was run by the Copenhagen Section Board, but that is not how awards should be. So, we have formalized our rules and now this is the first call for nominations for the SPE Copenhagen awards, which will be presented at the AGM in May (TBC). The rules and award categories are given below. By following a process similar to the SPE Regional awards, we can hopefully ensure that all our Section winners are then nominated for the following Regional awards. Note, for the Copenhagen Section, awards will be made based on the nominations, so not all awards will be made, and there may be more than one winner in a category, and self-nominations are permitted.

Award Categories

Both Copenhagen and Regional awards are made under the same broad categories:



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- Technical Awards
- Service Award
- Faculty Award
- Public Service Award
- Young Professional Service Award

In addition, the Copenhagen section will include a category for:

- Student Service Award

And the SPE Regional awards include a Corporate award.

Rules and Eligibility

To be eligible for an award, the recipient must have made a significant personal contribution within one (or more) of the categories above. They cannot have been given the same award within the past 5 years, and must not be subject to restrictions according to the SPE sanctions policy.

For the SPE Regional awards, nominations are made through the SPE website (by Feb 15th), for the Copenhagen Section awards, please contact a board member (Jose, Jonathan or Ade) – nominations will close in April, 1 month before the AGM.





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EVENT CALENDAR

NOVEMBER 29 | 17:00 - 21:00 | GEUS | Face to Face

TOPIC Recent Seismic Acquisitions in Denmark
HOST GEUS | Øster Voldgade 10, 1350 København K

JANUARY 18 | 17:00 - 21:00 | INEOS | Face to Face

TOPIC CO₂ Geological Storage from 8 Years of Dynamic Injection at the Aquistore CO₂ Storage Site
SPE DL Rick Chalaturnyk
HOST INEOS | Teknikerbyen 5, 1. sal. 2830 Virum

FEBRUARY 7 | Field trip to Esbjerg

TOPIC Guided tours at Highlander Rig and Welltec
HOST Welltec & Noble Corp. | Field trip to Esbjerg

FEBRUARY 28 | 17:00 - 21:00 | DTU | Face to Face

TOPIC "The Danish Offshore O&G industry and the energy transition"
"Development of sensor technology for the offshore industry"
SPE DL Charlotte Nørgaard Larsen | Simon Ivar Andersen
HOST DTU

MARCH 20 | TBD | SPE CPH 40 Birthday Celebration | Face to Face

TOPIC SPE CPH 40th Birthday Celebration
HOST TotalEnergies

MAY 16 | TBD | Noble Drilling | Face to Face

TOPIC Early Kick Detection: Sensors, Data Acquisition, and Analysis
SPE DL Jaideva Goswami
HOST Noble Drilling | Lyngby Hovedgade 85

JUNE 1 | TBD | TBD | TBD

TOPIC Annual General Meeting & SPE CPH's 40 Years Anniversary
HOST SPE Copenhagen at Rebel Workspace

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Denmark's long-term energy partner

We are in the middle of a global energy and climate crisis that highlights the need for energy solutions here and now. As one of the world's largest energy companies, TotalEnergies knows that the future belongs to renewables. This is why we are in full swing transforming our business to help secure a green future for Denmark.

Our focus is on maintaining an energy-efficient and safe production of oil and gas, with the rebuilt Tyra platform at the center, while leveraging our many years of experience as an energy supplier in Denmark. We will do this by expanding our activities to wind, solar, and Carbon Capture and Storage (CCS).

TotalEnergies has great ambitions to be at the forefront of green energy production with the objective of being among the top five players in renewables by 2030.

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 www.totalenergies.dk





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