

CURRICULUM VITAE January 2014

Name HANS CHRISTIAN SOERENSEN

Date of Birth September 26, 1942

Nationality Danish

Education 1971 Ph.D. Structural Research Laboratory,
Technical University of Denmark

1983 B.Com. CBS, Copenhagen School of
Economics and Business Administration

Experience 1967-73 Associate professor, Technical University
of Denmark

1973-94 11 years as director of research and
development in 3 international companies (FLS Group, Superfos group,
Rockwool International group) working with energy and construction
technologies

10 years as general manager of technological institutes within energy
and environmental protection (DTI, dk-TEKNIK)

1994- Own companies EMU, SPOK ApS. Founder of Wave Dragon ApS,
Wave Dragon Ltd., Wave Dragon Wales Ltd. and Tecdragon SA.

2009-12 Director, Chairman Marine Sector, GHG-Energy Corporation

Assigned Tasks Member of the Board, Danish Wind Turbine Owners Association, 2001-
Founder and vice-president European Ocean Energy Association - 2011
Chairman of the board Wave Dragon ApS, Wave Dragon Ltd., Wave
Dragon Wales Ltd. and Tecdragon SA
Several PhD thesis audited and supervised

Assignments

Wave Energy

Analysis of Power Output Predictability of Wave and Wind Energy,
Energinet.dk grant

Wavetrain: Two 3 year EU stipends to SPOK, 2005, 2008

Participating EU Waveplam and Equimar project.

Project coordinator Chinese Wave Dragon project in corporation with
Guangzhou Institute of Energy Conversion.

Project coordinator the Welsh Wave Dragon demonstrator, a 7 MW
power plant. Total project €25m.

Project coordinator of Sea testing and Optimisation of Power Production
on a Scale 1:4.5 Test Rig of the Offshore Wave Energy Converter
Wave Dragon. Total project: €4.2m

Establishment of a business plan for the Wave Dragon.

EU Thematic Network Wave Energy, EU Coordinated Action Ocean
Energy: Task leader: Social, planning and environmental impact.

Offshore wind

EU Windspeed project: Road map for the North Sea: Task leader:
Stakeholders consultation.

Hvidovre Windfarm, 3 demonstration turbines 155 meter high, each
3.6MW in corporation DONG Energy, Special task: Public acceptance
and feasibility.

EU Coordinated Action Offshore Wind: Task leader: Social, planning
and environmental impact.

Middelgrunden 40 MW offshore Wind Farm situated outside
Copenhagen. Feasibility study, Environmental Impact Assessment and
the establishment of the foundation, total project: €48m.

EU Concerted Action on Offshore Wind Energy in Europe, Task leader:
Social acceptance, environmental impact & politics.

Establishment of Organization Models for the Participation in the Danish
Offshore Wind Farm Program (750 MW) by Non-Utilities

Establishment of the 23 MW Samsøe offshore wind farm.

Due diligence offshore wind farms in USA, Canada, Ireland, UK, Korea
and China.

Biomass

Chairman of the marine sector working with sea based algae production
and Ocean Energy, GHG Energy Corporation



	Danish strategy for Utilization of Biomass for Production of Combined Heat and Power.
	Barriers in Denmark by Export of Biomass Technology.
	Establishment of 5 demonstration plants utilizing biomass in Hungary.
Energy saving	Analyze of the EU strategy concerned with industrial application of advanced energy technology. The EU project: ATLAS
	Analyze of the structure and possibilities for the trade and industry in the 3 Baltic countries.
	World Energy Council: Experience of the Nordic Countries in tackling the Environmental Impact of Energy Supply and Use.
Grid integration	Panel for balancing the grid and integration of more wind in the Danish system, Danish Energy Authorities 2004
	Analysis of Power Output Predictabilities of Wave and Wind, Energinet.dk 2012
Assessments	Evaluation of the EU JOULE and THERMIE Programmes, 5 year assessment. Projects for more than €2,000m.
	Evaluation the Danish PSO program: renewable electricity production.
	Evaluation of 10 years of R&D projects within the field of energy saving in building technology including solar heating.
	Evaluation of the Danish program: Process and Product Development in the Building Industry.

Publications

- H. C. Soerensen: *Environmental Protection and Waste Management with End-products of Flue Gas*, VDI Conference Hamburg, 1988
- H. C. Soerensen (editor): *Experience of the Nordic Countries in Tackling the Environmental Impacts of Energy Supply and Use*, WEC Commission: Energy for Tomorrow's World, June 1992.
- H. C. Soerensen: *Utilization of Biomass for Production of Heat and Electricity in Denmark with Focus on the Demand for R&D*, Proceedings from BIOENERGY '96, The Seventh National Bioenergy Conference, Nashville, USA, page 582-589, 1996.
- H. C. Soerensen et al.: *Five Year Assessment of the Non-Nuclear Energy Programmes (JOULE-THERMIE)*, European Commission DG XII, December 1996, 66 pp.
- H. C. Soerensen, Jens H. Larsen: *The Off Shore Wind Farm "Middelgrunden". Feasibility Study*, Copenhagen Energy- & Environment Office (KMEK), October 1997, 73 pp. and 6 enclosures (in Danish).
- H. C. Soerensen et al.: *Low Pressure Hydro Turbines and Control Equipment for Wave Energy Converters (Wave Dragon)*, EU Research Feasibility Study, 1998, 31 pp.
- H. C. Soerensen et al.: *Middelgrunden 40 MW Off-Shore Wind Farm, A prestudy for the Danish Off-Shore 750 MW Wind Program*. Proceedings from the ISOPE-2000 conference, Seattle, page 484-491, 2000.
- H. C. Soerensen et al.: *The Wave Dragon – Now Ready for Test in Real Sea - Proceedings from the Fourth European Wave Energy Conference*, Aalborg, page G2, 2000.
- H. C. Soerensen et al.: *Feasibility of the Wave Dragon*, Internal Report, 2000, 43 pp.
- H. C. Soerensen, M. Eskesen: *Middelgrunden. Diary of an offshore wind farm. April, June, August and December*, Renewable Energy World, 2000/2001.
- H. C. Soerensen, M. Eskesen: *Middelgrunden. The Beauty in the Wind*. Copenhagen, 60 pp. 2001.
- H. C. Soerensen et al.: *Experience from the Establishment of Middelgrunden 40 MW Offshore Wind Farm*. Proceedings from the 2001 European Wind Energy Conference, Copenhagen, 4 pp, 2001.
- H. C. Soerensen, R. Hansen: *Low Pressure Hydro Turbines and Control Equipment for Wave Energy Converters (Wave Dragon)*, Final Publishable Report, 2001, 21 pp.
- H. C. Soerensen et al.: *Experience with and Strategies for Public Involvement in Offshore Wind Projects*. Proceedings from the Offshore Wind Energy EWEA Special Topic Conference Conference, December 2001, Brussels, 4 pp, 2001.
- H. C. Soerensen et al.: *Offshore Wind Energy, Ready to Power a Sustainable Europe*, Final report from the EU Concerted Action Offshore Wind in European, Delft University, 2001.
- H. C. Soerensen et al.: *Wave Energy Utilization in Europe, Current Status and perspectives*, CRES on behalf of the EU, 32 pp, 2003 and Renewable and Sustainable Energy Reviews V6, 2002, pp. 405-431
- H. C. Soerensen et al.: *The Middelgrunden Offshore Wind farm, A Popular Initiative*, CEEO, 28 pp., Copenhagen, 2003
- H. C. Soerensen et al.: *Experience with and strategies for public involvement in offshore wind projects*, Int. Journal of Environment and Sustainable Development, V.1, No.4, 2002, pp 327-336
- H. C. Soerensen et al.: *Offshore windpower: a major new source of energy for Europe*, Int. Journal of Environment and Sustainable Development, V.1, No.4, 2002, pp 327-336
- H. C. Soerensen et al.: *Experiences from the approval process of the Wave Dragon project*, Proceedings from the 5th European Wave Energy Conference, Cork, Ireland, September 2003

- H. C. Soerensen et al: *Development of Wave Dragon from scale 1:50 to prototype*, Proceedings from the 5th European Wave Energy Conference, Cork, Ireland September 2003
- H. C. Soerensen et. al.: *Wave Dragon, Operating experience and progress towards commercialization*, All-Energy Opportunities, Aberdeen, UK, May, 2004.
- H. C. Soerensen: *World's first offshore wave energy converter, Wave Dragon, connected to the grid*, World Energy Council Conference, Sydney Australia, September, 2004.
- H. C. Soerensen. et. al.: *Wave Dragon, prototype test in DK*, 6th European Wave and Tidal Energy Conference, EWTEC 2005, Glasgow, UK, August 2005.
- H. C. Soerensen et. al.: *The Results of Two Years Testing in Real Sea of Wave Dragon, paper presented 6th European Wave and Tidal Energy Conference*, Glasgow, September, 2005.
- H. C. Soerensen et. al.: *Wave Dragon, the Wales 4 -7 MW Demonstrator*, IMechE Fluid Machinery for waves conference, London, UK, October, 2005.
- H. C. Soerensen & W. Knapp: *Wave Dragon - ein schwimmendes Wellenkraftwerk*, 5. Seminar Kleinwasserkraft der Universität Stuttgart, October, 2005.
- H. C. Soerensen et. al.: *Experiences from Middelgrunden 40 MW Offshore Wind Farm*, Copenhagen Offshore Wind, October, 2005.
- H. C. Soerensen et. al.: *Bølgekraftanlæg ved Horns Rev – Screening (Wave energy deployment at Horns Rev Wind Farm*, Copenhagen, 2005, 62 pp. + 2 appendixes, (partly in Danish)
- H. C. Soerensen et. al.: *Preliminary Results from Second Phase Sea Testing of the Wave Dragon Prototype Wave Energy Converter*, Ocean Energy Conference, Bremerhaven, 2006.
- H. C. Soerensen et. al.: *Life Cycle Assessment of the Wave Energy Converter: Wave Dragon*, Ocean Energy Conference, Bremerhaven, 2006.
- H. C. Soerensen et. al.: *Sea Testing and Optimisation of Power Production on a Scale 1:4.5 Test Rig of the Offshore Wave Energy Converter Wave Dragon*, Final Technical Report for the period October 2002 to March 2006.
- H. C. Soerensen et. al.: *Everyone's a winner*, Energy Engineering, UK, 2007, 3 pp.
- H. C. Soerensen et. al.: *Results from UK EIA and Consenting Process*, Proceeding of the 7th European Wave and Tidal Energy Conference, Porto, Portugal, 2007, 8 pp.
- H. C. Soerensen et. al.: *A Frequency Converter Control Strategy for a MW Wave Energy Take-off System*, Proceeding of the 7th European Wave and Tidal Energy Conference, Porto, Portugal, 2007, 5 pp.
- H. C. Soerensen et. al.: *Work Session 5 Environmental, Economics, Development Policy and Promotion of Opportunities*, CA-OE, Project no. 502701, SPOK, Copenhagen 2007, 30 pp.
- H. C. Soerensen: *Ocean Wave Energy*, Global Investments for Climate and Energy Security - A Cross-Sector Perspective, ECF Background Paper 1, European Climate Forum, Berlin, 2008, page 55-58.
- H. C. Soerensen et al.: *Ocean Energy: Position paper for IPCC*, IPCC scoping conference, Lübeck, January 2008, 8 pp.
- H. C. Soerensen et. al.: *Report on technical specification of reference technologies (wave and tidal power plant)*, Needs project (New Energy Externalities Developments for Sustainability), SPOK, November 2008, 59 pp.
- H. C. Soerensen et. al.: *Report on Best Practice, Wave Energy*, Waveplam project, IEE project, Bilbao, 2009, 40 pp.
- H. C. Soerensen: *Hvidovre Offshore Wind Farm*, EWEA Offshore wind conference, Sweden, 2009, 8 pp.
- H. C. Soerensen & J. Fernández Chozas: *State of the Art of Wave Energy in Spain*, IEEE EPEC Conference Canada, 2009, 6 pp.
- H. C. Soerensen & E. Friis-Madsen: *Wave Dragon from Demonstration to Market*, 3rd ICOE Conference Bilbao, 2010, 7 pp.
- H. C. Soerensen & J. Fernández Chozas: *The Potential for Wave Energy in the North Sea*, 3rd ICOE Conference Bilbao, 2010, 6 pp.
- H. C. Soerensen & J. Fernández Chozas, et. al: *Predictability of the Power Output of Three Wave Energy Technologies in the Danish North Sea*, 9th EWTEC Conference Southampton 2011, 9 pp.
- H. C. Soerensen: *TIDENG, Power Production and Economical Feasibility of HPS Tidal Stream Power Converter*, Low Carbon Earth Summit-2011, Dalian, China
- H. C. Soerensen & J. Fernández Chozas, et. al: *Predictability of Wave Energy and Electricity Markets*, Modern Energy Review, 2012
- H. C. Soerensen: *Experience from the new Danish law about forced involvement of locals in wind projects*, 11th World Wind Energy Conference, Bonn 2012
- H. C. Soerensen & J. Fernández Chozas, et. al: *Economic Benefit of Combining Wave and Wind Power Productions in Day-Ahead Electricity Markets*, 4th ICOE conference, Dublin, 2012, 6pp.
- H. C. Soerensen & J. Fernández Chozas, et. al: *Combined Production of a full-scale Wave Converter and a full-scale Wind Turbine – a Real Case Study*, 4th ICOE conference, Dublin, 2012, 7pp
- H. C. Soerensen & E. Friis-Madsen, et. al: *The development of a Wave Dragon 1.5 MW Demonstrator*, 4th ICOE Conference Dublin, 2012, 5 pp.
- H. C. Soerensen & E. Friis-Madsen, et. al: *Design of a 1.5MW Wave Dragon*, EWTEC2013 Conference Aalborg, 5 pp
- H. C. Soerensen & J. Fernández Chozas, et. al: *Predictability of the power output of three wave energy technologies in the Danish North Sea*, International Journal of marina Energy, 2013, 15pp.