

# The Extended JODI Oil Questionnaire

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# Outline

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- ❑ Introduction to the JODI Oil Questionnaire
  - Key concepts and definitions
- ❑ Useful tips and information
- ❑ Differences with annual oil questionnaire



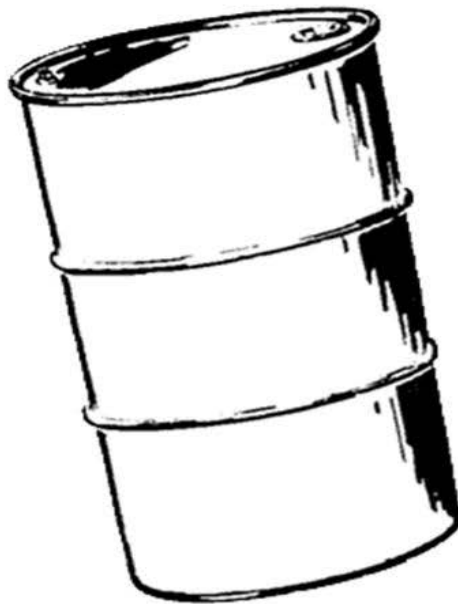
# The JODI Oil Questionnaire

Key concepts and definitions

# Oil refining (1)

## What is produced?

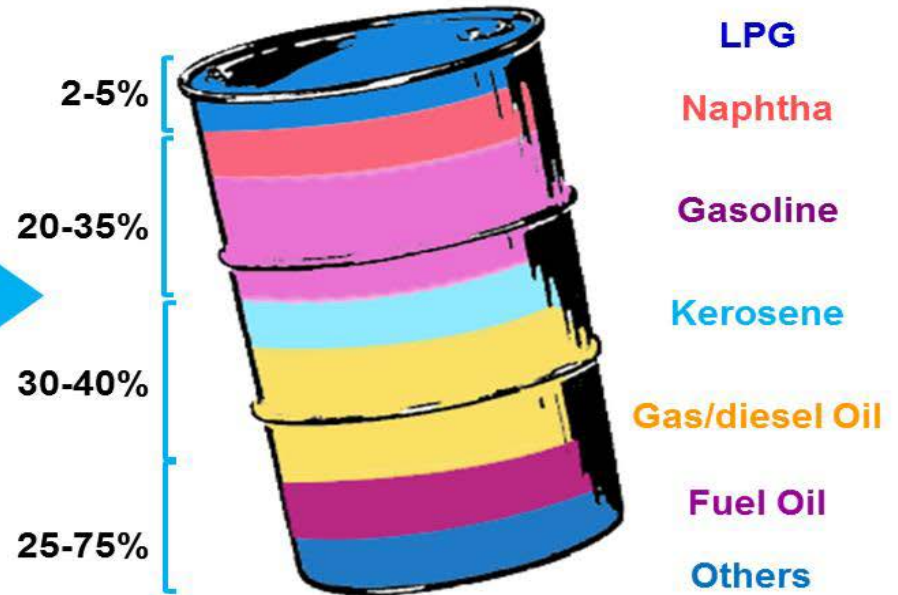
Crude Oil, NGL and other Hydrocarbons



Refining

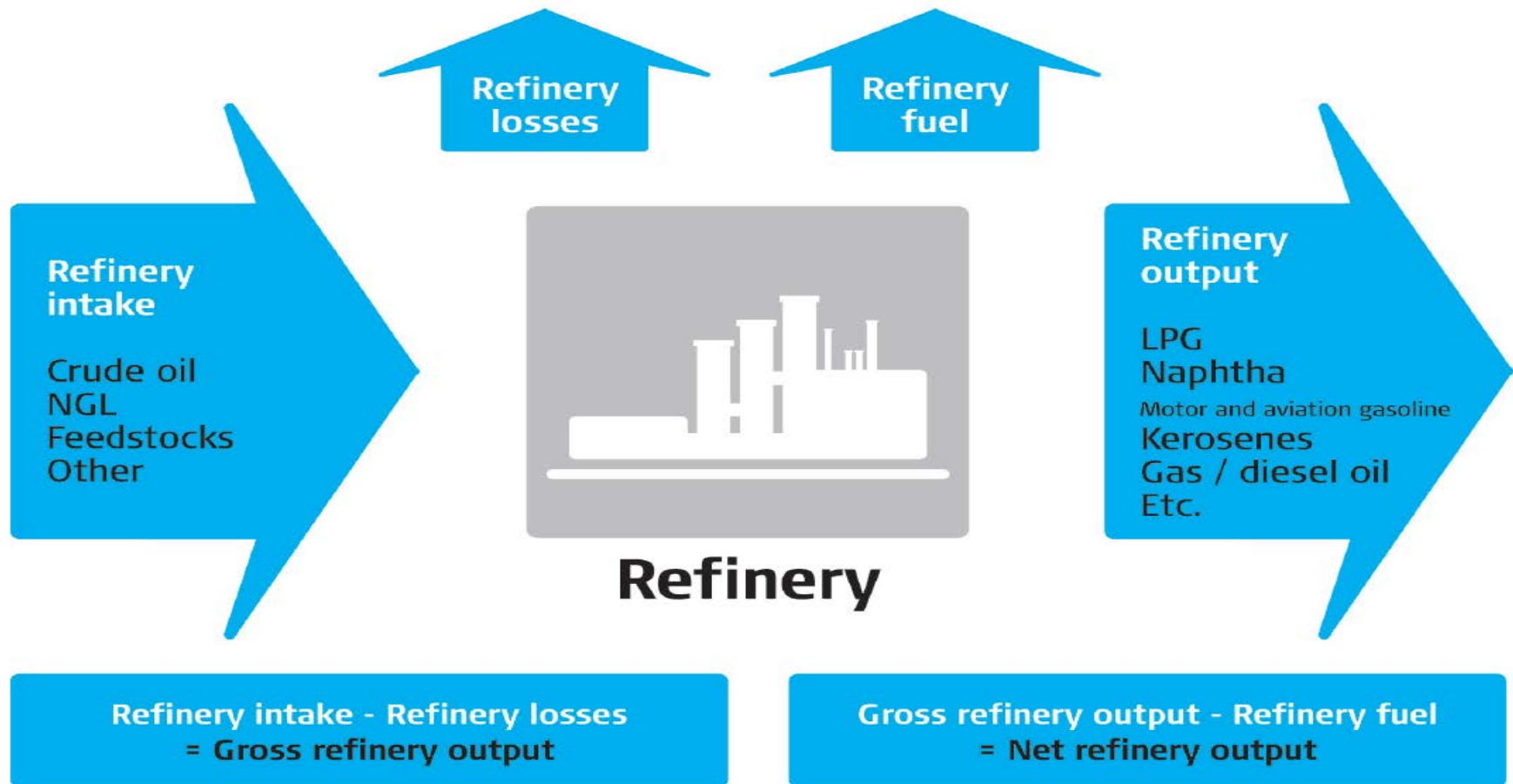
## What is consumed?

Petroleum Products



*Crude oil needs refining, because it has limited use in its raw state.*

# Oil refining (2)





# JODI Oil Questionnaire – Product Definitions

## Total Kerosene and Other Kerosene

- Kerosene comprises of kerosene type jet fuel and other kerosene
- Other kerosene usually has lower quality specification than jet kerosene (used as domestic heating oil and for lighting)
- Jet kerosene needs to be reported separately
- Pure biofuels used directly in engines are not included

|                                      | Crude Oil | NGL | Other | Total<br>(1)+(2)+(3) |                          | Petroleum Products |         |          |                   |                              |                    |          |                   |   |
|--------------------------------------|-----------|-----|-------|----------------------|--------------------------|--------------------|---------|----------|-------------------|------------------------------|--------------------|----------|-------------------|---|
|                                      |           |     |       |                      |                          | LPG                | Naphtha | Gasoline | Total<br>Kerosene | Of which:<br>Jet<br>Kerosene | Gas/<br>Diesel Oil | Fuel Oil | Other<br>Products | Total<br>Products<br>(5)+(6)+(7)<br>+(8)+(10)<br>+(11)+(12) |
|                                      | (1)       | (2) | (3)   | (4)                  |                          | (5)                | (6)     | (7)      | (8)               | (9)                          | (10)               | (11)     | (12)              | (13)  |
| + Production                         |           |     |       |                      | + Refinery Output        |                    |         |          |                   |                              |                    |          |                   |   |
| + From Other sources                 |           |     |       |                      | + Receipts               |                    |         |          |                   |                              |                    |          |                   |   |
| + Imports                            |           |     |       |                      | + Imports                |                    |         |          |                   |                              |                    |          |                   |   |
| - Exports                            |           |     |       |                      | - Exports                |                    |         |          |                   |                              |                    |          |                   |   |
| + Products Transferred<br>/Backflows |           |     |       |                      | - Products Transferred   |                    |         |          |                   |                              |                    |          |                   |   |
| - Direct Use                         |           |     |       |                      | + Interproduct Transfers |                    |         |          |                   |                              |                    |          |                   |   |
| - Stock Change                       |           |     |       |                      | - Stock Change           |                    |         |          |                   |                              |                    |          |                   |   |
| - Statistical Difference             | 0         | 0   | 0     | 0                    | - Statistical Difference | 0                  | 0       | 0        | 0                 | 0                            | 0                  | 0        | 0                 | 0   |
| = Refinery Intake                    |           |     |       |                      | = Demand                 |                    |         |          |                   |                              |                    |          |                   |   |
| Closing stocks                       |           |     |       |                      | Closing stocks           |                    |         |          |                   |                              |                    |          |                   |   |

# JODI Oil Questionnaire – Product Definitions

## Example: Reporting Kerosene

- Your country's refinery produces 60kt of kerosene in total, 40kt of which are jet kerosene
- 30kt of kerosene are imported, all of which are jet kerosene
- Demand: 20kt of other kerosene and 70kt of jet kerosene

|                                      | Crude Oil | NGL | Other | Total<br>(1)+(2)+(3) |                          | Petroleum Products |         |          |                   |                              |                    |          |                   |   |
|--------------------------------------|-----------|-----|-------|----------------------|--------------------------|--------------------|---------|----------|-------------------|------------------------------|--------------------|----------|-------------------|---|
|                                      |           |     |       |                      |                          | LPG                | Naphtha | Gasoline | Total<br>Kerosene | Of which:<br>Jet<br>Kerosene | Gas/<br>Diesel Oil | Fuel Oil | Other<br>Products | Total<br>Products<br>(5)+(6)+(7)<br>+(8)+(10)<br>+(11)+(12) |
|                                      | (1)       | (2) | (3)   | (4)                  |                          | (5)                | (6)     | (7)      | (8)               | (9)                          | (10)               | (11)     | (12)              | (13)  |
| + Production                         |           |     |       |                      | + Refinery Output        |                    |         |          | 60                | 40                           |                    |          |                   |   |
| + From Other sources                 |           |     |       |                      | + Receipts               |                    |         |          |                   |                              |                    |          |                   |   |
| + Imports                            |           |     |       |                      | + Imports                |                    |         |          | 30                | 30                           |                    |          |                   |   |
| - Exports                            |           |     |       |                      | - Exports                |                    |         |          |                   |                              |                    |          |                   |   |
| + Products Transferred<br>/Backflows |           |     |       |                      | - Products Transferred   |                    |         |          |                   |                              |                    |          |                   |   |
| - Direct Use                         |           |     |       |                      | + Interproduct Transfers |                    |         |          |                   |                              |                    |          |                   |   |
| - Stock Change                       |           |     |       |                      | - Stock Change           |                    |         |          |                   |                              |                    |          |                   |   |
| - Statistical Difference             | 0         | 0   | 0     | 0                    | - Statistical Difference | 0                  | 0       | 0        | 0                 | 0                            | 0                  | 0        | 0                 | 0   |
| = Refinery Intake                    |           |     |       |                      | = Demand                 |                    |         |          | 90                | 70                           |                    |          |                   |   |
| Closing stocks                       |           |     |       |                      | Closing stocks           |                    |         |          |                   |                              |                    |          |                   |   |

# JODI Oil Questionnaire – Product Definitions

## Other Secondary Products

- “Other Products” includes refinery gas, ethane, jet fuel gasoline, petroleum coke, white spirit and SBP, paraffin waxes, bitumen, lubricants and others
- Double counting should be avoided (e.g. biofuels)
- Receipts and demand of “Other Products” include direct use of crude oil and receipts of NGL and other hydrocarbons

|                                      | Crude Oil | NGL | Other | Total<br>(1)+(2)+(3) |                          | Petroleum Products |         |          |                   |                              |                    |          |                   | Total<br>products<br>(5)+(6)+(7)<br>+(8)+(10)<br>(11)+(12) |
|--------------------------------------|-----------|-----|-------|----------------------|--------------------------|--------------------|---------|----------|-------------------|------------------------------|--------------------|----------|-------------------|--|
|                                      |           |     |       |                      |                          | LPG                | Naphtha | Gasoline | Total<br>Kerosene | Of which:<br>Jet<br>Kerosene | Gas/<br>Diesel Oil | Fuel Oil | Other<br>Products |  |
|                                      | (1)       | (2) | (3)   | (4)                  |                          | (5)                | (6)     | (7)      | (8)               | (9)                          | (10)               | (11)     | (12)              | (13)   |
| + Production                         |           |     |       |                      | + Refinery Output        |                    |         |          |                   |                              |                    |          |                   |  |
| + From Other sources                 |           |     |       |                      | + Receipts               |                    |         |          |                   |                              |                    |          |                   |  |
| + Imports                            |           |     |       |                      | + Imports                |                    |         |          |                   |                              |                    |          |                   |  |
| - Exports                            |           |     |       |                      | - Exports                |                    |         |          |                   |                              |                    |          |                   |  |
| + Products Transferred<br>/Backflows |           |     |       |                      | - Products Transferred   |                    |         |          |                   |                              |                    |          |                   |  |
| - Direct Use                         |           |     |       |                      | + Interproduct Transfers |                    |         |          |                   |                              |                    |          |                   |  |
| - Stock Change                       |           |     |       |                      | - Stock Change           |                    |         |          |                   |                              |                    |          |                   |  |
| - Statistical Difference             | 0         | 0   | 0     | 0                    | - Statistical Difference | 0                  | 0       | 0        | 0                 | 0                            | 0                  | 0        | 0                 | 0  |
| = Refinery Intake                    |           |     |       |                      | = Demand                 |                    |         |          |                   |                              |                    |          |                   |  |
| Closing stocks                       |           |     |       |                      | Closing stocks           |                    |         |          |                   |                              |                    |          |                   |  |

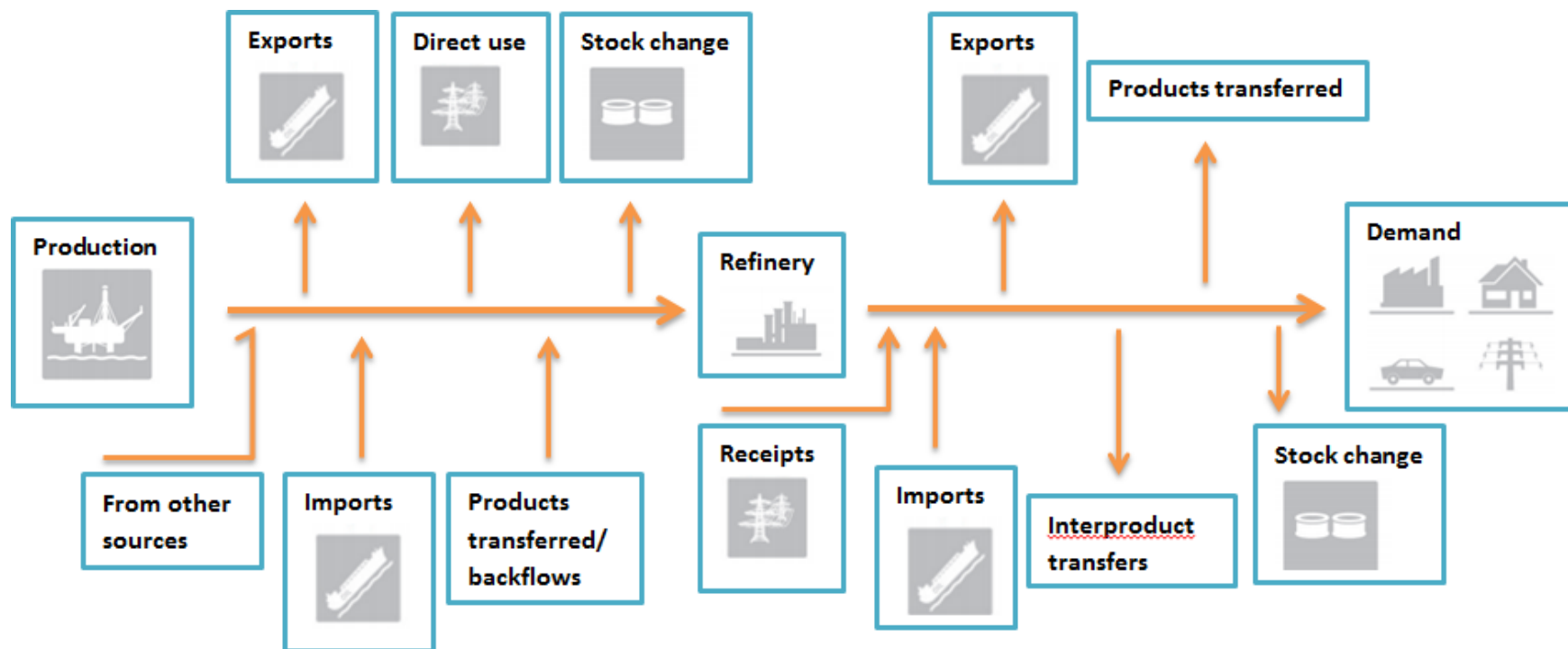


# JODI Oil Questionnaire – Product Definitions

- There are two columns to record the total primary products and total secondary products for each flow.

|                                      | Crude Oil | NGL | Other | Total<br>(1)+(2)+(3) |                          | Petroleum Products |         |          |                   |                              |                    |          |                  | Total<br>Products<br>(5)+(6)+(7)<br>+(8)+(10)<br>+(11)+(12) |
|--------------------------------------|-----------|-----|-------|----------------------|--------------------------|--------------------|---------|----------|-------------------|------------------------------|--------------------|----------|------------------|---|
|                                      |           |     |       |                      |                          | LPG                | Naphtha | Gasoline | Total<br>Kerosene | Of which:<br>Jet<br>Kerosene | Gas/<br>Diesel Oil | Fuel Oil | Other<br>Product |   |
|                                      | (1)       | (2) | (3)   | (4)                  |                          | (5)                | (6)     | (7)      | (8)               | (9)                          | (10)               | (11)     | (12)             | (13)  |
| + Production                         |           |     |       |                      | + Refinery Output        |                    |         |          |                   |                              |                    |          |                  |   |
| + From Other sources                 |           |     |       |                      | + Receipts               |                    |         |          |                   |                              |                    |          |                  |   |
| + Imports                            |           |     |       |                      | + Imports                |                    |         |          |                   |                              |                    |          |                  |   |
| - Exports                            |           |     |       |                      | - Exports                |                    |         |          |                   |                              |                    |          |                  |   |
| + Products Transferred<br>/Backflows |           |     |       |                      | + Products Transferred   |                    |         |          |                   |                              |                    |          |                  |   |
| - Direct Use                         |           |     |       |                      | - Interproduct Transfers |                    |         |          |                   |                              |                    |          |                  |   |
| - Stock Change                       |           |     |       |                      | - Stock Change           |                    |         |          |                   |                              |                    |          |                  |   |
| - Statistical Difference             | 0         | 0   | 0     | 0                    | - Statistical Difference | 0                  | 0       | 0        | 0                 | 0                            | 0                  | 0        | 0                | 0   |
| = Refinery Intake                    |           |     |       |                      | = Demand                 |                    |         |          |                   |                              |                    |          |                  |   |
| Closing stocks                       |           |     |       |                      | Closing stocks           |                    |         |          |                   |                              |                    |          |                  |   |

# JODI Oil Questionnaire - Flows



# JODI Oil Questionnaire – Flow Definitions

## Production

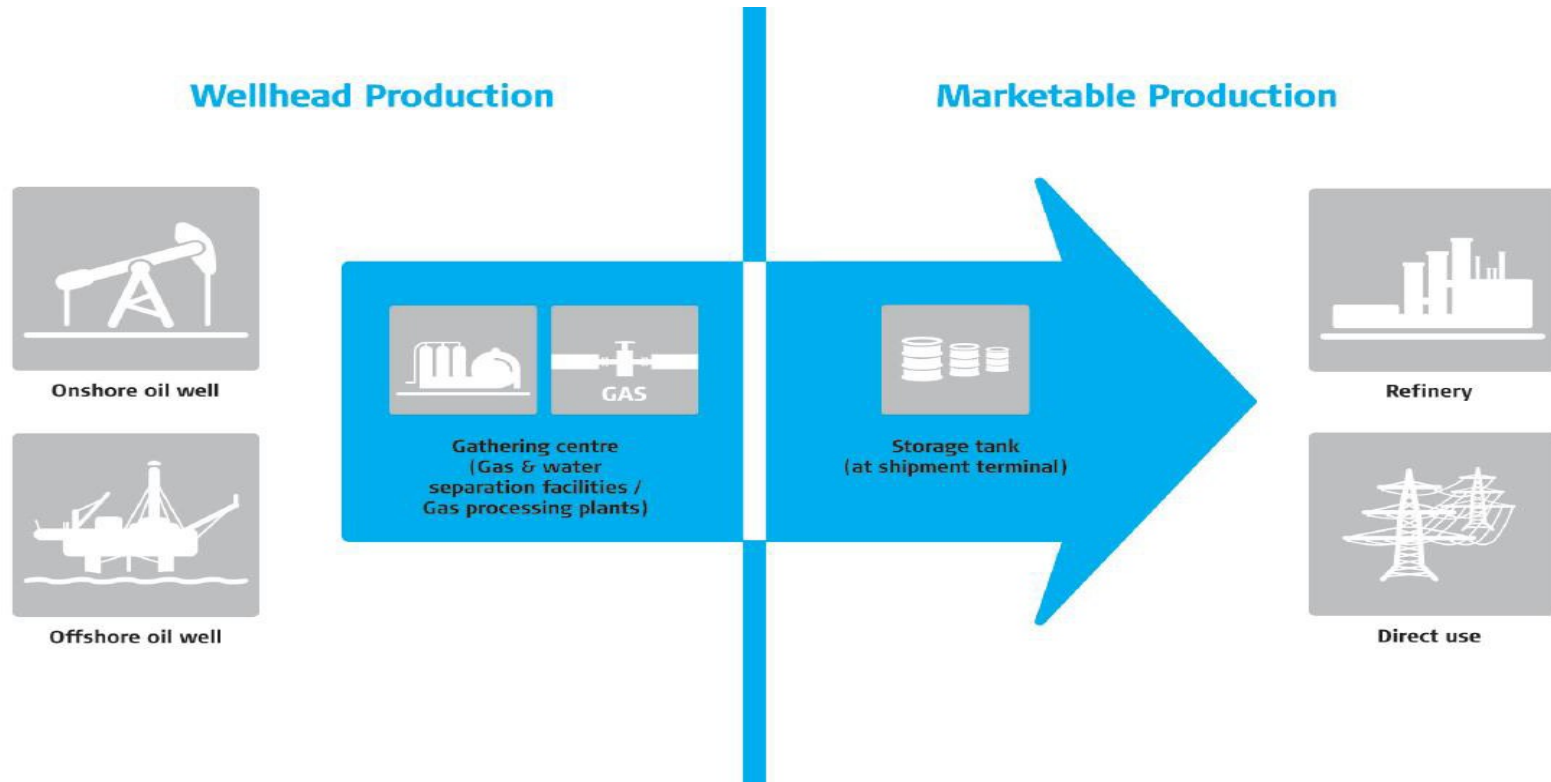
- All production within national boundaries including offshore production
- Such production should include crude oil, NGL, condensates and oil from shale or oil sands, as well as additives/oxygenates
- Distinction between wellhead production and marketable production

|                                      | Crude Oil | NGL | Other | Total<br>(1)+(2)+(3) |                          | Petroleum Products |         |          |                   |                              |                    |          |                   | Total<br>Products<br>(5)+(6)+(7)<br>+(8)+(10)<br>+(11)+(12) |
|--------------------------------------|-----------|-----|-------|----------------------|--------------------------|--------------------|---------|----------|-------------------|------------------------------|--------------------|----------|-------------------|---|
|                                      |           |     |       |                      |                          | LPG                | Naphtha | Gasoline | Total<br>Kerosene | Of which:<br>Jet<br>Kerosene | Gas/<br>Diesel Oil | Fuel Oil | Other<br>Products |   |
|                                      | (1)       | (2) | (3)   | (4)                  |                          | (5)                | (6)     | (7)      | (8)               | (9)                          | (10)               | (11)     | (12)              | (13)  |
| + Production                         |           |     |       |                      | + Refinery Output        |                    |         |          |                   |                              |                    |          |                   |   |
| + From Other sources                 |           |     |       |                      | + Receipts               |                    |         |          |                   |                              |                    |          |                   |   |
| + Imports                            |           |     |       |                      | + Imports                |                    |         |          |                   |                              |                    |          |                   |   |
| - Exports                            |           |     |       |                      | - Exports                |                    |         |          |                   |                              |                    |          |                   |   |
| + Products Transferred<br>/Backflows |           |     |       |                      | - Products Transferred   |                    |         |          |                   |                              |                    |          |                   |   |
| - Direct Use                         |           |     |       |                      | + Interproduct Transfers |                    |         |          |                   |                              |                    |          |                   |   |
| - Stock Change                       |           |     |       |                      | - Stock Change           |                    |         |          |                   |                              |                    |          |                   |   |
| - Statistical Difference             | 0         | 0   | 0     | 0                    | - Statistical Difference | 0                  | 0       | 0        | 0                 | 0                            | 0                  | 0        | 0                 | 0   |
| = Refinery Intake                    |           |     |       |                      | = Demand                 |                    |         |          |                   |                              |                    |          |                   |   |
| Closing stocks                       |           |     |       |                      | Closing stocks           |                    |         |          |                   |                              |                    |          |                   |   |

- *Production only applies to Crude oil, NGL, Other and Total. Production of refinery products is refinery output;*
- *Production is the removal of oil from the field, whether through primary or secondary recovery*

# JODI Oil Questionnaire – Flow Definitions

## Example: Crude Oil Production



*Marketable production, after removal of impurities but including quantities consumed by the producer in the production process*

# JODI Oil Questionnaire – Flow Definitions

## From Other Sources

- Supplies of additives, biofuels and other hydrocarbons that are produced from non-oil sources

|                                      | Crude Oil | NGL | Other | Total<br>(1)+(2)+(3) |                          | Petroleum Products |         |          |                   |                              |                    |          |                   | Total<br>Products<br>(5)+(6)+(7)<br>+(8)+(10)<br>+(11)+(12) |
|--------------------------------------|-----------|-----|-------|----------------------|--------------------------|--------------------|---------|----------|-------------------|------------------------------|--------------------|----------|-------------------|---|
|                                      |           |     |       |                      |                          | LPG                | Naphtha | Gasoline | Total<br>Kerosene | Of which:<br>Jet<br>Kerosene | Gas/<br>Diesel Oil | Fuel Oil | Other<br>Products |   |
|                                      | (1)       | (2) | (3)   | (4)                  |                          | (5)                | (6)     | (7)      | (8)               | (9)                          | (10)               | (11)     | (12)              | (13)  |
| + Production                         |           |     |       |                      | + Refinery Output        |                    |         |          |                   |                              |                    |          |                   |   |
| + From Other sources                 |           |     |       |                      | + Receipts               |                    |         |          |                   |                              |                    |          |                   |   |
| + Imports                            |           |     |       |                      | + Imports                |                    |         |          |                   |                              |                    |          |                   |   |
| - Exports                            |           |     |       |                      | - Exports                |                    |         |          |                   |                              |                    |          |                   |   |
| + Products Transferred<br>/Backflows |           |     |       |                      | - Products Transferred   |                    |         |          |                   |                              |                    |          |                   |   |
| - Direct Use                         |           |     |       |                      | + Interproduct Transfers |                    |         |          |                   |                              |                    |          |                   |   |
| - Stock Change                       |           |     |       |                      | - Stock Change           |                    |         |          |                   |                              |                    |          |                   |   |
| - Statistical Difference             | 0         | 0   | 0     | 0                    | - Statistical Difference | 0                  | 0       | 0        | 0                 | 0                            | 0                  | 0        | 0                 | 0   |
| = Refinery Intake                    |           |     |       |                      | = Demand                 |                    |         |          |                   |                              |                    |          |                   |   |
| Closing stocks                       |           |     |       |                      | Closing stocks           |                    |         |          |                   |                              |                    |          |                   |   |

# JODI Oil Questionnaire – Flow Definitions

## Imports and Exports

- Quantities that physically cross international boundaries, whether or not customs clearance has taken place
- Excludes transit and amounts for international bunkers
- Amounts of pure biofuels should not be reported

|                                   | Crude Oil | NGL | Other | Total<br>(1)+(2)+(3) |                          | Petroleum Products |         |          |                   |                              |                    |          |                   | Total<br>Products<br>(5)+(6)+(7)<br>+(8)+(10)<br>+(11)+(12) |
|-----------------------------------|-----------|-----|-------|----------------------|--------------------------|--------------------|---------|----------|-------------------|------------------------------|--------------------|----------|-------------------|---|
|                                   |           |     |       |                      |                          | LPG                | Naphtha | Gasoline | Total<br>Kerosene | Of which:<br>Jet<br>Kerosene | Gas/<br>Diesel Oil | Fuel Oil | Other<br>Products |   |
|                                   | (1)       | (2) | (3)   | (4)                  |                          | (5)                | (6)     | (7)      | (8)               | (9)                          | (10)               | (11)     | (12)              | (13)  |
| + Production                      |           |     |       |                      | + Refinery Output        |                    |         |          |                   |                              |                    |          |                   |   |
| + From Other sources              |           |     |       |                      | + Receipts               |                    |         |          |                   |                              |                    |          |                   |   |
| + Imports                         |           |     |       |                      | + Imports                |                    |         |          |                   |                              |                    |          |                   |   |
| - Exports                         |           |     |       |                      | - Exports                |                    |         |          |                   |                              |                    |          |                   |   |
| + Products Transferred /Backflows |           |     |       |                      | - Products Transferred   |                    |         |          |                   |                              |                    |          |                   |   |
| - Direct Use                      |           |     |       |                      | + Interproduct Transfers |                    |         |          |                   |                              |                    |          |                   |   |
| - Stock Change                    |           |     |       |                      | - Stock Change           |                    |         |          |                   |                              |                    |          |                   |   |
| - Statistical Difference          | 0         | 0   | 0     | 0                    | - Statistical Difference | 0                  | 0       | 0        | 0                 | 0                            | 0                  | 0        | 0                 | 0   |
| = Refinery Intake                 |           |     |       |                      | = Demand                 |                    |         |          |                   |                              |                    |          |                   |   |
| Closing stocks                    |           |     |       |                      | Closing stocks           |                    |         |          |                   |                              |                    |          |                   |   |



# JODI Oil Questionnaire – Flow Definitions

## Products Transferred and Backflows

- **Products Transferred:** Usually imported petroleum products reclassified as feedstocks for further processing, without delivery to final consumers. E.g. naphtha imported for upgrading
- **Backflows:** finished or semi-finished products returned from final consumers to refineries for processing, blending or sale (usually by-products of the petrochemical industry)

|                                      | Crude Oil | NGL | Other | Total<br>(1)+(2)+(3) |                          | Petroleum Products |         |          |                   |                              |                    |          |                   |   |
|--------------------------------------|-----------|-----|-------|----------------------|--------------------------|--------------------|---------|----------|-------------------|------------------------------|--------------------|----------|-------------------|---|
|                                      |           |     |       |                      |                          | LPG                | Naphtha | Gasoline | Total<br>Kerosene | Of which:<br>Jet<br>Kerosene | Gas/<br>Diesel Oil | Fuel Oil | Other<br>Products | Total<br>Products<br>(5)+(6)+(7)<br>+(8)+(10)<br>+(11)+(12) |
|                                      | (1)       | (2) | (3)   | (4)                  |                          | (5)                | (6)     | (7)      | (8)               | (9)                          | (10)               | (11)     | (12)              | (13)  |
| + Production                         |           |     |       |                      | + Refinery Output        |                    |         |          |                   |                              |                    |          |                   |   |
| + From Other sources                 |           |     |       |                      | + Receipts               |                    |         |          |                   |                              |                    |          |                   |   |
| + Imports                            |           |     |       |                      | + Imports                |                    |         |          |                   |                              |                    |          |                   |   |
| - Exports                            |           |     |       |                      | - Exports                |                    |         |          |                   |                              |                    |          |                   |   |
| + Products Transferred<br>/Backflows |           |     |       |                      | - Products Transferred   |                    |         |          |                   |                              |                    |          |                   |   |
| - Direct Use                         |           |     |       |                      | + Interproduct transfers |                    |         |          |                   |                              |                    |          |                   |   |
| - Stock Change                       |           |     |       |                      | - Stock Change           |                    |         |          |                   |                              |                    |          |                   |   |
| - Statistical Difference             | 0         | 0   | 0     | 0                    | - Statistical Difference | 0                  | 0       | 0        | 0                 | 0                            | 0                  | 0        | 0                 | 0   |
| = Refinery Intake                    |           |     |       |                      | = Demand                 |                    |         |          |                   |                              |                    |          |                   |   |
| Closing stocks                       |           |     |       |                      | Closing stocks           |                    |         |          |                   |                              |                    |          |                   |   |

# JODI Oil Questionnaire – Flow Definitions

## Example: Products Transferred

- Your country imported 150kt of Naphtha
- The naphtha was then reclassified as feedstocks for further processing at the refinery

|                                   | Crude Oil | NGL | Other | Total<br>(1)+(2)+(3) |                          | Petroleum Products |         |          |                   |                              |                    |          |                   | Total<br>Products<br>(5)+(6)+(7)<br>+(8)+(10)<br>+(11)+(12) |
|-----------------------------------|-----------|-----|-------|----------------------|--------------------------|--------------------|---------|----------|-------------------|------------------------------|--------------------|----------|-------------------|---|
|                                   |           |     |       |                      |                          | LPG                | Naphtha | Gasoline | Total<br>Kerosene | Of which:<br>Jet<br>Kerosene | Gas/<br>Diesel Oil | Fuel Oil | Other<br>Products |   |
|                                   | (1)       | (2) | (3)   | (4)                  |                          | (5)                | (6)     | (7)      | (8)               | (9)                          | (10)               | (11)     | (12)              | (13)  |
| + Production                      |           |     |       |                      | + Refinery Output        |                    |         |          |                   |                              |                    |          |                   |   |
| + From Other sources              |           |     |       |                      | + Receipts               |                    |         |          |                   |                              |                    |          |                   |   |
| + Imports                         |           |     |       |                      | + Imports                |                    | 150     |          |                   |                              |                    |          |                   |   |
| - Exports                         |           |     |       |                      | - Exports                |                    |         |          |                   |                              |                    |          |                   |   |
| + Products Transferred /Backflows |           |     | 150   |                      | - Products Transferred   |                    | 150     |          |                   |                              |                    |          |                   |   |
| - Direct Use                      |           |     |       |                      | + Interproduct Transfers |                    |         |          |                   |                              |                    |          |                   |   |
| - Stock Change                    |           |     |       |                      | - Stock Change           |                    |         |          |                   |                              |                    |          |                   |   |
| - Statistical Difference          | 0         | 0   | 0     | 0                    | - Statistical Difference | 0                  | 0       | 0        | 0                 | 0                            | 0                  | 0        | 0                 | 0   |
| = Refinery Intake                 |           |     | 150   |                      | = Demand                 |                    |         |          |                   |                              |                    |          |                   |   |
| Closing stocks                    |           |     |       |                      | Closing stocks           |                    |         |          |                   |                              |                    |          |                   |   |

# JODI Oil Questionnaire – Flow Definitions

## Direct Use

- Crude oil, NGL and other hydrocarbons which are used directly without being processed in oil refineries
- Example: Crude oil burned for electricity generation

|                                      | Crude Oil | NGL | Other | Total<br>(1)+(2)+(3) |                          | Petroleum Products |         |          |                   |                              |                    |          |                   | Total<br>Products<br>(5)+(6)+(7)<br>+(8)+(10)<br>+(11)+(12) |
|--------------------------------------|-----------|-----|-------|----------------------|--------------------------|--------------------|---------|----------|-------------------|------------------------------|--------------------|----------|-------------------|---|
|                                      |           |     |       |                      |                          | LPG                | Naphtha | Gasoline | Total<br>Kerosene | Of which:<br>Jet<br>Kerosene | Gas/<br>Diesel Oil | Fuel Oil | Other<br>Products |   |
|                                      | (1)       | (2) | (3)   | (4)                  |                          | (5)                | (6)     | (7)      | (8)               | (9)                          | (10)               | (11)     | (12)              | (13)  |
| + Production                         |           |     |       |                      | + Refinery Output        |                    |         |          |                   |                              |                    |          |                   |   |
| + From Other sources                 |           |     |       |                      | + Receipts               |                    |         |          |                   |                              |                    |          |                   |   |
| + Imports                            |           |     |       |                      | + Imports                |                    |         |          |                   |                              |                    |          |                   |   |
| - Exports                            |           |     |       |                      | - Exports                |                    |         |          |                   |                              |                    |          |                   |   |
| + Products Transferred<br>/Backflows |           |     |       |                      | - Products Transferred   |                    |         |          |                   |                              |                    |          |                   |   |
| - Direct Use                         |           |     |       |                      | + Interproduct Transfers |                    |         |          |                   |                              |                    |          |                   |   |
| - Stock Change                       |           |     |       |                      | - Stock Change           |                    |         |          |                   |                              |                    |          |                   |   |
| - Statistical Difference             | 0         | 0   | 0     | 0                    | - Statistical Difference | 0                  | 0       | 0        | 0                 | 0                            | 0                  | 0        | 0                 | 0   |
| = Refinery Intake                    |           |     |       |                      | = Demand                 |                    |         |          |                   |                              |                    |          |                   |   |
| Closing stocks                       |           |     |       |                      | Closing stocks           |                    |         |          |                   |                              |                    |          |                   |   |

# JODI Oil Questionnaire – Flow Definitions

## Example: Crude oil used for electricity generation

- Your country produces 100kt of crude oil
- The crude oil is used directly for producing electricity

|                                    | Crude Oil | NGL | Other | Total<br>(1)+(2)+(3) |                          | Petroleum Products |         |          |                   |                              |                    |          |                   | Total<br>Products<br>(5)+(6)+(7)<br>+(8)+(10)<br>+(11)+(12) |
|------------------------------------|-----------|-----|-------|----------------------|--------------------------|--------------------|---------|----------|-------------------|------------------------------|--------------------|----------|-------------------|---|
|                                    |           |     |       |                      |                          | LPG                | Naphtha | Gasoline | Total<br>Kerosene | Of which:<br>Jet<br>Kerosene | Gas/<br>Diesel Oil | Fuel Oil | Other<br>Products |   |
|                                    | (1)       | (2) | (3)   | (4)                  |                          | (5)                | (6)     | (7)      | (8)               | (9)                          | (10)               | (11)     | (12)              | (13)  |
| + Production                       | 100       |     |       |                      | + Refinery Output        |                    |         |          |                   |                              |                    |          |                   |   |
| + From Other sources               |           |     |       |                      | + Receipts               |                    |         |          |                   |                              |                    |          | 100               |   |
| + Imports                          |           |     |       |                      | + Imports                |                    |         |          |                   |                              |                    |          |                   |   |
| - Exports                          |           |     |       |                      | - Exports                |                    |         |          |                   |                              |                    |          |                   |   |
| + Products Transferred<br>Backflow |           |     |       |                      | - Products Transferred   |                    |         |          |                   |                              |                    |          |                   |   |
| - Direct Use                       | 100       |     |       |                      | + Interproduct Transfers |                    |         |          |                   |                              |                    |          |                   |   |
| - Stock Change                     |           |     |       |                      | - Stock Change           |                    |         |          |                   |                              |                    |          |                   |   |
| - Statistical Difference           | 0         | 0   | 0     | 0                    | - Statistical Difference | 0                  | 0       | 0        | 0                 | 0                            | 0                  | 0        | 0                 | 0   |
| = Refinery Intake                  |           |     |       |                      | = Demand                 |                    |         |          |                   |                              |                    |          | 100               |   |
| Closing stocks                     |           |     |       |                      | Closing stocks           |                    |         |          |                   |                              |                    |          |                   |   |

# JODI Oil Questionnaire – Flow Definitions

## Stock Change and Closing Stocks

- Definition of stocks is based on geographical location, except for OPEC where definition is based on ownership
- Closing Stocks:** primary stock level at the end of the month on national territory. This includes stocks held by companies, stock holding organizations and governments

|                                      | Crude Oil | NGL | Other | Total<br>(1)+(2)+(3) |                          | Petroleum Products |         |          |                   |                              |                    |          |                   | Total<br>Products<br>(5)+(6)+(7)<br>+(8)+(10)<br>+(11)+(12) |
|--------------------------------------|-----------|-----|-------|----------------------|--------------------------|--------------------|---------|----------|-------------------|------------------------------|--------------------|----------|-------------------|---|
|                                      |           |     |       |                      |                          | LPG                | Naphtha | Gasoline | Total<br>Kerosene | Of which:<br>Jet<br>Kerosene | Gas/<br>Diesel Oil | Fuel Oil | Other<br>Products |   |
|                                      | (1)       | (2) | (3)   | (4)                  |                          | (5)                | (6)     | (7)      | (8)               | (9)                          | (10)               | (11)     | (12)              | (13)  |
| + Production                         |           |     |       |                      | + Refinery Output        |                    |         |          |                   |                              |                    |          |                   |   |
| + From Other sources                 |           |     |       |                      | + Receipts               |                    |         |          |                   |                              |                    |          |                   |   |
| + Imports                            |           |     |       |                      | + Imports                |                    |         |          |                   |                              |                    |          |                   |   |
| - Exports                            |           |     |       |                      | - Exports                |                    |         |          |                   |                              |                    |          |                   |   |
| + Products Transferred<br>/Backflows |           |     |       |                      | - Products Transferred   |                    |         |          |                   |                              |                    |          |                   |   |
| Direct Use                           |           |     |       |                      | + Interproduct Transfers |                    |         |          |                   |                              |                    |          |                   |   |
| - Stock Change                       |           |     |       |                      | - Stock Change           |                    |         |          |                   |                              |                    |          |                   |   |
| - Statistical Difference             | 0         | 0   | 0     | 0                    | - Statistical Difference | 0                  | 0       | 0        | 0                 | 0                            | 0                  | 0        | 0                 | 0   |
| = Refinery Intake                    |           |     |       |                      | = Demand                 |                    |         |          |                   |                              |                    |          |                   |   |
| Closing stocks                       |           |     |       |                      | Closing stocks           |                    |         |          |                   |                              |                    |          |                   |   |

# JODI Oil Questionnaire – Flow Definitions

## Refinery Intake

- Observed inputs of crude oil, NGL, feedstocks, additives, biofuels and other hydrocarbons entering the refinery process
- Difference between inputs and deliveries to the refinery reflected in stocks changes at the refinery

|                                      | Crude Oil | NGL | Other | Total<br>(1)+(2)+(3) |                          | Petroleum Products |         |          |                   |                              |                    |          |                   |
|--------------------------------------|-----------|-----|-------|----------------------|--------------------------|--------------------|---------|----------|-------------------|------------------------------|--------------------|----------|-------------------|
|                                      |           |     |       |                      |                          | LPG                | Naphtha | Gasoline | Total<br>Kerosene | Of which:<br>Jet<br>Kerosene | Gas/<br>Diesel Oil | Fuel Oil | Other<br>Products |
|                                      | (1)       | (2) | (3)   | (4)                  |                          | (5)                | (6)     | (7)      | (8)               | (9)                          | (10)               | (11)     | (12)              |
| + Production                         |           |     |       |                      | + Refinery Output        |                    |         |          |                   |                              |                    |          |                   |
| + From Other sources                 |           |     |       |                      | + Receipts               |                    |         |          |                   |                              |                    |          |                   |
| + Imports                            |           |     |       |                      | + Imports                |                    |         |          |                   |                              |                    |          |                   |
| - Exports                            |           |     |       |                      | - Exports                |                    |         |          |                   |                              |                    |          |                   |
| + Products Transferred<br>/Backflows |           |     |       |                      | - Products Transferred   |                    |         |          |                   |                              |                    |          |                   |
| - Direct Use                         |           |     |       |                      | + Interproduct Transfers |                    |         |          |                   |                              |                    |          |                   |
| - Stock Change                       |           |     |       |                      | - Stock Change           |                    |         |          |                   |                              |                    |          |                   |
| Statistical Difference               | 0         | 0   | 0     | 0                    | - Statistical Difference | 0                  | 0       | 0        | 0                 | 0                            | 0                  | 0        | 0                 |
| <b>= Refinery Intake</b>             |           |     |       |                      | <b>= Demand</b>          |                    |         |          |                   |                              |                    |          |                   |
| Closing stocks                       |           |     |       |                      | Closing stocks           |                    |         |          |                   |                              |                    |          |                   |



# JODI Oil Questionnaire – Flow Definitions

## Statistical Difference

- **For primary products:**

Statistical Difference = Calculated Refinery Intake – Observed Refinery Intake

- **For secondary products:**

Statistical Difference = Calculated Demand – Observed Demand

|                                      | Crude Oil | NGL | Other | Total<br>(1)+(2)+(3) |                          | Petroleum Products |         |          |                   |                              |                    |          |                   | Total<br>Products<br>(5)+(6)+(7)<br>+(8)+(10)<br>+(11)+(12) |
|--------------------------------------|-----------|-----|-------|----------------------|--------------------------|--------------------|---------|----------|-------------------|------------------------------|--------------------|----------|-------------------|---|
|                                      |           |     |       |                      |                          | LPG                | Naphtha | Gasoline | Total<br>Kerosene | Of which:<br>Jet<br>Kerosene | Gas/<br>Diesel Oil | Fuel Oil | Other<br>Products |   |
|                                      | (1)       | (2) | (3)   | (4)                  |                          | (5)                | (6)     | (7)      | (8)               | (9)                          | (10)               | (11)     | (12)              | (13)  |
| + Production                         |           |     |       |                      | + Refinery Output        |                    |         |          |                   |                              |                    |          |                   |   |
| + From Other sources                 |           |     |       |                      | + Receipts               |                    |         |          |                   |                              |                    |          |                   |   |
| + Imports                            |           |     |       |                      | + Imports                |                    |         |          |                   |                              |                    |          |                   |   |
| - Exports                            |           |     |       |                      | - Exports                |                    |         |          |                   |                              |                    |          |                   |   |
| + Products Transferred<br>/Backflows |           |     |       |                      | - Products Transferred   |                    |         |          |                   |                              |                    |          |                   |   |
| - Direct Use                         |           |     |       |                      | + Interproduct Transfers |                    |         |          |                   |                              |                    |          |                   |   |
| Stock Change                         |           |     |       |                      | Stock Change             |                    |         |          |                   |                              |                    |          |                   |   |
| - Statistical Difference             | 0         | 0   | 0     | 0                    | - Statistical Difference | 0                  | 0       | 0        | 0                 | 0                            | 0                  | 0        | 0                 | 0   |
| = Refinery intake                    |           |     |       |                      | = Demand                 |                    |         |          |                   |                              |                    |          |                   |   |
| Closing stocks                       |           |     |       |                      | Closing stocks           |                    |         |          |                   |                              |                    |          |                   |   |

# JODI Oil Questionnaire – Flow Definitions

## Refinery Output

- Production of finished petroleum products at a refinery. Gross output should be reported, including refinery fuel
- Avoid double-counting: Double-counting may occur when handling intermediate or semi-finished products

|                                      | Crude Oil | NGL | Other | Total<br>(1)+(2)+(3) |                          | Petroleum Products |         |          |                   |                              |                    |          |                   |   |
|--------------------------------------|-----------|-----|-------|----------------------|--------------------------|--------------------|---------|----------|-------------------|------------------------------|--------------------|----------|-------------------|---|
|                                      |           |     |       |                      |                          | LPG                | Naphtha | Gasoline | Total<br>Kerosene | Of which:<br>Jet<br>Kerosene | Gas/<br>Diesel Oil | Fuel Oil | Other<br>Products | Total<br>Products<br>(5)+(6)+(7)<br>+(8)+(10)<br>+(11)+(12) |
|                                      | (1)       | (2) | (3)   | (4)                  |                          | (5)                | (6)     | (7)      | (8)               | (9)                          | (10)               | (11)     | (12)              | (13)  |
| + Production                         |           |     |       |                      | + Refinery Output        |                    |         |          |                   |                              |                    |          |                   |   |
| + From Other sources                 |           |     |       |                      | + Receipts               |                    |         |          |                   |                              |                    |          |                   |   |
| + Imports                            |           |     |       |                      | + Imports                |                    |         |          |                   |                              |                    |          |                   |   |
| - Exports                            |           |     |       |                      | - Exports                |                    |         |          |                   |                              |                    |          |                   |   |
| + Products Transferred<br>/Backflows |           |     |       |                      | - Products Transferred   |                    |         |          |                   |                              |                    |          |                   |   |
| - Direct Use                         |           |     |       |                      | + Interproduct Transfers |                    |         |          |                   |                              |                    |          |                   |   |
| - Stock Change                       |           |     |       |                      | - Stock Change           |                    |         |          |                   |                              |                    |          |                   |   |
| - Statistical Difference             | 0         | 0   | 0     | 0                    | - Statistical Difference | 0                  | 0       | 0        | 0                 | 0                            | 0                  | 0        | 0                 | 0   |
| = Refinery Intake                    |           |     |       |                      | = Demand                 |                    |         |          |                   |                              |                    |          |                   |   |
| Closing stocks                       |           |     |       |                      | Closing stocks           |                    |         |          |                   |                              |                    |          |                   |   |

# JODI Oil Questionnaire – Flow Definitions

## Receipts

- **Primary product receipts**

- Primary products used directly without being processed at a refinery
- Backflows from the petrochemical industry used directly (not going back to refinery)

- **Recycled products**

- Finished products passing through the marketing network a second time after having been delivered to final consumers (eg. Oil lubricants which are cleaned for reuse)

|                                      | Crude Oil | NGL | Other | Total<br>(1)+(2)+(3) |                          | Petroleum Products |         |          |                   |                              |                    |          |                   |   |
|--------------------------------------|-----------|-----|-------|----------------------|--------------------------|--------------------|---------|----------|-------------------|------------------------------|--------------------|----------|-------------------|---|
|                                      |           |     |       |                      |                          | LPG                | Naphtha | Gasoline | Total<br>Kerosene | Of which:<br>Jet<br>Kerosene | Gas/<br>Diesel Oil | Fuel Oil | Other<br>Products | Total<br>Products<br>(5)+(6)+(7)<br>+(8)+(10)<br>+(11)+(12) |
|                                      | (1)       | (2) | (3)   | (4)                  |                          | (5)                | (6)     | (7)      | (8)               | (9)                          | (10)               | (11)     | (12)              | (13)  |
| + Production                         |           |     |       |                      | + Refinery Output        |                    |         |          |                   |                              |                    |          |                   |   |
| + From Other sources                 |           |     |       |                      | + Receipts               |                    |         |          |                   |                              |                    |          |                   |   |
| + Imports                            |           |     |       |                      | + Imports                |                    |         |          |                   |                              |                    |          |                   |   |
| - Exports                            |           |     |       |                      | - Exports                |                    |         |          |                   |                              |                    |          |                   |   |
| + Products Transferred<br>/Backflows |           |     |       |                      | - Products Transferred   |                    |         |          |                   |                              |                    |          |                   |   |
| - Direct Use                         |           |     |       |                      | + Interproduct Transfers |                    |         |          |                   |                              |                    |          |                   |   |
| - Stock Change                       |           |     |       |                      | - Stock Change           |                    |         |          |                   |                              |                    |          |                   |   |
| - Statistical Difference             | 0         | 0   | 0     | 0                    | - Statistical Difference | 0                  | 0       | 0        | 0                 | 0                            | 0                  | 0        | 0                 | 0   |
| = Refinery Intake                    |           |     |       |                      | = Demand                 |                    |         |          |                   |                              |                    |          |                   |   |
| Closing stocks                       |           |     |       |                      | Closing stocks           |                    |         |          |                   |                              |                    |          |                   |   |

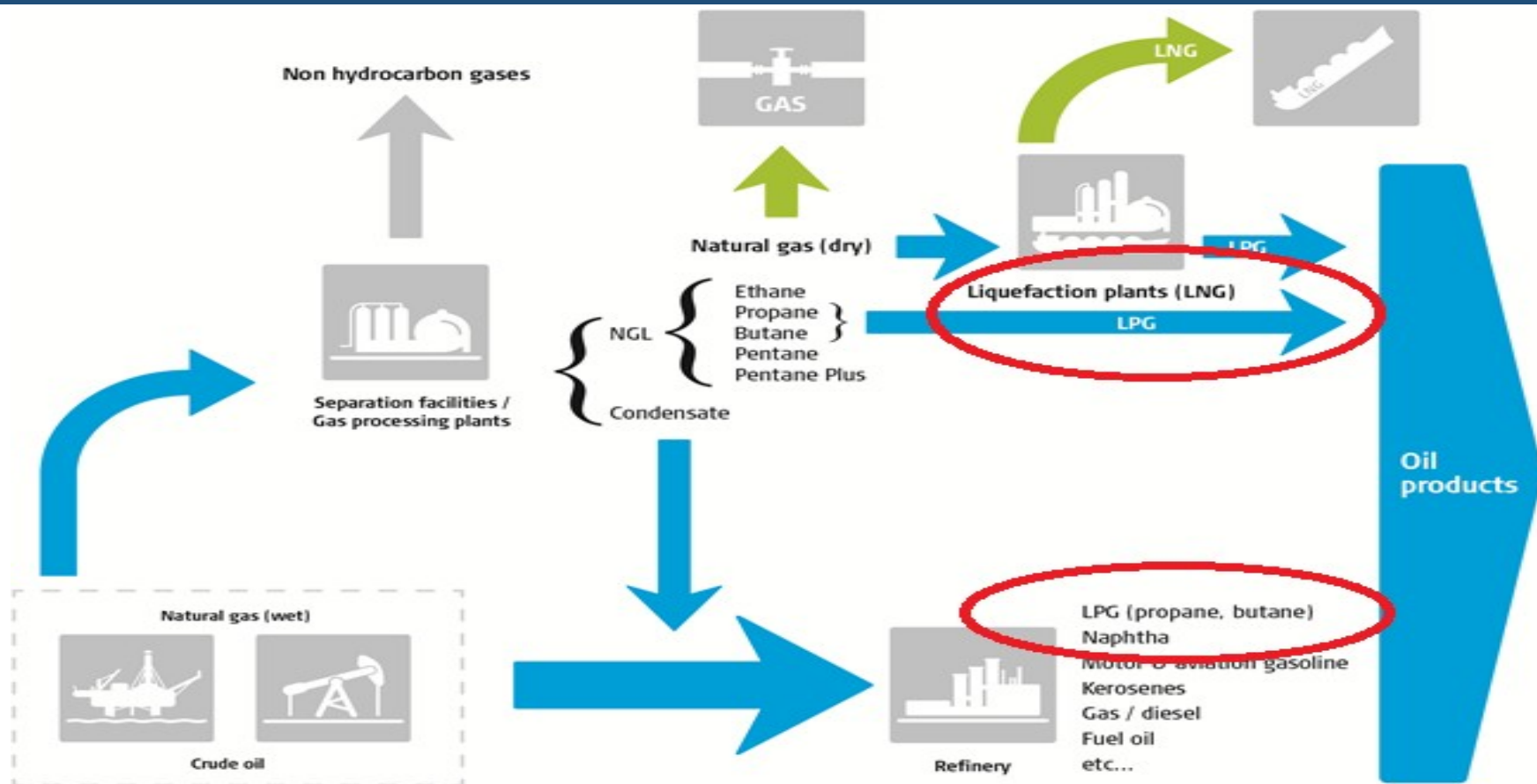
# JODI Oil Questionnaire – Flow Definitions

## *Interproduct Transfers*

- Reclassification of products due to change in specification or blending
- Total interproduct transfers are zero as individual transfers net out
- Example: Jet kerosene which has deteriorated or has been spoiled may be reclassified as other kerosene

|                                      | Crude Oil | NGL | Other | Total<br>(1)+(2)+(3) |                          | Petroleum Products |         |          |                   |                              |                    |          |                   |   |
|--------------------------------------|-----------|-----|-------|----------------------|--------------------------|--------------------|---------|----------|-------------------|------------------------------|--------------------|----------|-------------------|---|
|                                      |           |     |       |                      |                          | LPG                | Naphtha | Gasoline | Total<br>Kerosene | Of which:<br>Jet<br>Kerosene | Gas/<br>Diesel Oil | Fuel Oil | Other<br>Products | Total<br>Products<br>(5)+(6)+(7)<br>+(8)+(10)<br>+(11)+(12) |
|                                      | (1)       | (2) | (3)   | (4)                  |                          | (5)                | (6)     | (7)      | (8)               | (9)                          | (10)               | (11)     | (12)              | (13)  |
| + Production                         |           |     |       |                      | + Refinery Output        |                    |         |          |                   |                              |                    |          |                   |   |
| + From Other sources                 |           |     |       |                      | + Receipts               |                    |         |          |                   |                              |                    |          |                   |   |
| + Imports                            |           |     |       |                      | + Imports                |                    |         |          |                   |                              |                    |          |                   |   |
| - Exports                            |           |     |       |                      | - Exports                |                    |         |          |                   |                              |                    |          |                   |   |
| + Products Transferred<br>/Backflows |           |     |       |                      | - Products Transferred   |                    |         |          |                   |                              |                    |          |                   |   |
| - Direct Use                         |           |     |       |                      | + Interproduct Transfers |                    |         |          |                   |                              |                    |          |                   |   |
| - Stock Change                       |           |     |       |                      | - Stock Change           |                    |         |          |                   |                              |                    |          |                   |   |
| - Statistical Difference             | 0         | 0   | 0     | 0                    | - Statistical Difference | 0                  | 0       | 0        | 0                 | 0                            | 0                  | 0        | 0                 | 0   |
| = Refinery Intake                    |           |     |       |                      | = Demand                 |                    |         |          |                   |                              |                    |          |                   |   |
| Closing stocks                       |           |     |       |                      | Closing stocks           |                    |         |          |                   |                              |                    |          |                   |   |

# How LPG is reported if it comes from a refinery or a gas plant



*LPG comprises mainly propane and butane. LPG from gas plants should be reported to all flows of the JODI Oil questionnaire except refinery output*

# JODI Oil Questionnaire – Flow Definitions

## *LPG produced in a refinery*

- 10kt of LPG are produced in a refinery

|                                      | Crude Oil | NGL | Other | Total<br>(1)+(2)+(3) |                          | Petroleum Products |         |          |                   |                              |                    |          |                   | Total<br>Products<br>(5)+(6)+(7)<br>+(8)+(10)<br>+(11)+(12) |
|--------------------------------------|-----------|-----|-------|----------------------|--------------------------|--------------------|---------|----------|-------------------|------------------------------|--------------------|----------|-------------------|---|
|                                      |           |     |       |                      |                          | LPG                | Naphtha | Gasoline | Total<br>Kerosene | Of which:<br>Jet<br>Kerosene | Gas/<br>Diesel Oil | Fuel Oil | Other<br>Products |   |
|                                      | (1)       | (2) | (3)   | (4)                  |                          | (5)                | (6)     | (7)      | (8)               | (9)                          | (10)               | (11)     | (12)              | (13)  |
| + Production                         |           |     |       |                      | + Refinery Output        | 10                 |         |          |                   |                              |                    |          |                   |   |
| + From Other sources                 |           |     |       |                      | + Receipts               |                    |         |          |                   |                              |                    |          |                   |   |
| + Imports                            |           |     |       |                      | + Imports                |                    |         |          |                   |                              |                    |          |                   |   |
| - Exports                            |           |     |       |                      | - Exports                |                    |         |          |                   |                              |                    |          |                   |   |
| + Products Transferred<br>/Backflows |           |     |       |                      | - Products Transferred   |                    |         |          |                   |                              |                    |          |                   |   |
| - Direct Use                         |           |     |       |                      | + Interproduct Transfers |                    |         |          |                   |                              |                    |          |                   |   |
| - Stock Change                       |           |     |       |                      | - Stock Change           |                    |         |          |                   |                              |                    |          |                   |   |
| - Statistical Difference             | 0         | 0   | 0     | 0                    | - Statistical Difference | 0                  | 0       | 0        | 0                 | 0                            | 0                  | 0        | 0                 | 0   |
| = Refinery Intake                    | 190       |     |       |                      | = Demand                 |                    |         |          |                   |                              |                    |          |                   |   |
| Closing stocks                       |           |     |       |                      | Closing stocks           |                    |         |          |                   |                              |                    |          |                   |   |

*Refinery intake (Crude oil) = Refinery Output (Petroleum products)*



# JODI Oil Questionnaire – Flow Definitions

## *LPG produced in a natural gas plant*

- 50kt of LPG are produced in a natural gas plant

|                                      | Crude Oil | NGL | Other | Total<br>(1)+(2)+(3) |                          | Petroleum Products |         |          |                   |                              |                    |          |                   | Total<br>Products<br>(5)+(6)+(7)<br>+(8)+(10)<br>+(11)+(12) |
|--------------------------------------|-----------|-----|-------|----------------------|--------------------------|--------------------|---------|----------|-------------------|------------------------------|--------------------|----------|-------------------|---|
|                                      |           |     |       |                      |                          | LPG                | Naphtha | Gasoline | Total<br>Kerosene | Of which:<br>Jet<br>Kerosene | Gas/<br>Diesel Oil | Fuel Oil | Other<br>Products |   |
|                                      | (1)       | (2) | (3)   | (4)                  |                          | (5)                | (6)     | (7)      | (8)               | (9)                          | (10)               | (11)     | (12)              | (13)  |
| + Production                         |           |     |       |                      | + Refinery Output        |                    |         |          |                   |                              |                    |          |                   |   |
| + From Other sources                 |           |     |       |                      | + Receipts               |                    |         |          |                   |                              |                    |          | 50                |   |
| + Imports                            |           |     |       |                      | + Imports                |                    |         |          |                   |                              |                    |          |                   |   |
| - Exports                            |           |     |       |                      | - Exports                |                    |         |          |                   |                              |                    |          |                   |   |
| + Products Transferred<br>/Backflows |           |     |       |                      | - Products Transferred   |                    |         |          |                   |                              |                    |          |                   |   |
| - Direct Use                         |           | 50  |       |                      | + Interproduct Transfers | 50                 |         |          |                   |                              |                    |          | -50               |   |
| - Stock Change                       |           |     |       |                      | - Stock Change           |                    |         |          |                   |                              |                    |          |                   |   |
| - Statistical Difference             | 0         | 0   | 0     | 0                    | - Statistical Difference | 0                  | 0       | 0        | 0                 | 0                            | 0                  | 0        | 0                 | 0   |
| = Refinery Intake                    |           |     |       |                      | = Demand                 |                    |         |          |                   |                              |                    |          |                   |   |
| Closing stocks                       |           |     |       |                      | Closing stocks           |                    |         |          |                   |                              |                    |          |                   |   |

*NGL is included in "Other Products"*

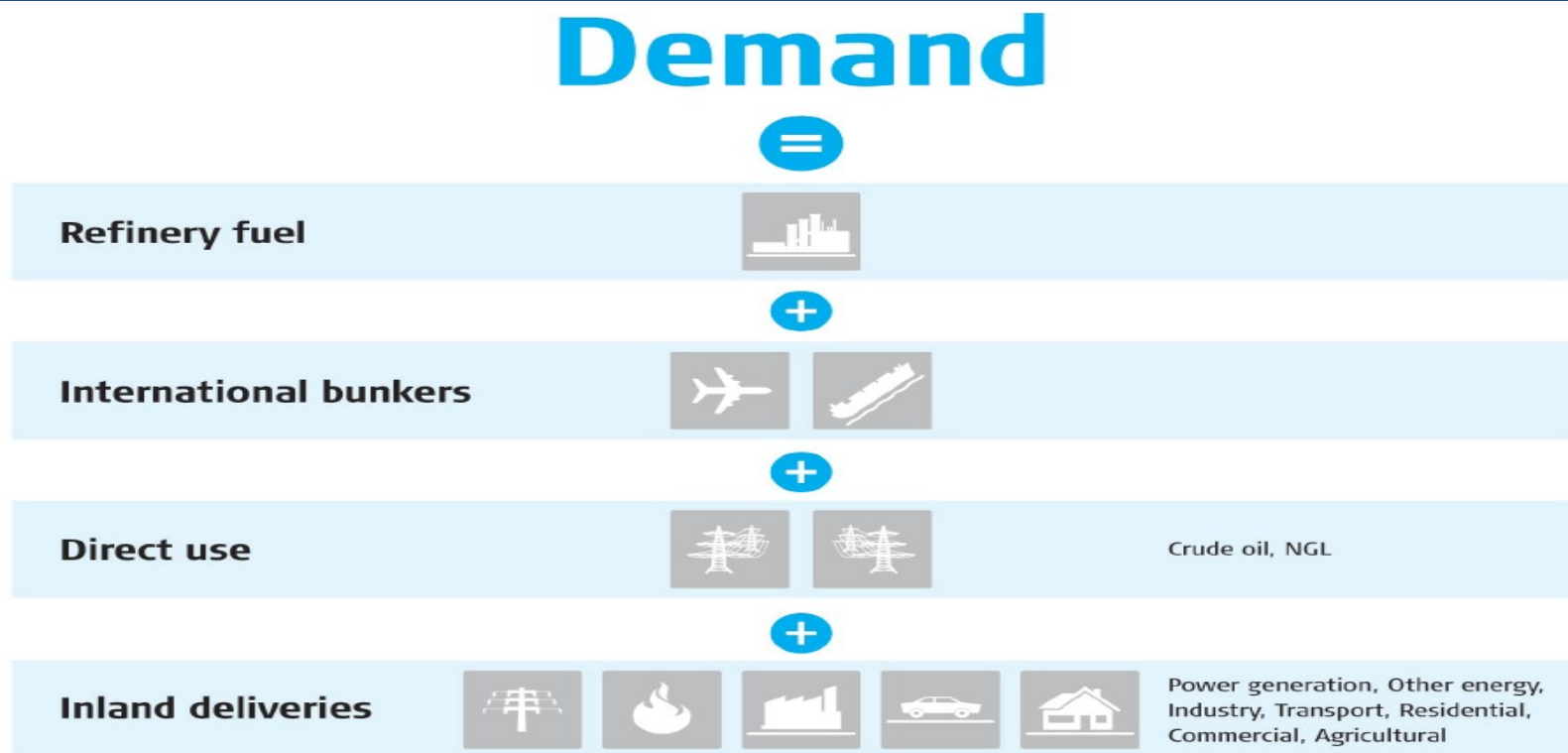
# JODI Oil Questionnaire – Flow Definitions

## Demand

- Final consumers
- Energy transformation
- Energy producers
- International navigation and aviation
- Includes direct use of crude oil, NGL and other hydrocarbons

|                                   | Crude Oil | NGL | Other | Total<br>(1)+(2)+(3) |                          | Petroleum Products |         |          |                   |                              |                    |          |                   | Total<br>Products<br>(5)+(6)+(7)<br>+(8)+(10)<br>+(11)+(12) |
|-----------------------------------|-----------|-----|-------|----------------------|--------------------------|--------------------|---------|----------|-------------------|------------------------------|--------------------|----------|-------------------|---|
|                                   |           |     |       |                      |                          | LPG                | Naphtha | Gasoline | Total<br>Kerosene | Of which:<br>Jet<br>Kerosene | Gas/<br>Diesel Oil | Fuel Oil | Other<br>Products |   |
|                                   | (1)       | (2) | (3)   | (4)                  |                          | (5)                | (6)     | (7)      | (8)               | (9)                          | (10)               | (11)     | (12)              | (13)  |
| + Production                      |           |     |       |                      | + Refinery Output        |                    |         |          |                   |                              |                    |          |                   |   |
| + From Other sources              |           |     |       |                      | + Receipts               |                    |         |          |                   |                              |                    |          |                   |   |
| + Imports                         |           |     |       |                      | + Imports                |                    |         |          |                   |                              |                    |          |                   |   |
| - Exports                         |           |     |       |                      | - Exports                |                    |         |          |                   |                              |                    |          |                   |   |
| + Products Transferred /Backflows |           |     |       |                      | - Products Transferred   |                    |         |          |                   |                              |                    |          |                   |   |
| - Direct Use                      |           |     |       |                      | + Interproduct Transfers |                    |         |          |                   |                              |                    |          |                   |   |
| - Stock Change                    |           |     |       |                      | - Stock Change           |                    |         |          |                   |                              |                    |          |                   |   |
| - Statistical Difference          | 0         | 0   | 0     | 0                    | - Statistical Difference | 0                  | 0       | 0        | 0                 | 0                            | 0                  | 0        | 0                 | 0   |
| = Refinery Intake                 |           |     |       |                      | = Demand                 |                    |         |          |                   |                              |                    |          |                   |   |
| Closing stocks                    |           |     |       |                      | Closing stocks           |                    |         |          |                   |                              |                    |          |                   |   |

# JODI Oil Questionnaire – Flow Definitions



*Deliveries or sales to the inland market (domestic consumption) plus Refinery fuel plus International marine and aviation bunkers.*

*Demand for Other oil products includes direct use of Crude oil, NGL, and Other.*



# Useful tips and information

# Useful Information – Reporting Unit

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- Preferred reporting unit: thousand metric tons
- Volumetric units also accepted (barrels, cubic meters)
- National Administrations are asked to provide the specific densities for each product for conversion

# Useful Information – Conversion Factors

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- Conversion from volume to mass: specific density is different for each product
- Conversion factor for “Total Oil” should be the weighted average of all included products



# Useful Information – Conversion Factors

*Typical densities, conversion factors and calorific values for crude oil and petroleum products*

| Product                       | Density<br>kg/m <sup>3</sup> | litres per<br>metric ton | Barrel per<br>metric ton | Gross Calorific<br>Value (GJ/t) | Net Calorific<br>value (GJ/t) <sup>(3)</sup> |
|-------------------------------|------------------------------|--------------------------|--------------------------|---------------------------------|--|
| Crude oil                     | 853                          | 1172                     | 7.37                     | 47.37                           | 45.00  |
| Ethane                        | 366                          | 2730                     | 17.17                    | 51.90                           | 47.51  |
| Refinery Gas                  | 786                          | 1272                     | 8                        | 52.00                           | 47.60  |
| Propane                       | 508                          | 1969                     | 12.38                    | 50.32                           | 46.33  |
| Butane                        | 585                          | 1709                     | 10.75                    | 49.51                           | 45.72  |
| LPG <sup>(1)</sup>            | <b>539</b>                   | <b>1856</b>              | <b>11.67</b>             | <b>50.08</b>                    | <b>46.15</b>                                 |
| Naphtha                       | 706                          | 1416                     | 8.91                     | 47.73                           | 45.34  |
| Aviation gasoline             | 707                          | 1414                     | 8.90                     | 47.40                           | 45.03  |
| Motor gasoline <sup>(2)</sup> | 741                          | 1350                     | 8.49                     | 47.10                           | 44.75  |
| Jet Kerosene                  | 803                          | 1246                     | 7.84                     | 46.93                           | 44.58  |
| Other Kerosene                | 810                          | 1235                     | 7.76                     | 46.05                           | 43.75  |
| Gas/Diesel oil                | 844                          | 1186                     | 7.46                     | 45.66                           | 43.38  |
| Fuel oil low sulphur          | 925                          | 1081                     | 6.80                     | 43.75                           | 41.56  |
| Fuel oil high sulphur         | 975                          | 1026                     | 6.45                     | 42.00                           | 39.90  |
| Bunker Fuel oil               | 975                          | 1026                     | 6.45                     | 42.60                           | 40.47  |
| Fuel Oil (Avg)                | <b>944</b>                   | <b>1059</b>              | <b>6.66</b>              | <b>42.82</b>                    | <b>40.68</b>                                 |
| White Spirit                  | 743                          | 1346                     | 8.46                     | 46.32                           | 44.00  |
| Paraffin Waxes                | 801                          | 1248                     | 7.85                     | 42.00                           | 39.90  |
| Lubricants                    | 887                          | 1127                     | 7.09                     | 44.00                           | 41.80  |
| Bitumen                       | 1035                         | 966                      | 6.08                     | 42.10                           | 40.00  |
| Petroleum Coke                | 1150                         | 870                      | 5.47                     | 34.80                           | 33.06  |
| Other Products                | 786                          | 1273                     | 8.00                     | 42.30                           | 40.19  |

<sup>(1)</sup> Assumes a mixture of 60% propane and 40% butane by mass.

<sup>(2)</sup> An average for motor gasolines with RON between 91 and 95.

<sup>(3)</sup> For Naphtha and heavier oils the net calorific value is assumed to be 95% of gross.

# Useful Information – Conversion Factors

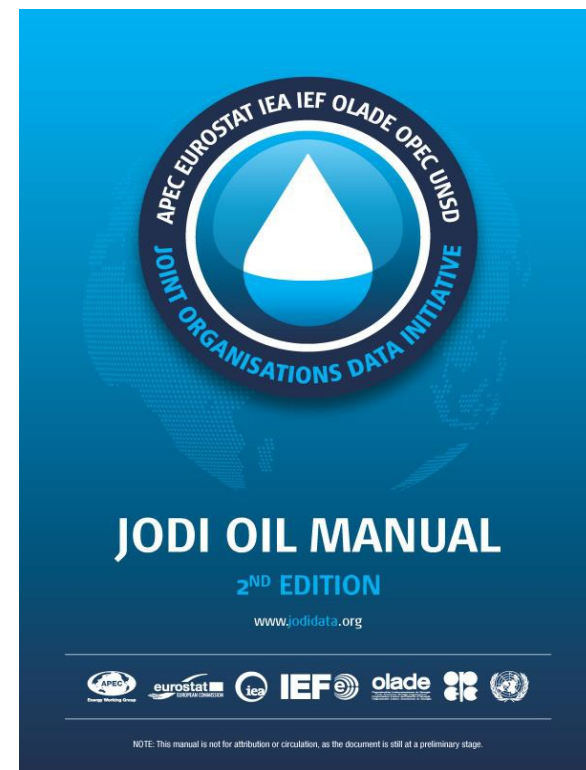
## *Converting volume into mass*

- Converting 100,000 barrels of motor gasoline into metric tons
- Density of motor gasoline for conversion from volume to mass
- Density of motor gasoline: 8.49bbl/t

- Calculation: 
$$\frac{100,000 \text{ bbl}}{8.49 \text{ bbl/t}} = 11.78 \text{ kt}$$

# JODI Oil Manual

- Overview of the Extended JODI Questionnaire
- Definitions of products and flows
- Data verification methods
- Examples of practices from countries
- Database overview
- Available in English





# Conclusions

# Main differences with annual questionnaire

- Demand in monthly JODI oil includes international marine and aviation bunkers, refinery fuel, own use and inputs to transformation;
  - In annual questionnaire, these have separate columns
- JODI questionnaires has few products cited
  - Annual questionnaire included more petroleum products



# Thank you for your kind attention!

<https://aperc.ieej.or.jp/>