



Application of the United Nations Framework Classification for Resources (UNFC)

2018

12 – 13 March 2018

Stavanger, Norway

Introduction

When resource classification was first introduced in London in the early 20th century, it was a tool for the scientifically minded geologist. The emphasis was on distinguishing between observed quantities, interpolated quantities and extrapolated quantities - a discipline enforced on field geologists to this date. The result was naturally a classification of rocks in the ground. They were called proved, probable and possible quantities. We find the same basic concept in the classifications developed in the western and in the eastern hemispheres.

At the time, there was no need to have a common global classification. Those were the days when there was no correlation between the Boston and Chicago stock exchanges. A classification developed locally would do, and a large number of slightly different ones emerged.

The world has evolved. The Boston and Chicago stock exchanges no longer exist. The New York Stock Exchange has taken over and reacts to movements on the Asian stock exchanges within seconds.

At the time of the energy crisis in the 1970's classifications changed direction by accepting the criteria of economic recoverability. This was promoted by the USGS in the 1950s to become known as the McKelvey Box, named after its director.

In the 1990's another fundamental change occurred when the classifications were aligned with the value chains commonly used, particularly in the European petroleum industry. Eventually this was promoted by both the Society of Petroleum Engineers (SPE) and the World Petroleum Congress (now the World Petroleum Council) as their petroleum resource classification in 2000. This was elaborated to become the Petroleum Resource Management System (PRMS) as we know it today. In minerals, the value chain was expanded by explicitly adding consideration of economic and social conditions to the industrial value chain in an effort that started in Germany and Austria in classifying coal. The United Nations promoted this as its UN Framework Classification (UNFC). The first version appeared in 1997, the second, expanded to petroleum and minerals in 2004 and revised in 2009. In the same period, the mineral industry developed its reporting codes to include considerations of recoverability, economic, social and industrial readiness aimed particularly for stock exchange reporting. We know them as classifications made on the basis of the CRIRSCO template.

In this course, we focus on the application of the UNFC. It has become a classification of "what we get" as opposed to a classification of "what we found" where it all started in the early 1900. As such, it is no longer a classification of geological resources, but rather of the projects producing sales and non-sales products from them – and it need not be only from geological resources. It works as well for other products produced by investments. We are therefore witnessing a further development of the UNFC to renewable energy resources, underground storage projects and anthropogenic resources. Water may follow.

The UNFC links classification closely with resource management. Resource management is the object of the course offered by PETRAD during the two preceding weeks. Candidates are encouraged to examine both and join both to the extent that they are interested in going deeper into this essential subject area.

Objective

Application of the UNFC is still a young professional activity and the call for training has been rising quickly.

The objectives of this course are:

1. Provide an understanding of the basic structure of the UNFC
2. To familiarise participants with the four principal areas of application, namely:
 - a. Policy formulation
 - b. Government resource management
 - c. Industry business process management
 - d. Capital allocation
3. Illustrate the above with case studies

Target Audience

The target group for this course are geoscientist, engineers, economists, lawyers, analysts and communications/investor relation experts involved in:

- Policy development
- Government resource management
- Industry business process management
- Capital allocation and financial reporting

Pedagogical Approach

PETRAD believes that the best pedagogical learning approach is a combination of presentations, discussions, problem-based learning and team based learning. In this brief course, the sessions will consist of two lectures, each of 20 minutes followed by 20 minutes of discussion. Participants are encouraged to familiarising themselves with the UNFC before arriving at the course, and to submit topics that they are particularly interested in including in the discussion sections to the organisers on or before the 16th of February.

UNFC references are found here:

- <http://www.unece.org/energy/se/reserves.html>
- <https://www.unece.org/index.php?id=45992>

Program Schedule

Day 1

11:30 Registration and lunch

13:00 Welcome and introduction. UNFC Basics

Classification background

UNFC explained

Discussion

14:00 – 14:15 Coffee break

UNFC basics - Continued

Relationship between UNFC and classifications bridged to it

Quality assurance, aggregation, accounting and disclosure

Discussion

15:15 - 15:30 Coffee Break

UNFC Applied

UNFC in policy formulation

UNFC in Government resources management

Discussion

18:30 Dinner

Day 2

8:45 – 9:00 Welcome

UNFC Applied - continued

UNFC in corporate business process management
UNFC in capital allocation

Discussion

10:00 – 10:15 Coffee break

Designing an efficient industrial ecosystem revisited

Legal and contractual factors
Licensing and infrastructure development

Discussion

11:00-11:15 Coffee break

11:15 – 12:30 Designing an efficient industrial ecosystem - Continued

Aggregation, risk assessment and portfolio optimization
Fiscal factors

Discussion

12:30 Lunch

13:30 Review of illustrative case studies

15:30 Summary

16:00 End of the course

Venue

PETRAD, Professor Hanssens vei 10, Stavanger

Application details

Fee NOK 6000,- per person including two lunches, coffee, tea, dinner and bus transport to and from the hotel.

Application at training@petrad.no

Contact details

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List of Participants

Name	Organization	Country
Peter Britze	EuroGeoSurvey	Denmark
Tom Bide	British Geological Survey	UK
Nurudin Njabire	Petroleum Authority of Uganda	Uganda
Teresa Brown	British Geological Survey	UK
Tonny Ssunna Ddungu	Directorate of Petroleum	Uganda
Finn Jakobsen	EuroGeoSurvey	Denmark
Kari Aslaksen Aasly	NGU	Norway
Henrik Schiellerup	NGU	Norway
Agnes M. Raaness	NGU	Norway
Laura Robinson	Swale HP	US

Lecturers



Sigurd Heiberg

Project Director

Sigurd holds a BSc from the University of California and a SM degree in Geotechnology from the Massachusetts Institute of Technology. He has received formal management training at IMD, Switzerland on international management and High Performance Boards. Sigurd has spent most of his working life in Government and industry working on petroleum resources management and strategy, both as Deputy director of resource management responsible for development and production at the Norwegian Petroleum Directorate, as Petroleum exploration advisor to the Minister of Water, Energy and Minerals of Tanzania and as a member of Statoil's Corporate strategy team. He chaired the Oil and gas reserves committee of the Society of Petroleum Engineers when the SPE Resource classification that later became the SPE-PRMS was developed and the UNECE Expert group on resource classification when the UNFC-2009 classification was developed. He has also chaired the Bureau of the UNECE Intergovernmental Committee on Sustainable Energy. Sigurd has engaged in education by helping to form and build PETRAD. He has been a lecturer at the MIT Sloan Executive Education and at the University of Stavanger. He has been guest editor with MIT Professor Donald Roy Lessard of "Innovation in oil and gas through partnering", Elsevier's Volume 3 of Energy Strategy Reviews. He joined PETRAD as a Project Director in 2017.



Per Blystad

Per holds a Cand. Real (PhD) in geology from University of Bergen. After a few years working in a cross-disciplinary project connected to a huge hydro-electric development project in the south-western mountain area in Norway, the Ulla-Førre Investigations, he joined the Norwegian Petroleum Directorate (NPD) for more than 30 years working on petroleum resource management and project management. His working experience includes exploration and licensing, annual reporting to government from companies in relation to the revised annual national budget, resource assessments and methodology development of yet-to-find potential of petroleum on the Norwegian continental shelf. For six years Per coordinated the international project in NPD aiming at assisting countries in Asia and Africa to develop national petroleum resource management systems and capacities. After this Per was seconded as project coordinator in CCOP for two years in a project on Resource Evaluation and Planning. Per has been engaged in developing NPD's petroleum resource classification system. In 2001 he joined the UNECE Expert group on resource classification (EGRC). He was member of the Bureau and chaired the Petroleum group until 2004. He later chaired the EGRC Mapping Task Force prior to and necessary for developing the UNFC-2009 classification. He is member of the EGRC.



Janne Hokka

Janne holds MSc in economic geology from University of Helsinki. He has over 8 years of experience in different exploration and mining projects. He has also gained field experience as an exploration geologist in Australia in copper and uranium exploration and mining projects. He is accomplished in field exploration management, logging, soil sampling, QA/QC planning and monitoring, bedrock mapping, lithogeochemistry, database construction, 3D modelling and resources estimations. Currently he is working in Geological Survey of Finland specialising in the evaluation of Mineral Resources from early-stage exploration through to production. Janne focuses on Mineral Resource estimation and preparation of technical reports in accordance with international reporting guidelines, resource auditing and training programs predominantly for mafic-ultramafic related ore systems (Ni-Cu, Fe-Ti-V), but he also has experience in precious metals and uranium. He has been part of the Nordic Group preparing the Guidance for the Application of the UNFC-2009 for Mineral Resources in Finland, Norway and Sweden and he is the UNFC contact person in Geological Survey of Finland.



Henrik Schiellerup

Since 2012, Henrik has held a position as Team Leader for the Mineral Resources group at the Geological Survey of Norway (NGU). He has a Ph.D. in igneous petrology/resource geology from the Norwegian University of Science and Technology, and an M.Sc. in igneous petrology from the University of Aarhus in Denmark. He also spent two years with the Nordic Volcanological Institute in Reykjavik, Iceland. He was employed as a researcher at the Geological Survey of Norway in 2001 and has worked at NGU since then. Henrik Schiellerup holds a deputy chair in the Mineral Resources Expert Group, EuroGeoSurvey.

For further information please contact:

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