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Improving fossil energy and minerals management by integrating the CRIRSCO template classifications and the UN Framework Classification for Fossil Energy and Mineral Reserves and Resources

by

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Let me first thank the European Federation of Geologists (EFG) and the Pan European Reserves and Resources Reporting Committee (PERC) for the invitation to address this essential audience.

I will point out how important it is for Europe in its efforts to secure affordable and sustainable supplies of energy and mineral resources to inform its decisions from an inventory based on a single global classification designed for the purpose, the Untied Nation Framework Classification for Fossil Energy and Mineral Reserves and Resources (UNFC). I will also point out the important role of that the EFG and PERC organisations plays and must continue to play with respect to qualifying evaluators, developing commodity specific guidance relevant to Europe and by transposing UNFC inventories into CRIRSCO compliant disclosures for those who rely on them.

First, let us review the important change in classifications in the last decade or so. It can be summarised by pointing to the change in the question answered. The question has changed from "What have we found?" to "What will we get?" The UN has produced a design to answer this second question by focusing on recoverable quantities (forecasts of future production and emissions) and by distinguishing between contingencies that may affect or even hinder recovery in the scientific and technical domain from those in the economic and social domain. The material balance in the accounts of non-renewable quantities is preserved. The classification changed fundamentally from classifying

Figure 1

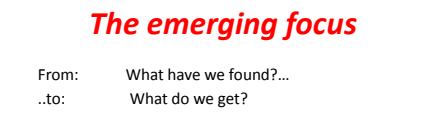

Figure 2

"rocks in place" to classifying recovery projects. The legacy is however still visible in the terminology, where uncertainty in the UNFC is referred to through G-criteria - Geologic uncertainty – inherited from the "What have we found?" classifications. The meaning has now migrated to address uncertainty in the estimate of future production, which is affected my much more than the incompleteness of geologic information.

PERC and the other CRIRSCO compliant classifications have developed in harmony with the UNFC by introducing modifying factors, first to convert resources to reserves, meaning recoverable quantities as determined from detailed project plans, and later to specify that recoverable quantities should be estimated as best can be done throughout the exploration and development value chain. In this way, the "What will we get?" question is being answered through addendums to the pre-existing classification. CRIRSCO/PERC classifications are compatible with the UNFC as we shall see in a moment.

The current design of the UNFC answers the needs of the four identified applications shown in Figure 3. The UN has achieved this by actively applying its convening power. It engages prepares and users of this information. This includes analysts, such as the IEA and the IAEA, Governments beyond just the 56 member states of North America, Europe including the EU Commission, the CIS, Turkey and Israel. It includes the industries, financial analysts, financial regulators (US SEC, ASC, IASB etc), CRIRSCO, PERC, the Society of Petroleum Engineers Oil and Gas Reserves Committee, other professional societies on the minerals and energy resources sides and individual experts.

As often is the case in developing strategies, it helps to reflect on what the end game might be. In this case, Robert Garnett, a member of the International Accounting Standards Board (IASB) a communicated very clear indication of that was at a meeting during the World Petroleum Congress in Johannesburg in 2004. The IASB was then set to develop an International Financial Accounting Standard for Extractive Activities in the wake of a crisis spurred by write-downs of oil and gas reserves booked by the industry. He said that if the energy and minerals industries cannot agree a common classification, the IASB would have to select the one that represented the highest

Figure 3

enterprise value on the world's stock exchanges, the petroleum classification. This generated cooperation. The implication is that in the end, there will be one common and global classification for mineral and energy projects, a perfectly logical and required solution, not just for financing, but also to meet the other three identified needs as the globalisation progresses and technologies migrate between industries. Efforts should continue on this premise to avoid a backlash in the end.

The success of the UNFC can be explained by the cooperation that has taken place since 2004 between the energy and the minerals sectors to bring their classifications closer together, and to influence the UNFC in such a way that it now is possible to produce inventories in their respective commodity classification by simple transposition of UNFC inventories. In figure 4 it is shown how the UNFC classes can be transposed to CRIRSCO and thus PERC classes. Note that this transposition refers to "minimum UNFC categories" meaning that classes defined by higher-level categories may be included. That more UNFC classes combine to form single CRIRSCO/PERC classes is simply a reflection of the higher granularity that has been given to the UNFC in order for it to meet the four needs it is designed to meet. Figure 5 shows in a bit better detail how several UNFC sub-classes combine to populate single CRIRSCO/PERC classes. The consequence of this is that although a transposition from UNFC to CRIRSCO can be done mechanically, judgement must be applied to go the other way, or alternatively, aggregated combinations of UNFC classes must be reported with the justification that the details for subdivision are not yet generated. A UNFC inventory generated from a CRIRSCO/PERC inventory in this latter way will however not be of a lower quality than the original CRIRSCO/PERC inventory.

Analysts, governments, industry and financiers asked the "what will we get?" question long before the classifications where adapted to contribute answers. By the last decade of the 20th century, the value chain thinking standardised more and more across industries and countries as partnerships across industries and countries became more common. Figure 6 shows one typical value chain.

Figure 7 reflects the UNFC in a similar format. The projects that will be carried out are represented in the block to the right. These projects will produce sales and non-sales

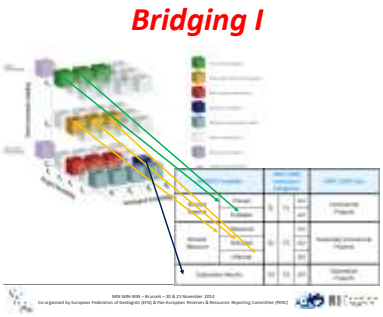

Figure 4

Figure 5

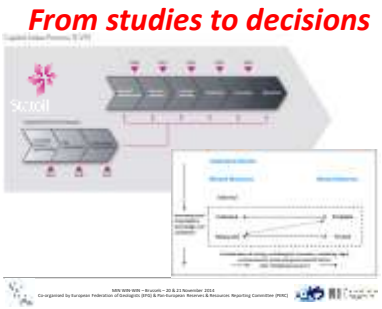

Figure 6

Figure 7

quantities (emissions) measured at reference points. For the purposes of Government resources management it is important that the quantities, qualities and prices at these reference points are coherent with the quantities, qualities and prices that the general statistics is logging in its descriptions of what enters the economy and the environment.

The block in the middle represents optional projects, still to be decided. They can be projects to develop new assets or to improve the performance of existing assets (there can be several projects in an asset). They are essential in managing business processes in extractive activities. These processes run over quite long times compared with the rate at which their contextual and transactional environments change. By the time the resource is depleted, it is common to see changes in for instance:

- Production rate and composition;
- Markets and prices;
- Technology;
- Legal, fiscal, contractual and operational conditions;
- Environmental and social constraints

Asset management over time is therefore more a question of managing a process than a one shot project following from an initial investment decision. For this, a well thought out lining up of the options that may be of value to adapt to future changes is essential. They will find their place in the middle block, some contingent on economic and social conditions, some contingent on scientific and technical/project management conditions and some contingent on both. Identification of contingencies in the economic and social domain is particularly important for the public-private partnership that can unleash resources within Europe. While the details of this part of the inventory is essential in the managing the partnerships undertaking and/or influencing extraction (including governments) it is difficult to see how all details can be disclosed to a large community that is following the activities from a distance with half an eye. The changes of the characteristics of the options simply change too quickly to keep all on the same page. For this and other reasons, it is essential to distinguish between the classification and the inventory built on it and the disclosure of information. Information owners and regulators decide what to disclose, to whom and when.

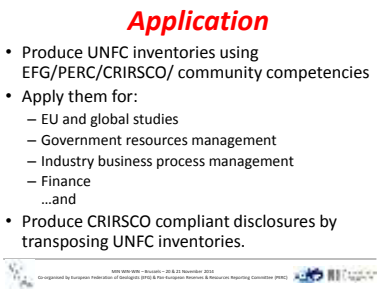

Figure 8

Figure 9

Reporting standards cannot and must not prevent actors from generating required information in standard formats.

Finally, the block to the left represents the potential to supply resources from new assets, not yet found, but generally known to be present. The information in this block is as strategic as it is uncertain. To ignore it in shaping national or corporate strategies would be relying on the worst of all estimates. In fact, assets with resources only in this block can trade for real money, reflecting the strategic value they may hold.

Any one country and the EU will generally be in partnership with many companies, who in turn may have many assets inside and outside the country and the EU, partnering with other companies and Governments. These assets may be wholly in the minerals sector, wholly in the fossil energy and nuclear fuel sector, in the renewable energy projects sector (now in the process of being incorporated under the UNFC) or bridging these sectors.

Also this makes it is inconceivable that the end-game in the classification exercise will be a collection of regional, commodity specific classifications.

A low risk strategy is therefore to PERC and EFG to apply their resources in developing top quality applications of the UNFC, especially as the UNFC inventories can be transposed to CRIRSCO/PERC compliant inventories for those communities who need them. The development of quality applications is already well conceived and largely complete in the commodity specific guidance that come with the CRIRSCO/PERC classifications.

While the responsibility for producing quality inventories remains with the owners of the data, it goes without saying that the underlying work must be done by qualified teams and persons. CRIRSCO and PERC are focusing the issue of a qualified person strongly. The UNFC community, which includes CRIRSCO and PERC is no less concerned. It has found that regulating it (under the rule of law) can be detached from developing and maintaining the classification. Also here, we are likely to see change of requirements towards the multi-professional skills that are required to forecast future production and sales as the project based UNFC classification is being applied.

UNFC Specifications on Evaluator qualifications

"Evaluators must possess an appropriate level of expertise and relevant experience in the estimation of quantities associated with the type of deposit under evaluation. More detailed specifications can be found in relevant commodity-specific systems that have been aligned with UNFC-2009.[11]

[11] In addition, regulatory bodies may explicitly mandate the use of a "competent person", as defined by regulation, with respect to corporate reporting."

Figure 10

Figure 11

- ***Are today's disclosures relevant for the users?***
- ***Do they provide comparable information for investors?***

Figure 12

The EU needs to secure affordable and sustainable access to raw materials, mostly from outside sources. Its raw materials initiative and several activities derived from it reflect this. The challenge demands a deep understanding of the conditions where the raw materials are produced, and of how the efficiency of the extractive activities there can be enhanced while respecting the constraints. For this, and to achieve better comparability, it would be an advantage if the European Securities and Markets Authority (ESMA) would consolidate the number of classifications it recognises to one.

Figure 13

In summary, to secure affordable and sustainable supplies of energy and mineral resources, Europe needs to inform its decisions from an inventory based on a single global classification designed for the purpose, the Untied Nation Framework Classification for Fossil Energy and Mineral Reserves and Resources (UNFC). To achieve this, the EFG and PERC organisations must play an important role with respect to developing commodity specific guidance for the UNFC that is relevant to Europe's situation and by training evaluators to excel in their application of them.

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UNFC: http://www.unece.org/energy/se/unfc_gen.html