HUSTAD & GRANAAS
ADVISORS TO THE ENERGY INDUSTRY

CURRICULUM VITAE

PER-OLAF HUSTAD

Senior Partner

PERSONAL DETAILS

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EDUCATION: The Norwegian University of Science and Technology (NTH/NTNU), Department of Petroleum Technology. Siv.Ing/Master of Science: Dec. 1975. Master thesis: "Development techniques for design of large integrated offshore decks (Beryl A) for Aker Engineering, in co-operation with the Norwegian Army Research Centre/Christian Michelsen's Institute to development of models for large scale gas explosions and effect on offshore structures.

LANGUAGES:

Norwegian (Scandinavian)	Native
English	Fluent
German and French	Basic

SUMMARY:
Extensive background from the oil and gas industry worldwide, of these many years in general and project management positions in Upstream Operating Units. Assignments in Norway, UK, Brunei, the Netherlands, Russia, Iran and Japan. Engaged in the development of Floating LNG Production facilities (FLNG). After retiring from Shell worked as an independent consultant until 2016 starting up the company Hustad & Granaas AS.

PROFESSIONAL SUMMARY

07/'16-TODAY Hustad & Granaas AS, Senior Partner, Stavanger, Norway. H&G is a Company offering advisory services to the Energy Industry. The company specialise in opportunity development, corporate governance and project execution. The target industry sectors are the on and offshore oil & gas and renewable energy. The company has a multidiscipline, multicultural group of employees and work in Norway as well as internationally.

06/'14-07/'17 Petoro, Board member. This is the Company that own all the Norwegian State's oil and gas assets. (2013: Result 132,8 bill. NOK, cash contribution to the state 124,8 bill. NOK. Total production 1,034 mill. BOE/day). Left the

position owing to potential conflict of interest with Hustad & Granaas AS business.

09/'13-07/'16 AS Norske Shell, Consultant, Stavanger, Norway. Tasks were review of internal organisational and procedural problem areas, develop and implement improvements as well as lead negotiations between Shell and major contractors to solve contractual issues.

05/'13-07/'15 Nobu Group AS Chairman of the Board, Narvik, Norway. Partly working directly to improve the business of this Company. The Group owns Promet AS in Stavanger and NTS in Dubai/Saudi Arabia. It was also the owner of the now closed Habu Technology AS in Narvik. The Group produces and repairs high tech machined parts mainly for the oil and gas industry. The Group has a broad range of manufacturing activities for a very demanding market. Typical clients are FMC Subsea, Schlumberger, Halliburton, Roxar etc.

09/'12-07/'13 Gasnor, Integration Manager. After retirement from Shell started as a consultant with own company. Integration Manager for Gasnor, working for Shell. Shell acquired in July 2012 the LNG Company Gasnor, this as part of Shell's strategy to develop LNG as a fuel for industrial and marine use. Gasnor is a pioneer company in this business, and with 50 employees it was a challenge to introduce Shell governance systems, policies and standards without disturbing the successful business model the company had. My job was to introduce what was necessary from Shell and convert Gasnor's own model into a setup that Shell could accept. Gasnor will be used to develop the European market for downstream LNG- i.e. producing, distributing and marketing LNG as a fuel to the end user. The end users are shipping companies and energy consuming industries.

01/'10-09/'12 AS Norske Shell, Upstream Director, Stavanger, Norway. This covered responsibility to co-ordinate all Shell's activities linked to exploration, development and production of oil and gas in Norway. In addition to the NOV fields I continued to be responsible for, this also covered the operated activities like exploration, drilling and production from Draugen and Ormen Lange fields which are operated by Shell as well as managing Shell's interest in Gassled/Polarled. Part of the role was to be in Shells management team for Europe as Europe was managed as one large regional operating unit in Shell.

01/'10-12/'10 AS Norske Shell, Manager for Shell Ventures, Stavanger, Norway. Manager for Shell Ventures operated by others in Norway (NOV), part of Shell's Upstream International Europe organisation. This role was to act as shareholder representative for all Shell assets not directly operated by Shell in Norway. These assets contributed approx. 50 % of Shell's production in the country and included gas fields like Troll, gas pipeline and processing infrastructure to the continent and UK, onshore processing plants and terminals (Kårstø, Kollsnes, Emden, Dunkirk). Each of the assets had an asset lead reporting in my organisation acting as board representatives in management and technical committees. The portfolio also included the large-scale Carbon Cleansing test centre at Mongstad refinery (TCM) and board member in Rogaland Gas Test

Centre (RGC) and Shell Technology Norway (STN). In addition, I was a member of the senior management team for Corporate AS Norske Shell.

03/'09-12/'09 Shell Global Solutions, Technical Lead FLNG. Worked again full time in Global Solutions Project department. My job as Project Director for the gFLNG (later Prelude) was in my absence taken over by another person and I got the technical lead job to take the next FLNG forward. This involved developing Shell's FLNG for the Sunrise field in Australia/Timor Este waters. Following a due diligence period with the operator Woodside and the partners Conoco Phillips and Osaka Gas the venture selected the FLNG proposal as the development concept. This later stopped owing to other issues of national political nature.

06/'08-02/'09 Worked part time, mostly from home while assisting my wife who got seriously ill with cancer. I did this until she died Feb.2009. I left my job as gFLNG Project Director owing to this situation.

10/'07-06/'08 Shell gFLNG (Prelude), Project Director. Led the work through the BDP (select) phase; developed Contract strategy, pre-qualified Contractors and prepared tender for a combined FEED and Execution Contract. (Novel to Shell type Contract- based on rates/productivity factors and conversion to Lump Sum). The gFLNG (Prelude) is a large floating facility with facilities to produce, process, liquefy, store and offload natural gas. The vessel was then the largest ship structure ever built.

11/'05-09/'07 Shell GSI Persian LNG Project, Project Director. This project covered the development of an electrically powered LNG plant to be constructed in Tombak, Iran. The project included a 1250 MW combined cycle electric power plant driving two 8.1 mill. Ton/year (total 16.2) LNG refrigeration trains. The initial project covered 2 trains, with extension possibilities for up to 6 similar LNG trains. A contractual framework and execution plan for implementation was developed as part of the FEED work, but deferred owing to the international political situation with Iran.

04/'05-11/'05 Shell Global Solutions, Project Executive - Gas. This directorate had the responsibility for Project Management, execution and governance for all Shell's midstream (LNG), downstream and chemical Capital projects above 10 mill. USD. The portfolio for this position covered new LNG plants in northern Africa/Iran and Russia as well as new energy solutions such as a windmill park in the Netherlands. The key part of the work was related to the technical/commercial management of a feasibility study to develop the Shtokman field in the Russian Barents Sea. In this role I was responsible for an integrated study (from reservoir to LNG shipping) with a very large land-based LNG plant linked to the Shtokman field with a 600 km subsea pipeline system. Key challenges were the frequent occurrence of large icebergs in the region, the water depth and the distance to shore from the field. The work was a development under JSA and MOU agreements between Shell and the resource holder Sevmorneftegas and Gazprom. The work included numerous

interactions with the resource holders as well as other Russian interest parties (authorities, Contractors).

08/'04-04/'05 Sakhalin Energy Investment Company, Technical lead for the feasibility study for expansion of the Sakhalin development with a 3rd. LNG Train. The study covered the full Project chain from the reservoir through all onshore processing facilities, pipelines and the 3rd. liquefaction train. The work was done for Sakhalin Energy. This work was concluded with the VAR 2 in March 05. (Value Assurance Review- taking into account all parameters within Technical, Economic, Commercial, Organisational and Political areas-TECOP)

01/'02-08/'04 Sakhalin Energy Investment Company, Offshore Projects Manager. Responsible for developing contract strategy, the tenders, selecting Contractors and well into execution of all the offshore related facilities for the Phase 2 development. This included two concrete gravity base structures built north of Vladivostok (Port Vostochny), two large platform decks built in Korea, offshore pipelines and cables for Sakhalin and a Tanker Loading Unit. Upgrading the existing Molikpaq production platform for year-round production was also added in during 2003. All offshore designs were specific for harsh environments with ice, low temperatures and high seismic activity. The technology required were outside existing industry benchmarks and experience generally available in the industry.

Approval for construction from the Russian authorities was a major task, and stakeholder management was a key success factor for the project.

09/'00-01/'02 Sakhalin Energy Investment Company, Development Manager. Member of the Management Team.

Responsible for the takeover of the Project from Marathon in Houston and transferring all Project activities to Rijswijk NL. At the same time developed and resourced the project organization for execution as well as executing the front-end design for all the Sakhalin Energy Phase 2 facilities.

This was a major undertaking involving technical, organizational, field development (subsurface) as well as key stakeholder relationships. The Project venture was the biggest undertaken by Shell for 30 years and included entry into Russia on a large scale. Laying the foundation for execution, including developing and obtaining approval for the Contract strategy for the total venture was a major task that I was the prime responsible party for. The Contract strategy development was heavily influenced by the lenders requirements to obtain large-scale full recourse Project financing for this Russian venture, as well as Japanese JV partners specific requirements for LS type Contracts. Further Russian authorities and their aspirations as well as legal issues linked to Russian execution had to be considered.

The key learning from this period is acquisition and the importance of rapid development of a network with key stakeholders in a new area like Russia combined with internal processes to maintain a commercial attractive venture.

07/'99-09/'00 AS Norske Shell, Manager of Assets Operated by Others, Vice EP-Director, A/S Norske Shell Management Team. (NSEP). Responsible for all Norske Shell's non-operated ventures in the reorganized asset based NSEP. These ventures provided 70 % of NSEP's income as well as expenditure. This included the pipeline infrastructure (Gassled) and the most important activity was Ormen Lange- a large deepwater gas discovery in the appraisal phase. Key challenge was to influence stakeholders to protect and enhance Shell's interest and create a long-term business platform for Shell as an operator. This work was highly successful, increasing Shell's total share through allocation of additional acreage as well as obtaining Operator position for Shell in the operating phase of the development. A key target was to position Shell as a key player in the Norwegian gas market, which was achieved.

- Deputy to CEO David Loughman for EP- matters which involved much contact with authorities (political, ministry and administrative levels), partners, contractors, suppliers as well as public. Process owner for the business processes industry relations and field development. Sponsor for management of assets and the skill management processes across the company.
- Participating in a small special task force negotiating a merger/acquisition of another Norwegian Oil Company working from London.
- Representing Shell in external fora such as the Norwegian Operators Association, DEMO 2000- a Government sponsored technology development program and a trust for university level technical education in Norway.
- Key learning was development of strategies for value improvement and continued growth of the business as well as further development of business and people management skills.

04/'96-07/'99 AS Norske Shell, Technical Director, Norske Shell EP Management Team

Responsible for field engineering, petroleum engineering, project management, IT, well engineering, drilling, and technology development in Norske Shell. In addition, responsible for non-operated assets Statfjord and a number of other smaller production licenses. A special task was to develop an asset-based organization for NSEP that was introduced.

Key learning was management of business and stakeholders in a competitive market through membership in NSEP/Norske Shell's management team, as well as further development of management skills with technical and people related matters.

12/'93-04/'96 AS Norske Shell, Organisation Manager NSEP/Assisting HR Director. Norske Shell Management Team (incl. Downstream/marketing/refinery/ chemicals)

In NSEP responsible for HR, health (including Company doctors and nurses, also offshore), safety and environmental functions, internal audit and review, administration and property management. (Offices, houses, base facilities). In the downstream area responsible for organizational change and functional

responsible for HSE management across up and downstream activities. Follow up of Troll Project completion and de-manning from NSEP.

In this period a major management of change learning and experience was obtained, as responsible for a 40 % down manning and reorganization of the EP Company.

06/'92-12/'93 AS Norske Shell, Installation and Completion Manager, Draugen Project.

Project responsible for tow-out, installation, offshore completion, commissioning and start up/handover of all the Draugen field facilities (GBS in 250 m water, 19000 t. PDQ deck, two subsea manifolds and 3 satellite subsea wells with flexible flowline tie-ins, floating loading platform and dual export lines). This included establishing Project support facilities in the greenfield area of mid Norway. Based in Kristiansund.

Key learning was management of a large integrated offshore Project with multiple functions a several stakeholders. The greenfield nature of the Project lead to high public profile, both in Kristiansund as well as with fishing interests offshore which was part of the job responsibility.

06/'86-05/'92 AS Norske Shell, Project Manager, Subsea and Loading Systems, Draugen Project. From the initiation of the Project in 1986, when I was a member of the team developing the Field Development Plan for Draugen, I continued with responsibility of front end engineering, detailed design and construction/installation of all the non-platform based facilities (subsea, flowlines, pipelines and offshore loading incl. Tankers). The Draugen floating loading buoy developed with SBM as designer and Aker as a fabricator in a JV was a key learning, a complex Contractual situation including technical challenges like prototype large scale flexible risers that had to be technically qualified as part of the project. This included development and installation of the first subsea multiphase pumping unit (SMUBS). Major Project Management, contracting strategy, tendering, people management and project management were key learning in this period.

1981-1986 Brunei Shell Petroleum Bhd. (BSP), Field Engineer, A period with hands on direct exposure to EP work in a period with hectic development of new oil and gas fields to keep the production level up. 16 platforms were installed in the period 81/82. I was responsible for a number of new developments as well as brown-field refurbishment work. The first period of 1 ½ year I was responsible for fabrication in BSP's own yard as well as Offshore installation. This also included transportation and installation of two deepwater (100m+) platforms built in Japan (Gannet). Later I worked for 1 ½ year as area responsible Project Engineer- covering all Projects in the Champion Area. The last period of 1 ½ year I was design engineer, responsible for all detailed design of gas facilities for Ampa, Fairley and Gannet fields. This included change out of gas drying facilities on the gas processing platforms and a full design of facilities for the Gannet field. Developed a guideline for BSP Well Production Facility Design to reduce time required from well completion to production.

Key learning in this period was a deep hands-on experience with all facets of field engineering and Project Management. Although the facilities were significantly simpler than the North Sea type developments- the basic principles and problem areas are the same.

1981 Well Site Petroleum Engineer, Shell Expro, Aberdeen and Lowestoft

Working Offshore on both Jack Up and floater drilling in exploration as well as infill drilling on Leman E gas platform.

1980-1981 AS Norske Shell, Wellsite Petroleum Engineer. Worked Offshore, usually as the only Shell representative, on drilling and testing of the first 6 wells on the Troll field. At the time the world's most complex offshore test completions were run and testing of the productivity more than 100 000 msfc/d was achieved in 350 m of water. Was responsible for testing and development of techniques for manned intervention in 350 m of water using atmospheric diving techniques with specialized tools.

Key learning was offshore working conditions, deepwater operation and drilling/completion techniques.

1976-1979 Statoil and Mobil Project Engineer. Major Projects, Statoil and Mobil (seconded from Statoil) (Statfjord A, B and C) Worked most of the time in Mobil's Project organisation as Project Engineer. Key responsibility was layout and loss prevention engineering (fire and gas systems, shutdown systems, HVAC, rescue, evacuation and risk analysis). The 3 Statfjord platforms were state of the art at the time, but also a significant challenge for Project Management systems that was not able to handle such a high number of concurrent activities. Responsible for a large risk analysis (10 man-years) for Statfjord A to prove fit for purpose for start-up.

Major learning was organization of work, offshore platform engineering and teamwork.

In periods I worked in Statoil's base organization developing management systems and standards for this at the time new Company.

TRAINING RECEIVED

SHELL TRAINING:

2010 JV Governance Training- Shell Group Learning

2006 Shell Project Academy- Level 4 Course (Project Director level)/event

2001 Shell Group Leadership Development, 1 week, INSEAD/France

1999 Shell Group Leadership Workshop, 1 week, Green Park, NL

1998 Compulsory Offshore Safety training, 1 week (smoke diving, FiFi, evacuation etc.)

1997 6 weeks intensive program on Business Management (Condensed MBa), Darden Graduate School of Business Administration, University of Virginia, USA.

1987 International Executive Seminar, 14 days, Shell/International Management Institute – Geneva,

1980-87 Normal suite of Shell EP (SIPM) development courses through MADEC and the Leap Leadership Program. (Negotiating Skills, Welding Techniques, Contract Management, HSE, P 2.18 Oil and Gas Technology, Campbell's Gas Course (3 weeks), Project Planning, Hazop Leadership Training, P2.11 Project Management, Supervisory Safety Workshop,

OTHER:

1980 Kick Control and Blowout Simulation Course, 1 week, Stavanger

1979 Dust and vapor explosions, 1 week, Wiesbaden, Germany

1978 HAZOP, 1 week, ICI, UK

1978 Industrial Fire Protection, 2 weeks, Texas A&M Univ., USA

1977 Gas Engineering, 2 weeks, Institute of Gas Technology, Chicago, USA

Diploma in Advanced Safety Management, Risk Management 5- weeks British Safety Council

1977 Prepared and conducted a course for one semester at the local University in Stavanger on Reliability and Risk Assessment.

1976 Reliability Theory and Practice, 2 weeks, Systems Reliability Services, UK.

Risk Analysis, 1 week, NPF

1975 Practical Drilling Course, 14 days, Norwegian Drill Trainer, later served as a part time drilling instructor while serving in the Norwegian Navy.

OTHERS

- Board member of Petoro AS (2015/2017)
- Chairman of the Board Subsea Smart Solutions AS (2015-current)
- Chairman of The Board Nobu Group AS (2013/2015)
- Board member in Rogaland Gas test Centre (RGC) (2010/2012))
- Board Member of Shell Technology Norway (STN). (2010/2012))
- Member of various Licence Operator Committees for Shell International
- Military Service, Norwegian Navy, submarine branch. Primarily working with data and computer technology including work at the Norwegian Institute of Technology. For a period worked as assistant trainer on a land drilling rig in Tananger (Stavanger area) (1975/'76)