

PET 590 Gas Value Chain - Exam

Team based projects to be presented jointly for
Evaluation on 25th April 2018



University of
Stavanger

Team compositions

- **Team 1 (Task D)**
 - Vladislav Volkov (Leader)
 - Saeid Abdollahpour
 - Saeed Sajedi
 - Julie Tanum
 - ~~Luis Jose Abaunza~~
- **Team 2 (Task A)**
 - ~~Dennis Canas (Leader)~~
 - Jørgen Hersve Thorød (Leader)
 - Linda Monsen
 - Baba Nasiru Lawal Junior
 - Ofei Michael
- **Team 3 (Task C)**
 - Fawzi Chamssine (Leader)
 - Anderson Parra Camacho
 - Kent Arne Ask
 - Obinna Egwu Eleri
 - Awais Ashraf
- **Team 4 (Task B)**
 - Baber Rafique (Leader)
 - Yasin Amini Shareza
 - Sergey Kim
 - Nonso Ihebuzor
 - Heidi Søyland



Housekeeping rules

- On Monday 16th April at 14:45 there will be a draw and the teams will be allocated projects according to the outcome of the draw.
- The teams will prepare a PP report of maximum 25 slides to be presented on Wednesday 25th April (Room KE-E354) between 09:00 and 16:00, with all teams, professors and the external examiner/sensor present.
- Feedback and comments will be given during the session.
- All team members will take part in the presentation of the reports. All will also be asked 1-3 individual questions within the curriculum or the report.
- The sequence of the presentations will be decided by a draw at 09:15 on 25th April. Allowed time: Max 1:15 hour including questions for each team.
- The exam is part of the course and all teams will attend the full day.
- The teams can use all aids and available information to prepare the report, except subcontracting to third parties. Honor code apply!
- Sources to be cited for all data and external info used.
- The teams are encouraged to cross fertilize with the other teams as or when appropriate and as agreed with the other team.
- Professors Terje Halmø (E-286) and Zhixin Yu (E-383) will be available for clarifications and guidance working days pm at their offices. Hours 13:00 – 14:30 or as posted on doors. E-mail and sms are welcome.

Team

A – The Suggested ExxonMobil – BP Merger

The Business Press insisted (in 2017) vigorously on a likely takeover of BP by ExxonMobil...! Why did it not happen?

- What kind of company would such a merger make?
 - Business profile? Upstream/Downstream/Petrochemicals/Chemicals
 - Reserves in Oil, Gas and Renewables?
 - Geographic focus and presence
 - Economic strength
- What are the arguments against such a merger?
 - Technical
 - Financial
 - Political
- What are the main challenges for such a merged company after Paris?
- Are there other more relevant takeover candidates for ExxonMobil than BP?
 - If so: Which company(ies) and why?
- What should a sustainable «oil company» «look like» in 2040 based on the way such companies are likely to be evaluated at such time?



Team

B – The Gas Value Chain Infrastructure

The Gas Value Chain Infrastructure (GVCI) has been, and will be, further developed as a function of the physical and chemical properties of gas...!

- Describe the GVCI in the three main markets for gas, North America, Europe and East Asia.
- How is the GVCI organized in these three markets, and what are the legal basis for such?
- How is the GVCI influenced by the possibility of exploiting further resources of shale gas?
- How has the shale gas revolution in the USA influenced the development of the International Infrastructure for gas in the main markets?
- How would you develop an infrastructure for supply of natural gas for the local markets in Norway, and which customer segments are the most likely to benefit from such a development?
- How would you develop a similar infrastructure for gas in Sweden and what are the rationale and main customer segments for such?

Team

C – The Dynamics of the International Gas Markets – After Paris...!

«After Paris»; a great variety of lobbying groups have been advocating various development schemes for energy consumption that serves their interests...!

- Describe the characteristic traits of the three main gas markets of the world – and how do you consider that these will change?
- How is the consumption profile for gas in these markets?
- How is gas traded in these different markets, and how is such trade likely to change?
- How does the Paris Agreements impact on the Economy in these main markets?
- What role do you see for Carbon trading (like ETS) and CCS in the future Gas and Energy Markets?
- How will the further development of shale gas resources impact on the future gas markets?
- Present sustainable models for energy supply and consumption in the cities of Copenhagen, Stockholm and Oslo, for the year 2040, based on local/national conditions – after Paris!

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D – The LNG Industry & Markets – After Paris!

The glut in international LNG supply expected in 2016 and 2017 did not happen. Demand stayed firm and Distributed LNG seems to gain momentum.

- What are the main roles of LNG going forward after Paris?
- How is technology development influencing the path forward?
- Which markets will benefit mostly from introduction of LNG and how do you see the progression of such development?
- Compare the sustainability of LNG supply from US Gulf of Mexico to East Asia in a high oil (75 \$/bbl) and a low oil (30 \$/bbl) scenario, and discuss the elasticity of these scenarios based on the entire value chain.
- Design a supply scheme to an island community in the Caribbean who want to change from diesel to LNG for power production. Anticipate a population of 50 000 inhabitants and a tourist economy.
- How would a similar supply scheme look like for the city of Mwanza, Tanzania, given that the offshore gas fields in Tanzania are developed for export of LNG?
- What would be the supply scheme for distributed LNG to the northern Baltic area?