



# **Cigré International Symposium 2019**

**June 3 - 7 2019, Aalborg, Denmark**

# **GOING OFFSHORE**

**CHALLENGES OF THE FUTURE  
POWERGRID**



**DEPARTMENT OF ENERGY TECHNOLOGY**  
AALBORG UNIVERSITY





**CIGRÉ Symposium Aalborg, Denmark**  
3<sup>rd</sup>-6<sup>th</sup> June 2019



**DEPARTMENT OF ENERGY TECHNOLOGY**  
AALBORG UNIVERSITY

# Call for Papers

**GOING OFFSHORE - Challenges of the future power grid**

**CIGRÉ International Symposium**

Aalborg, Denmark, June 3-6, 2019

## SYMPOSIUM THEME

The aim of the 2019 CIGRÉ International Symposium is to provide a forum for recent research results and system operations experience related to the rapid transformation and challenges imposed on networks and markets by increased amounts of renewables in the energy mix.

Perhaps exemplified more than anywhere, Northern Europe is about to increase its already large share of wind power with further **offshore** plants and **offshore** interconnectors.

Concurrent wider changes to energy generation and consumption patterns, and challenges to obtain right-of-way for new transmission lines, drive a need to rethink transmission and its coordination with distribution networks. As an example, over 50% of Denmark's electrical energy generation is connected at distribution-level, where the roll-out of electric vehicle charging and electric heating will introduce very large power balancing challenges.

The objective of the symposium is to address recent technical advances and policy that allow transmission and distribution networks to enter their next era, in particular those related to offshore generation, transmission and distribution.

The preferential topics reflect the above, and beyond, across technology, planning, operations and markets. The symposium is intended to bring these important topics to discussion during the technical sessions.

## SYMPOSIUM VENUE

Aalborg has a rich and long history, going back to the Vikings. Successful heavy industries have gradually transitioned into an environment of technology-rich enterprises, a feat not least due to the presence of Aalborg University, organizer of the symposium. Aalborg Congress & Culture Centre ([uk.akkc.dk](http://uk.akkc.dk)) will host all technical sessions, and is located centrally, only 6 km from Aalborg airport.



## PROGRAMME

The technical programme sessions opens with keynotes and welcome reception on Tuesday afternoon 4<sup>th</sup> June, followed by two full days Wednesday 5<sup>th</sup> and Thursday 6<sup>th</sup> June. The 32 sessions will run in four parallel tracks. Friday 7<sup>th</sup> June will offer a visit by boat to the Anholt 400 MW offshore wind farm. A trip to Skagen – one of the loveliest quaint coastal towns in Denmark – will be organized for accompanying persons.

Individual Study Committee meetings and Working Group meetings will take place from Sunday 2<sup>nd</sup> to Tuesday 4<sup>th</sup> June.

Information on accompanying persons and social programme available on [CigreAalborg2019.dk](http://CigreAalborg2019.dk)

## PREFERENTIAL SUBJECTS

The principal topics for the symposium are:

- Offshore wind power network connection technologies and equipment: submarine and underground cables; HVAC and HVDC connections; wind farm power quality, transient and harmonic stability.
- Operation and system stability of weak networks with wind penetration, both DC and AC infeeds.
- (Offshore) HVDC technical and economic system perspectives, including multi-terminal DC networks, DC/AC hybrid transmission.
- Submarine cable technology and lifecycle.
- Upgrades and restructuring of onshore networks with mixed usage of HVAC, HVDC, overhead lines, underground and submarine cables.
- Changes and advances to split between roles and functionalities of distribution and transmission networks. Advances in exchange of data and services between DSO and TSO.
- Eco-design and environmental concerns of offshore and onshore transmission solutions, including asset management and public acceptance.

Postgraduate research student participation is encouraged. The symposium hosts a student poster session with best paper awards. As per the instructions, please indicate young authors where appropriate.

## PAPER PUBLICATION

Papers will be available to download one month in advance of the symposium for registered participants – see on the symposium website. One month after the symposium, papers can be purchased on CIGRE [online library](#). CIGRE Science & Engineering will publish the 5 best papers selected from the symposium. The Technical Committee will produce a summary report of the symposium for publication in Electra.

## REGISTRATION

Registration will be opened on 1<sup>st</sup> September 2018. Together with preliminary programme information, synopsis and paper templates will be available on: [CigreAalborg2019.dk](http://CigreAalborg2019.dk)

## COMMITTEES

The Symposium Technical Committee is composed of the chairmen of the following study committees:

- SC C4 System Technical Performance (lead)
- SC B1 Insulated Cables
- SC B2 Overhead lines
- SC B4 HVDC and Power Electronics
- SC C1 System Development and Economics
- SC C2 System Operation and Control
- SC C3 System Environmental performance
- SC C6 Distribution Systems and Dispersed Generation

The Organizing Committee is chaired by the chairman of the Danish National Committee Jørgen S. Christensen.

The Technical Committee is chaired by Zia Emin, chairman of SC C4.

The Local Committee is chaired by Claus Leth Bak.

## SUBMISSION OF SYNOPSES

Participants wishing to present and publish papers should submit synopses by following instructions on [CigreAalborg2019.dk](http://CigreAalborg2019.dk), where the synopses and paper templates are also available. All synopses, papers, and presentations must be in English. Please note authors should be available to present at the symposium.

## DEADLINES

Receipt of synopsis:	28 <sup>th</sup> September 2018
Notification of acceptance:	19 <sup>nd</sup> October 2018
Receipt of full paper:	18 <sup>th</sup> January 2019
Notification of final acceptance:	12 <sup>th</sup> April 2019

**Cigré International symposium 2019 in Aalborg –  
day to day**



Day	Activity	Location			
Sunday 2 <sup>nd</sup> June 2019	Study committee meetings and working group meetings	AKKC			
Monday 3 <sup>rd</sup> June 2019	Study committee meetings and working group meetings	AKKC			
Tuesday 4 <sup>th</sup> June 2019	Study committee meetings and working group meetings	AKKC			
	Tutorial 1      Tutorial 2      Tutorial 3	AKKC			
	Welcome reception (mayor of Aalborg welcomes+LC) and Keynote speaks (one "official" and one technical/or about NORDKRAFT) 1830-2030	NORDKRAFT			
Wednesday 5 <sup>th</sup> June 2019	Opening welcome session in Europahallen 0800-0810	AKKC			
	Keynote speech 0810-0840				
	Panel debate with main sponsors speeches by ØRSTED, VESTAS and SIEMENS followed by 30 mins panel debate 0840-0940				
	President of Cigré address 0940-1000				
	Coffee break 1000-1015				
	Track 1      Track 2      Track 3      Track 4				
	Session 1 1015-1200		Session 5	Session 9	Session 13
	Lunch 1200-1300				
	Session 2 1300-1430		Session 6	Session 10	Session 14
	Coffee break 1430-1445				
	Session 3 1445-1600		Session 7	Session 11	Session 15
	Coffee break 1600-1615				
	Session 4 1615-1730		Session 8	Session 12	Session 16
	Spouses half day tour including lunch 1030-1400	Aalborg City and the Limfjord			
Gala dinner including entertainment 1830-2300	Musikkens Hus				
Thursday 6 <sup>th</sup> June 2019	Spouses full day tour to Skagen with visit to Grenen, lunch in Brøndums hotel and visit to Skagens museum. 0900-1700	Bus to Skagen 0900			
	Track 5      Track 6      Track 7      Track 8	AKKC			
	Session 17 0830-1000	Session 21	Session 25	Session 29	
	Coffee break 1000-1015				
	Session 18 1015-1200	Session 22	Session 26	Session 30	
Lunch 1200-1300					

	Session 19 1300-1445	Session 23	Session 27	Session 31	
	Coffee break 1445-1500				
	Session 20 1500-1645	Session 24	Session 28	Session 32	
	Coffee break 1645-1700				
	Students poster session open 1030-1200 and 1400-1530				
	Closing session in Europahallen including students best paper prizes 1700-1800				
Friday 7 <sup>th</sup> June 2019	Technical tour to offshore wind power plant ANHOLT with the Anholt ferry including lectures and lunch. 0800-1600				Bus to Grenå and ferry to ANHOLT 0800

AKKC: Aalborg Congress and Culture Centre <http://uk.akkc.dk/>

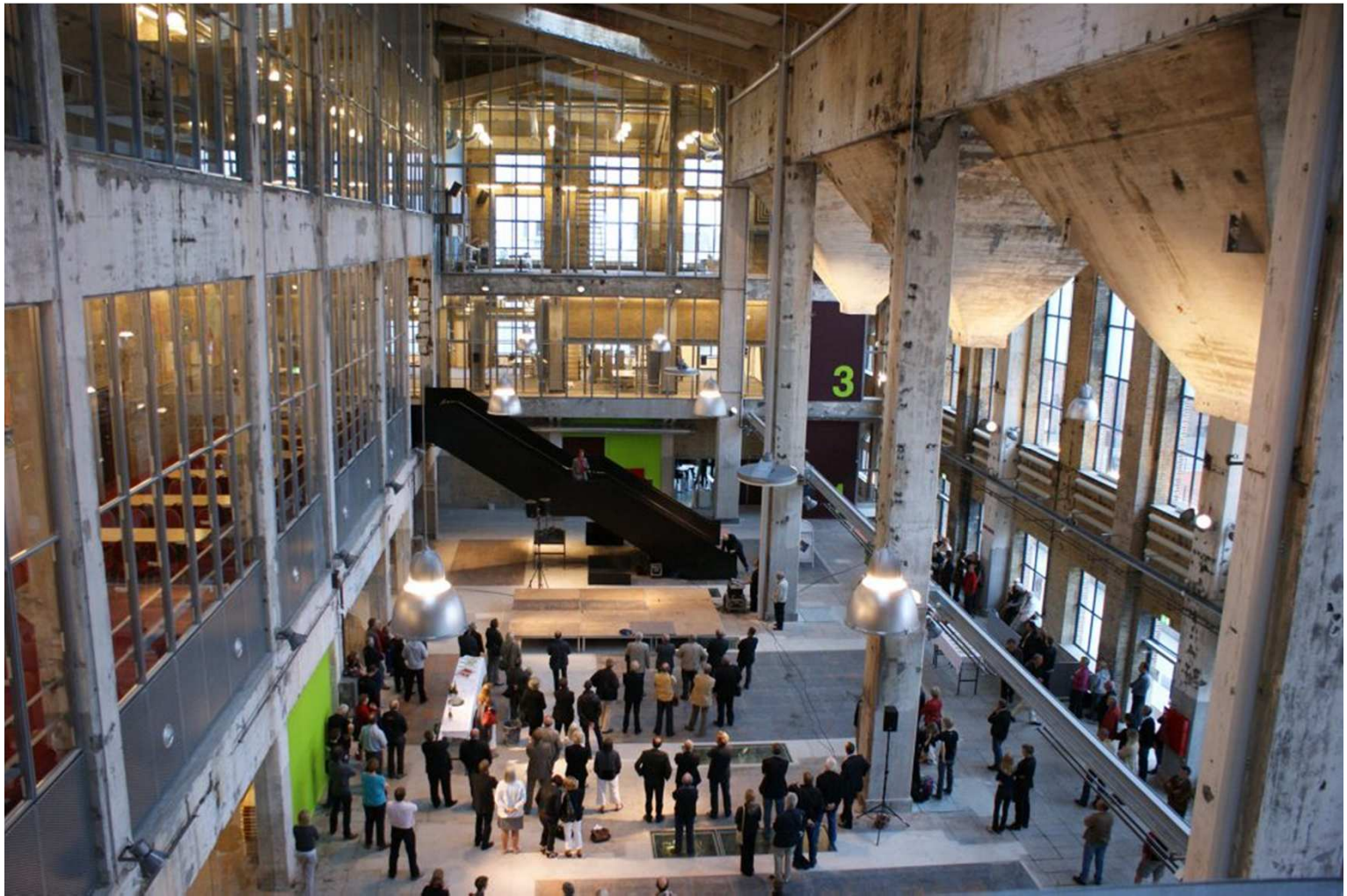
NORDKRAFT: Former coal fired power plant rebuilt to a city multi-activity city center <http://nordkraft.dk/forside.aspx>

Musikkens Hus: State of the art new music hall with a fantastic concert hall and dining in top floor with a view of the Limfjord <http://en.musikkenshus.dk/musikkens-hus/profil/om-musikkens-hus/>

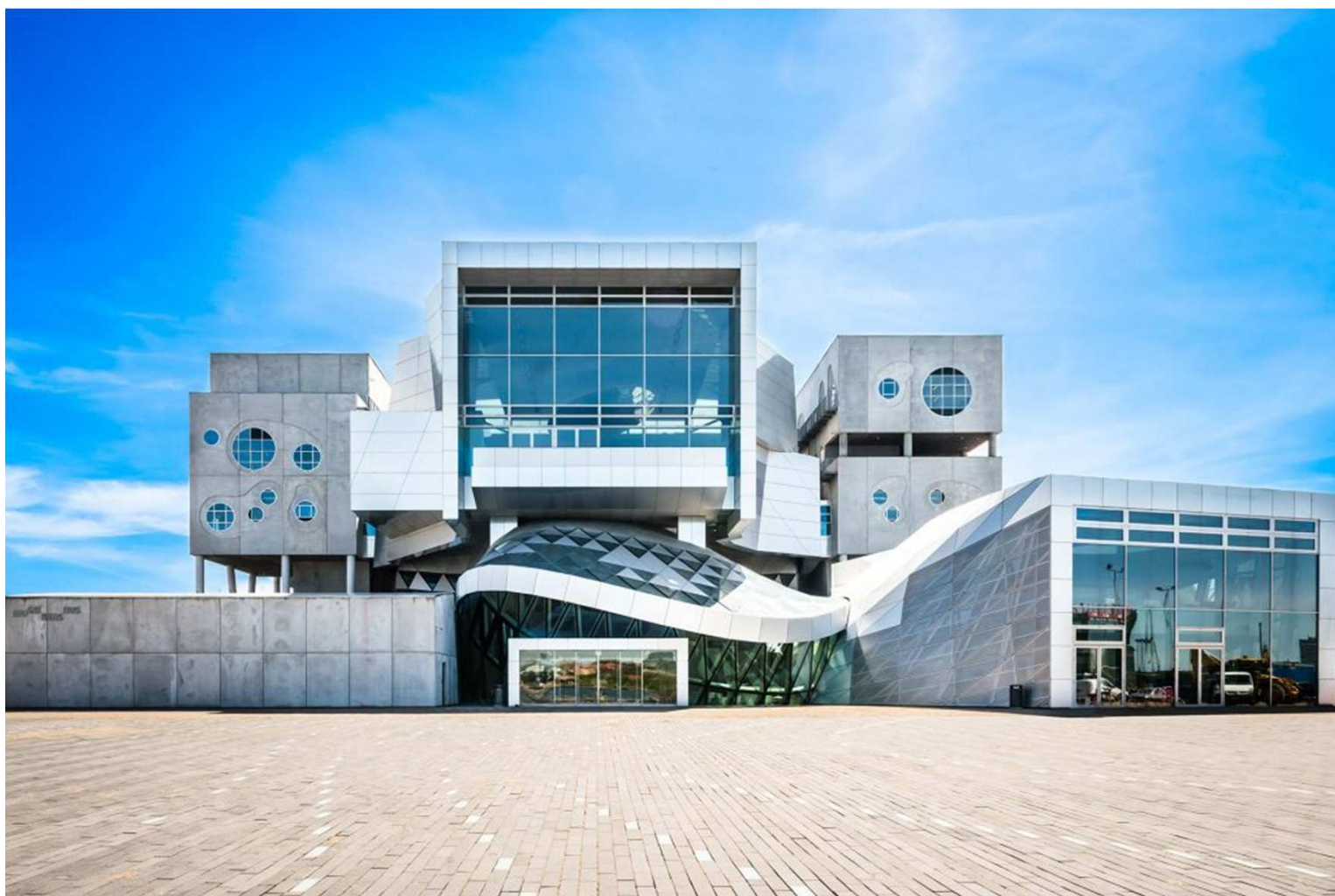
Anholt ferry [http://www.anholtfergen.dk/media/1017/specialtureanholthavmoellepark\\_2017.pdf](http://www.anholtfergen.dk/media/1017/specialtureanholthavmoellepark_2017.pdf)

Webpage <https://cigreaalborg2019.dk/>

## Welcome reception in NORDKRAFT



Gala diner in Musikkens Hus with orchestral performance of  
Den Danske Strygekvartet i koncertsalen



# Aalborg Congress & Culture Centre



- ❖ One of Scandinavia's most flexible congress centres – 500,000 guests and 1,000 events annually
- ❖ Located right in the city centre close to hotels
- ❖ The close vicinity of the inside facilities ensures maximum attention to the conference and exhibition



## Technical tour to ANHOLT offshore wind power plant



Spouses tour – Skagen - Grenen





