

## HFC web møte 19.og 20.oktober 2021 " Det Grønne skiftet - sikkerhet og menneskelige faktorer underveis "

Takk for god og engasjert deltakelse i HFC møtet 19. og 20. oktober 2021 med tema: " *Det Grønne skiftet - sikkerhet og menneskelige faktorer underveis*".

Kopi av presentasjoner og relevante "papers"/rapporter ligger på [www.hfc.sintef.no](http://www.hfc.sintef.no) under menyen "Møtereferat", ref [www.sintef.no/projectweb/hfc/moetereferat/](http://www.sintef.no/projectweb/hfc/moetereferat/)

En samlet oversikt over deltakere med kontaktinformasjon ligger som en del av materialet. Vi var ca. 90 påmeldte fra ABB, CIRiS – NTNU Samfunnsforskning, DNV, DSB, EGGs , Eldor, Equinor, Gard, HCD-Human Centred Design, IFE, Kongsberg Maritime, Kystverket, Lloyd's Register, Nice industridesign, Nord Univ. , NTNU, Safetec, SINTEF, Sjøfartsdir., Statens Havarikommisjon, TØI, University of South-Eastern Norway- USN, University of Stavanger, Vysus Group , Vår Energi.

Vedlagt følger referanse til "papers", materiale og rapporter som ble nevnt i møtet, alle presentasjoner er lagt ut på hjemmesiden til HFC:

### 1. Øystein Ulleberg/IFE «Hydrogen og batterier – Sikkerhetsutfordringer ved anvendelse i nye energisystemer og oppskalering»

- To papers som dere kan få kopi av ved å ta kontakt med: [Oystein.Ulleberg@ife.no](mailto:Oystein.Ulleberg@ife.no)
  - Aarskog, F. G., Hansen, O. R., Strømgren, T., & Ulleberg, Ø. (2020). Concept risk assessment of a hydrogen driven high speed passenger ferry. *International Journal of Hydrogen Energy*, 45(2), 1359-1372.
  - Henriksen, M., Vågsæther, K., Lundberg, J., Forseth, S., & Bjerketvedt, D. (2019). Explosion characteristics for Li-ion battery electrolytes at elevated temperatures. *Journal of hazardous materials*, 371, 1-7.
- (2019) Evaluering av brannen i MF «Ytterøyningen» på Halsnøya i Kvinnherad kommune 10. oktober 2019. : Kvinnherad brann og redning
- (2021) MF Brim Explorer, 11 March 2021, se <https://corvusenergy.com/mf-brim-explorer-incident/>
- Se forøvrig [www.mozees.no](http://www.mozees.no)

### 2. Monica Cardozo Alvarez/DnV «Safety of hydrogen used as ship fuel»

- See DnV (2021) Handbook For Hydrogen-Fuelled Vessels (HFC web)

### 3. Claire Blackett/IFE «How understanding human-technology interaction in small modular reactors (SMR) can support the green shift», relevant papers:

- Skraaning, G., & Jamieson, G. A. (2021). Human performance benefits of the automation transparency design principle: validation and variation. *Human factors*, 63(3), 379-401
- Jamieson, G. A., & Skraaning, G. (2020). The absence of degree of automation trade-offs in complex work settings. *Human factors*, 62(4), 516-529.
- Papers and reports related the SMR topic will be available later

4. **Robb Hall/Equinor – «Lesson learned from offshore wind operations – HF»**
  - The case study report : G+(2020) Case study on reducing manual handling and ergonomics related to incidents in the offshore wind industry (HFC web)
  
5. **Tor-Olav Nævestad/TØI «Økokjøring blant lastebilsjåfører med vinn-vinn for økonomi, utslipp og trafikksikkerhet» rapporter se [www.toi.no/publikasjoner/](http://www.toi.no/publikasjoner/)**
  - «Trafikksikkerhetseffekter av økonomisk kjøring i godstransport»,
  - «Miljøstigen for energiledelse: En litteraturstudie av økonomisk kjøring og energiledelse»
  - «Økonomisk kjøring i godstransportbedrifter : En studie av implementering og effekter av Miljøstigen for energiledelse»
  - «Økonomisk kjøring som trafikksikkerhetstiltak: Før- og etter studie av tre bedrifter»
  - T.O. Nævestad forbereder papers, og sender info når de er ferdige.
  
6. **Henrik Helgesen/DnV «Risk handling of Lithium-ion batteries»**
  - LTO batterier er mer termisk stabil sammenlignet med andre batterier, men de kan gå i thermal runaway, se «Considerations for Energy Storage Systems Fire Safety» [www.dnv.com/Publications/considerations-for-energy-storage-systems-fire-safety-89415](http://www.dnv.com/Publications/considerations-for-energy-storage-systems-fire-safety-89415)
  - Ref: «Technical reference for li-ion battery explosion risk and fire suppression» [www.dnv.com/maritime/publications/Technical-Reference-for-Li-ion-Battery-Explosion-Risk-and-Fire-Suppression-report-download.html](http://www.dnv.com/maritime/publications/Technical-Reference-for-Li-ion-Battery-Explosion-Risk-and-Fire-Suppression-report-download.html)
  - «Sikker bruk av litium-ion batterier I petroleumsnæringen» DNV Ptil (2020) [www.ptil.no/fagstoff/utforsk-fagstoff/prosjektrapporter/2021/sikker-bruk-av-litium-ion-batterier-i-petroleumsnaringen/](http://www.ptil.no/fagstoff/utforsk-fagstoff/prosjektrapporter/2021/sikker-bruk-av-litium-ion-batterier-i-petroleumsnaringen/)
  
7. **Marte Ellingsen Tyldum/KM «Kongsberg Maritime – vår strategi som knytter sammen bærekraft og automatisering», se presentasjonen**
  - «Jotun Hull skater» kan den spare 22 000 tonn CO2 [www.jotun.com/us/en/b2b/news/hull-skating-solutions/](http://www.jotun.com/us/en/b2b/news/hull-skating-solutions/)
  - Kongsberg indicates that this new control strategy will reduce fuel consumption by approximately 20%. - [gcaptain.com/green-dynamic-positioning-technology/](http://gcaptain.com/green-dynamic-positioning-technology/)
  
8. **Jaquelyn Burton/KM «Safety in automation and remote operations»**
  - Evolution of maritime safety, see [www.nautinst.org/resource-library/mars/mars-reports.html](http://www.nautinst.org/resource-library/mars/mars-reports.html)
  - [www.nautinst.org](http://www.nautinst.org) ; have a magazine called navigator with a special edition on autonomy last year; we are doing another special edition of navigator for Feb. that will be diving deeper into automation and autonomy's impacts for the seafarer. (HFC will get a copy).
  
9. **Jonathan Earthy/LR «Evolution of HF standards - challenges for robotics and automation»**
  - Brian Sherwood Jones' blog at Usability in Context see [processforusability.blogspot.com](http://processforusability.blogspot.com)

- Two interesting Russian submissions to IMO related to remote operation of ships has been posted to the HFC web: Regulatory Scoping Exercise For The Use Of Maritime Autonomous Surface Ships (Mass) - **comments on remote control stations; comments on issues of MASS development strategic prospects**
- Recommendations for Management of Cargo Alarm Systems  
[www.sigtto.org/publications/recommendations-for-management-of-cargo-alarm-systems/](http://www.sigtto.org/publications/recommendations-for-management-of-cargo-alarm-systems/)
- Recommendations for Designing Cargo Control Rooms  
[www.sigtto.org/publications/recommendations-for-designing-cargo-control-rooms/](http://www.sigtto.org/publications/recommendations-for-designing-cargo-control-rooms/)
- Recommendations for Cargo Control Room HMI  
[www.sigtto.org/publications/recommendations-for-cargo-control-room-hmi/](http://www.sigtto.org/publications/recommendations-for-cargo-control-room-hmi/)
- ESD Systems <https://www.sigtto.org/publications/esd-systems/>
- Links to Imperial College Dyson events with Ben Shneiderman and Don Norman:  
[Human-Centered AI: Reliable, Safe & Trustworthy - YouTube](#)
- [The Future of Design Education: A conversation with Don Norman - YouTube](#)
- Ben Shneiderman articles on HCAI: [Ten Old Beliefs and New Ideas: Steps toward Human-Centered AI | by Ben Shneiderman | Sparks of Innovation: Stories from the HCIL | Sep, 2021 | Medium](#)
- AIS Transactions on Human-Computer Interaction Volume 12 Issue 3 Article 1 9-30-2020 Human-Centered Artificial Intelligence: Three Fresh Ideas  
<https://aisel.aisnet.org/cgi/viewcontent.cgi?article=1136&context=thci>
- Design Lessons From AI's Two Grand Goals: Human Emulation and Useful Applications <https://ieeexplore.ieee.org/document/9088114>
- Bridging the Gap Between Ethics and Practice: Guidelines for Reliable, Safe, and Trustworthy Human-centered AI Systems  
<https://dl.acm.org/doi/pdf/10.1145/3419764> Governance
- Human-Centered Artificial Intelligence: Reliable, Safe & Trustworthy Ben Shneiderman  
<https://www.tandfonline.com/doi/full/10.1080/10447318.2020.1741118>

#### 10. Paal Holter/EGGS «Design driven innovation towards the green shift»

- See <https://eggsdesign.com/stories/read/innovation-predators>

#### 11. Vidar Hepsø/NTNU «Human Factors and Control Centres for Integrated Energy Hubs»

- <https://doggerbank.com/press-releases/dogger-bank-reveals-world-first-in-hvdc-offshore-platforms-slashing-topside-weight-by-70/>
- <https://issues.org/national-academy-reliable-infrastructure-management-roe>
- Roe, E., & Schulman, P. R. (2008). High reliability management. Stanford University Press.
- Roe, E. (2013). Making the most of mess: reliability and policy in today's management challenges. Duke University Press.

#### 12. Natasha Barrett «Alarm sounds – based on Human Factors»

- The presented alarm sound can be made available – contact either Natasha Barrett <nlb@natashabarrett.org>; Kristian Gould <kgou@equinor.com> or Malvin Eikås <meika@equinor.com> (guidelines for speaker set-up, placement, etc must be

carefully observed and Natasha needs to be credited for any use of the sounds, academic or otherwise.)

### **Workshop om relevante Human Factors metoder for energisektoren**

- Oppsummeringer fra de 4 gruppene vil ligge på HFC WEB

**Ledig PostDoc stilling ved NTNU** i ferd med å bli lyst ut (kommer på [www.jobb.norge](http://www.jobb.norge)) – foreløpig beskrivelse på [www.hfc.sintef.no](http://www.hfc.sintef.no) in the project "Meaningful Human Control of digitalization in safety critical systems (MAS)" Period: 2022 – 2025

**Open Access bok med bidrag fra HFC forum fritt tilgjengelig** : «Sensemaking in Safety Critical and Complex Situations - Human Factors and Design» - <https://www.routledge.com/Sensemaking-in-Safety-Critical-and-Complex-Situations-Human-Factors-and/Johnsen-Porathe/p/book/9780367435189>

**MvH Frøy Birte Bjørneseth/ Kongsberg og NTNU, Andreas Bye/ IFE, Kristian Gould og Jan Tore Ludvigsen/ Equinor, Marie Green/ HCD, Sondre Øie/ DNV, Stig Ole Johnsen/ SINTEF**

(PS: Gi beskjed via [HFC@Sintef.no](mailto:HFC@Sintef.no) om du vil bli fjernet fra denne distribusjonslista)

-----English text-----

Thank you for your attendance at the WEB HFC meeting the 19th and 20th of October 2021 with the theme: " "The Green Shift – safety and human factors in the changing environment».

Copies of presentations and papers is available at [www.sintef.no/projectweb/hfc-e](http://www.sintef.no/projectweb/hfc-e) under the tab Meetings – [www.sintef.no/Projectweb/HFC-E/Minutes-of-meeting/](http://www.sintef.no/Projectweb/HFC-E/Minutes-of-meeting/) ... A list of participants with contact information is at the same place.

There were approximately 90 participants from:

ABB, CIRiS – NTNU Samfunnsforskning, DNV, DSB, EGGS , Eldor, Equinor, Gard, HCD-Human Centred Design, IFE, Kongsberg Maritime, Kystverket - Norwegian Coastal Administration, Lloyd's Register, Nice industridesign, Nord Univ. , Norwegian University of Science and Technology -NTNU, Safetec, SINTEF, Sjøfartsdirektoratet- Norwegian Maritime Authority, The Norwegian Safety Investigation Authority (NSIA) -Statens Havarikommisjon, TØI, University of South-Eastern Norway- USN, University of Stavanger, Vysus Group , Vår Energi.

Attached, you will find papers, references to the material and relevant material mentioned in the meeting:

#### **1. Øystein Ulleberg/IFE «Hydrogen og batterier – Sikkerhetsutfordringer ved anvendelse i nye energisystemer og oppskalering»**

- Copies of two papers, by sending eMail to: **Oystein.Ulleberg@ife.no**
  - Aarskog, F. G., Hansen, O. R., Strømgren, T., & Ulleberg, Ø. (2020). Concept risk assessment of a hydrogen driven high speed passenger ferry. *International Journal of Hydrogen Energy*, 45(2), 1359-1372.

- Henriksen, M., Vågsæther, K., Lundberg, J., Forseth, S., & Bjerketvedt, D. (2019). Explosion characteristics for Li-ion battery electrolytes at elevated temperatures. *Journal of hazardous materials*, 371, 1-7.
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  - (2021) MF Brim Explorer, 11 March 2021, se <https://corvusenergy.com/mf-brim-explorer-incident/>
  - See also [www.mozees.no](http://www.mozees.no)
  
- 2. Monica Cardozo Alvarez/DnV «Safety of hydrogen used as ship fuel»**
  - See DnV (2021) Handbook For Hydrogen-Fuelled Vessels (web)
  
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  - See «Considerations for Energy Storage Systems Fire Safety» [www.dnv.com/Publications/considerations-for-energy-storage-systems-fire-safety-89415](http://www.dnv.com/Publications/considerations-for-energy-storage-systems-fire-safety-89415)
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  - «Sikker bruk av litium-ion batterier I petroleumsnæringen» DNV Ptil (2020) [www.ptil.no/fagstoff/utforsk-fagstoff/prosjektrapporter/2021/sikker-bruk-av-litium-ion-batterier-i-petroleumsnaringen/](http://www.ptil.no/fagstoff/utforsk-fagstoff/prosjektrapporter/2021/sikker-bruk-av-litium-ion-batterier-i-petroleumsnaringen/)

7. **Marte Ellingsen Tyldum/KM «Kongsberg Maritime – vår strategi som knytter sammen bærekraft og automatisering», se presentasjonen**

- «Jotun Hull skater» saving 22 000 tonn CO2 [www.jotun.com/us/en/b2b/news/hull-skating-solutions/](http://www.jotun.com/us/en/b2b/news/hull-skating-solutions/)
- Kongsberg indicates that this new control strategy will reduce fuel consumption by approximately 20%. - [gcaptain.com/green-dynamic-positioning-technology/](http://gcaptain.com/green-dynamic-positioning-technology/)

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- Recommendations for Cargo Control Room HMI [www.sigtto.org/publications/recommendations-for-cargo-control-room-hmi/](http://www.sigtto.org/publications/recommendations-for-cargo-control-room-hmi/)
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- Links to Imperial College Dyson events with Ben Shneiderman and Don Norman: [Human-Centered AI: Reliable, Safe & Trustworthy - YouTube](#)
- [The Future of Design Education: A conversation with Don Norman - YouTube](#)
- Ben Shneiderman articles on HCAI: [Ten Old Beliefs and New Ideas: Steps toward Human-Centered AI | by Ben Shneiderman | Sparks of Innovation: Stories from the HCIL | Sep, 2021 | Medium](#)
- AIS Transactions on Human-Computer Interaction Volume 12 Issue 3 Article 1 9-30-2020 Human-Centered Artificial Intelligence: Three Fresh Ideas <https://aisel.aisnet.org/cgi/viewcontent.cgi?article=1136&context=thci>
- Design Lessons From AI's Two Grand Goals: Human Emulation and Useful Applications <https://ieeexplore.ieee.org/document/9088114>
- Bridging the Gap Between Ethics and Practice: Guidelines for Reliable, Safe, and Trustworthy Human-centered AI Systems <https://dl.acm.org/doi/pdf/10.1145/3419764> Governance

- Human-Centered Artificial Intelligence: Reliable, Safe & Trustworthy Ben Shneiderman  
<https://www.tandfonline.com/doi/full/10.1080/10447318.2020.1741118>

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- See <https://eggsdesign.com/stories/read/innovation-predators>

**11. Vidar Hepsø/NTNU «Human Factors and Control Centres for Integrated Energy Hubs»**

- <https://doggerbank.com/press-releases/dogger-bank-reveals-world-first-in-hvdc-offshore-platforms-slashing-topside-weight-by-70/>
- <https://issues.org/national-academy-reliable-infrastructure-management-roe>
- Roe, E., & Schulman, P. R. (2008). High reliability management. Stanford University Press.
- Roe, E. (2013). Making the most of mess: reliability and policy in today's management challenges. Duke University Press.

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**Workshop about Human Factors methods for the energy sectoren**

- Summary from the four groups available at the HFC WEB

**Vacancy for aPostdoc positions.** (available at [www.jobb.norge](http://www.jobb.norge)) – summary at [www.hfc.sintef.no](http://www.hfc.sintef.no) in the project "Meaningful Human Control of digitalization in safety critical systems (MAS)" Period: 2022 – 2025

**Open Access book from HFC forum freely available:** «Sensemaking in Safety Critical and Complex Situations - Human Factors and Design» -

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