

Programme, Monday 6 March

09:00 – 11:30 Presentation of Smart Homes and film about Lysebotn at Lyse's Head Office (registration required)

09:00 Bus from Clarion Hotel Air to Lyse's Head Office

09:30 Smart Home presentation and film about Lysebotn

11:00 Bus returns to Clarion Hotel Air

11:30 – 12:30 Registration and lunch

Opening Session 1A

Session Chair: Sigrid Hjørnegård, Director for Renewable Energy, Climate and Environment, Energy Norway

12:30 The wealth-creation potential of hydropower in Norway from now to 2030

We plan to present a clear picture of what hydropower delivers today and its expected output from now to 2030 given the right conditions for growth.

Oluf Ulseth, Chief Executive Officer, Energy Norway

12:45 Smart energy companies in relation to the market of the future

Better systems, innovation and computerisation are needed if we are to be competitive in the future, but will the future market accept the storage capacity of hydropower, or will we see new energy storage concepts?

Eimund Nygaard, Chief Executive Officer, Lyse

13:00 The energy industry and the green transition

Per Sanderud, Director, NVE

13:20 The place of hydropower in the green transition

The Norwegian Government's Energy White Paper emphasises that renewable and controllable hydropower is the mainstay of the Norwegian energy supply system. What role will hydropower play in the green transition?

Terje Aasland (Labour Party), Senior Deputy Chair of the Standing Committee on Energy and the Environment

13:40 We will double the wealth creation of hydropower

HydroCen's research work will help to reinforce Norway's position as a leading hydropower nation and will ensure that the Norwegian hydropower industry can realise the potential of future renewable energy systems.

Hege Brende, Centre Director at HydroCen FME, NTNU

14:00 – 14:30 Break to visit exhibitors' stands

Session 1B: Optimal maintenance in the future

Session Chair: Bjørn Aase Honningsvåg, CEO, Lyse Produksjon AS

14:30 The value of digital transformation in the hydropower industry

Optimal maintenance in the future will see machines themselves raising the alarm before they break down.

Dr. Thomas Welte, Research Scientist, SINTEF Energy Research

15:00 The first step in the fourth industrial revolution: Collecting data

Erik J Wiborg, PhD Mechanical Engineering / Project Manager, Statkraft Energi AS

15:30 Cognitive robots with artificial intelligence will transform the maintenance of the future.

Algorithms for learning and accessing data determine how smart the robotic systems will be. The more data we can supply to a robot, the more intelligent it will become.

Linn Cecilie Moholt, CEO, Karsten Moholt AS

16:00 Statkraft's virtual power plant in Germany – leading the way for digital innovation in power production

Statkraft's virtual platform aggregates production from over a thousand decentralised units such as solar, wind and run-of-river power plants. Aggregated power output 10 GW. The operations are optimised and monitored, the production controlled and balancing services are supplied to the power grid.

Dr. Torsten Amelung, Senior Vice-President Trading and Origination, Statkraft

16:25 The energy operator – the go-to professional in power stations

Brynhild Totland, Competence Advisor, Energy Norway

16:40 How to reduce turbine vibration?

Peter Joachim Gogstad, Research Fellow, Water Power Laboratory, NTNU

16:50 Effect of asperity location on sliding stability of concrete dams

Dipen Bista, Research Fellow, Northern Research Institute (NORUT), Narvik and NTNU, Trondheim

17:00 – 19:00 “Young in the Industry” warm-up party for delegates under 35 years of age

18:30 – 19:00 Aperitifs in the exhibition area

19:00 Sponsors' dinner

Programme, Tuesday 7 March

Simultaneous interpretation into English will be provided for Sessions 2AA, 2AB, 2AC and 2AD.

Session 2AA: Industrial case histories relating to wealth creation in operations

Session Chair: Leif Lia, Professor, Department of Civil and Environmental Engineering, NTNU

08:30 3D models in the hydropower industry and the approach to 3D operation and maintenance

Herman B Smith, Graduate Engineer, Multiconsult ASA

09:00 Permanent flood protection on the Opo and Vosso rivers – combined flood tunnels and power stations

Gunnar Solvang, Graduate Engineer, Norconsult AS

09:30 Experience with the use of the KOLEMO standard

Tord Wethelund, Department Manager, Planning, Machinery and Electrical, Hafslund Produksjon AS and Sølvi Glevoll, Contracts Manager, Hafslund ASA

10:00 – 10:30 Break to visit exhibitors' stands

Session 2AB: Digital vulnerability in the energy industry

Session Chair: Solgun Furnes, Advisor, Energy Norway

10:30 Secure energy generation in a cyberworld

Digital development increases the complexity of the energy industry, with associated security challenges. This presentation provides insight into ongoing work on ICT security at NVE, as well as general advice about monitoring ICT security, NVE's security regulations and other security-related regulations electricity producers must abide by.

Øyvind Anders Arntzen Toftegaard, Advisor, NVE

10:50 Challenges of digital vulnerability for electricity producers.

Energy generation and distribution represent critical infrastructure. Cybercrime is a giant industry with growing numbers of increasingly advanced participants. Hafslund shares its experiences related to the threat and how it is handled.

Jon Andreas Pretorius, IT Manager, Hafslund Nett

11:10 Digital vulnerability in a commercial perspective

Lyse is specifically working to look at digital vulnerability as a commercial responsibility, not just as an IT responsibility. In this contribution we therefore consider both the threats the growth of computerisation represents for a business and the potential benefits of increasing computerisation.

Bjørn Aase Honningsvåg, CEO, Lyse Produksjon AS

11:30 – 12:30 Lunch

Session 2AC: Power management and control systems

Session Chair: Brynhild Totland, Skills and Expertise Advisor, Energy Norway

12:30 Rehabilitation of apparatus and control systems – experience and challenges

Magnus Guldal, Senior Advisor, Norconsult AS

13:00 Modern control systems

Jon-Olav Hjelmtveit, Emerson

13:30 Soft start and control system at Aurland 3 pumped storage power station

Implementation, contingency regulations and HSE in practice

Olav Grøtnebø, Project Engineer, E-CO Energi AS

14:00 – 14:30 Break to visit exhibitors' stands

Session 2AD: Machinery

Session Chair: Iren Aanonsen, Energy Norway

14:30 Pump turbines in the new energy market

Magni Fjørtoft Svarstad, PhD Fellow, Water Power Laboratory, NTNU

15:00 Expansion of the area of operation of Francis turbines by assessment of dynamic conditions at partial load

Lars Olav Husby, Graduate Engineer, GE

15:30 Tussa Power Station – a world record in recycling?

Upgrading pre-war horizontal Pelton wheels

Terje Myklebust, Power Station Manager, Tussa Energi AS

16:00 Measuring degree of efficiency as a basis for upgrading and expanding power stations

Geir Brænd, Senior Advisor, Sweco Norge AS

16:30 Breakdown of a Kaplan turbine at Røyrvikfoss Power Station

Tore-Johan Flåm, Technical Manager, NTE Energi AS

Session: 2BD Electromechanics

Session Chair: Kristin H. Lind, Director, Energy Norway

16:00 On-line partial discharge testing has become an important tool for planning motor and generator maintenance

Dr. Howard Sedding, Iris Power Qualitrol Canada

Session 2CD: Construction

Session Chair: Arne Aamodt, Lyse

14:30 Failure of masonry dams caused by ice loading

Eduardo Martins Bretas, PhD / Graduate Engineer, Sweco

18:30 – 19:00 Aperitifs with the exhibitors

19:00 Gala Dinner

Programme, Wednesday 8 March

Session 3A: Production planning: market versus technology

08:30 Large scale energy balancing and storage from Norwegian hydro to the future European market

Michael Belsnes, Research Manager, SINTEF Energy Research

09:00 New strategy for pumped storage power stations in Norway – potential in the Norwegian and European energy markets

Leif Lia, Professor, Department of Civil and Environmental Engineering, NTNU

09:30 New regulations for linking in production – EU regulations and national adaptations

Hans Olav Ween, Senior Advisor, Statnett SF

10:00 New EU specifications replace FIKS 2012 – technical consequences

Steinar Maalen, Area Sales Manager, Voith Hydro AS

10:30 – 11:00 Break to visit exhibitors' stands

Session 3B: New hydropower projects – experience from rehabilitation and upgrading

11:00 Lysebotn II Power Station – Technical challenges and quality monitoring

With a 686 m fall height and 370 MW output, the specified forces to be transmitted to structural elements and the rigidity requirements are a challenge.

The power station is complex, with a large number of deliverables and associated interfaces. To comply with future market requirements and associated operational models, efficient processes for monitoring interfaces and quality are important.

Bjørn Roger Otterdal, Project Director, Lyse

11:30 Collaboration between suppliers and energy companies – pros and cons

Espen Hammersland, Divisional Manager, BKK Produksjon AS and Ole Johnny Winther, Business U. Manager, Andritz Hydro AS

12:00 Upgrading Roskrepp Power Station to a pumped storage facility

Bjarne Tufte, Technical Manager, Sira-Kvina Power Company

12:30 How do you get people to listen and remember what you said?

Host and “maths nerd” Jo Røislien from the Norwegian TV programmes “Siffer” (Number) and “Jakten på verdens største tall” (The Hunt for the World’s Biggest Numbers)

13:00 – 14:00 Lunch