

## InterEnerStat: Current status of harmonisation of energy products

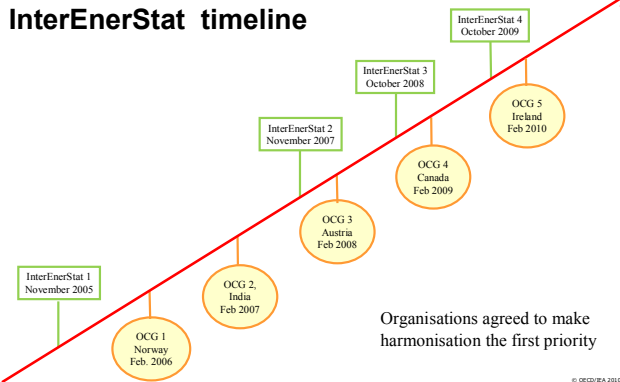
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## What is InterEnerStat

- An initiative gathering together 20+ organisations with the objective to improve the overall quality of global energy statistics through a strengthening of international cooperation

## InterEnerStat timeline





## Crude oil (original "compromise" definition – July 2008)

Crude oil is a mineral oil of fossil origin extracted from underground reservoirs and which comprises a mixture of hydrocarbons and associated impurities, such as sulphur. It exists in the liquid phase under normal surface temperature and pressure and usually flows to the surface under the pressure of the reservoir. The physical characteristics (density, viscosity, etc.) are highly variable.

In its marketable state crude oil may include field or lease condensate recovered from associated and non-associated gas where it is commingled with the commercial crude oil stream.

Crude oil may also be extracted from reservoirs containing heavy oils or tar sands which need heating or emulsifying in situ before they can be brought to the surface.

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## Crude oil (comments to original definition)

### ■ APEC

Crude oil – We agree with the definition but there is a need to define field and lease condensate to differentiate these from NGL. Crude oil from oil sands should also be included.

### ■ IEA

Marketable may need to be explained – if it is explained with the "production" flow, then a reference needs to be made to include oil from tar sand and orimulsion may not be acceptable as they are not considered crude oil according to the joint questionnaires, and it would make the distinction between conventional and unconventional no longer possible + add to the problems with conversion.

The two definitions need to be separated

### ■ OAPEC

In the Crude Oil definition, it would have been more appropriate to add "Extra Heavy Oil" after "Heavy Oil" in the second line before the end of the definition. Additionally, Oil Shale has been added in some references.

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## Crude oil (comments to original definition, cont.)

### ■ OSLO City Group

Many of his comments question whether we would like to see reporting distinctions/purposes in the definitions. Our answer to this is "no". By "breaking down" the definitions as suggested many of the other questions will fall out. One example is whether tar sand belongs to the definition of crude oil, or should be classified together with coal and coke. If tar sand has its own definition it will be an issue for the classification scheme to identify which products to be considered as crude oil.

We also see that if production processes are included in definitions: Also crude oil is not consistently defined, as it is described both as oil from the reservoir but also as a stream where lighter products are mixed in.

Simmons proposal to include in the crude definition field condensate that are commingled with crude seems reasonable (we take it that commingled covers condensate that has been blended into crude oil).

### ■ UNSD

In an effort to harmonize definitions, we would be willing to exclude oil extracted from Oil shale and Bituminous sand from the definition of Crude Oil and include it under Other Hydrocarbon. It would be helpful if some reference is made to the different types of crude oil.

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## Crude oil (InterEnerStat 3 decisions - Oct. 2008)

- Definition split into 2 parts which distinguishes the tar sands component.
- For NGLs, define condensates in manner which does not confuse lease condensate (field) with condensate from fields producing only condensates.
- Crude oil should incorporate heavy and extra heavy crude oil and tar sands.
- Crude oil should include some of the lease condensate.

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## Crude oil (1<sup>st</sup> revision - April 2009)

*Definition:* Crude oil is a mineral oil of fossil origin extracted from underground reservoirs and which comprises liquid or near-liquid hydrocarbons and associated impurities, such as sulphur and metals.

Crude oils may be divided into conventional oil or unconventional oil according to the methods required for their extraction from their natural reservoir or from the materials containing them.

### Conventional

Conventional crude oil exists in the liquid phase under normal surface temperature and pressure and usually flows to the surface under the pressure of the reservoir.

*Remark:* The physical characteristics (density, viscosity, sulphur content, etc.) are highly variable and lead to the names „Sweet“ (low sulphur), „Sour“ (high sulphur), „Light“ (low density) and „Heavy“ (high density) crudes. There are no rigorous specifications for the classifications but a Heavy crude oil may be assumed to have an API gravity of less than 20° and a Sweet crude oil may be assumed to have less than 0.5% sulphur content.

### Unconventional (oils from oil sands, bitumen deposits, oil shale)

Unconventional crude oil is extracted from reservoirs containing extra heavy oils or oil sands which need heating or treatment in situ before they can be brought to the surface for refining/processing. It also includes the synthetic crude oil extracted from oil sands, bitumen and oil shale which are at, or can be brought to, the surface without treatment and require processing after mining (ex situ processing).

*Remark:* In its marketable state crude oil may include field or lease condensate recovered during extraction from associated gas where it is commingled with the commercial crude oil stream.

Oil sands are also known as tar sands.

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## Crude oil (Comments to 1<sup>st</sup> revision)

### IEA:

- There is an overlap between crude oil and "other hydrocarbons": shale oil is included in crude oil and other hydrocarbons.
- The definition for crude oil could include conventional or un-conventional crude oil. After discussion it was proposed that the general crude oil definition only include conventional crude oil. Non-conventional crude oil should be either reported separately or could be included with "other hydrocarbons" (this is a reporting issue).

### OCG:

- None of text below further defines "Crude oil". Is it intended to have conventional and unconventional crude oil as part of the classification? If so, makes these separate definitions. If not, place all this text in the remarks.

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## Crude oil (2<sup>nd</sup> revision – Sept 2009)

### Consultant's comments:

The classification 'unconventional' oils has been removed from the definition of crude oil and generalised. Some of the primary feedstocks may be used directly as well as converted to oils consequently the manner in which these oils are reported and presented within balances needs careful consideration.

**Definition:** A mineral oil of fossil origin extracted from underground reservoirs and which comprises liquid or near-liquid hydrocarbons and associated impurities, such as sulphur and metals.

**Explanation:** Crude oil exists in the liquid phase under normal surface temperature and pressure and usually flows to the surface under the pressure of the reservoir.

**Remark:** The various crude oils may be classified according to their sulphur content ('Sweet' or 'Sour') and API gravity ('Heavy' or 'Light'). There are no rigorous specifications for the classifications but a Heavy crude oil may be assumed to have an API gravity of less than 20° and a Sweet crude oil may be assumed to have less than 0.5% sulphur content.

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## Crude oil (InterEnerStat 4 decisions – Oct. 2009)

- Rename to "Conventional crude oil"
- Add a remark on lease condensate
- Need for condensate definition
- Say in the remarks that it is produced by conventional techniques

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## Conventional crude oil (3<sup>rd</sup> revision – Dec. 2009)

**Definition:** A mineral oil of fossil origin extracted **by conventional means** from underground reservoirs and which comprises liquid or near-liquid hydrocarbons and associated impurities, such as sulphur and metals.

**Explanation:** **Conventional** crude oil exists in the liquid phase under normal surface temperature and pressure and usually flows to the surface under the pressure of the reservoir. **This is termed "conventional" extraction. Crude oil includes condensate from condensate fields, and "field" or "lease" condensate extracted with the crude oil.**

**Remark:** The various crude oils may be classified according to their sulphur content ('Sweet' or 'Sour') and API gravity ('Heavy' or 'Light'). There are no rigorous specifications for the classifications but a Heavy crude oil may be assumed to have an API gravity of less than 20° and a Sweet crude oil may be assumed to have less than 0.5% sulphur content.

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## Current status of the definitions

- Agreement on 95% or more of the products
- A few outstanding issues
  - Liquid biofuels (level of detail and fossil fraction when blended)
  - Terminology for secondary coal and oil products (use “processed” or “derived”?)
  - Definition for “Other hydrocarbons” currently includes hydrogen with the non-conventional oils

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## Proposed product classification

- 1. Solid fossil fuels
- 2. Natural gas
- 3. Oil
- 4. Renewables and waste
- 5. Nuclear energy
- 6. Electricity
- 7. Heat

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## 1. Solid fossil fuels

- 1.1 Coal
  - 1.1.1 Hard coal\*
  - 1.1.2 Brown coal\*
  - 1.1.3 Coal products\*
- 1.2 Peat\*
- 1.3 Oil shale

\*Further level(s) of detail

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## 2. Natural gas

- No sub-categories

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## 3. Oil

- 3.1 Conventional crude oil
- 3.2 Natural gas liquids (NGL)
- 3.3 Refinery feedstocks
- 3.4 Additives and oxygenates
- 3.5 Other hydrocarbons
- 3.6 Oil products\*

\*Further level(s) of detail

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## 4. Renewables and waste

- 4.1 Solar energy\*
- 4.2 Wind energy
- 4.3 Hydro energy
- 4.4 Wave energy
- 4.5 Tidal energy
- 4.6 Other marine energy
- 4.7 Geothermal energy
- 4.8 Biofuels\*
- 4.9 Waste\*

\*Further level(s) of detail

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## 5. Nuclear

## 6. Electricity

## 7. Heat

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## Outstanding issues for InterEnerStat classification

- Liquid biofuels (level of detail and fossil fraction when blended)
- Terminology for secondary coal and oil products (use "processed" or "derived"?)
- Oil and gas together at the highest level
- Unconventional crude oil (not explicit)
- Nuclear energy vs. uranium
- Divide electricity and heat into technologies within the classification

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## Future steps

- IEA needs to consult with the other organisations participating in InterEnerStat
  - Final "clean" version of the definitions
  - Hopefully an agreed classification

Target to circulate revised draft: end February  
Final agreement by 2Q 2010

 Input to IRES

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