

# Better Data – Better Decisions

## JODI Oil and JODI Gas Questionnaire

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# Aim of Presentation

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- Guidance on how to fill out the JODI Oil and JODI Gas Questionnaires
- Main concepts
- Definitions for selected products and flows
- Useful tips and information

# JODI OIL QUESTIONNAIRE

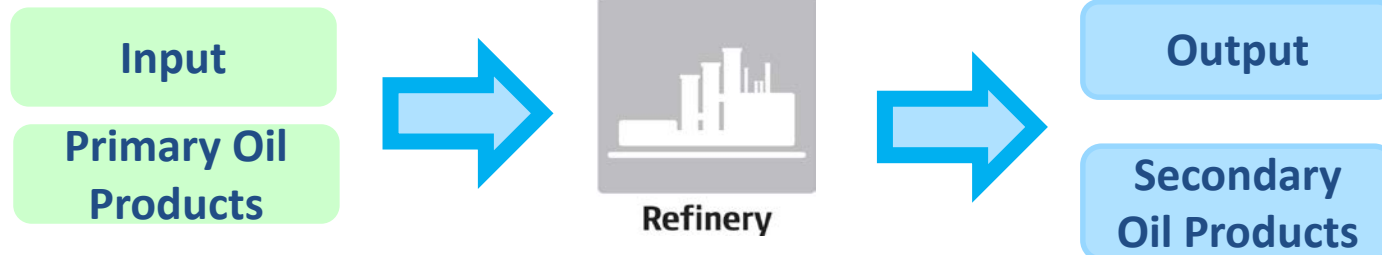


# JODI Oil Questionnaire

- Simple questionnaire share by all participating countries
- Main products and flows: 42 key oil data points

|                                   | Crude Oil | NGL | Other | Total<br>(1)+(2)+(3) |
|-----------------------------------|-----------|-----|-------|----------------------|
|                                   | (1)       | (2) | (3)   | (4)                  |
| + Production                      |           |     |       |                      |
| + From Other sources              |           |     |       |                      |
| + Imports                         |           |     |       |                      |
| - Exports                         |           |     |       |                      |
| + Products Transferred /Backflows |           |     |       |                      |
| - Direct Use                      |           |     |       |                      |
| - Stock Change                    |           |     |       |                      |
| - Statistical Difference          |           |     |       |                      |
| = Refinery Intake                 |           |     |       |                      |
| Closing stocks                    |           |     |       |                      |

|                          | Petroleum Products |         |          |                |                        |                 |          |                |  |
|--------------------------|--------------------|---------|----------|----------------|------------------------|-----------------|----------|----------------|--|
|                          | LPG                | Naphtha | Gasoline | Total Kerosene | Of which: Jet Kerosene | Gas/ Diesel Oil | Fuel Oil | Other Products | Total Products<br>(5)+(6)+(7)+(8)+(10)+(11)+(12) |
|                          | (5)                | (6)     | (7)      | (8)            | (9)                    | (10)            | (11)     | (12)           | (13)   |
| + Refinery Output        |                    |         |          |                |                        |                 |          |                |  |
| + Receipts               |                    |         |          |                |                        |                 |          |                |  |
| + Imports                |                    |         |          |                |                        |                 |          |                |  |
| - Exports                |                    |         |          |                |                        |                 |          |                |  |
| - Products Transferred   |                    |         |          |                |                        |                 |          |                |  |
| + Interproduct Transfers |                    |         |          |                |                        |                 |          |                |  |
| - Stock Change           |                    |         |          |                |                        |                 |          |                |  |
| - Statistical Difference |                    |         |          |                |                        |                 |          |                |  |
| = Demand                 |                    |         |          |                |                        |                 |          |                |  |
| Closing stocks           |                    |         |          |                |                        |                 |          |                |  |



# Definition of products:

## Other

Category: Other

Refinery Feedstocks + Additives/oxygenates + Other Hydrocarbons

- **Additives** and oxygenates non-hydrocarbon compounds added to or blended with a product to modify fuel properties (octane, cold properties, etc.)
- **Biofuels** that are blended into gasoline and diesel
- **Other hydrocarbons:** non-conventional oils and hydrogen

|                                   | Crude Oil | Other |     |     |                          | Petroleum Products |         |          |                |                        |                 |          |                |
|-----------------------------------|-----------|-------|-----|-----|--------------------------|--------------------|---------|----------|----------------|------------------------|-----------------|----------|----------------|
|                                   |           | (1)   | (2) | (3) |                          | LPG                | Naphtha | Gasoline | Total Kerosene | Of which: Jet Kerosene | Gas/ Diesel Oil | Fuel Oil | Other Products |
|                                   | (1)       | (2)   | (4) | (3) |                          | (5)                | (6)     | (7)      | (8)            | (9)                    | (10)            | (11)     | (12)           |
| + 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              |
| = Refinery Intake                 |           |       |     |     | = Demand                 |                    |         |          |                |                        |                 |          |                |
| Closing stocks                    |           |       |     |     | Closing stocks           |                    |         |          |                |                        |                 |          |                |

# Definition of products:

## LPG

Category: Liquefied Petroleum Gases

- Liquefied Petroleum Gas (LPG) is the generic name for commercial propane and commercial butane
- Produced in natural gas processing plants, oil refineries and as a byproduct in natural gas liquefaction plants

|                                   | Crude Oil | NGL | Other | Total<br>(1)+(2)+(3) | Petroleum Products       |          |                |                        |                 |          |                |  |  |
|-----------------------------------|-----------|-----|-------|----------------------|--------------------------|----------|----------------|------------------------|-----------------|----------|----------------|--|--|
|                                   |           |     |       |                      | LPG                      | Gasoline | Total Kerosene | Of which: Jet Kerosene | Gas/ Diesel Oil | Fuel Oil | Other Products | Total Products<br>(5)+(6)+(7)+(8)+(10)+(11)+(12) |  |
|                                   | (1)       | (2) | (3)   | (4)                  | (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  |  |
| = Refinery Intake                 |           |     |       |                      | = Demand                 |          |                |                        |                 |          |                |  |  |
| Closing stocks                    |           |     |       |                      | Closing stocks           |          |                |                        |                 |          |                |  |  |

# Definition of products:

## Kerosene

Category: Kerosene and Jet Kerosene

- Kerosene comprises 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) |                          | Total Kerosene & Jet Kerosene |         |     |       |          |                |  |      |      |
|--------------------------------------|-----------|-----|-------|----------------------|--------------------------|-------------------------------|---------|-----|-------|----------|----------------|--|------|------|
|                                      |           |     |       |                      |                          | LPG                           | Naphtha | Ga  | essel | Fuel Oil | Other Products | Total 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           |                               |         |     |       |          |                |  |      |      |

# Definition of products:

## Kerosene

### Example

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

|                          | Petroleum Products |         |          |                |                        |                 |          |                |   |
|--------------------------|--------------------|---------|----------|----------------|------------------------|-----------------|----------|----------------|---|
|                          | LPG                | Naphtha | Gasoline | Total Kerosene | Of which: Jet Kerosene | Gas/ Diesel Oil | Fuel Oil | Other Products | Total Products (5)+(6)+(7)+(8)+(10)+(11)+(12) |
|                          | (5)                | (6)     | (7)      | (8)            | (9)                    | (10)            | (11)     | (12)           | (13)  |
| + Refinery Output        | 0                  | 0       | 0        | 60             | 40                     | 0               | 0        | 0              | 0   |
| + Receipts               | 0                  | 0       | 0        | 0              | 0                      | 0               | 0        | 0              | 0   |
| + Imports                | 0                  | 0       | 0        | 30             | 30                     | 0               | 0        | 0              | 0   |
| - Exports                | 0                  | 0       | 0        | 0              | 0                      | 0               | 0        | 0              | 0   |
| - Products Transferred   | 0                  | 0       | 0        | 0              | 0                      | 0               | 0        | 0              | 0   |
| + Interproduct Transfers | 0                  | 0       | 0        | 0              | 0                      | 0               | 0        | 0              | 0   |
| - Stock Change           | 0                  | 0       | 0        | 0              | 0                      | 0               | 0        | 0              | 0   |
| - Statistical Difference | 0                  | 0       | 0        | 0              | 0                      | 0               | 0        | 0              | 0   |
| = Demand                 | 0                  | 0       | 0        | 90             | 70                     | 0               | 0        | 0              | 0   |
| Closing stocks           | 0                  | 0       | 0        | 0              | 0                      | 0               | 0        | 0              | 0   |



# Definition of products:

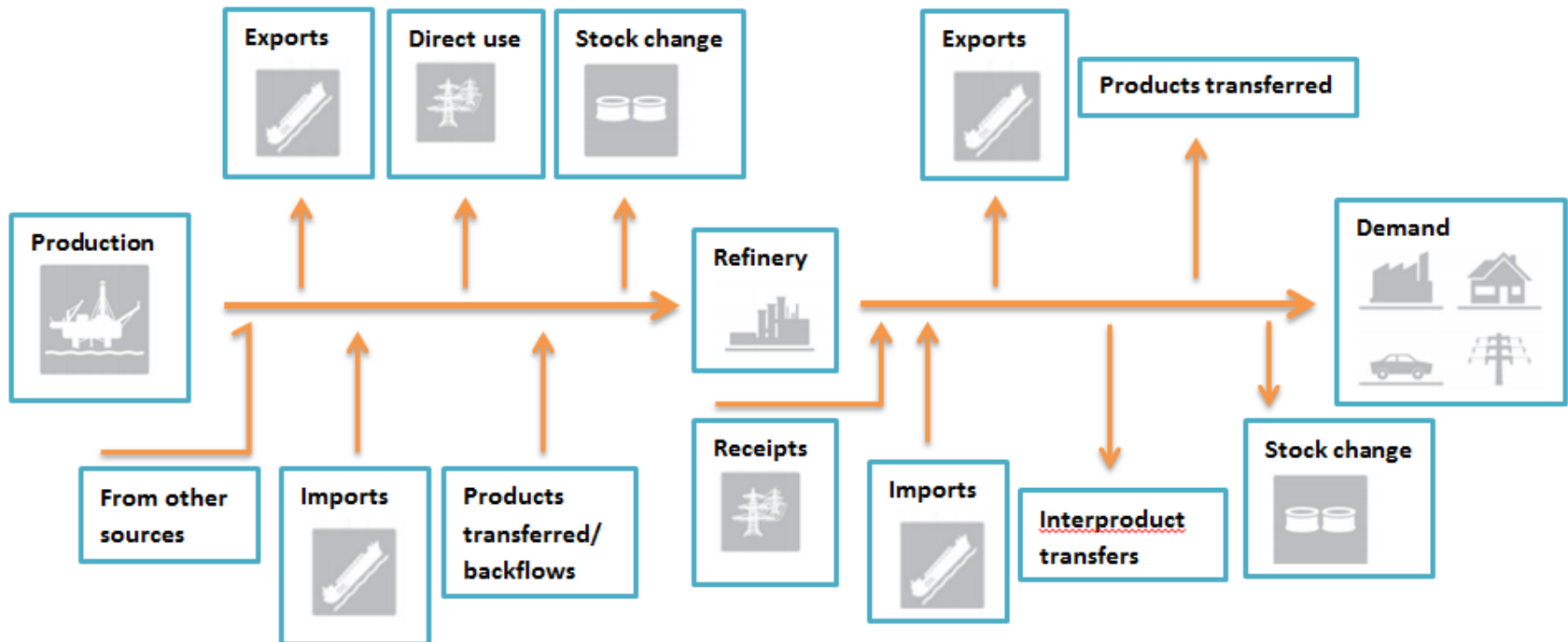
## Other Products

Category: Other Products

- “Other Products” include 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 |         |          |                   |                              |                    |      | Other<br>Products | Total<br>(13) |
|--------------------------------------|-----------|-----|-------|----------------------|--------------------------|--------------------|---------|----------|-------------------|------------------------------|--------------------|------|-------------------|---------------|
|                                      |           |     |       |                      |                          | LPG                | Naphtha | Gasoline | Total<br>Kerosene | Of which:<br>Jet<br>Kerosene | Gas/ Diesel<br>Oil | F    |                   |               |
|                                      | (1)       | (2) | (3)   | (4)                  |                          | (5)                | (6)     | (7)      | (8)               | (9)                          | (10)               | (11) |                   | (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 Questionnaire - flows



# Definition of Flows:

## Production

- All liquid production i.e. crude oil, NGL, condensates and oil from shale and tar sands as well as additives/ oxygenates
- Distinction between wellhead production and marketable production

|                   | Crude Oil | NGL | Other | Total<br>(1)+(2)+(3) |                          | Petroleum Products |         |          |                   |                              |                    |          |                   |   |
|-------------------|-----------|-----|-------|----------------------|--------------------------|--------------------|---------|----------|-------------------|------------------------------|--------------------|----------|-------------------|---|
|                   |           |     |       |                      |                          | LPG                | Naphtha | Gasoline | Total<br>Kerosene | Of which:<br>Jet<br>Kerosene | Gas/ Diesel<br>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)  |
| <b>Production</b> |           |     |       |                      | + Refinery Output        |                    |         |          |                   |                              |                    |          |                   |   |
|                   |           |     |       |                      | + Receipts               |                    |         |          |                   |                              |                    |          |                   |   |
|                   |           |     |       |                      | + Imports                |                    |         |          |                   |                              |                    |          |                   |   |
|                   |           |     |       |                      | - Exports                |                    |         |          |                   |                              |                    |          |                   |   |
|                   |           |     |       |                      | - Products Transferred   |                    |         |          |                   |                              |                    |          |                   |   |
|                   |           |     |       |                      | + Interproduct Transfers |                    |         |          |                   |                              |                    |          |                   |   |
|                   |           |     |       |                      | - Stock Change           |                    |         |          |                   |                              |                    |          |                   |   |
|                   |           |     |       |                      | - Statistical Difference | 0                  | 0       | 0        | 0                 | 0                            | 0                  | 0        | 0                 | 0   |
|                   |           |     |       |                      | = Demand                 |                    |         |          |                   |                              |                    |          |                   |   |
|                   |           |     |       |                      | Closing stocks           |                    |         |          |                   |                              |                    |          |                   |   |

# Definition of Flows: 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 | <i>Of which:<br/>Jet<br/>Kerosene</i> | Gas/ Diesel<br>Oil | Fuel Oil | Other<br>Products |   |
|                                       | (1)       | (2) | (3)   | (4)                  |                          | (5)                | (6)     | (7)      | (8)               | (9)                                   | (10)               | (11)     | (12)              | (13)  |
| From<br>Other<br>Sources              |           |     |       |                      | + Refinery Output        |                    |         |          |                   |                                       |                    |          |                   |   |
|                                       |           |     |       |                      | + Receipts               |                    |         |          |                   |                                       |                    |          |                   |   |
|                                       |           |     |       |                      | + Imports                |                    |         |          |                   |                                       |                    |          |                   |   |
|                                       |           |     |       |                      | - Exports                |                    |         |          |                   |                                       |                    |          |                   |   |
|                                       |           |     |       |                      | - Products Transferred   |                    |         |          |                   |                                       |                    |          |                   |   |
| + Products Transferred<br>+ Backflows |           |     |       |                      | + Interproduct Transfers |                    |         |          |                   |                                       |                    |          |                   |   |
| - Direct Use                          |           |     |       |                      | - Stock Change           |                    |         |          |                   |                                       |                    |          |                   |   |
| - Stock Change                        |           |     |       |                      | - Statistical Difference | 0                  | 0       | 0        | 0                 | 0                                     | 0                  | 0        | 0                 | 0   |
| - Statistical Difference              | 0         | 0   | 0     | 0                    | = Demand                 |                    |         |          |                   |                                       |                    |          |                   |   |
| = Refinery Intake                     |           |     |       |                      | Closing stocks           |                    |         |          |                   |                                       |                    |          |                   |   |
| Closing stocks                        |           |     |       |                      |                          |                    |         |          |                   |                                       |                    |          |                   |   |

# Definition of Flows:

## Imports and Exports

- Quantities that physically crossed the international boundaries, whether or not customs clearance has taken place
- Excluding transits and amounts for international bunkers
- Amounts of pure biofuels not reported

|                          | Crude Oil | NGL | Other | Total<br>(1)+(2)+(3) |                          | Petroleum Products |         |          |                   |                              |                    |          |                   |   |
|--------------------------|-----------|-----|-------|----------------------|--------------------------|--------------------|---------|----------|-------------------|------------------------------|--------------------|----------|-------------------|---|
|                          |           |     |       |                      |                          | LPG                | Naphtha | Gasoline | Total<br>Kerosene | Of which:<br>Jet<br>Kerosene | Gas/ Diesel<br>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)  |
| Imports/Exports          |           |     |       |                      | Imports/Exports          |                    |         |          |                   |                              |                    |          |                   |   |
| - Direct                 |           |     |       |                      | + Interprocess 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           |                    |         |          |                   |                              |                    |          |                   |   |

# 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 from the Petrochemical Industry:** finished or semi-finished products returned from final consumers to refineries for processing, blending or sale

[illegible]

# Definition of Flows:

## Products Transferred

- Naphtha imported (150kt) to your country was reclassified as feedstocks for further processing at the refinery.

|                                      | Crude oil | NGL | Other | Total<br>(1)+(2)+(3) |                          | LPG | Naphtha |
|--------------------------------------|-----------|-----|-------|----------------------|--------------------------|-----|---------|
|                                      | (1)       | (2) | (3)   | (4)                  |                          | (5) | (6)     |
| + Production                         |           |     |       | 0                    | + Refinery output        |     |         |
| + From other sources                 |           |     |       | 0                    | + Receipts               |     |         |
| + Imports                            |           |     |       | 0                    | + Imports                |     | 150     |
| - Exports                            |           |     |       | 0                    | - Exports                |     |         |
| Products transferred<br>+ /Backflows |           |     | 150   | 150                  | - Products transferred   |     | 150     |
| - Direct use                         |           |     |       | 0                    | + Interproduct transfers |     |         |
| - Stock change                       |           |     |       | 0                    | - Stock change           |     |         |
| - Statistical difference             | 0         | 0   | 0     | 0                    | - Statistical difference | 0   | 0       |
| = Refinery intake                    |           |     | 150   | 150                  | = Demand                 |     |         |
| Closing stocks                       |           |     |       | 0                    | Closing stocks           |     |         |

# Definition of Flows:

## Direct Use

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

|                          | Crude Oil | NGL | Other | Total<br>(1)+(2)+(3) |                          | Petroleum Products |         |          |                   |                              |                    |          |                   |   |
|--------------------------|-----------|-----|-------|----------------------|--------------------------|--------------------|---------|----------|-------------------|------------------------------|--------------------|----------|-------------------|---|
|                          |           |     |       |                      |                          | LPG                | Naphtha | Gasoline | Total<br>Kerosene | Of which:<br>Jet<br>Kerosene | Gas/ Diesel<br>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 overseas          |           |     |       |                      | + Receipts               |                    |         |          |                   |                              |                    |          |                   |   |
|                          |           |     |       |                      | + Imports                |                    |         |          |                   |                              |                    |          |                   |   |
|                          |           |     |       |                      | - Exports                |                    |         |          |                   |                              |                    |          |                   |   |
|                          |           |     |       |                      | - Products Transferred   |                    |         |          |                   |                              |                    |          |                   |   |
|                          |           |     |       |                      | + Interproduct Transfers |                    |         |          |                   |                              |                    |          |                   |   |
|                          |           |     |       |                      | - 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           |                    |         |          |                   |                              |                    |          |                   |   |

Direct Use



# Definition of Flows:

## Direct Use

Crude oil (100kt) produced in your country was use for generating electricity.

|                                   | Crude oil |                          | Other products |
|-----------------------------------|-----------|--------------------------|----------------|
|                                   | (1)       |                          | (12)           |
| + Production                      | 100       | + Refinery output        |                |
| + From other sources              |           | + Receipts               | 100            |
| + Imports                         |           | + Imports                |                |
| - Exports                         |           | - Exports                |                |
| Products transferred + /Backflows |           | - Products transferred   |                |
| - Direct use                      | 100       | + Interproduct transfers |                |
| - Stock change                    |           | - Stock change           |                |
| - Statistical difference          | 0         | - Statistical difference | 0              |
| = Refinery intake                 |           | = Demand                 | 100            |
| Closing stocks                    |           | Closing stocks           |                |

# Definition of flows:

## Stock Change and Closing Stocks

- Definition of stocks based on geographical location, except for OPEC where definition based on ownership
- Closing Stocks: primary stock level at the end of the month on national territory; includes stocks held by companies, stock holding organisations 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/ Diesel<br>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         |                    |         |          |                   |                              |                    |          |                   |   |
|                      |           |     |       |                      |                   |                    |         |          |                   |                              |                    |          |                   |   |
|                      |           |     |       |                      |                   |                    |         |          |                   |                              |                    |          |                   |   |
|                      |           |     |       |                      |                   |                    |         |          |                   |                              |                    |          |                   |   |
|                      | 0         | 0   | 0     | 0                    |                   | 0                  | 0       | 0        | 0                 | 0                            | 0                  | 0        | 0                 | 0   |
|                      |           |     |       |                      |                   |                    |         |          |                   |                              |                    |          |                   |   |
|                      |           |     |       |                      |                   |                    |         |          |                   |                              |                    |          |                   |   |

Stock  
Change

Closing  
Stocks

Stock  
Change

Closing  
Stocks

# Definition of Flows:

## 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 stock changes at the refinery

|                                      | Crude Oil | NGL | Other | Total<br>(1)+(2)+(3) |                          | Petroleum Products |         |          |                   |                                       |                    |          |                   |   |
|--------------------------------------|-----------|-----|-------|----------------------|--------------------------|--------------------|---------|----------|-------------------|---------------------------------------|--------------------|----------|-------------------|---|
|                                      |           |     |       |                      |                          | LPG                | Naphtha | Gasoline | Total<br>Kerosene | <i>Of which:<br/>Jet<br/>Kerosene</i> | Gas/ Diesel<br>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           |                    |         |          |                   |                                       |                    |          |                   |   |
|                                      | 0         | 0   | 0     | 0                    | - Statistical Difference | 0                  | 0       | 0        | 0                 | 0                                     | 0                  | 0        | 0                 | 0   |
|                                      |           |     |       |                      | = Demand                 |                    |         |          |                   |                                       |                    |          |                   |   |
|                                      |           |     |       |                      | Closing stocks           |                    |         |          |                   |                                       |                    |          |                   |   |

**Refinery  
Intake**

# Definition of Flows:

## Statistical Difference

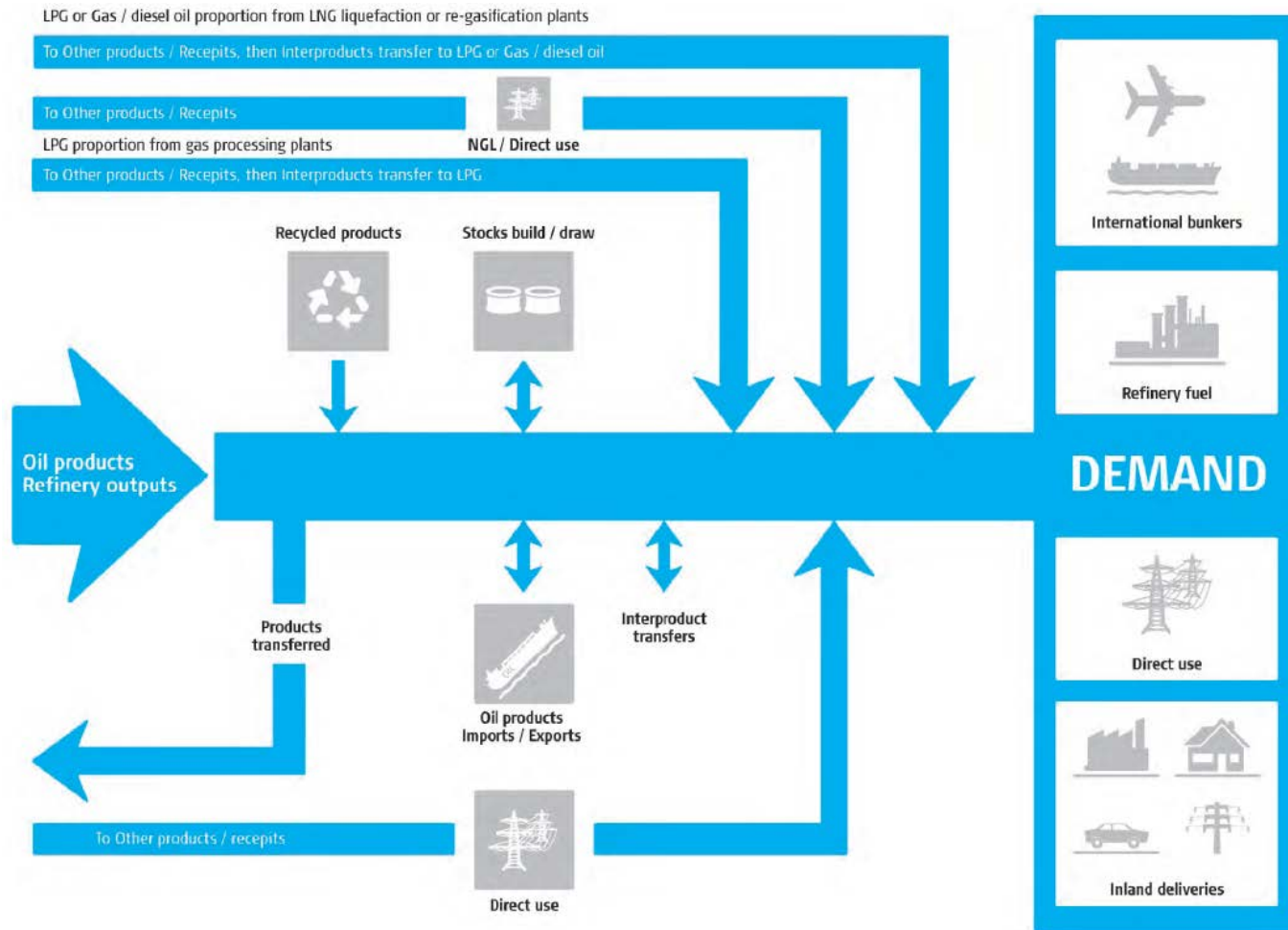
- For primary products: Statistical Difference = Calculated Refinery Intake – Observed Refinery Intake
- For secondary products: Statistical Difference = Calculated Demand – Observed Demand

|                               | Crude Oil | NGL | Other | Total<br>(1)+(2)+(3) |                        | Petroleum Products |         |          |                   |                              |                    |          |                   |   |
|-------------------------------|-----------|-----|-------|----------------------|------------------------|--------------------|---------|----------|-------------------|------------------------------|--------------------|----------|-------------------|---|
|                               |           |     |       |                      |                        | LPG                | Naphtha | Gasoline | Total<br>Kerosene | Of which:<br>Jet<br>Kerosene | Gas/ Diesel<br>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>+ /Re |           |     |       |                      | - Products Transferred |                    |         |          |                   |                              |                    |          |                   |   |
|                               |           |     |       |                      |                        |                    |         |          |                   |                              |                    |          |                   |   |
|                               |           |     |       |                      |                        |                    |         |          |                   |                              |                    |          |                   |   |
|                               | 0         | 0   | 0     | 0                    |                        | 0                  | 0       | 0        | 0                 | 0                            | 0                  | 0        | 0                 | 0   |
|                               |           |     |       |                      |                        |                    |         |          |                   |                              |                    |          |                   |   |
|                               |           |     |       |                      |                        |                    |         |          |                   |                              |                    |          |                   |   |

Statistical  
Difference

Statistical  
Difference

# Supply Chain from Refinery to End-User



# Refinery Output

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

[illegible]

# Definition of Flows:

## Receipts

### Primary products receipts

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

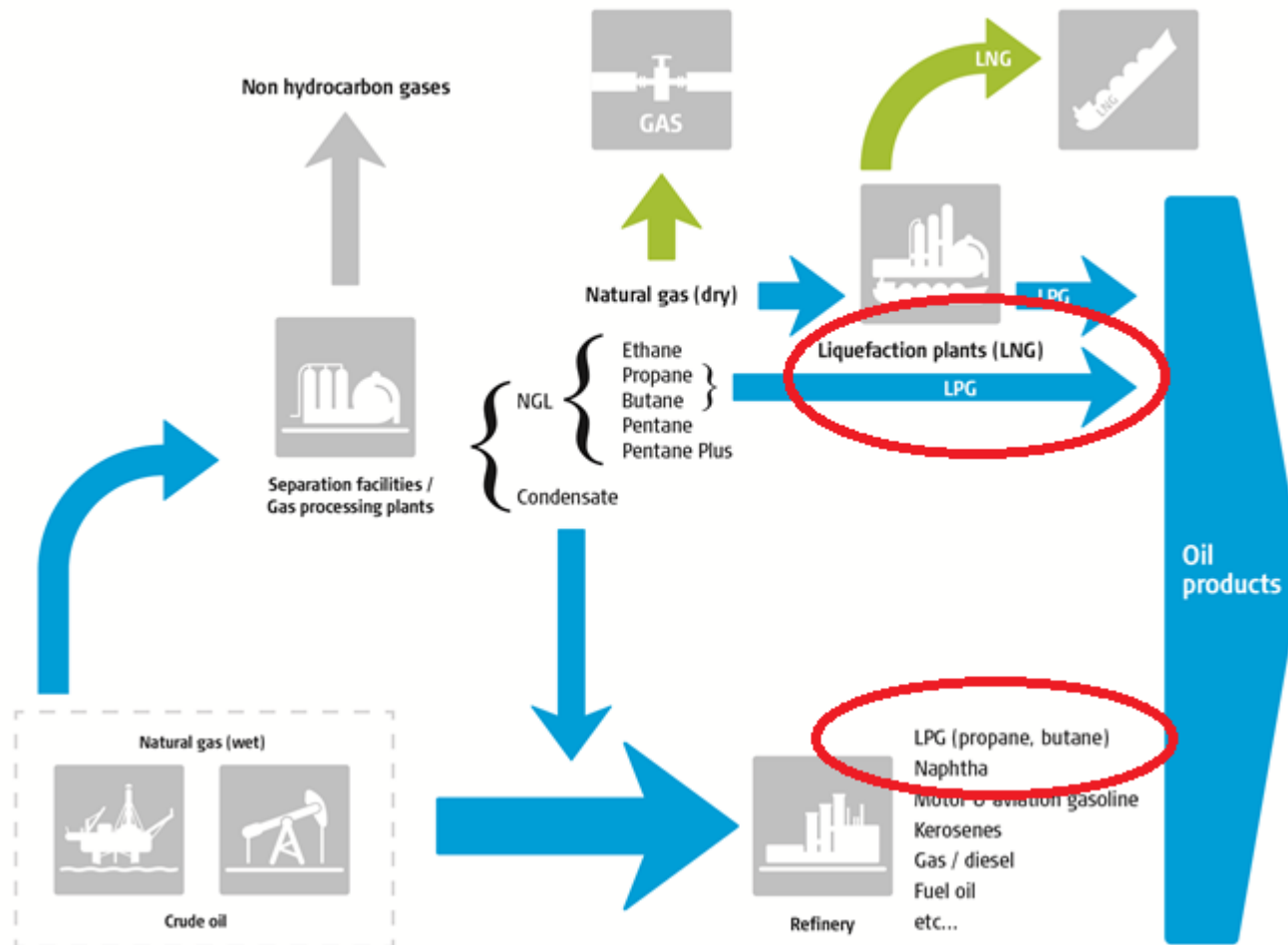
### Recycled products

- Finished products passing a second time through the marketing network, after having been delivered to final consumers (eg. lubricants oil which is 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/ Diesel<br>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                         |           |     |       |                      | Receipts |                          |         |          |                   |                              |                    |          |                   |   |   |
| + From Other sources                 |           |     |       |                      |          |                          |         |          |                   |                              |                    |          |                   |   |   |
| + Imports                            |           |     |       |                      |          |                          |         |          |                   |                              |                    |          |                   |   |   |
| - Exports                            |           |     |       |                      |          |                          |         |          |                   |                              |                    |          |                   |   |   |
| Products Transferred<br>+ /Backflows |           |     |       |                      |          |                          |         |          |                   |                              |                    |          |                   |   |   |
| - Direct Use                         |           |     |       |                      |          | + Imports less Exports   |         |          |                   |                              |                    |          |                   |   |   |
| - 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           |         |          |                   |                              |                    |          |                   |   |   |

Receipts

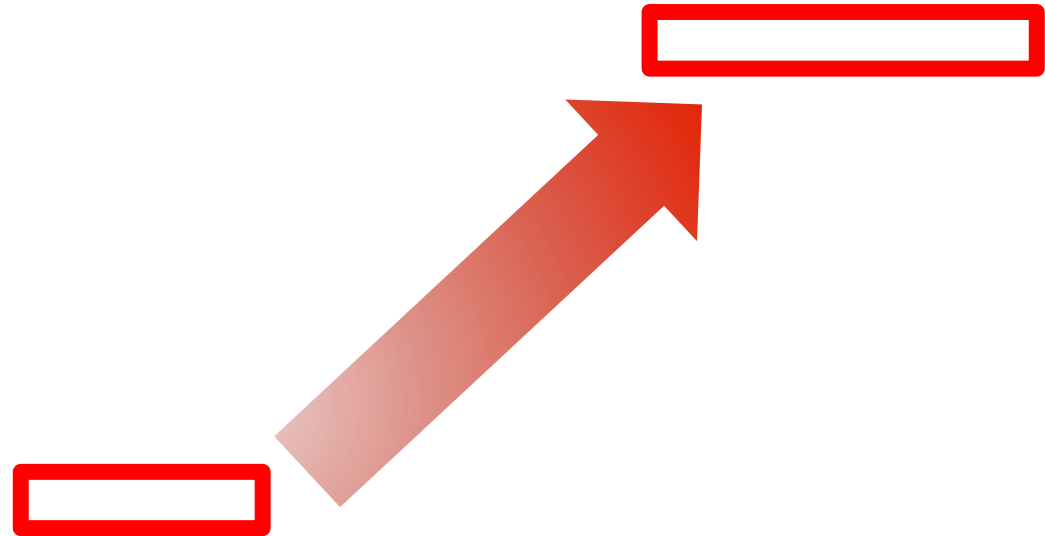
# How is LPG reported if it comes from a refinery or from a gas plant?





# Example: Refinery Output of LPG

---



# Example: LPG Produced in Natural Gas Plant

NGL included in  
"Other oil products"

|                                   | NGL                  |                          | Oil products |                    |
|-----------------------------------|----------------------|--------------------------|--------------|--------------------|
|                                   |                      |                          | LPG          | Other oil products |
|                                   | (2)                  |                          | (11)         | (12)               |
| + Production                      | 100<br>(of which 50) | + Refinery output        | 10           |                    |
| + From other sources              |                      | + Receipts               |              | 50                 |
| + Imports                         | 25                   | + Imports                |              |                    |
| - Exports                         |                      | - Exports                | 5            |                    |
| + Products transferred /Backflows |                      | - Products transferred   |              |                    |
| - Direct use                      | 50                   | + Interproduct transfers | 50           | -50                |
| - Stock change                    | 6                    | - Stock change           | 2            |                    |
| - Statistical difference          | 4                    | - Statistical difference | -2           | 0                  |
| = Refinery intake                 | 65                   | = Demand                 | 55           |                    |
| Closing Stocks                    |                      | Closing stocks           |              |                    |

# Definition of Flows:

## 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 |         |          |                   |                              |                    |          |                   | 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/ Diesel<br>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 |           |     |       |                      | - P               |                    |         |          |                   |                              |                    |          |                   |   |
| - Direct Use                         |           |     |       |                      |                   |                    |         |          |                   |                              |                    |          |                   |   |
| - Stock Change                       |           |     |       |                      |                   |                    |         |          |                   |                              |                    |          |                   |   |
| - Statistical Difference             | 0         | 0   | 0     |                      |                   | 0                  | 0       | 0        | 0                 | 0                            | 0                  | 0        | 0                 | 0   |
| = Refinery Intake                    |           |     |       |                      |                   |                    |         |          |                   |                              |                    |          |                   |   |
| Closing stocks                       |           |     |       |                      |                   |                    |         |          |                   |                              |                    |          |                   |   |

Interproduct  
Transfers

# Definition of Flows:

## Demand

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

|                                      | Crude Oil | NGL | Other | Total<br>(1)+(2)+(3) |                           | Petroleum Products |         |          |                   |                                       |                    |          |                   |   |
|--------------------------------------|-----------|-----|-------|----------------------|---------------------------|--------------------|---------|----------|-------------------|---------------------------------------|--------------------|----------|-------------------|---|
|                                      |           |     |       |                      |                           | LPG                | Naphtha | Gasoline | Total<br>Kerosene | <i>Of which:<br/>Jet<br/>Kerosene</i> | Gas/ Diesel<br>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                         |           |     |       |                      | + International transfers |                    |         |          |                   |                                       |                    |          |                   |   |
| - Stock Change                       |           |     |       |                      |                           |                    |         |          |                   |                                       |                    |          |                   |   |
| - Statistical Difference             | 0         | 0   | 0     | 0                    |                           | 0                  | 0       | 0        | 0                 | 0                                     | 0                  | 0        | 0                 | 0   |
| = Refinery Intake                    |           |     |       |                      | Demand                    |                    |         |          |                   |                                       |                    |          |                   |   |
| Closing stocks                       |           |     |       |                      |                           |                    |         |          |                   |                                       |                    |          |                   |   |

**Demand**

# Definition of Flows:

## Demand

# Demand



Refinery fuel



International bunkers



Direct use



Crude oil, NGL



Inland deliveries



Power generation, Other energy,  
Industry, Transport, Residential,  
Commercial, Agricultural

# JODI Oil: Reporting Units

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

# JODI GAS QUESTIONNAIRE



# What is Natural Gas?

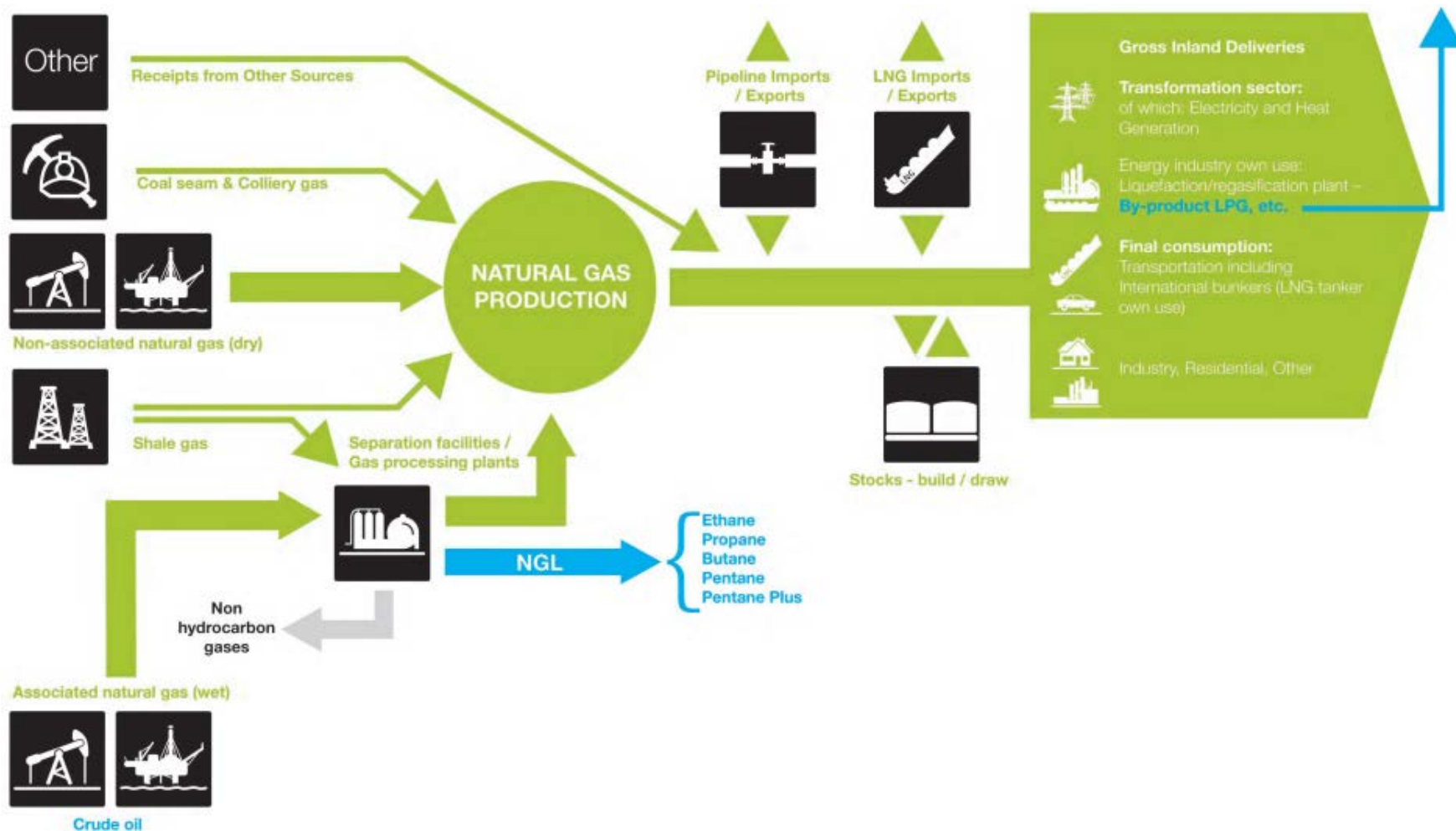
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- Natural gas can be mainly found natural in underground reservoirs that can be distinguished as:
  - associated gas (from fields producing both liquid and gaseous hydrocarbons), or
  - non-associated gas (from fields producing only gaseous hydrocarbons)
  - But includes also colliery gas, coal seam gas, dissolved gas, shale gas





# Flows



# Supply - Main flows

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- Production
  - (+ receipts/production from other sources)
- Imports and Exports
  - Pipelines and LNG
- Stock changes (closing minus opening :
- Gross Inland Deliveries Observed



# The JODI Gas Questionnaire

|  | Natural Gas<br>in million m <sup>3</sup><br>(at 15°C, 760 mm hg) | Natural Gas<br>in Terajoules | Natural Gas<br>(LNG)<br>in 1000 metric tons |
|--|--|------------------------------|---|
|  | A  | B                            | C   |
| Production                                       |  |                              |   |
| Receipts from Other Sources                      |  |                              |   |
| Imports  |  |                              |   |
| <i>LNG</i>                                       |  |                              |   |
| <i>Pipeline</i>                                  |  |                              |   |
| Exports  |  |                              |   |
| <i>LNG</i>                                       |  |                              |   |
| <i>Pipeline</i>                                  |  |                              |   |
| Stock Change                                     |  |                              |   |
| Gross Inland Deliveries (Calculated)             |  |                              |   |
| Statistical Difference (Calculated)              |  |                              |   |
| <b>Gross Inland Deliveries Observed</b>          |  |                              |   |
| <i>of which: Electricity and Heat Generation</i> |  |                              |   |
| Closing stocks                                   |  |                              |   |

Mass to volume conversion factor of LNG (if you have specific figure)

| m <sup>3</sup> /metric ton | LNG |
|----------------------------|-----|
| Conversion factor          |     |

# Production

---

- Refers to dry, marketable production within national boundaries including offshore.
- Quantities reinjected, flared and vented in situ are excluded.
- NGLs and impurities such as Sulphur are excluded.
- Included quantities used within the natural gas industry.
- Manufactured gases and biogas should be excluded!



# Receipts from Other Sources

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- Accounts for gases accounted for elsewhere blended into natural gas
- Pure biogases and manufactured gases are excluded



# Import and Exports

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## Import and Exports:

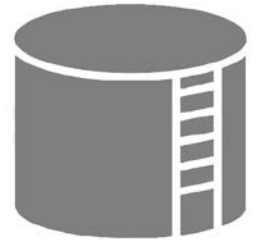
- All goods entering or leaving **national territory**
- Includes both **pipeline** and **LNG** tanker trade
- Goods-in-transit *should* be excluded (difficult to determine in complex pipeline systems)
- Includes re-imports and re-exports
- International bunkers should be excluded
- When LNG is imported, re-gasified and exported, the country should report the quantities as imports and exports.



# Stocks

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- Reported on a national territory basis
  - Exclude gas reserves (unextracted gas)
  - Exclude cushion gas
  - Pipeline gas and line pack are not included
- 
- Stock change = closing stock levels – opening stock levels



# Gross Inland Deliveries Observed

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- Deliveries to the inland market
- Includes losses in distribution, international marine bunkers and an energy industry's own use.
- *Observed!*





# Electricity and heat generation

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- Deliveries for electricity and heat generation
- Both main activity plants and autoproducers
- Includes own use of the pipeline network



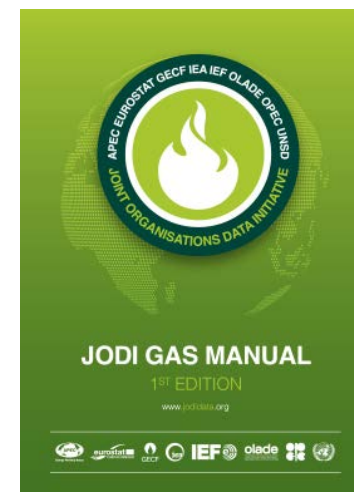
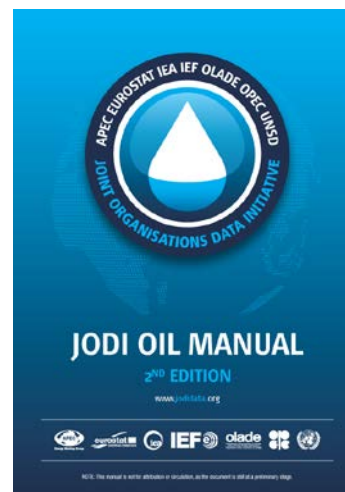
# Measurement Units

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- Units to be used in reporting
  - Volumetric units: Million m<sup>3</sup>, standard conditions
  - Energy units: TJ, gross basis
  - Mass units: tons [LNG trade only]
- Conversion between energy units and volumetric/mass units may depend on flow
- Calorific value needed if only one unit is reported (but countries are asked to report in both main units)

# JODI Oil and JODI Gas Manual

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



# Metadata

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- Though definitions exists, exceptions may still arise
- This may cause differences in reporting, but should be clearly indicated in country notes
- Examples:
  - inclusion of natural gas in transit via pipeline in trade
  - “Receipts from other sources” included with production
  - only main activity producers (or electricity-only plants) included in deliveries to “Electricity and heat generation”

# Timeliness

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- **M-1: one-month old data**

*(Example: On 25 May 2019, submitted data is for April 2019)*

- Some countries not able to collect all the required data from all data sources
- Due to such limitations in the data collection system these countries are allowed to report M-2.

- **M-2: two-month old data**

*(Example: On 25 May 2019, submitted data is for March 2019)*

- M-2 data more complete and available

- **Submission of M-1 data is encouraged**

- **Revision of M-2 and earlier data is encouraged**



[www.jodidata.org](http://www.jodidata.org)

