

## Dr.techn. Olav Olsen is busy on R&D as always

Dr.techn. Olav Olsen has a continuous focus on research, development and innovation. In addition to our internal development activities, we are always involved in a number of research projects activities. Either nationally through institutions like The Research Council of Norway or through international programs like Horizon2020 (EU). There are probably very few similar companies with the same portfolio of R&D projects, comprising in excess of 6% of our yearly turnover.

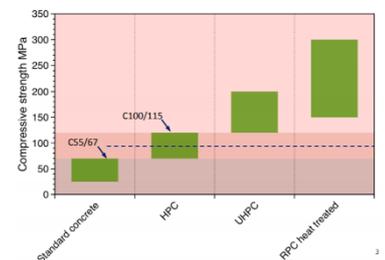
**Here is a short description of a handful of those:**

In spring 2019, the research project **Lifes50+** (Horizon 2020) led by Sintef Ocean will come to an end. Through calculations, model tests and comparison with other concepts, our concept called OO-Star Wind Floater has been qualified. See more on: <https://lifes50plus.eu/>.



The **Innovative Mooring Systems (2016-2018)** project supported by NRC and led by ourselves, has been executed together with Equinor, Rolls Royce Marine, Vicinay, OTS, Aibel og Servi as industry partners and IFE as research partner. The project has focused on new and innovative solutions for mooring of floating offshore wind in shallow waters.

The NRC supported project, **New application of UHPC**, is a 4 year IPN-project led by us, supported by the BIA-program and Skattefunn. Together with Veidekke, SINTEF, Kværner, Sika, Norcem, Elkem, UIS & UIA, we look at new areas of application for ultra-high performance concrete, using Norwegian aggregates, admixtures and materials.



**StableDams** is a NRC supported project, led by Norut. The objective is to study the stability of dams exposed to ice and temperature loading. See more at <https://norut.no/nb/node/3090>.

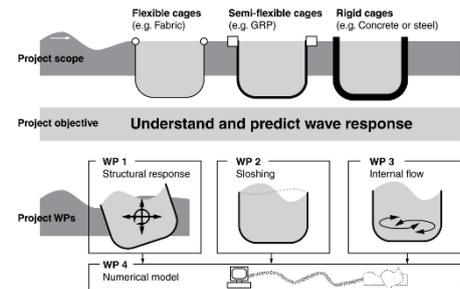
**I4offshore** started up late 2018, and is a large research project under the Horizon 2020-program. The project objective is to further reduce the cost of offshore bottom-fixed wind by developing a full-scale demo for the turbines of the future. Dr.techn. Olav Olsen is a central partner in the project, being responsible for the design of the substructure. In total, there are more than 15 partners, and Siemens Gamesa is leading the project. The total budget is in excess of 27 million Euro, see further details here:

<https://cordis.europa.eu/project/rcn/218282/factsheet/en>



**Closed Cages in Water (CCW)** is looking at the effects of wave slamming and resonance in floating fish farming. NFR's financing of this KPN-project is coming through the MAROFF-program, and Sintef Ocean is heading the project, read more here:

<https://www.sintef.no/en/projects/safe-operation-of-closed-aquaculture-cages-in-waves-ccw/>.



Through our R&D cooperation with TechnipFMC, we have the last years brought forward new concepts within a diversity of business areas, such as **all-concrete LNG-tanks, fish farming plants and arctic floating and fixed installations for the Oil & Gas market.**

In the **REDWIN**-project (NRC KPN EnergiX 2015-2018), we have contributed with advance time domain simulations in an effort to contribute to new and more effective methods and algorithms. The fully integrated analyses takes interaction between foundation and soil for bottom fixed wind turbines into account. More reading at: <https://www.ngi.no/eng/Projects/REDWIN-reduce-wind-energy-cost>.

**ShellDesign**, our software system for analysis and design of reinforced concrete structures has received support through many years through the Skattefunn arrangement from NFR. The development of this software has been closely linked to application to new market areas, as well as re-analyses of existing structure for life time extensions and modifications, such as Troll A, Troll B, and Heidrun.

**HydroCen** is one of the research centers of sustainable energy – FME, funded by the NRC and with Dr.techn. Olav Olsen as one of the partners. This is a national effort where energy producers, consultants, suppliers and research institutions are developing new solutions together for the energy systems of tomorrow. More information can be found here:

<https://www.ntnu.no/hydrocen>



Through the Innovation Norge program "Arctic 2030", we receive support for developing and marketing a **floating quay concept** suited for Canadian arctic waters. See more about this program here:

<https://www.innovasjon norge.no/no/tjenester/innovasjon-og-utvikling/finansiering-for-innovasjon-og-utvikling/tilskuddsordning-for-arktisk-og-russland/>

