InterEnerStat

Harmonisation of Definitions of Energy Products and Flows

THIRD REVISION OF THE DEFINITIONS
Part 2: Products

IEA, Paris, 21 December 2009

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Note by Tim Simmons

PRODUCTS

Solid fuels and derived products

Gas Works Gas (and other conversion to gases)

The growth of gas industry practices involving the gasification of a widening range of feedstocks, the blending of methanated gases and petroleum gases with natural gas and the decline of the historical gas making processes have led to a mixture of reporting practices covering the new information. Definitions for Gas Works Gas and Natural Gas Blending Plants have been rewritten to make clearer which industry processes go where.

Synthesis gas and hydrogen

Synthesis gas (syngas) and hydrogen have not been introduced as an energy products but syngas is defined within a remark accompanying Gas Works Gas. Both hydrogen and syngas are produced for use as intermediate feedstocks or fuels within industrial and chemical processes *on site*. They may be manufactured from biomass or fossil materials or, for hydrogen, from water. Gasification of underground fuels and the developments in the gasification of wastes are likely to increase. Equally, significant production of hydrogen for fuel uses beyond the manufacturing site can be confidently predicted. In short, the case for adding the gases to the list of energy products will become strong within a few years when their incorporation within the commodity and energy balances will need careful consideration as they can be produced from products within energy statistics and from materials which are not.

Renewables

Renewable fuels and energy

The definition has been revised to avoid the need to define the ‘recent’ effects of solar radiation in order to ensure that only renewable biofuels are included and that fossil fuels are excluded.

Solar Energy

The definition has been revised to include definitions for Concentrated Solar Thermal and Non Concentrated Solar Thermal.

Biogasoline and biodiesel

The October meeting requested that the products currently named biogasoline and biodiesel be brought under more generic headings which included liquid biofuels other than transport fuels. The names bioalcohols and biooils were suggested. Despite the attractions of this change contact with the Swedish Energy Agency, who are studying the matter and have a draft classification of biofuels, revealed that at present they have not been able to design a classification of the liquid biofuels which can accommodate naturally the MTBE and ETBE components. Further searching within the various programmes and projects presented in the European Biofuels Technology Platform has strengthened the view that a simple classification into bioalcohols and biooils is not possible. As a consequence the current definitions have been left unchanged.

Electricity, Heat and Nuclear Energy

New definitions have been inserted as requested by the meeting.

FLOWS

Recycled products

A definition, separate from transfers, has been introduced to cover the returns of product to its supply.

Nuclear industry

Fuels and energy used in mining uranium and thorium ores is already part of Energy Industry Own Use, however, there is no explicit mention of energy use for nuclear fuel processing. This has now been added.

Product Classification

1 Solid fossil fuels
- 1.1 Coal
  - 1.1.1 Hard coal
    - 1.1.1.1 Anthracite
    - 1.1.1.2 Bituminous coal
      - 1.1.1.2.1 Coking coal
      - 1.1.1.2.2 Other bituminous coal
  - 1.1.2 Brown coal
    - 1.1.2.1 Sub-bituminous coal
    - 1.1.2.2 Lignite
  - 1.1.3 Coal products
    - 1.1.3.1 Coal coke
      - 1.1.3.1.1 Coke oven coke
      - 1.1.3.1.2 Gas coke
      - 1.1.3.1.3 Coke breeze
      - 1.1.3.1.4 Semi cokes
        - 1.1.3.1.4.1 Brown coal coke
        - 1.1.3.1.4.2 Other semi cokes
    - 1.1.3.2 Patent fuel
    - 1.1.3.3 Brown coal briquettes (BKB)
    - 1.1.3.4 Coal tar
    - 1.1.3.5 Coke oven gas
    - 1.1.3.6 Gas works gas (and other distributed gases)
    - 1.1.3.7 Recovered gases
      - 1.1.3.7.1 Blast furnace gas
      - 1.1.3.7.2 Basic oxygen steel furnace gas
      - 1.1.3.7.3 Other recovered gases
- 1.2 Peat
  - 1.2.1 Sod peat
  - 1.2.2 Milled peat
  - 1.2.3 Peat briquettes
- 1.3 Oil shale

2 Natural gas

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
  - 3.6.1 Refinery gas
  - 3.6.2 Ethane
  - 3.6.3 Liquefied petroleum gas (LPG)
  - 3.6.4 Naphtha
  - 3.6.5 Gasolines
    - 3.6.5.1 Aviation gasoline
    - 3.6.5.2 Motor gasoline
    - 3.6.5.3 Gasoline-type jet fuel

- 3.6.6 Kerosenes
  - 3.6.6.1 Kerosene-type jet fuel
  - 3.6.6.2 Other kerosene
- 3.6.7 Gas oil / diesel oil
  - 3.6.7.1 Road diesel
  - 3.6.7.2 Heating and other gas oil
- 3.6.8 Heavy gas oil
- 3.6.9 Fuel oil
- 3.6.10 White spirit and Special boiling point industrial spirits
- 3.6.11 Lubricants
- 3.6.12 Paraffin waxes
- 3.6.13 Petroleum coke
- 3.6.14 Bitumen
- 3.6.15 Other oil products

4 Renewables and waste
- 4.1 Solar energy
  - 4.1.1 Photovoltaic electricity
  - 4.1.2 Concentrated solar thermal energy
  - 4.1.3 Non-concentrated solar thermal 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
  - 4.8.1 Solid biofuels
    - 4.8.1.1 Fuelwood, wood residues and by-products
    - 4.8.1.2 Agrofuels
      - 4.8.1.2.1 Bagasse
      - 4.8.1.2.2 Animal waste
      - 4.8.1.2.3 Other vegetal materials and residues
    - 4.8.1.3 Black liquor
    - 4.8.1.4 Charcoal
  - 4.8.2 Liquid biofuels
    - 4.8.2.1 Biogasoline
    - 4.8.2.2 Biodiesels
    - 4.8.2.3 Other liquid biofuels
  - 4.8.3 Biogases
    - 4.8.3.1 Landfill gas
    - 4.8.3.2 Sewage sludge gas
    - 4.8.3.3 Other primary biogases
    - 4.8.3.4 Secondary biogases
- 4.9 Waste
  - 4.9.1 Industrial waste
  - 4.9.2 Municipal waste

5 Nuclear Energy

6 Electricity

7 Heat

SOLID FOSSIL FUELS

1 SOLID FOSSIL FUELS

(no definition)

1.1 COAL

SECOND REVISION

Definition: A solid fossil fuel consisting of carbonised vegetal matter.

Explanation: There are two main categories of coal, hard coal (comprising medium- and high rank coals) and brown coal (low-rank coals) which can be identified by their Gross Calorific Value - GCV and the Vitrinite mean Random Reflectance per cent - Rr.

The relationship between the coal types defined below is illustrated here:

- Hard Coal
  - Anthracite
  - Bituminous Coal
    - Coking Coal
    - Other Bituminous Coal
- Brown Coal
  - Sub-Bituminous Coal
  - Lignite

Remark: Peat is not included in the Coal group.

Consultant's comments

For this definition and for those related to it the substance of the UNECE classification system for In-Seam and Low-Rank coals has been adopted.

DECISION

No change

1.1.1 HARD COAL

SECOND REVISION

Definition:	Coals with a gross calorific value (moist, ash-free) basis which is not less than 24 MJ/kg or which is less than 24 MJ/kg provided that the coal has a Vitrinite mean Random Reflectance greater than, or equal to 0.6 per cent.
Remark:	Hard coal comprises Anthracite and Bituminous coals. Note that hard coal may include coals with a GCV greater than or equal to 24 MJ/kg and a mean Rr < 0.6 per cent.

DECISION

Move parenthesis after “basis”

REVISED DEFINITION

Definition:	Coals with a gross calorific value (moist, ash-free~~)~~ basis) which is not less than 24 MJ/kg or which is less than 24 MJ/kg provided that the coal has a Vitrinite mean Random Reflectance greater than, or equal to 0.6 per cent.
Remark:	Hard coal comprises Anthracite and Bituminous coals. Note that hard coal may include coals with a GCV greater than or equal to 24 MJ/kg and a mean Rr < 0.6 per cent.

Definition:	Coals with a gross calorific value (moist, ash-free basis) which is not less than 24 MJ/kg or which is less than 24 MJ/kg provided that the coal has a Vitrinite mean Random Reflectance greater than, or equal to 0.6 per cent.
Remark:	Hard coal comprises Anthracite and Bituminous coals. Note that hard coal may include coals with a GCV greater than or equal to 24 MJ/kg and a mean Rr < 0.6 per cent.

1.1.1.1 ANTHRACITE

SECOND REVISION

Definition:	A high-rank, Hard Coal with a gross calorific value (moist, ash-free basis) greater than, or equal to, 24 MJ/kg and a Vitrinite mean Random Reflectance greater than, or equal to 2.0 per cent.
Explanation:	It usually has less than 10% volatile matter, a high carbon content (about 86-98% carbon) and is non-agglomerating.
Remark:	It is used for industrial and residential heat raising.

Consultant's comment:

In keeping with the principles adopted for the UNECE classification of In Seam coal the minimum GCV for anthracite has been reduced from 27 MJ/kg to 24 MJ/kg. This lower value is not, however, not consistent with the minimum fixed carbon content of 86% which would suggest a lower GCV of about 27 MJ/kg.

DECISION

Put is "mainly" used...

REVISED DEFINITION

Definition:	A high-rank, Hard Coal with a gross calorific value (moist, ash-free basis) greater than, or equal to, 24 MJ/kg and a Vitrinite mean Random Reflectance greater than, or equal to 2.0 per cent.
Explanation:	It usually has less than 10% volatile matter, a high carbon content (about 86-98% carbon) and is non-agglomerating.
Remark:	It is mainly used for industrial and residential heat raising.

Definition:	A high-rank, Hard Coal with a gross calorific value (moist, ash-free basis) greater than, or equal to, 24 MJ/kg and a Vitrinite mean Random Reflectance greater than, or equal to 2.0 per cent.
Explanation:	It usually has less than 10% volatile matter, a high carbon content (about 86-98% carbon) and is non-agglomerating.
Remark:	It is mainly used for industrial and residential heat raising.

1.1.1.2 BITUMINOUS COAL

SECOND REVISION

Definition:	a medium-rank Hard Coal with
either	a gross calorific value (moist, ash-free basis) not less than 24 MJ/kg and with a Vitrinite mean Random Reflectance less than 2.0 per cent,
or	with a gross calorific value (moist, ash-free basis) less than 24 MJ/kg provided that the Vitrinite mean random reflectance is equal to, or greater than 0.6 per cent.
Remark:	Bituminous coals are agglomerating and have a higher volatile matter and lower carbon content than anthracite. They are used for industrial coking and heat raising and residential heat raising.

Consultant's comment:

The UNECE definition as proposed excludes coals with a GCV not less than 24 MJ/kg and an Rr < 0.6 per cent. However, the original paper on In Seam coals and the remark to the definition proposed in the OCG comments effectively classify such coals as bituminous. Consequently the definition here has been adapted to include them.

DECISION

No change

1.1.1.2.1 COKING COAL

SECOND REVISION

Definition:	Bituminous Coal that can be used in the production of a coke capable of supporting a blast furnace charge.

Consultant's comments

Coking coal is defined here in terms of its use and not the properties of coals which produce coke capable of supporting the blast furnace charge. The charge for coke ovens often consists of a blend of different bituminous coals some of which would not produce suitable coke if used on their own. However, their presence assists the coking process.

The implicit assumption is that the definition should be practical in its application. A definition written in terms of only those coals which could produce satisfactory coke when used individually would be difficult to implement and verify by statisticians.

DECISION

No change

1.1.1.2.2 OTHER BITUMINOUS COAL

SECOND REVISION

Definition:	Bituminous Coal not included under coking coal.
Remark:	Sometimes referred to as ‘Steam Coal’

DECISION

No change

1.1.2 BROWN COAL

SECOND REVISION

Definition:	Coals with a gross calorific value (moist, ash-free basis) less than 24 MJ/ kg and a Vitrinite mean Random Reflectance less than 0.6 per cent.
Remark:	Brown coal comprises Sub-Bituminous coal and Lignite.

DECISION

No change

1.1.2.1 SUB-BITUMINOUS COAL

SECOND REVISION

Definition:	Brown Coal with a gross calorific value (moist, ash-free basis) equal to, or greater than 20 MJ/kg and less than 24 MJ/kg.

DECISION

Reporting instructions should provide guidance on the difference between the GCVs in the definitions and what is actually reported – this should not be done in the definition.

1.1.2.2 LIGNITE

SECOND REVISION

Definition:	Brown Coal with a gross calorific value (moist, ash-free basis) not greater than 20 MJ/kg.

DECISION

No change

1.1.3 COAL PRODUCTS

(no definition)

1.1.3.1 COAL COKE

Formerly COKE

SECOND REVISION

Definition:	The solid, cellular, infusible material remaining after the carbonisation of certain coals.
Remark:	Various cokes are defined according to the type of coal carbonised and their conditions of carbonisation or use. • Coke Oven Coke • Gas Coke • Coke Breeze • Semi Cokes • Brown Coal Coke

DECISION

Change coke to “coal coke”

Comment

Brown coal coke has been deleted since it is a sub-item of semi cokes.

REVISED DEFINITION

Definition:	The solid, cellular, infusible material remaining after the carbonisation of certain coals.
Remark:	Various cokes are defined according to the type of coal carbonised and their conditions of carbonisation or use. • Coke Oven Coke • Gas Coke • Coke Breeze • Semi Cokes • ~~Brown Coal Coke~~

Definition:	The solid, cellular, infusible material remaining after the carbonisation of certain coals.
Remark:	Various cokes are defined according to the type of coal carbonised and their conditions of carbonisation or use. • Coke Oven Coke • Gas Coke • Coke Breeze • Semi Cokes

1.1.3.1.1 COKE OVEN COKE

SECOND REVISION

Definition:	The solid product obtained from carbonisation of coking coal at high temperature.
Remark:	Coke oven coke is low in moisture and volatile matter and has the mechanical strength to support the blast furnace charge. It is used mainly in the iron and steel industry acting as heat source and chemical agent.

Consultant's comments

No references to the use of PCI in coke ovens have been found.

The comment attached to the definition for Coking Coal explains that it may indeed comprise a blend of different coals in order to achieve the desired coke quality. As defined, the use of 'coking coal' in this definition embraces a range of coals with qualities which suit the coking process.

DECISION

No change

1.1.3.1.2 GAS COKE

SECOND REVISION

Definition:	A by-product from the carbonization of bituminous coal for the manufacture of Gas Works Gas.
Remark:	Gas Coke is used mainly for heating purposes.

DECISION

No change?

1.1.3.1.3 COKE BREEZE

SECOND REVISION

Definition:	Coke Breeze comprises particles of coke of sizes less than 10 mm.
Remark:	It is the residue from screening coke. The coke which is screened may be made from bituminous or brown coals.

Consultant's comments

Anthracite is a non-agglomerating hard coal unsuitable for coke manufacture. Bituminous is therefore appropriate.

DECISION

Change coke to "coal coke"

NEW DEFINITION

Definition:	Coke Breeze comprises particles of **coal** coke of sizes less than 10 mm.
Remark:	It is the residue from screening coke. The coke which is screened may be made from bituminous or brown coals.

Definition:	Coke Breeze comprises particles of coal coke of sizes less than 10 mm.
Remark:	It is the residue from screening coke. The coke which is screened may be made from bituminous or brown coals.

1.1.3.1.4 SEMI COKES

SECOND REVISION

Definition:	Cokes produced by low temperature carbonization.
Remark:	Note that semi cokes may be made from bituminous and brown coals and are used as a heating fuel.

Consultant's comments

As Hard Coal contains anthracite which is non-agglomerating it is better to leave bituminous in place.

DECISION

No change

1.1.3.1.4.1 BROWN COAL COKE

SECOND REVISION

Definition:	A solid product obtained from low temperature carbonization of brown coal.

Consultant's comments

The only references found to the manufacturing process state that briquettes are used. However, as this does not preclude the manufacture of a coke of a different quality from brown coal which is not in the form of briquettes the word 'briquettes' has been removed.

DECISION

No change

Add another product called "**Other semi-cokes**"

1.1.3.1.4.2 OTHER SEMI COKES

Definition: Semi cokes not elsewhere specified.

1.1.3.2 PATENT FUEL

SECOND REVISION

Definition:	A composition fuel made by moulding hard coal fines into briquette shapes with the addition of a binding agent.
Remark:	Sometimes referred to as 'hard coal briquettes'.

Consultant's comment

The U.S. practice of producing a 'coal synfuel' through treatment of coal fines by spraying with diesel fuel emulsions, pine tars, or latex without briquetting is not included here as a composition fuel is not produced. There may be a case for a new, separate fuel product if the sprayed coal differs materially from the coals used in the process but no evidence for this has been found at present.

DECISION

No change

1.1.3.3 BROWN COAL BRIQUETTES (BKB)

SECOND REVISION

Definition:	A composition fuel made of brown coal produced by briquetting under high pressure with or without the addition of a binding agent.
Remark:	Either Sub-bituminous Coal or Lignite may be used including dried lignite fines and dust.

DECISION

No change

1.1.3.4 COAL TAR

SECOND REVISION

Definition:	A liquid by-product of the carbonization of coal in coke ovens

DECISION

No change

1.1.3.5 COKE OVEN GAS

SECOND REVISION

Definition:	A gas produced from coke ovens during the manufacture of Coke Oven Coke.

Consultant's comments

An umbrella category has been provided.

DECISION

No change

1.1.3.6 GAS WORKS GAS (AND OTHER DISTRIBUTED GASES)

Formerly GAS WORKS GAS (TOWN GAS)

SECOND REVISION

Definition:	A gas produced from coke ovens operated for the manufacture and distribution of the gas by piped network as a heating fuel.
Remark:	Sometimes known as 'Town Gas', it is similar in its characteristics to Coke Oven Gas but the manufacturing process uses coals different from those used for Coke Oven Coke.

Consultant's comments

See the covering report for an explanation for the changes here and in related products.

DECISION

Pending decision on SNG

Don't have "coke ovens" in the definitions because there may be other processes

REVISED DEFINITION

Definition:	Gases obtained from the carbonisation or gasification of carbonaceous material of fossil or biomass origins in Gas Works.
Explanation:	The gases comprise: • gases obtained from carbonisation or gasification of coals and cokes (for example, carburetted water gas). • substitute natural gas (a methane-rich gas) made from synthesis gas.
Remark:	Synthesis gas is a mixture of mainly hydrogen and carbon monoxide obtained by cracking hydrocarbons with high temperature steam. The hydrocarbons may be taken from fossil fuels, biofuels or wastes.

1.1.3.7 RECOVERED GASES

NEW ADDITIONAL DEFINITION

Definition:	Combustible gases of solid carbonaceous origin recovered from manufacturing and chemical processes of which the principal purpose is other than the production of fuel.
Explanation:	Gases containing carbon monoxide resulting from the partial oxidation of • carbon present as coke acting as a reductant in the process, or • carbon anodes, or • carbon dissolved in iron.
Remark:	They may also be referred to as waste or off gases.

Consultant's comments

The definition is deliberately restricted to gases of solid carbonaceous origin because of its presence in this section dealing with Solid Fuels. There is, however, an important group of recovered gases of petroleum origin which arise from the cracking of petroleum feedstock in petrochemical works. At present energy statistics at the international level does not include them as data are not easily available. The question as to how or whether they could be introduced into the present body of definitions needs to be considered separately.

DECISION

Switch the definition and explanation

1.1.3.7.1 BLAST FURNACE GAS

SECOND REVISION

Definition:	A by-product gas of blast furnace operation.
Explanation:	Its heating value arises from the carbon monoxide produced by the partial combustion of coke and other carbon bearing products in the blast furnace.
Remark:	It is used to heat blast air and as a fuel in the iron and steel industry. It may also be used by other industrial plants. Note that where charcoal is used in blast furnaces part of the carbon supply may be considered renewable.

DECISION

Change heating value to calorific value

Consider points submitted in writing

Change “hot air” to nitrogen

REVISED DEFINITION

Definition:	A by-product gas of blast furnace operation consisting mainly of nitrogen, carbon dioxide and carbon monoxide.
Explanation:	The gas is recovered as it leaves the furnace. Its calorific ~~heating~~ value arises mainly from the carbon monoxide produced by the partial combustion of coke and other carbon bearing products in the blast furnace.
Remark:	It is used to heat blast air and as a fuel in the iron and steel industry. It may also be used by other nearby industrial plants. Note that where carbonised biomass (for example, charcoal or animal meal) is used in blast furnaces part of the carbon supply may be considered renewable.

Definition:	A by-product gas of blast furnace operation consisting mainly of nitrogen, carbon dioxide and carbon monoxide.
Explanation:	The gas is recovered as it leaves the furnace. Its calorific value arises mainly from the carbon monoxide produced by the partial combustion of coke and other carbon bearing products in the blast furnace.
Remark:	It is used to heat blast air and as a fuel in the iron and steel industry. It may also be used by other nearby industrial plants. Note that where carbonised biomass (for example, charcoal or animal meal) is used in blast furnaces part of the carbon supply may be considered renewable.

1.1.3.7.2 BASIC OXYGEN STEEL FURNACE GAS

SECOND REVISION

Definition:	A by-product of the production of steel in a basic oxygen furnace. The gas is recovered as it leaves the furnace.
Remark:	The gas is also known as converter gas, LD gas or BOSF gas.

DECISION

Check the higher concentration in the suggested text

REVISED DEFINITION

Definition:	A by-product of the production of steel in a basic oxygen furnace. The gas is recovered as it leaves the furnace.
Remark:	The concentration of carbon monoxide in this gas is higher that that in blast furnace gas. The gas is also known as converter gas, LD gas or BOSF gas.

Definition:	A by-product of the production of steel in a basic oxygen furnace. The gas is recovered as it leaves the furnace.
Remark:	The concentration of carbon monoxide in this gas is higher that that in blast furnace gas. The gas is also known as converter gas, LD gas or BOSF gas.

1.1.3.7.3 OTHER RECOVERED GASES

SECOND REVISION

Definition:	Combustible gases of solid carbonaceous origin recovered from manufacturing and chemical processes not elsewhere defined.
Remark:	Examples of fuel gas production from metals and chemicals processing are in the production of zinc, tin, lead, ferroalloys, phosphorus and silicon carbide.

Consultant's comments

The introduction of a 'primary' classification for recovered gases, which are not currently recognised within the set of definitions, could lead to classification of a gas as a primary fuel when in fact it is a secondary fuel. This would lead to double counting. In the investigations I have made to date all chemical processes which use carbon as a reductant have used a fuel (usually coke) as the reductant. The recovered gas is therefore a secondary fuel. If the quantity of the gas produced is known then the quantity of coke used can be requested or estimated and the transformation process recorded, probably under 'Other transformation'. An adjustment to the final consumption of coke would be necessary.

Umbrella categories for 'Coke Oven By-Products' and 'Recovered Gases' have been introduced and the various gases and liquids divided between them.

DECISION

No change

1.2 PEAT

SECOND REVISION

Definition:	A solid formed from the partial decomposition of dead vegetation under conditions of high humidity and limited air access (initial stage of coalification).
Explanation:	It is available in two forms for use as a fuel, Sod Peat and Milled Peat.
Remark:	Peat is not considered a renewable resource as its regeneration period is long. Peat is also used for horticultural purposes.

DECISION

Remove the last sentence.

Make clear that this is peat for energy purposes

REVISED DEFINITION

Definition:	A solid formed from the partial decomposition of dead vegetation under conditions of high humidity and limited air access (initial stage of coalification).
Explanation:	It is available in two forms *for use as a fuel*, Sod Peat and Milled Peat.
Remark:	Peat is also made into briquettes for fuel use. Peat is not considered a renewable resource as its regeneration period is long. ~~Peat is also used for horticultural purposes.~~

Definition:	A solid formed from the partial decomposition of dead vegetation under conditions of high humidity and limited air access (initial stage of coalification).
Explanation:	It is available in two forms *for use as a fuel*, Sod Peat and Milled Peat.
Remark:	Peat is also made into briquettes for fuel use. Peat is not considered a renewable resource as its regeneration period is long.

Consultant's comment

Following OCG's suggestion Sod Peat and Milled Peat have been given separate definitions as their calorific values differ significantly.

UNFCCC's proposal is essentially a reporting point for GHG emissions and does not seem appropriate for a definition of peat.

1.2.1 SOD PEAT

Definition:	Slabs of peat, cut by hand or machine, and dried in the air.

DECISION

No change

1.2.2 MILLED PEAT

Definition:	Granulated peat produced by special machines.
Remark:	Used in power stations or for briquette manufacture.

DECISION

No change

1.2.3 PEAT BRIQUETTES

SECOND REVISION

Definition:	A fuel comprising of small blocks of dried, highly compressed peat made without a binding agent.
Remark:	Used mainly as a household fuel.

Consultant's comments

The definitions make no reference to whether a fuel is primary or secondary. The only place in which these concepts are introduced is in the definition of 'Production'

DECISION

Move out of coal and put with peat

1.3 OIL SHALE

NEW DEFINITION

Definition:	A sedimentary rock which contains organic matter in the form of kerogen.
Explanation:	Kerogen is a waxy hydrocarbon-rich material regarded as a precursor of petroleum. Oil shale may be burned directly or processed by heating to extract shale oil.

DECISION

No change

NATURAL GAS

2. Natural Gas

SECOND REVISION

Definition:	A complex gaseous mixture of hydrocarbons, primarily methane, but generally also including ethane, propane and higher hydrocarbons in much smaller amounts and some non combustible gases such as nitrogen and carbon dioxide.
Explanation:	It includes both "non-associated" gas originating from fields producing hydrocarbons only in gaseous form, and "associated" gas produced in association with crude oil, as well as methane recovered from coal mines (colliery gas) or from coal seams (coal seam gas)
Remark:	Natural gas, as extracted from oil and gas fields, may contain concentrations of gases other than methane which are higher than acceptable levels in marketable gas. The gas concentrations are reduced in gas separation plants and the resulting natural gas liquids (NGL) are disposed of separately. Natural gas may be liquefied (LNG) by reducing its temperature in order to simplify storage and transportation when production sites are remote from centres of consumption and pipeline transportation is not economically practicable.

DECISION

Add a note on biogas (as for oil)

Try to reduce confusion concerning LNG and NGL

Make clear that this is referring to dry gas

REVISED DEFINITION

Definition:	A mixture of gaseous hydrocarbons, primarily methane, but generally also including ethane, propane and higher hydrocarbons in much smaller amounts and some non combustible gases such as nitrogen and carbon dioxide.~~A complex gaseous mixture of hydrocarbons, primarily methane, but generally also including ethane, propane and higher hydrocarbons in much smaller amounts and some non combustible gases such as nitrogen and carbon dioxide.~~
Explanation:	It is separated from both "non-associated" gas originating from fields producing hydrocarbons only in gaseous form, and "associated" gas produced in association with crude oil. The separation process produces Natural Gas by removing or reducing the hydrocarbons other than methane to levels which are acceptable in the marketable gas. The Natural Gas Liquids (NGL) removed in the process are distributed separately. Natural Gas also includes methane recovered from coal mines (colliery gas) or from coal seams (coal seam gas). When distributed it may also contain methane from anaerobic fermentation or the methanation of biomass.~~It includes both "non-associated" gas originating from fields producing hydrocarbons only in gaseous form, and "associated" gas produced in association with crude oil, as well as methane recovered from coal mines (colliery gas) or from coal seams (coal seam gas)~~
Remark:	~~Natural gas, as extracted from oil and gas fields, may contain concentrations of gases other than methane which are higher than acceptable levels in marketable gas. The gas concentrations are reduced in gas separation plants and the resulting natural gas liquids (NGL) are disposed of separately.~~ Natural gas may be liquefied (LNG) by reducing its temperature in order to simplify storage and transportation when production sites are remote from centres of consumption and pipeline transporation is not economically practicable.

Definition:	A mixture of gaseous hydrocarbons, primarily methane, but generally also including ethane, propane and higher hydrocarbons in much smaller amounts and some non combustible gases such as nitrogen and carbon dioxide.
Explanation:	It is separated from both "non-associated" gas originating from fields producing hydrocarbons only in gaseous form, and "associated" gas produced in association with crude oil. The separation process produces Natural Gas by removing or reducing the hydrocarbons other than methane to levels which are acceptable in the marketable gas. The Natural Gas Liquids (NGL) removed in the process are distributed separately. Natural Gas also includes methane recovered from coal mines (colliery gas) or from coal seams (coal seam gas). When distributed it may also contain methane from anaerobic fermentation or the methanation of biomass.
Remark:	Natural gas may be liquefied (LNG) by reducing its temperature in order to simplify storage and transportation when production sites are remote from centres of consumption and pipeline transporation is not economically practicable.

OIL

3. Oil

SECOND REVISION

Definition:	A group of liquid hydrocarbons of fossil origins comprising Crude (that is, unprocessed) oil, liquids extracted from natural gas (NGL) and fully or partly processed products from the refining of Crude oil.
Remark:	Functionally similar liquid hydrocarbons and organic chemicals from vegetal or animal origins are identified separately under liquid biofuels.

Consultant's comments

This could be named 'Fossil Oil' and the remark removed.

DECISION

Add note on biofuels

Delete the part in parenthesis

Do not name "fossil oil"

REVISED DEFINITION

Definition:	~~A group of l~~Liquid hydrocarbons of fossil origins comprising Crude ~~(that is, unprocessed)~~ oil, liquids extracted from natural gas (NGL) and fully or partly processed products from the refining of Crude oil, and.
~~*Remark:*~~	~~F~~functionally similar liquid hydrocarbons and organic chemicals from vegetal or animal origins~~ are identified separately under liquid biofuels~~.

Definition:	Liquid hydrocarbons of fossil origins comprising Crude oil, liquids extracted from natural gas (NGL) and fully or partly processed products from the refining of Crude oil, and functionally similar liquid hydrocarbons and organic chemicals from vegetal or animal origins.

3.1 CONVENTIONAL CRUDE OIL

Formerly CRUDE OIL

SECOND REVISION

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 20º and a Sweet crude oil may be assumed to have less than 0.5% sulphur content.

DECISION

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

REVISED DEFINITION

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 ~~C~~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 20º and a Sweet crude oil may be assumed to have less than 0.5% sulphur content.

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 20º and a Sweet crude oil may be assumed to have less than 0.5% sulphur content.

3.2 NATURAL GAS LIQUIDS (NGL)

SECOND REVISION

Definition:	Natural gas liquids are a mixture of ethane, propane, butane (normal and iso), (iso) pentane and a few higher alkanes collectively referred to as pentanes plus.
Explanation:	NGL are removed from associated and non-associated natural gas in field facilities or gas separation plants before sale of the gas.
Remark:	The definition given above is the most commonly used. However, some oilfield practice limits the term NGL to those compounds which are liquid at the surface or can be liquefied without refrigeration. This would exclude ethane. In this case, natural gas liquids may also be classified according to their vapour pressures as low (condensate), intermediate (natural gasoline) and high (liquefied petroleum gas) vapour pressure. NGL may be distilled with crude oil in refineries, blended with refined petroleum products or used directly.

Consultant's comments

Another definition and terms used to describe the components of NGL have been mentioned in the remark as they are also in use.

DECISION

Will redraft 2nd definition to lessen weight, but will not remove.

Clarify the difference between LNG and NGL

REVISED DEFINITION

Definition:	Natural gas liquids are a mixture of ethane, propane, butane (normal and iso), (iso) pentane and a few higher alkanes collectively referred to as pentanes plus.
Explanation:	NGL are removed from associated and non-associated natural gas in field facilities or gas separation plants before sale of the gas.
Remark:	The definition given above is the most commonly used. However, there is some use of terms based on the vapour pressure of the components which are liquid at the surface or can be easily liquefied. The three resulting groups are, in order of increasing vapour pressure: Condensates, natural gasoline and liquefied petroleum gas. ~~some oilfield practice limits the term NGL to those compounds which are liquid at the surface or can be liquefied without refrigeration. This would exclude ethane. In this case, natural gas liquids may also be classified according to their vapour pressures as low (condensate), intermediate (natural gasoline) and high (liquefied petroleum gas) vapour pressure.~~ NGL may be distilled with crude oil in refineries, blended with refined ~~petroleum~~ oil products or used directly. NGL differs from LNG (Liquefied Natural Gas) which is obtained by liquefying natural gas from which the NGL has been removed.

Definition:	Natural gas liquids are a mixture of ethane, propane, butane (normal and iso), (iso) pentane and a few higher alkanes collectively referred to as pentanes plus.
Explanation:	NGL are removed from associated and non-associated natural gas in field facilities or gas separation plants before sale of the gas.
Remark:	The definition given above is the most commonly used. However, there is some use of terms based on the vapour pressure of the components which are liquid at the surface or can be easily liquefied. The three resulting groups are, in order of increasing vapour pressure: Condensates, natural gasoline and liquefied petroleum gas. NGL may be distilled with crude oil in refineries, blended with refined oil products or used directly. NGL differs from LNG (Liquefied Natural Gas) which is obtained by liquefying natural gas from which the NGL has been removed.

3.3 REFINERY FEEDSTOCKS

SECOND REVISION

Definition:	Oils or gases from crude oil refining or the processing of hydrocarbons in the petrochemical industry which are destined for further processing in the refinery excluding blending.
Explanation:	Typical feedstocks include, naphthas, middle distillates, pyrolysis gasoline and heavy oils from vacuum distillation and petrochemical plants.

DECISION

No change

3.4 ADDITIVES AND OXYGENATES

SECOND REVISION

Definition:	Compounds added to or blended with oil products to modify their properties (octane, cetane, cold properties, etc.).
Remark:	Examples are: • oxygenates, such as alcohols (methanol, ethanol), ethers (such as MTBE (methyl tertiary butyl ether), ETBE (ethyl tertiary butyl ether), TAME (tertiary amyl methyl ether); • esters (e.g. rapeseed or dimethylester, etc.); • chemical compounds (such as TML, TEL and detergents). Some additives/oxygenates may be derived from biomass, others may be of hydrocarbon origin.

Consultant's comments

The definition is limited to the use of additives/oxygenates for the modification of the properties of oil products. The possible separation of the biomass derived contribution is a reporting point.

The definition of biofuels used directly or after blending with fossil fuel is covered within the 'Renewables' chapter.

DECISION

Add note on biofuels

3.5 OTHER HYDROCARBONS

SECOND REVISION

Definition:	Unconventional oils, liquid fuels produced from the conversion of natural gas and hydrogen.
Remark:	Although not a hydrocarbon hydrogen is included unless it is a component of another gas.

Consultant's comments:

If the supply of all of the primary oils and proxies for primary oils present at levels 1.1 to 1.6 of this hierarchy is to be balanced by the total uses and losses of the products within level 1.7 then 'Other Hydrocarbons' will have to also include recycled petroleum products, in practice, recycled lubricants.

DECISION

Will specify the unconventional oils and remove duplication with GTL liquids

REVISED DEFINITION

Definition:	~~Unconventional~~ Non-Conventional oils~~, liquid fuels produced from the conversion of natural gas~~ and hydrogen.
Remark:	Although not a hydrocarbon hydrogen is included unless it is a component of another gas.

Definition:	Non-Conventional oils and hydrogen.
Remark:	Although not a hydrocarbon, hydrogen is included unless it is a component of another gas.

NON-CONVENTIONAL OILS (not in product classification)

Formerly UNCONVENTIONAL OILS

Definition: Oils obtained by unconventional production techniques.

Explanation: Unconventional oils are extracted from reservoirs containing extra heavy oils or oil sands which need heating or treatment (for example, emulsification) *in situ* before they can be brought to the surface for refining/processing. They also include the oils extracted from oil sands, extra heavy oils, coal and oil shale which are at, or can be brought to, the surface without treatment and require processing after mining (*ex situ* processing).

Unconventional oils may also be produced from natural gas.

They may be divided into two groups.

- Oils for transformation.

  Examples are synthetic crudes extracted from:

  Extra heavy oils

  Oil sands

  Coal

  Oil shale

- Oils for direct use.

  Examples are:

  Emulsified oils (for example, Orimulsion)

  GTL liquids

Remark: Oil sands are also known as tar sands. Extra heavy oils are also known as bitumen. This is not the petroleum product of the same name which is made from vacuum distillation residue.

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.

DECISION

Switch definition and explanation.

Consider this under "Other hydrocarbons"

Will not be in the product classification

REVISED DEFINITION

Definition: Oils obtained by ~~unconventional~~ non-conventional production techniques, that is oils which are extracted from reservoirs containing extra heavy oils or oil sands which need heating or treatment (for example, emulsification) *in situ* before they can be brought to the surface for refining/processing. They also include the oils extracted from oil sands, extra heavy oils, coal and oil shale which are at, or can be brought to, the surface without treatment and require processing after mining (*ex situ* processing).. Non-Conventional oils may also be produced from natural gas.

Explanation: ~~Unconventional oils are extracted from reservoirs containing extra heavy oils or oil sands which need heating or treatment (for example, emulsification) *in situ* before they can be brought to the surface for refining/processing. They also include the oils extracted from oil sands, extra heavy oils, coal and oil shale which are at, or can be brought to, the surface without treatment and require processing after mining (*ex situ* processing).~~

~~Unconventional oils may also be produced from natural gas.~~

The~~y~~ oils may be divided into two groups.

- Oils for transformation.

  Examples are synthetic crudes extracted from:

  Extra heavy oils

  Oil sands

  Coal

  Oil shale

- Oils for direct use.

  Examples are:

  Emulsified oils (for example, Orimulsion)

  GTL liquids

Remark: Oil sands are also known as tar sands. Extra heavy oils are also known as bitumen. This is not the ~~petroleum~~ oil product of the same name which is made from vacuum distillation residue.

Definition: Oils obtained by non-conventional production techniques, that is oils which are extracted from reservoirs containing extra heavy oils or oil sands which need heating or treatment (for example, emulsification) *in situ* before they can be brought to the surface for refining/processing. They also include the oils extracted from oil sands, extra heavy oils, coal and oil shale which are at, or can be brought to, the surface without treatment and require processing after mining (*ex situ* processing). Non-Conventional oils may also be produced from natural gas.

Explanation: The oils may be divided into two groups.

- Oils for transformation.

  Examples are synthetic crudes extracted from:

  Extra heavy oils

  Oil sands

  Coal

  Oil shale

- Oils for direct use.

  Examples are:

  Emulsified oils (for example, Orimulsion)

  GTL liquids

Remark: Oil sands are also known as tar sands. Extra heavy oils are also known as bitumen. This is not the oil product of the same name which is made from vacuum distillation residue.

Consultant's comments

The classification 'non-conventional' oils has been removed from the definition of crude oil and generalised.

3.6 OIL PRODUCTS

Formerly PETROLEUM PRODUCTS

Definition:	Products obtained from crude oil, unconventional oils or wet natural gas.
Explanation:	They may be produced through the refining of crude and unconventional oils or from wet natural gas by separation processes.

DECISION

Rename to “Oil Products”

Give definition for wet natural gas

Put capital letters each time you are referring to one of the other definitions

REVISED DEFINITION

Definition:	Products obtained from crude oil, ~~unconventional~~ non-conventional oils or ~~wet natural~~ gases from oil and gas fields.
Explanation:	They may be produced through the refining of Conventional ~~c~~Crude and ~~unconventional~~ non-conventional oils or during the separation of Natural Gas from gases extracted from oil or gas fields.~~from wet natural gas by separation processes.~~

Definition:	Products obtained from crude oil, non-conventional oils or gases from oil and gas fields.
Explanation:	They may be produced through the refining of Conventional Crude and non-conventional oils or during the separation of Natural Gas from gases extracted from oil or gas fields.

3.6.1 REFINERY GAS

SECOND REVISION

Definition:	Refinery gas includes a mixture of non-condensable gases mainly consisting of hydrogen, methane, ethane and olefins obtained during distillation of crude oil or treatment of oil products (e.g. cracking) in refineries or from nearby petrochemical plants.
Remark:	It is used mainly as a fuel within the refinery.

DECISION

No change

3.6.2 ETHANE

SECOND REVISION

Definition:	A naturally gaseous straight-chain hydrocarbon (C_2H_6) extracted from natural gas at gas separation plants or produced during the refining of crude oil.
Remark:	Ethane is a valuable feedstock for petrochemical manufacture.

DECISION

Move “at gas separation plants or produced during the refining of crude oil” to the remark

REVISED DEFINITION

Definition:	A naturally gaseous straight-chain hydrocarbon (C2H6). ~~extracted from natural gas at gas separation plants or produced during the refining of crude oil.~~
Remark:	Ethane is obtained at gas separation plants or from the refining of crude oil. It is a valuable feedstock for petrochemical manufacture.

Definition:	A naturally gaseous straight-chain hydrocarbon (C_2H_6).
Remark:	Ethane is obtained at gas separation plants or from the refining of crude oil. It is a valuable feedstock for petrochemical manufacture.

3.6.3 LIQUEFIED PETROLEUM GAS (LPG)

SECOND REVISION

Definition:	A naturally gaseous straight-chain hydrocarbon (C_2H_6) extracted from natural gas at gas separation plants or produced during the refining of crude oil.
Remark:	Ethane is a valuable feedstock for petrochemical manufacture.

DECISION

Add formula for butane and propane

IEA:

Definition needs to be clarified with NGL.

REVISED DEFINITION

Definition:	LPG refers to liquefied propane (C_3H_8) and butane (C_4H_{10}) or mixtures of both. Commerical grades are usually mixtures of the gases with small amounts of propylene, butylene, isobutene and isobutylene stored under pressure in containers.
Remark:	The mixture of propane and butane used varies according to purpose and season of the year. The gases may be extracted from natural gas at gas separation plants or at plants regasifying imported Liquefied Natural Gas. They are also obtained during the refining of crude oil. LPG may be used for heating and as a vehicle fuel.

See also the definition for Natural Gas Liquids. Certain oil field practices also use the term LPG to describe the high vapour pressure components of Natural Gas Liquids.

3.6.4 NAPHTHA

SECOND REVISION

Definition:	Light or medium oils distilling between 30ºC and 210ºC which do not meet the specification for motor gasoline.
Remark:	Different naphthas are distinguished by their density and the content of paraffins, isoparaffins, olefins, naphthenes and aromatics. The main uses for naphthas are as feedstock for high octane gasolines and the manufacture of olefins in the petrochemical industry.

DECISION

No change

3.6.5 GASOLINES

Formerly GASOLINE

DECISION

Insert definition for gasoline

NEW DEFINITION

Definition:	Gasolines are complex mixtures of volatile hydrocarbons distilling between approximately 25°C and 220°C and consisting of compounds in the C_4 to C_{12} range.
Remark:	Gasolines may contain blending components of Biomass origin, especially oxygenates (mainly ethers and alcohols), and additives may be used to boost certain performance features.

3.6.5.1 AVIATION GASOLINE

SECOND REVISION

Definition:	High quality motor gasoline prepared especially for aviation piston engines with additives which assure performance under flight conditions.

DECISION

Remove “motor”

Remove “high-quality”

Look at distillation range

REVISED DEFINITION

Definition:	~~High quality motor g~~Gasoline prepared especially for aviation piston engines with additives which assure performance under flight conditions. Aviation gasolines are predominantly alkylates (obtained by combining C4 and C5 isoparaffins with C3, C4 and C5 olefins) with the possible addition of more aromatic components including toluene. The boiling range is 25ºC to 170ºC.

Definition:	Gasoline prepared especially for aviation piston engines with additives which assure performance under flight conditions. Aviation gasolines are predominantly alkylates (obtained by combining C_4 and C_5 isoparaffins with C_3, C_4 and C_5 olefins) with the possible addition of more aromatic components including toluene. The boiling range is 25ºC to 170ºC.

3.6.5.2 MOTOR GASOLINE

SECOND REVISION

Definition: A mixture of aliphatic hydrocarbons with 5 to 12 carbon atoms per molecule and some aromatics (for example, benzene and toluene) to enhance octane rating. The distillation range is between 35ºC and 215ºC.

Remark: Additives are blended to

- further improve octane rating,
- improve combustion performance,
- reduce oxidation during storage,
- maintain cleanliness of the engine and
- improve capture of pollutants by catalytic converters in the exhaust system.

Traded motor gasoline may also contain biogasoline products.

DECISION

OCG will provide suggestion by email after the meeting

Take “traded” out of the remark

REVISED DEFINITION

Definition: ~~A mixture of aliphatic hydrocarbons with 5 to 12 carbon atoms per molecule and some aromatics (for example, benzene and toluene) to enhance octane rating. The distillation range is between 35ºC and 215ºC.~~ A mixture of some aromatics (for example, benzene and toluene) and aliphatic hydrocarbons in the C5 to C12 range. The boiling range is between 25ºC to 220ºC.

Remark: Additives are blended to

- ~~further~~ improve octane rating,
- improve combustion performance,
- reduce oxidation during storage,
- maintain cleanliness of the engine and
- improve capture of pollutants by catalytic converters in the exhaust system.

~~Traded m~~Motor gasoline may also contain biogasoline products.

Definition: A mixture of some aromatics (for example, benzene and toluene) and aliphatic hydrocarbons in the C_5 to C_{12} range. The boiling range is between 25ºC to 220ºC.

Remark: Additives are blended to

- improve octane rating,
- improve combustion performance,
- reduce oxidation during storage,
- maintain cleanliness of the engine and
- improve capture of pollutants by catalytic converters in the exhaust system.

Motor gasoline may also contain biogasoline products.

3.6.5.3 GASOLINE-TYPE JET FUEL

SECOND REVISION

Definition:	This includes all light hydrocarbon oils for use in aviation turbine power units, distilling between 100ºC and 250ºC. They are obtained by blending kerosenes and gasoline or naphtha in such a way that the aromatic content does not exceed 25% in volume, and the vapour pressure is between 13.7 kPa and 20.6 kPa.

DECISION

Start definition as “Light hydrocarbons for use in...”

REVISED DEFINITION

Definition:	~~This includes all l~~Light hydrocarbons ~~oils~~ for use in aviation turbine power units, distilling between 100ºC and 250ºC. They are obtained by blending ~~k~~Kerosenes and ~~g~~Gasoline or ~~n~~Naphtha in such a way that the aromatic content does not exceed 25% in volume, and the vapour pressure is between 13.7 kPa and 20.6 kPa.
Remark:	Jet fuel is also known as Aviation Turbine Fuel.

Definition:	Light hydrocarbons for use in aviation turbine power units, distilling between 100ºC and 250ºC. They are obtained by blending Kerosenes and Gasoline or Naphtha in such a way that the aromatic content does not exceed 25% in volume, and the vapour pressure is between 13.7 kPa and 20.6 kPa.
Remark:	Jet fuel is also known as Aviation Turbine Fuel.

Consultant’s comment:

This product has been removed from the Gasolines classification as it is a blend of gasolines and kerosenes and, as such, falls between the two classes.

3.6.6 KEROSENES

Formerly KEROSENE

SECOND REVISION

Definition:	Middle distillate oil products having carbon numbers predominantly in the range C_9 to C_{16} and boiling over the temperature interval 145ºC to 300°C but not usually above 250ºC and a flash point above 38ºC.
Explanation:	The chemical composition of kerosenes depends on the nature of the crude oils from which they are derived and the refinery processes that they have undergone. Kerosenes obtained from crude oil by atmospheric distillation are known as straight-run kerosenes. Such streams may be treated by a variety of processes to produce kerosenes that are acceptable for blending as jet fuels.
Remark:	Kerosenes are primarily used as jet fuels. They are also used as domestic heating and cooking fuels, and as solvents.

DECISION

Check the distillation range

REVISED DEFINITION

Definition:	~~Middle distillate oil products having carbon numbers predominantly~~Mixtures of hydrocarbons in the range C9 to C16 and boiling over the temperature interval 145ºC to 300°C but not usually above 250ºC and a flash point above 38ºC.
Explanation:	The chemical composition of kerosenes depends on the nature of the crude oils from which they are derived and the refinery processes that they have undergone. Kerosenes obtained from crude oil by atmospheric distillation are known as straight-run kerosenes. Such streams may be treated by a variety of processes to produce kerosenes that are acceptable for blending as jet fuels.
Remark:	Kerosenes are primarily used as jet fuels. They are also used as domestic heating and cooking fuels, and as solvents. Kerosenes may include components or additives derived from biomass.

Definition:	Mixtures of hydrocarbons in the range C_9 to C_{16} and boiling over the temperature interval 145ºC to 300°C but not usually above 250ºC and a flash point above 38ºC.
Explanation:	The chemical composition of kerosenes depends on the nature of the crude oils from which they are derived and the refinery processes that they have undergone. Kerosenes obtained from crude oil by atmospheric distillation are known as straight-run kerosenes. Such streams may be treated by a variety of processes to produce kerosenes that are acceptable for blending as jet fuels.
Remark:	Kerosenes are primarily used as jet fuels. They are also used as domestic heating and cooking fuels, and as solvents. Kerosenes may include components or additives derived from biomass.

3.6.6.1 KEROSENE-TYPE JET FUEL

SECOND REVISION

Definition:	A kerosene suited to flight conditions with particular specifications (such as freezing point) which are established by the International Air Transport Association (IATA).

Consultant's comment:

The remark in the previous definition is relevant only for reporting purposes

DECISION

Additives/blending components to be added

Add the note on biofuels

REVISED DEFINITION

Definition:	A blend of kerosenes suited to flight conditions with particular specifications, ~~(~~such as freezing point~~.) which are established by the International Air Transport Association (IATA).~~
Remark:	The specifications are set down by a small number of national standards committees, most notably, ASTM (U.S.), MOD (UK), GOST (Russia).

Definition:	A blend of kerosenes suited to flight conditions with particular specifications, such as freezing point.
Remark:	The specifications are set down by a small number of national standards committees, most notably, ASTM (U.S.), MOD (UK), GOST (Russia).

3.6.6.2 OTHER KEROSENE

SECOND REVISION

Definition:	Kerosene which is used for heating, lighting, solvents and internal combustion engines.
Remark:	Other names for this product are burning oil, vaporizing oil, power kerosene and illuminating oil.

DECISION

Add cooking to the list

REVISED DEFINITION

Definition:	Kerosene which is used for heating, cooking, lighting, solvents and internal combustion engines.
Remark:	Other names for this product are burning oil, vaporizing oil, power kerosene and illuminating oil.

Definition:	Kerosene which is used for heating, cooking, lighting, solvents and internal combustion engines.
Remark:	Other names for this product are burning oil, vaporizing oil, power kerosene and illuminating oil.

3.6.7 GAS OIL/DIESEL OIL

SECOND REVISION

Definition:	Gas oils are middle distillates, predominantly of carbon number range C_{11} to C_{25} and with a distillation range of 160ºC to 420°C.
Explanation:	The principal marketed products are: • Automotive fuels for diesel engines • Heating oils • Marine fuel Gas Oils are also used as middle distillate feedstock for the petrocehmical industry and as solvents.

DECISION

Look again at the distillation range

REVISED DEFINITION

Definition:	Gas oils are middle distillates, predominantly of carbon number range C_{11} to C_{25} and with a distillation range of 160ºC to 420°C.
Explanation:	The principal marketed products are: • Automotive fuels for diesel engines • Heating oils • Marine fuel
Remark:	Gas Oils are also used as middle distillate feedstock for the petrochemical industry and as solvents.

Definition:	Gas oils are middle distillates, predominantly of carbon number range C_{11} to C_{25} and with a distillation range of 160ºC to 420°C.
Explanation:	The principal marketed products are: • Automotive fuels for diesel engines • Heating oils • Marine fuel
Remark:	Gas Oils are also used as middle distillate feedstock for the petrochemical industry and as solvents.

3.6.7.1 ROAD DIESEL

SECOND REVISION

Definition:	Automotive gas (diesel) oil (usually of low sulphur content) for fuel use in compression ignition (diesel) engines fitted in road vehicles. Distillation range is 160ºC to 390ºC.
Remark:	Additives are used to ensure a suitable cetane number and cleanliness of the engine. The cetane number describes the combustion quality of diesel fuel during compression ignition.

NOTE:

Transport diesel is included in the broader definition of Gas/Diesel Oil (Distillate Fuel Oil).

DECISION

Add the note on biofuels

Delete “automotive”

REVISED DEFINITION

Definition:	~~Automotive g~~Gas (diesel) oil (usually of low sulphur content) for fuel use in compression ignition (diesel) engines fitted in road vehicles. Distillation range is 160ºC to 390ºC.
Remark:	Additives are used to ensure a suitable cetane number and cleanliness of the engine. The cetane number describes the combustion quality of diesel fuel during compression ignition. The product may contain components or additives derived from biomass.

Definition:	Gas (diesel) oil (usually of low sulphur content) for fuel use in compression ignition (diesel) engines fitted in road vehicles. Distillation range is 160ºC to 390ºC.
Remark:	Additives are used to ensure a suitable cetane number and cleanliness of the engine. The cetane number describes the combustion quality of diesel fuel during compression ignition. The product may contain components or additives derived from biomass.

3.6.7.2 HEATING AND OTHER GAS OIL

SECOND REVISION

Definition:	Oils meeting the specifications for Gas Oil/Diesel Oil (see above) which are used as a light heating oil for industrial and commercial uses, in marine and rail locomotive diesel engines and as a petrochemical feedstock.

Consultant's comments

The distillation range is given in the definition of Gas Oil/Diesel oil.

NOTE:

Heating and Other Gas Oil is included in the broader definition of Gas/Diesel Oil (Distillate Fuel Oil).

DECISION

Remove "see above"

Start definition with "Gas Oil/Diesel oil used as ..."

REVISED DEFINITION

Definition:	~~Oils meeting the specifications for~~ Gas Oil/Diesel Oil ~~(see above) which are~~ used as a light heating oil for industrial and commercial uses, in marine and rail locomotive diesel engines and as a petrochemical feedstock. The distillation range is 160ºC to 420ºC.

Definition:	Gas Oil/Diesel Oil used as a light heating oil for industrial and commercial uses, in marine and rail locomotive diesel engines and as a petrochemical feedstock. The distillation range is 160ºC to 420ºC.

3.6.8 HEAVY GAS OIL

NEW ADDITIONAL DEFINITION

Definition:	A mixture of predominantly Gas oil and Residual Fuel Oil which distills in the range 380ºC to 540ºC.

Consultant's comments

A definition separate from those for gas oil has been introduced because this oil is a mixture of a middle distillate and a residual oil and its distillation range is very different from that for gas oils (160ºC to 420ºC).

DECISION

Check distillation range

REVISED DEFINITION

Definition:	A mixture of predominantly Gas oil and Residual Fuel Oil which distills in the range of approximately 380ºC to 540ºC.

Definition:	A mixture of predominantly Gas oil and Residual Fuel Oil which distills in the range of approximately 380ºC to 540ºC.

3.6.9 FUEL OIL

SECOND REVISION

Definition:	Comprises residual fuel oil and heavy fuel oil which is usually a blended product based on the residues from various refinery, distillation and cracking processes. Fuel oils have a distillation range of 350ºC to 650ºC and a kinematic viscosity in the range 6 to 55 cSt at 100ºC. Their flash point is always above 60ºC and their specific gravity is above 0.95.
Explanation:	Heavy fuel oil is a general term and other names commonly used to describe this range of products include: bunker fuel, bunker C, fuel oil No. 6, industrial fuel oil, marine fuel oil and black oil.
Remark:	Residual and Heavy fuel oil are used in medium to large industrial plants, marine applications and power stations in combustion equipment such as boilers, furnaces and diesel engines. Residual fuel oil is also used as fuel within the refinery. Historically residual fuel oil was the residue from atmospheric distillation and heavy fuel oils the result of blending residual oils from various processes and, possibly, with distillate oils. The distinction is now losing its value as the terms residual and heavy are often applied without discrimination.

Consultant's comments

This definition has been taken largely from the CONCAWE product dossiers which provide comprehensive details of the products characteristics and their chemical make up.

<http://www.concawe.be/Content/Default.asp?PageID=35>

DECISION

Check flash point

REVISED DEFINITION

Definition:	Comprises residual fuel oil and heavy fuel oil which is usually a blended product based on the residues from various refinery, distillation and cracking processes. Residual ~~F~~fuel oils have a distillation range of 350ºC to 650ºC and a kinematic viscosity in the range 6 to 55 cSt at 100ºC. Their flash point is always above 60ºC and their specific gravity is above 0.95.
Explanation:	Heavy fuel oil is a general term and other names commonly used to describe this range of products include: bunker fuel, bunker C, fuel oil No. 6, industrial fuel oil, marine fuel oil and black oil.
Remark:	Residual and Heavy fuel oil are used in medium to large industrial plants, marine applications and power stations in combustion equipment such as boilers, furnaces and diesel engines. Residual fuel oil is also used as fuel within the refinery. ~~Historically residual fuel oil was the residue from atmospheric distillation and heavy fuel oils the result of blending residual oils from various processes and, possibly, with distillate oils. The distinction is now losing its value as the terms residual and heavy are often applied without discrimination.~~

Definition:	Comprises residual fuel oil and heavy fuel oil which is usually a blended product based on the residues from various refinery, distillation and cracking processes. Residual fuel oils have a distillation range of 350ºC to 650ºC and a kinematic viscosity in the range 6 to 55 cSt at 100ºC. Their flash point is always above 60ºC and their specific gravity is above 0.95.
Explanation:	Heavy fuel oil is a general term and other names commonly used to describe this range of products include: bunker fuel, bunker C, fuel oil No. 6, industrial fuel oil, marine fuel oil and black oil.
Remark:	Residual and Heavy fuel oil are used in medium to large industrial plants, marine applications and power stations in combustion equipment such as boilers, furnaces and diesel engines. Residual fuel oil is also used as fuel within the refinery.

3.6.10 WHITE SPIRIT AND SPECIAL BOILING POINT INDUSTRIAL SPIRITS

SECOND REVISION

Definition: White Spirit and SBP (Special Boiling Point Industrial Spirits) are refined distillate intermediates with a distillation in the naphtha/kerosene range. They are mainly used for non-fuel purposes and sub-divided as:

- Industrial Spirit (SBP): Light oils distilling between 30ºC and 200ºC.

  Explanation: There are 7 or 8 grades of industrial spirit, depending on the position of the cut in the distillation range. The grades are defined according to the temperature difference between the 5% volume and 90% volume distillation points (which is not more than 60ºC).

- White Spirit: Industrial spirit with a flash point above 30ºC. The distillation range of white spirit is 135ºC to 200ºC.

  Remark: White spirit and Industrial spirits are mostly used as thinners and solvents.

DECISION

No change

3.6.11 LUBRICANTS

SECOND REVISION

Definition:	Oils, produced from crude oil, for which the principal use is to reduce friction between sliding surfaces and during metal cutting operations.
Explanation:	Lubricant base stocks are obtained from vacuum distillates which result from further distillation of the residue from atmospheric distillation of crude oil. The lubricant base stocks are then further processed to produce lubricants with the desired properties.

Consultant's comments

The definition has been limited to lubricants derived from crude oil. Lubricants are also derived from vegetable oils and silicone oils. Equally, synthetic lubricants are made by several processes using basic chemical feedstocks from the petrochemical industry. Only lubricants derived from crude oil within the refinery need be considered when ensuring an energy balance.

DECISION

No change

3.6.12 PARAFFIN WAXES

SECOND REVISION

Definition:	Residues extracted when dewaxing lubricant oils. They have a crystalline structure which varies in fineness according to the grade and are colourless, odourless and translucent, with a melting point above 45ºC.
Remark:	Paraffin waxes are also known as Petroleum waxes.

DECISION

No change

3.6.13 PETROLEUM COKE

SECOND REVISION

Definition: Petroleum coke is a black solid obtained mainly by cracking and carbonising heavy hydrocarbon oils and tars and pitches. It consists mainly of carbon (90 to 95%) and has a low ash content.

Explanation: The two most important categories are "green coke" and "calcined coke".

- Green coke (Raw coke) is the primary solid carbonization product from high boiling hydrocarbon fractions obtained at temperatures below 630ºC. It contains 4 -15 per cent by weight of matter that can be released as volatiles during subsequent heat treatment at temperatures up to approximately 1330ºC.
- Calcined coke is a petroleum coke or coal-derived pitch coke obtained by heat treatment of green coke to about 1330ºC. It will normally have a hydrogen content of less than 0.1 wt.%.

Remark: In many catalytic operations (e.g., catalytic cracking) carbon or catalytic coke is deposited on the catalyst, thus deactivating it. The catalyst is reactivated by burning off the coke which is used as a fuel in the refining process. The coke is not recoverable in a concentrated form.

DECISION

No change

3.6.14 BITUMEN

SECOND REVISION

Definition:	Bitumen is a solid, semi-solid or viscous hydrocarbon with a colloidal structure, being brown to black in colour.
Remark:	It is obtained as a residue in the distillation of crude oil and by vacuum distillation of oil residues from atmospheric distillation. It should not be confused with the unconventional primary extra heavy oils which may also be referred to as bitumen. In addition to its major use for road pavements, bitumen is also used as an adhesive, a waterproofing agent for roof coverings and as a binder in the manufacture of patent fuel. It may also be used for electricity generation in specially designed power plants. Bitumen is also known in some countries as asphalt but in others asphalt describes the mixture of bitumen and stone aggregate used for road pavements.

DECISION

No change

3.6.15 OTHER OIL PRODUCTS

Formerly OTHER PRODUCTS

SECOND REVISION

Definition:	Products of petroleum origin (including partly refined products) not specified above.
Explanation:	They will include basic chemicals and organic chemicals destined for use within the refinery or for sale to or processing in the chemical industry such as propylene, benzene, toluene, xylene, hydrogen and methane.

DECISION

Rename “Other oil products”

Will remove methane from the list

REVISED DEFINITION

Definition:	Products (including partly refined products) from the refining of crude oil and feedstocks which are not specified above.
Explanation:	They will include basic chemicals and organic chemicals destined for use within the refinery or for sale to or processing in the chemical industry such as propylene, benzene, toluene, xylene and hydrogen ~~and methane~~.

Definition:	Products (including partly refined products) from the refining of crude oil and feedstocks which are not specified above.
Explanation:	They will include basic chemicals and organic chemicals destined for use within the refinery or for sale to or processing in the chemical industry such as propylene, benzene, toluene, xylene and hydrogen.

RENEWABLES AND WASTE

4. RENEWABLES and WASTE

(no definition)

RENEWABLES (not in product classification)

Formerly RENEWABLE AND ENERGY FUELS

SECOND REVISION

Definition:	Fuels and energy obtained directly or indirectly from the recent effects of sunlight, and from geothermal heat and gravitational forces.
Explanation:	These are sources of energy which are naturally replenished as they are used. Their indirect use is through the exploitation of wind, tides, hydro and biomass.
Remark:	The term 'recent' excludes fossil fuels which were formed from biomass in prehistoric times.

Consultant's comments:

This is a purely physical definition which limits itself to defining renewable fuels and energy in terms of their origins. No attempt has been made to introduce the issues related to sustainability of renewables (mainly for biofuels) into it. Indeed, as the notions of renewable and sustainable are becoming intertwined it would be better to avoid the term renewable in order to avoid the value judgement which now comes with it.

DECISION

Change to "solar radiation" and "geothermal energy" and come up with an alternative to "recent effects"

REVISED DEFINITION

Definition:	~~Fuels and energy obtained directly or indirectly from the recent effects of sunlight, and from geothermal heat and gravitational forces.~~ Fuels and energy obtained, • directly from solar radiation or • indirectly from its effects on the biosphere and the life within it, • from geothermal energy and • from gravitational forces.
Explanation:	These are sources of energy which are naturally replenished as they are used. Their indirect use is through the exploitation of wind, tides, hydro and biomass.
~~*Remark:*~~	~~The term 'recent' excludes fossil fuels which were formed from biomass in prehistoric times.~~

Definition: Fuels and energy obtained,

- directly from solar radiation or
- indirectly from its effects on the biosphere and the life within it,
- from geothermal energy and
- from gravitational forces.

Explanation: These are sources of energy which are naturally replenished as they are used. Their indirect use is through the exploitation of wind, tides, hydro and biomass.

Comments

Will not be in the product classification.

4.1 SOLAR ENERGY

SECOND REVISION

Definition: Energy captured from sunlight using collectors which carry away the heat or electricity for use.

Remark: The definition is framed to cover active solar energy only. Two types of active energy collection and conversion are defined, electricity using photovoltaic cells, and heat, using thermal collectors.

Electricity - Photovoltaic cells (solar cells)

Definition: Electricity produced by the conversion of sunlight through photoelectronic processes in the cells.

Heat - Thermal collectors

Definition: Heat taken from a fluid which is circulated through a collector heated by sunlight.

DECISION

Split into 3 categories

Definition: Energy captured from solar radiation using active solar technologies.

Remark: The three technologies included in this definition are solar photovoltaic cells, concentrated solar thermal and non-concentrated solar thermal.

See notes...

Remove reference to high temperature and low temperature

REVISED DEFINITION

~~Definition: Energy captured from sunlight using collectors which carry away the heat or electricity for use.~~

~~Remark: The definition is framed to cover active solar energy only. Two types of active energy collection and conversion are defined, electricity using photovoltaic cells, and heat, using thermal collectors.~~

~~Electricity - Photovoltaic cells (solar cells)~~

~~Definition: Electricity produced by the conversion of sunlight through photoelectronic processes in the cells.~~

~~Heat - Thermal collectors~~

~~Definition: Heat taken from a fluid which is circulated through a collector heated by sunlight.~~

Definition: Energy captured from solar radiation by devices which use the following technologies.

Solar photovoltaics:

Definition: Electricity produced by the direct conversion of solar radiation through photovoltaic processes in semiconductor devices (solar cells).

Remark: Photovoltaic cells receiving concentrated solar radiation are included.

Concentrated Solar Thermal:

Definition: High temperature heat obtained by focussing solar radiation onto a collector/receiver..

Remark: The high temperature heat captured may be used for electricity generation and chemical processes or for use away from the concentrating system.

Non-concentrated Solar Thermal:

Definition: Heat taken from a fluid which is circulated through a collector heated by incident solar radiation without augmentation.

Remark: The heat is not capable of generating steam.

Definition: Energy captured from solar radiation by devices which use the following technologies.

Solar photovoltaics:

Definition: Electricity produced by the direct conversion of solar radiation through photovoltaic processes in semiconductor devices (solar cells).

Remark: *Photovoltaic cells receiving concentrated solar radiation are included.*

Concentrated Solar Thermal:

Definition: High temperature heat obtained by focussing solar radiation onto a collector/receiver.

Remark: The high temperature heat captured may be used for electricity generation and chemical processes or for use away from the concentrating system.

Non-concentrated Solar Thermal:

Definition: Heat taken from a fluid which is circulated through a collector heated by incident solar radiation *without* augmentation.

Remark: The heat is not capable of generating steam.

4.2 WIND ENERGY

SECOND REVISION

Definition:	Electricity produced from devices driven by wind.

Consultant's comments:

For the purposes of energy statistics wind energy is the energy obtained from devices driven by the wind. In the large majority of cases this is electricity.

DECISION

Add at beginning "For energy statistics purposes, ..."

REVISED DEFINITION

Definition:	For the purposes of energy statistics, ~~E~~electricity produced from devices driven by wind.

Definition:	For the purposes of energy statistics, electricity produced from devices driven by wind.

4.3 HYDRO ENERGY

SECOND REVISION

Definition:	Electricity produced from devices driven by flowing water.

DECISION

Add at beginning “For purposes of energy statistics, ...”

Remove ambiguity between tidal currents and flowing water

REVISED DEFINITION

Definition:	For the purposes of energy statistics, ~~E~~electricity produced from devices driven by fresh, flowing water.

Definition:	For the purposes of energy statistics, electricity produced from devices driven by fresh, flowing water.

4.4 WAVE ENERGY

SECOND REVISION

Definition:	Electricity produced from devices driven by the motion of waves

DECISION

Add at beginning “For energy statistics purposes, ...”

REVISED DEFINITION

Definition:	For the purposes of energy statistics, e~~E~~lectricity produced from devices driven by the motion of waves.

Definition:	For the purposes of energy statistics, electricity produced from devices driven by the motion of waves.

4.5 TIDAL ENERGY

SECOND REVISION

Definition:	Electricity generated from devices driven by tidal currents or the differences of water level caused by tides.

DECISION

Add at beginning “For purposes of energy statistics, ...”

Add a new definition for “Other marine energy” which includes ocean thermal and non-tidal currents and possibly osmosis.

Paolo to provide input on various elements

REVISED DEFINITION

Definition:	For the purposes of energy statistics, ~~E~~electricity generated from devices driven by tidal currents or the differences of water level caused by tides.

Definition:	For the purposes of energy statistics, electricity generated from devices driven by tidal currents or the differences of water level caused by tides.

4.6 OTHER MARINE ENERGY

NEW DEFINITION

Definition:	For the purposes of energy statistics, electricity generated from devices which exploit non-tidal currents, temperature differences and salinity gradients in seas and between sea and fresh water.

4.7 GEOTHERMAL ENERGY

SECOND REVISION

Definition:	Heat extracted from the earth.
Explanation:	The sources of the heat are radioactive decay in the crust and mantle and heat from the core of the earth. Heat from shallow geothermal sources will include heat gained by the earth from direct sunlight and rain.
Remark:	The heat is usually extracted from the earth in the form of heated water or steam.

DECISION

No change

4.8 BIOFUELS

SECOND REVISION

Definition:	Fuels derived directly or indirectly from biomass.
Remark:	Fuels produced from animal fats, by-products and residues obtain their calorific value indirectly from the plants eaten by the animals.

Consultant's comments:

The term bioenergy is replaced by biofuels as the former is broader than it needs to be to consistent with its definition.

DECISION

This is now called "Biofuels".

4.8.1 SOLID BIOFUELS

NEW DEFINTION

Definition:	Solid fuels derived from biomass.

4.8.1.1 FUELWOOD, WOOD RESIDUES AND BY-PRODUCTS

SECOND REVISION

Definition:	Fuelwood or firewood (in log, brushwood, pellet or chip form) obtained from natural or managed forests or isolated trees. Also included are wood residues used as fuel and in which the original composition of wood is retained.

DECISION

No change

4.8.1.2 AGROFUELS

SECOND REVISION

Definition:	Biofuels obtained from crops, and crop and agricultural residues.
Remark:	Residues from agricultural production include animal solid excreta, meat and fish residues. Agrofuel is sub divided into Bagasse, Animal Wastes, and Other vegetal material and residues.

DECISION

Reword definition to make more specific

Change Biofuels to Solid biofuels to make a stand-alone definition

REVISED DEFINITION

Definition:	Solid Biofuels obtained from crops, and residues from crops and other agricultural products~~residues~~.
Remark:	Residues from agricultural production include animal solid excreta, meat and fish residues. Agrofuel is sub divided into Bagasse, Animal Wastes, and Other vegetal material and residues.

Definition:	Solid Biofuels obtained from crops, and residues from crops and other agricultural products.
Remark:	Residues from agricultural production include animal solid excreta, meat and fish residues. Agrofuel is sub divided into Bagasse, Animal Wastes, and Other vegetal material and residues.

4.8.1.2.1 BAGASSE

SECOND REVISION

Definition:	The fuel obtained from the fibre which remains after juice extraction in sugar cane processing.

DECISION

No change

4.8.1.2.2 ANIMAL WASTE

SECOND REVISION

Definition:	Excreta of animals which, when dry, are used directly as a fuel.
Remark:	This excludes waste used in anaerobic fermentation plants. Fuel gases from these plants are included under biogases.

DECISION

No change

4.8.1.2.3 OTHER VEGETAL MATERIAL AND RESIDUES

SECOND REVISION

Definition:	Biofuels obtained from straw, vegetable husks, ground nut shells, pruning brushwood, olive pomace and other wastes arising from the maintenance, cropping and processing of plants other than sugar cane.

DECISION

OLADE will provide information on molasses – is it burned directly or is it a feedstock?

REVISED DEFINITION

Definition:	Biofuels not specified elsewhere and including ~~obtained from~~ straw, vegetable husks, ground nut shells, pruning brushwood, olive pomace and other wastes arising from the maintenance, cropping and processing of plants~~ other than sugar cane~~.

Definition:	Biofuels not specified elsewhere and including straw, vegetable husks, ground nut shells, pruning brushwood, olive pomace and other wastes arising from the maintenance, cropping and processing of plants.

4.8.1.3 BLACK LIQUOR

SECOND REVISION

Definition:	The alkaline-spent liquor obtained from the digesters during the production of sulphate or soda pulp required for paper manufacture.
Explanation:	The lignin contained in the liquor burns to release heat when the concentrated liquor is sprayed into a recovery furnace and heated with hot gases at 900ºC.
Remark:	Black liquor is used as a fuel in the pulping process.

DECISION

No change

4.8.1.4 CHARCOAL

SECOND REVISION

Definition:	The solid residue from the carbonisation of wood or other vegetal matter through slow pyrolysis.

DECISION

No change

4.8.2 LIQUID BIOFUELS

SECOND REVISION

Definition:	Liquids derived from biomass and used as fuels.
Remark:	Liquid biofuels comprise Biogasoline, Biodiesel and Other liquid biofuels. They are used for transport, electricity generation and stationary engines.

DECISION

Put are “generally” used

Make proposal redefining the sub-categories as “bioalcohol (of which bioethanol), bio-oils

Make sure that the additives (ETBE) falls into one of the categories. Everything should be covered.

REVISED DEFINITION

Definition:	Liquids derived from biomass and generally used as fuels.
Remark:	Liquid biofuels comprise Biogasoline, Biodiesel and Other liquid biofuels. They are used for transport, electricity generation and stationary engines.

Definition:	Liquids derived from biomass and generally used as fuels.
Remark:	Liquid biofuels comprise Biogasoline, Biodiesel and Other liquid biofuels. They are used for transport, electricity generation and stationary engines.

4.8.2.1 BIOGASOLINE

SECOND REVISION

Definition: Liquid fuels derived from biomass and used in spark-ignition internal combustion engines.

Remark: Common examples are:

- bioethanol
- biomethanol
- bio ETBE (ethyl-tertio-butyl-ether)
- bio MTBE (methyl-tertio-butyl-ether)

Biogasoline may be blended with petroleum gasoline or used directly in engines.

The blending may take place in refineries or at or near the point of sale.

DECISION

Product pending – may be replaced with new split

Comment

During the meeting, the question arose as to whether we should show bioethanol or bioalcohol and then add another product 4.8.2.2 called “Other biogasolines”. No decision has been made to date.

4.8.2.2 BIODIESELS

Formerly BIODIESEL

SECOND REVISION

Definition:	Liquid biofuels which are usually modified chemically so that they can be used as fuel in diesel engines either directly or after blending with petroleum diesel.
Explanation:	Biodiesels obtained by chemical modification are a linear alkyl ester made by transesterification of vegetable oils or animal fats with methanol. The transesterification distinguishes biodiesel from straight vegetable and waste oils. Biodiesel has a flash point of around 150°C and a density of about 0.88 kg/litre. Biological sources of biodiesel include, but are not limited to, vegetable oils made from canola (rapeseed), soybeans, corn, oil palm, peanut, or sunflower. Some liquid biofuels (straight vegetable oils) may be used without chemical modification their use usually requires modification of the engine.

DECISION

Product pending – may be replaced with new split

4.8.2.3 OTHER LIQUID BIOFUELS

SECOND REVISION

Definition:	Liquid biofuels not elsewhere specified

DECISION

Probably will remain unchanged

4.8.3 BIOGASES

SECOND REVISION

Definition:	Gases arising from the anaerobic fermentation of biomass.
Remark:	These gases are composed principally of methane and carbon dioxide and comprise Landfill gas, Sewage sludge gas and other biogases. They are used mainly as a fuel.

Consultant's comments:

There is some use of biogas (mostly in pilot plants) as a feedstock for chemicals manufacture including syngas. It is likely that the practice will increase in the future.

This may be ignored if the practice does not lead to chemicals for which there is significant use as a fuel, or to intermediate chemicals for which the downstream use does not give rise to by-products which are used as a fuel.

DECISION

Amplify what is meant by "mainly"

REVISED DEFINITION

Definition:	Gases arising from the anaerobic fermentation of biomass.
Remark:	These gases are composed principally of methane and carbon dioxide and comprise Landfill gas, Sewage sludge gas and other biogases. They are used mainly as a fuel but can be used as a chemical feedstock.

Definition:	Gases arising from the anaerobic fermentation of biomass.
Remark:	These gases are composed principally of methane and carbon dioxide and comprise Landfill gas, Sewage sludge gas and other biogases. They are used mainly as a fuel but can be used as a chemical feedstock.

4.8.3.1 LANDFILL GAS

SECOND REVISION

Definition:	Biogas from the anaerobic fermentation of organic matter in landfills.

DECISION

No change

4.8.3.2 SEWAGE SLUDGE GAS

SECOND REVISION

Definition:	Biogas from the anaerobic fermentation of waste matter in sewage plants.

DECISION

No change

4.8.3.3 OTHER PRIMARY BIOGASES

Formerly OTHER BIOGASES

SECOND REVISION

Definition:	Biogases used as a fuel and not elsewhere specified.

NOTE:

Other biogases is included in the broader definition of Biogases.

DECISION

Redraft to accommodate syngas

Remove “used as a fuel”

May be an issue between primary and secondary if the inputs to the syngas have already appeared in another product

REVISED DEFINITION

Definition:	Biogases ~~used as a fuel and~~ not elsewhere specified including synthesis gas produced from biomass.

Definition:	Biogases not elsewhere specified including synthesis gas produced from biomass.

4.8.3.4 SECONDARY BIOGASES

(no definition)

4.9 WASTE

SECOND REVISION

Definition:	For the purposes of energy statistics, wastes are materials no longer required by their holders and which are used as fuels. They are incinerated with heat recovery at installations designed for mixed wastes or co-fired with other fuels.
Remark:	The heat may be used for heating or electricity generation. Certain wastes are mixtures of materials of fossil and biomass origin.

Consultant's comments:

The definitions below seek to define the subsets of all waste which lead to heat used for productive purposes. The definition is drafted to make clear that only those wastes which lead to productive heat are included.

DECISION

No change

4.9.1 INDUSTRIAL WASTE

SECOND REVISION

Definition:	Non-renewable waste which is combusted with heat recovery in plants other than those used for the incineration of municipal waste. The renewable portions of industrial waste combusted with heat recovery are classified according to the biofuels which best describe them.
Remark:	Examples are, used tyres, specific residues from the chemical industry and hazardous wastes from health care. Combustion includes co-firing with other fuels.

Consultant's comments:

The name 'Industrial Waste' is unsatisfactory as it effectively covers all non-municipal, non-renewable waste which is combusted with heat recovery. As the examples show this is not uniquely waste from industry.

DECISION

Move 2nd sentence of the definition into remark

REVISED DEFINITION

Definition:	Non-renewable waste which is combusted with heat recovery in plants other than those used for the incineration of municipal waste. ~~The renewable portions of industrial waste combusted with heat recovery are classified according to the biofuels which best describe them.~~
Remark:	Examples are, used tyres, specific residues from the chemical industry and hazardous wastes from health care. Combustion includes co-firing with other fuels. The renewable portions of industrial waste combusted with heat recovery are classified according to the biofuels which best describe them.

Definition:	Non-renewable waste which is combusted with heat recovery in plants other than those used for the incineration of municipal waste.
Remark:	Examples are, used tyres, specific residues from the chemical industry and hazardous wastes from health care. Combustion includes co-firing with other fuels. The renewable portions of industrial waste combusted with heat recovery are classified according to the biofuels which best describe them.

4.9.2 MUNICIPAL WASTE

SECOND REVISION

Definition:	Household waste and waste from companies and public services that resembles household waste and which is collected and destroyed at installations specifically designed for the incineration of mixed wastes with heat recovery.
Remark:	Municipal wastes can be divided into renewable and non-renewable fractions.

DECISION

Redraft to cover the term “destroyed” – possibly “combusted’

REVISED DEFINITION

Definition:	Household waste and waste from companies and public services that resembles household waste and which is collected ~~and destroyed~~ at installations specifically designed for the ~~incineration~~ disposal of mixed wastes with ~~heat~~ recovery of combustible liquids, gases or heat.
Remark:	Municipal wastes can be divided into renewable and non-renewable fractions.

Definition:	Household waste and waste from companies and public services that resembles household waste and which is collected at installations specifically designed for the disposal of mixed wastes with recovery of combustible liquids, gases or heat.
Remark:	Municipal wastes can be divided into renewable and non-renewable fractions.

Consultant’s comment:

The definition has been broadened in scope to include advanced thermal treatment techniques for the disposal of wastes.

NUCLEAR, ELECTRICITY AND HEAT

5 NUCLEAR ENERGY

Definition:	For the purposes of energy statistics, Nuclear Energy is the Heat obtained from the steam (or other working fluid) produced by the nuclear reactor.
Explanation:	A working fluid is the substance circulated in a closed system to convey heat from the source of heat to its point(s) of use.

6 ELECTRICITY

DECISION

Provide a definition for electricity

NEW DEFINITION

Definition:	The transfer of energy through the physical phenomena involving electric charges and their effects when at rest and in motion.

7 HEAT

DECISION

Provide a definition for heat

NEW DEFINITION

Definition:	For the purposes of energy statistics, heat is the energy obtained from the translational, rotational and vibrational motion of the constituents of matter as well as changes in its physical state.