InterEnerStat

Harmonisation of Definitions of Energy Products and Flows

DECISIONS ON PRODUCTS

IEA, Paris, 28-30 October 2008

Hierarchy of Products

- **Coal**
  - Hard coal
    - Anthracite
    - Bituminous coal
      - Coking coal
      - Other bituminous coal
  - Brown coal
    - Sub-bituminous coal
    - Lignite
  - Coke
    - Brown coal coke
    - Coke oven coke
    - Semi-cokes
    - Coke breeze
    - Gas coke
  - Coke oven gas
  - Gas works gas
  - Blast furnace gas
  - BOSF gas
  - Other recovered gases
  - Coal tar
  - Patent fuel
  - Brown coal briquettes
- **Peat**
- **Peat briquettes**
- **Electrical energy**
- **Heat energy**
- **Renewable energy and fuels**
  - Solar
    - Photovoltaic cells
    - Thermal collectors
  - Wind
  - Wave
  - Hydro
  - Tidal
  - Geothermal
  - Bio-energy
    - Solid biomass
      - Fuelwood, wood residues and by-products
      - Agrofuels
        - Bagasse
        - Other agrofuels
      - Charcoal
    - Liquid biofuels
      - Biogasoline
      - Biodiesels
      - Other liquid biofuels
    - Biogas
      - Landfill gas
      - Sewage sludge gas
      - Other biogas
  - Wastes
    - Industrial
    - MSW
      - Renewable MSW
      - Non-renewable MSW

Oil

- Crude Oil (includes field condensates when it is injected into crude)
  - ?
  - Oils from tar sands
- NGL
  - Ethane
  - Propane
  - butane
  - pentanes
  - pentanes plus (plant condensates and field condensates – if not injected into crude oil)
- Refinery feedstock
- Additives/oxygenates
- Other hydrocarbons (includes orimulsion and shale oil, liquids from coal and gas)
- Petroleum products
  - Refinery gas
  - Ethane
  - LPG
  - Naphtha
  - Aviation gasoline
  - Motor gasoline
  - Gasoline-type jet fuel
  - Kerosene
    - Kerosene-type jet fuel
    - Other kerosene
  - Gasoil/diesel oil
    - Road diesel
    - Heating and other gasoil
  - Fuel oil
  - White spirit and SBP
  - Lubricants
  - Paraffin waxes
  - Petroleum coke
  - Bitumen
  - Other petroleum products

Natural gas

COAL

Coal

Coal is a fossil primary fuel, usually with the physical appearance of a black or brown rock, consisting of carbonised vegetal matter. The higher the carbon content of a coal, the higher its rank or quality. Coal types are distinguished by their physical and chemical characteristics. These characteristics determine the suitability for various uses. There are three main categories of coal: hard coal, sub-bituminous coal and brown coal (also called lignite). Peat, which is another primary fuel closely related to coal, is often included under coal.

DECISIONS

- Delete the last 2 sentences.
- Say explicitly that peat is excluded.
- Make reference to standard characteristics in following definitions.
- Give preference to the calorific values.

Hard coal

Coal that has a high degree of coalification with a gross calorific value above 23,865 kJ/kg (5,700 kcal/kg) on an ash-free but moist basis, and a mean random reflectance of vitrinite of at least 0.6. Hard coal comprises anthracite, coking coal and other bituminous coal (a.k.a steam coal).

DECISIONS

- Simplify to have 1 criterion (calorific value) since this is what is generally used commercially.
- Also give technical reference or standard such as volatility or carbon content. Give extra information that can give an indication but is not exclusive when necessary.
- Hard coal is a sub-total that is made up of anthracite and bituminous coal. Bituminous coal is made up of coking coal and other bituminous coal.

Anthracite

High rank coal used for industrial and residential applications. It has generally less than 10% volatile matter and a high carbon content (about 90% fixed carbon). Its gross calorific value is greater than 23 865 kJ/kg (5 700 kcal/kg) on an ash-free but moist basis.

DECISIONS

- Put characteristics first
- State carbon content and volatile matter as guidance.

Coking coal

Bituminous coal with a quality that allows the production of a coke suitable to support a blast furnace charge. Its gross calorific value is greater than 23 865 kJ/kg (5 700 kcal/kg) on an ash-free but moist basis.

DECISIONS

- Add qualities that define coking coal.

Other bituminous …… (steam) coal

Coal used for steam raising purposes and includes all bituminous coal that is not included under coking coal nor anthracite. It is characterized by higher volatile matter than anthracite (more than 10%) and lower carbon content (less than 90% fixed carbon). Its gross calorific value is greater than 23 865 kJ/kg (5 700 kcal/kg) on an ash-free but moist basis.

DECISIONS

- Put the calorific value first.
- Omit anthracite.
- In the remarks, put that this is often referred to as steam coal.

Sub-bituminous coal

Refers to non-agglomerating coal with a gross calorific value between 17 435 kJ/kg (4 165 kcal/kg) and 23 865 kJ/kg (5 700 kcal/kg) containing more than 31% volatile matter on a dry mineral matter free basis. This category includes Brown Coal (Lignite).

DECISIONS

- Remove the last sentence.
- Introduce sub-total for Brown Coal which is equal to sub-bituminous coal and lignite.

Brown coal (lignite)

A relatively soft, non-agglomerating coal with a gross calorific value less than 17 435 J/kg (4 165 kcal/kg) and greater than 31% volatile matter on a dry mineral matter free basis.

DECISIONS

- Change the name to Lignite.

Oil shale, shale oil and tar sands??

DECISIONS

- Will provide separate definitions.
- We will see on Thursday where these items should be included.

Peat

A solid fuel formed from the partial decomposition of dead vegetation under conditions of high humidity and limited air access (initial stage of coalification). It is available in three forms as a fuel.

Sod peat: slabs of peat, cut by hand or by machine, and dried in the air; mostly used as a household fuel;

Milled peat: granulated peat, produced on a large scale by special machines; used either as a power station fuel or as raw material for briquettes;

Peat briquettes: small blocks of dried, highly compressed peat; used mainly as a household fuel.

DECISIONS

- Put peat briquettes as a separate product.
- Will specify that peat is not renewable and that the regeneration period is long.

Brown coal (lignite) briquettes (a.k.a Braunkohlenbriketts, BKB)

…A composition fuel manufactured from … brown coal. The brown coal is crushed, dried and moulded under high pressure into an even shaped briquette without the addition of binders.

DECISIONS

- Omit lignite in the title.
- Change to be “with or without the addition of binders”.
- Note: the new definition will implicitly include sub-bituminous briquettes.

Brown coal coke

A solid product obtained from carbonization of brown coal briquettes.

DECISIONS

- Produce a general definition for “COKE” and keep the individual definitions. Use the definition from the UNSD manual as a starting point.

  COKE

  - Brown coal coke
  - Coke oven coke
  - Semi cokes
  - Coke breeze
  - Gas coke

- Put a remark that charcoal is not included under Coke.

Patent fuel

A composition fuel manufactured from coal fines by shaping with the addition of a binding agent such as pitch. ……

DECISIONS

- Explicitly mention hard coal briquettes.
- There are cases where the patent fuel is not coal fines by shaping. In the US the hard coal was sprayed and there was no reshaping. IEA will provide documentation.

Coke oven coke (metallurgical coke)

The solid product obtained from carbonization of coal at high temperature. 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.

DECISIONS

- Insert hard coal into “carbonization of hard coal” ...

Semi cokes

Cokes produced by low temperature carbonization and used as a heating fuel. Note that semi cokes may be made from bituminous and sub-bituminous coals including brown coals.

DECISIONS

- Remove the last part “including brown coals”.

Coke breeze

A by product of coke manufacture. It is the residue from screening coke and comprises particle sizes less than 10 mm. Note that the coke which is screened may be made from bituminous and sub-bituminous coals including brown coals.

DECISIONS

- Remove the last part “including brown coals”.

Gas coke
A by-product from the carbonization of bituminous coal for the manufacture of town gas. Gas Coke is used for heating purposes.

DECISIONS

- Make less restrictive by saying “mainly for heating purposes”.

Coal tar
A liquid by-product of the carbonization of coal in coke ovens.

DECISIONS

- No change.

Coke oven gas
A gas of high calorific value produced from coke ovens during the high temperature carbonization of coal for the manufacture of metallurgical coke.

DECISIONS

- No change.

Gas works gas (a.k.a town gas)

Covers all types of gases produced in public utility or private plants, whose main purpose is manufacture, transport and distribution of gas. It includes gas produced by carbonization (including gas produced by coke ovens and transferred to gas works gas), by total gasification with or without enrichment with oil products (LPG, residual fuel oil, etc.), and by reforming and simple mixing of gases and/or air.

DECISIONS

- Omit transport and distribution.
- Avoid confusion with natural gas in the reference to blending.

Blast furnace gas

A low calorific value gas which is a by-product of blast furnace operation for the manufacture of iron. Its heating value arises from the carbon monoxide produced by the partial combustion of coke in the blast furnace. 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.

DECISIONS

- Change to be “coke and other products”.
- Charcoal may also be used within the furnace (therefore a fraction may be considered as renewable).

Basic oxygen steel furnace gas (BOSF gas)

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

?? What about the other gas forms such as the phosphor oven gas ??

DECISIONS

- Add another category for “other recovered gases”.

ELECTRICITY and HEAT

DECISIONS:

- Add a definition for nuclear

Electrical energy

Heat and mechanical energy may be converted into electrical energy using generators driven by steam, flowing air or water and internal combustion engines. Electricity may also be produced from the chemical reactions within fuel cells and light falling on photovoltaic cells.

The definitions below do not state what electricity and heat are but define the types of generation and plants in which they are generated.

DECISIONS

- Remove the last sentence.

Heat energy

Heat is obtained from the combustion of fuels, nuclear reactors, geothermal reservoirs, capture of sunlight and heat pumps which can extract it from ambient fluids. It may be used for heating or converted into mechanical energy for transport vehicles or electricity generation. Definitions of plants which supply heat for use by customers are given below.

DECISIONS

- Remove the last 2 sentences.
- Change “fluids” to “ambient air and liquids”.
- Include heat from chemical processes and use of electricity to produce heat.
- Make a proposal for distributed cooling.

Classification of generating plants

Electricity and heat plants are divided into types according to whether they produce only one or both forms of energy and by producer according to the producer's principal reason for generation.

DECISIONS

- These should be moved to the flows.
- Change to be "generation/activity".

The types of producer are:

Main Activity Producer (formerly known as public) undertakings generate electricity or heat for sale to third parties, as their main business activity. They may be privately or publicly owned. Note that the sale need not take place through the public grid.

Autoproducer undertakings generate electricity or heat wholly or partly for their own use as an activity which supports their main business activity. They may be privately or publicly owned.

DECISIONS

- These should be moved to the flows.
- Need to incorporate the idea of "heat for sale" for autoproducers.

RENEWABLES and WASTE

Renewable fuels and energy

Renewable fuels and energy (Renewables) are captured directly or indirectly from the incoming sunlight, geothermal heat and the effects of gravitational forces. The main groups of renewables are described below and the various sub categories defined within them.

DECISIONS

- Change the title to be “renewable energy and fuels”.
- Take out the word “incoming”.
- Remove last sentence.

Solar renewables - direct

Photovoltaic cells

Incoming sunlight is converted into electricity through the photoelectronic processes in the cells.

Thermal collectors

Incoming sunlight heats the surfaces of the collectors which transfer the heat to a fluid which, in turn, carries it away for use.

Solar renewables – indirect

DECISIONS

- Will remove the direct and indirect.
- Add a remark saying that passive solar is not included.

Wind

Some of the kinetic energy of wind is transferred to the motion of the propeller rotors for the production of mechanical and electrical energy.

DECISIONS

- Rephrase the definition to reflect the energy form and mention mechanical output without referring to the point of measurement.

Wave

The action of wind on the surface of water produces vertical oscillations in water level which may be used to drive mechanical devices and generate electricity.

DECISIONS

- Rephrase the definition to reflect the energy form and mention mechanical output without referring to the point of measurement.

Hydro

Mechanical energy (usually converted to electricity) is obtained from the kinetic or potential energy of falling water by passing it through a rotor system. The energy is renewable because the water is continually returned to higher levels by the climate system driven by sunlight.

DECISIONS

- Remove the last sentence.
- Handle the pumped storage in the remarks.

Biofuels

Fuels derived from recent (that is, non-fossil) plant matter in which the carbon content is stored in sugars formed through the photosynthesis of carbon dioxide and water using sunlight. Fuels produced from animal fats and wastes obtain their calorific value indirectly from the plants eaten by the animals.

DECISIONS

- Rename the title to be “Bio-energy”
- Use modified UBET definition and specify that peat is excluded.

Wood and wood wastes

Fuelwood or firewood (in log, brushwood, pellet or chip form) obtained from natural or managed forests or isolated trees. Also included are wastes used as fuel, which are obtained from the preparation of wood for fuel or derived products (for example, paper, furniture, etc). …

DECISIONS

- Need an umbrella category for “solid biomass”.
- Rename this item to be “Fuelwood, wood residues and by-products”.
- Check if the definition should refer to “the original composition of wood” in order to exclude charcoal and black liquour – see FAO definitions.
- Remove references to derived products.
- The remarks should explicitly exclude charcoal and black liquour.

Charcoal

The solid residue from the carbonisation of wood or other vegetable matter by pyrolysis.

DECISIONS

- No change

Vegetal material and wastes (other than wood)

Bagasse, straw, vegetable husks, ground nut shells, pruning brushwood, olive pomace and other wastes arising from the maintenance, cropping and processing of plants.

DECISIONS

- Introduce an umbrella category called “agrofuels” which will show bagasse separately.

  Agrofuels

  Bagasse

  Other agrofuels

Black liquor

The alkaline-spent liquor obtained from the digesters during the production of sulphate or soda pulp required for paper manufacture. The lignin dissolved in the liquor is burned to release heat when the concentrated liquor is sprayed into a recovery furnace and heated with hot gases at 900º C.

DECISIONS

- No change

Animal wastes

Excreta of animals which, when dry, are used directly as a fuel.

DECISIONS

- No change

Biogasoline

A biomass derived liquid which is blended with fossil fuel derived gasoline. The blending may take place in refineries or at or near the point of sale. Common examples are:

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

DECISIONS

- Change the definition to include direct use and not just blending.

Biodiesel

Oil derived from biological sources and modified chemically so that it can be used as fuel in diesel engines either directly or after blending with petroleum diesel. Biodiesel is 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. Straight oils can be used as fuel only if the engine is modified; for this reason, it is not recommended to report them as biodiesel. Biodiesel has a flash point of around 150°C and a density of 0.86 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.

DECISIONS

- Change the title to be “biodiesels”.
- Omit the sentence referring to straight oils used in modified engines.

Other liquid biofuels

Liquid biofuels not used as transport fuels.

DECISIONS

- Remove the existing text. Use the UNSD structure

Liquid biofuels
- biogasoline
- biodiesels
- other liquid biofuels (other liquid biofuels not elsewhere specified)

Landfill gas

Gases composed principally of methane and carbon dioxide arising from the anaerobic digestion of biomass in landfills.

DECISIONS

- Need 3 categories plus an umbrella group

Biogas
- Landfill gas
- Sewage sludge gas
- Other biogas (agriculturally produced biogas)

Other biogases

Sewage sludge gas and other gas obtained from the anaerobic fermentation of sewage sludge or animal slurries or wastes from abattoirs, breweries and the agrofood industries.

DECISIONS

- See preceding decision.

Gravitational renewables

Tidal energy

Mechanical energy (usually used to generate electricity) provided by rotors driven by tidal currents resulting from the rotation of the earth and the gravitational forces from the earth, moon and sun.

DECISIONS

- Remove the reference to gravitational renewable
- Drop reference to mechanical energy

Geothermal renewables

Heat

Heat captured from hot rocks in the earth's crust. The rocks are heated by the decay of radioactive elements in the crust.

DECISIONS

- Use Eurostat definition.

Wastes

Wastes are materials no longer required by the holder and destined for disposal in landfills or incineration plants. Wastes need inclusion in energy statistics when they are incinerated with heat recovery as they are then considered fuels. The heat may be used for space heating or electricity generation.

Certain wastes are mixtures of materials of fossil and biomass origin and this complicates the task of estimating the fossil and renewable fuels components for reporting purposes.

The following waste categories have been identified.

DECISIONS

- Remove last sentence.

Industrial waste

This category comprises waste of non-renewable origin (…) originating from industrial processes, institutions and hospitals and which are incinerated with heat recovery.

Renewable industrial waste is not included under this definition but is covered in the solid biomass, biogas and/or liquid biofuels categories.

DECISIONS

- Wastes from hospitals and institutions will be moved to MSW.

Municipal waste

Waste produced from households and commercial activities and which are collected by services funded by public administration and incinerated with heat recovery.

Municipal wastes are divided into renewable and non-renewable categories.

DECISIONS

- Wastes from hospitals and institutions will be moved to MSW.

Oil

Oil

A group of liquid hydrocarbons of fossil origins comprising Crude (that is, unprocessed) oil and fully or partly processed products from the processing of Crude oil. Functionally similar liquid hydrocarbons and organic chemicals from vegetal or animal origins are identified separately within oil under liquid biofuels.

DECISIONS

- Keep the definition of oil but make it more specific.
- Mention conventional and unconventional oils.
- Add NGL to the definition.
- Move the part about biofuels to the explanatory works.

Crude Oil

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

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

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

DECISIONS

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

Natural Gas Liquids (NGL)

NGL are liquid or liquefied hydrocarbons recovered from wet (associated or non-associated) natural gas in separation facilities or gas processing plants. See entry for natural gas for an explanation of some of the terms used here.

Natural gas liquids comprise ethane, propane, butane (normal and iso-), (iso) pentane and pentanes plus (sometimes referred to as natural gasoline or plant condensate).

NGL may be distilled with crude oil in refineries, blended with refined petroleum products or used directly depending on their characteristics.

Do not confuse NGL with Liquefied Natural Gas (LNG).

DECISIONS

- List the individual components.
- For NGLs, define condensates in manner which does not confuse lease condensate (field) with condensate from fields producing only condensates.

Refinery Feedstock

A product from crude oil refining or the processing of hydrocarbons in the petrochemical industry which is destined for further processing in the refinery excluding blending.

DECISIONS

- Will add examples.

Additives/Oxygenates

Additives and oxygenates are non-hydrocarbon compounds added to or blended with a product to modify fuel properties (octane, cetane, cold properties, etc.):

- 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).

DECISIONS

- Mr. Heiberg will provide a contact to get more information on the nature of the hydrocarbon additives.

Liquid Biofuels

Liquid biofuels are derived from organic matter and used as complete or partial substitutes for petroleum products at the point of use.

The most common liquid biofuels are biogasoline and biodiesel.

DECISIONS

- This definition will be dealt with in the renewables part.

Bituminous Sands

Omit? See definition above for Crude Oil.

DECISIONS

- Add definition (will be included in the umbrella definition for “Crude oil”).
- May be renamed as “Oils from tar sands”.

Other Hydrocarbons

This group comprises crude oil extracted from reservoirs with in situ heating or emulsifying (for example, Orimulsion) and oils extracted from the in situ processing of coal reserves. It also includes liquid fuels (usually gasoline) produced from the conversion of natural gas.

DECISIONS

- Include liquids from coal and natural gas. Hydrogen, shale oil and orimulsion should also be included here.

Refinery Gas

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. It is used mainly as a fuel within the refinery.

DECISIONS

- Definition stands.

Ethane

A naturally gaseous straight-chain hydrocarbon (C2H6) extracted from wet natural gas at gas processing plants or during the refining of crude oil. Ethane is a valuable feedstock for petrochemical manufacture.

DECISIONS

- Definition stands.

Liquefied Petroleum Gas (LPG)

LPG refers to liquefied propane and butane or mixtures of both. Commercial grades are usually mixtures of the gases with small amounts of propylene, butylene, isobutene and isobutylene stored under pressure in metal containers. The exact mixtures vary according to purpose and season of the year. The gases may be extracted from wet natural gas at gas processing plants or at plants degasifying imported Liquefied Natural Gas. They are also obtained during the refining of crude oil.

DECISIONS

- Ethane would be in trace quantities and new draft definition will reflect this.
- More reference to where the gas extraction takes place.
- Remove the word “metal”.

Naphthas

Light or medium oils distilling between 30 ºC and 210 ºC, for which there is no official definition, but which do not meet the standards laid down for motor spirit. The properties depend upon consumer specification.

Different naphthas are distinguished by their density and an analysis based on the content of paraffins, isoparaffins, olefins, naphthenes and aromatics.

The primary uses for naphthas are as feedstock for high octane gasolines and the manufacture of olefins in the petrochemical industry.

DECISIONS

- Singular will used.
- Accept IEA drafting suggestion on how to distinguish the different naphthas.

Motor Gasoline

A mixture of light hydrocarbon products distilling between 35 ºC and 215 ºC and additives which improve performance in spark ignition internal combustion engines. Aircraft engines are excluded.

DECISIONS

- Will follow up IEA's suggestion of including examples of additives.
- Change the wording to use aviation gasoline instead of aircraft engines.
- Refer to biogasoline in the explanatory notes.

Biogasoline

A biomass derived liquid which is blended with fossil fuel derived gasoline. The blending may take place in refineries or at or near the point of sale. Common examples are:

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

DECISIONS

- Remove here and retain in the renewables section.

Aviation Gasoline

Motor spirit prepared especially for aviation piston engines, with an octane number varying from 80 to 145 RON and a freezing point of -60 ºC.

DECISIONS

- Agree to include "maximum" -60 for freezing point.
- Investigate the octane range for aviation gasoline.
- Insert the distillation range.

Gasoline Type Jet Fuel

This includes all light hydrocarbon oils for use in aviation turbine power units, distilling between 100 ºC and 250 ºC. 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.

DECISIONS

- Definition stands.

Kerosene Type Jet Fuel

This is a distillate used for aviation turbine power units. It distills between 150 ºC and 300 ºC and has a flash point above 38 ºC. In these respects it is identical to kerosene for other purposes. In addition, it has particular specifications (such as freezing point) which are established by the International Air Transport Association (IATA).

This category includes kerosene blending components.

DECISIONS

- Need an umbrella definition for kerosene.
- Blending components sentence will remain.
- 250 degree cut will be re-included

Other Kerosene

Medium oil distilling between 150 ºC and 300 ºC and a flash point above 38 ºC. It is used as an illuminant and as a fuel in heating appliances and certain types of spark-ignition engines, such as those used for agricultural tractors and stationary engines.

Other names for this product are burning oil, vaporizing oil, power kerosene and illuminating oil.

DECISIONS

- Definition stands. Will not add blending in this definition.

Gas/Diesel Oil (Distillate Fuel Oil)

Gas/diesel oil is primarily a medium distillate oil which distills between 180 ºC and 380 ºC. Several grades are available depending on uses: transport diesel, heating and feedstock use.

DECISIONS

- Umbrella definition will remain with its components defined separately.
- To be renamed “Gasoil/Diesel Oil”.

Transport Diesel

Gas/Diesel oil (usually of low sulphur content) for use in compression ignition (Diesel) engines fitted in land vehicles.

DECISIONS

- Rename to be “Road diesel”.
- Definition will reflect the change to gasoil/diesel oil.

Biodiesel

Oil derived from biological sources and modified chemically so that it can be used as fuel in diesel engines either directly or after blending with petroleum diesel. Biodiesel is 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. Straight oils can be used as fuel only if the engine is modified; for this reason, it is not recommended to report them as biodiesel. Biodiesel has a flash point of around 150°C and a density of 0.86 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.

DECISIONS

- Remove here and retain in the renewables section.

Heating and Other Gas Oil

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

In addition this category includes other gas oil including heavy gas oils which distil between 380 ºC and 540 ºC and which are used as petrochemical feedstocks.

DECISIONS

- Definition will stand.

Fuel Oil

Comprises residual or heavy fuel oil which is a blended product based on the residues from various refinery, distillation and cracking processes.

Fuel oils have a kinematic viscosity above 27.5 cSt at 38 ºC. Their flash point is always above 50 ºC and their specific gravity is above 0.90.

Heavy fuel oil is used in medium to large industrial plants, marine applications and power stations in combustion equipment such as boilers, furnaces and diesel engines.

Heavy fuel oil is a general term and other names commonly used to describe this range of products include: residual fuel oil, bunker fuel, bunker C, fuel oil No. 6, industrial fuel oil, marine fuel oil and black oil.

DECISIONS

- Will incorporate reference to “usually blended”.
- Difficult to find a uniform standard for viscosity but will investigate further.
- Will add types of fuel oil and their specifications.

White Spirit and SBP

White Spirit and SBP (Special Boiling Point Industrial Spirits) are defined as 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 30 ºC and 200 ºC. 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 60 ºC).
- White Spirit: Industrial spirit with a flash point above 30 ºC. The distillation range of white spirit is 135 ºC to 200 ºC.

DECISIONS

- Add the uses for the products.

Lubricants

Oils produced from the vacuum distillation of residues from atmospheric distillation. They are subjected to further processing depending on the lubricant base stock required. Lubricants are mainly used to reduce friction on sliding surfaces and in metal cutting operations. In both cases they also carry heat away from surfaces in contact. Engine oils often contain additives with the lubricant base stock which help carry particles in suspension.

DECISIONS

- The last 2 sentences should be moved to the explanatory text.

Paraffin Waxes

These are residues extracted when dewaxing lubricant oils. They have a crystalline structure which is more-or-less fine according to the grade and are colourless, odourless and translucent, with a melting point above 45 ºC.

DECISIONS

- Add reference to “petroleum waxes”.

Petroleum Coke

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.

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 630 ºC. 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 1330 ºC.

Calcined coke is a petroleum coke or coal-derived pitch coke obtained by heat treatment of green coke to about 1330 ºC. It will normally have a hydrogen content of less than 0.1 wt.%.

DECISIONS

- Will put types in the explanatory text.
- Outstanding issue with catalyst coke.

Bitumen

Bitumen is a solid, semi-solid or viscous hydrocarbon with a colloidal structure, being brown to black in colour, obtained as a residue in the distillation of crude oil, by vacuum distillation of oil residues from atmospheric distillation. Bitumen is also known as asphalt, a name used in some countries for the mixture of bitumen and stone aggregate used for road pavements. In addition to its major use for road pavements, bitumen is also used as an adhesive and waterproofing agent for roof coverings.

DECISIONS

- Add a reference to the fact that bitumen can also be used for energy purposes.

Other Products

Products of petroleum origin (including partly refined products) not specified above.

They will include basic organic chemicals destined for use within the refinery or for sale to or processing in the chemical industry.

DECISIONS

- Change name to be “Other petroleum products”.
- Add examples of what is included.

Natural Gas

Natural Gas

Natural gas comprises gases, extracted from geologically ancient underground deposits, whether liquefied or gaseous, consisting mainly of methane. 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)

DECISIONS

- LNG is not a different product – it is used for storage and transportation purposes.
- Should have definitions in the flows for venting, flaring and energy used for the production (but these are not included in “marketable”).
- Include the concept of marketable gas.