JODI Oil Training Workshop at Energy Community

3rd May 2017



Overview of Technical Definitions in the JODI Oil Questionnaire

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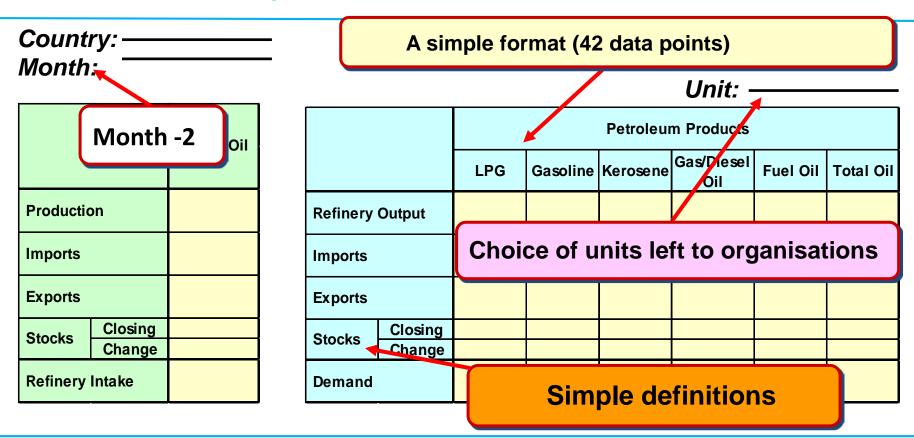
Outline



- Introduction
- Definitions
 - Products
 - Flows
- Common reporting mistakes
- Feedback from participants (interactive for each flow/product definition)

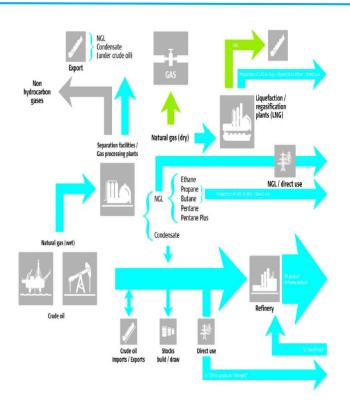
The JODI oil questionnaire

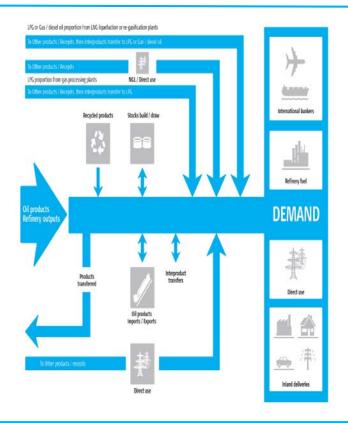




A comprehensive balance









Country		-												
Month		-								Unit :				-
	Petroleum Products													
	Crude Oil	NGL	Other	Total (1)+(2)+(3)		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)
	(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	O	0	0	0	0	0	O	0	O
= Refinery Intake					= Demand									
Closing stocks					Closing stocks									

- Harmonization of definitions to the extent possible
- Umbrella definitions for partner organizations
- Manual for reference downloadable from the JODI website

https://www.jodidata.org/capacity-building/jodi-manuals.aspx



Country		
Month	Unit :	

									Petr	oleum Pro	ducts			
	Crude Oil	NGL	Other	Total (1)+(2)+(3)		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)
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Closing stocks					Closing stocks			_				_		

Definitions: Products/columns – crude oil



- Wellhead liquid hydrocarbon production excl. impurities
- Association with natural gas
- Condensates
- Conventionality
- Fundamental quality characteristics (API & sulfur)



Country		
Month	Unit:	

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Definitions: Products/columns – NGLs



- Natural gas liquids liquid or liquefied hydrocarbons from gas separation plants & gas processing facilities
- Condensates, natural gasolines & liquefied petroleum gases
- Ethane
- Association with natural gas
- LNG vs. NGL



Country		
Month		Unit:

									Petr	oleum Pro	ducts			
	Crude Oil	NGL	Other	Total (1)+(2)+(3)		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)
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Definitions: Products/columns - Other primary

- All input from other commodities & refinery feedstocks
- Refinery feedstocks (hydrocarbons from refinery/petrochemical industry for further blending)
- Additives/oxygenates (oxygenates, biofuels,...)
- Other hydrocarbons (gas-to-liquids, coal to liquids, hydrogen,...)



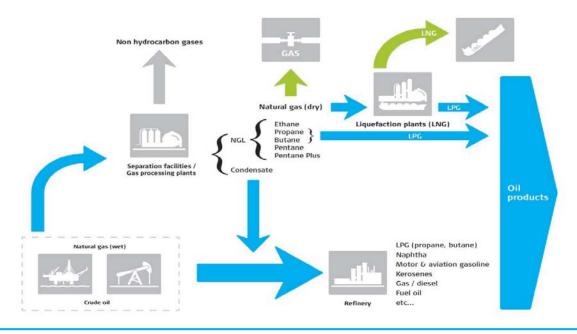
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Month		Unit:

									Petr	ole um Pro	ducts			
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Closing stocks					Closing stocks									

Definitions: Products/columns – LPG



- Propane (C_3H_8) , butane (C_4H_{10}) or a mixture of these two hydrocarbons
- Gas plant volumes





Country		
Month	Unit:	

									Petr	oleum Pro	ducts			
	Crude Oil	NGL	Other	Total (1)+(2)+(3)		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)
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Definitions: Products/columns - Naphtha



- Feedstock in the gasoline pool and the chemical/petrochemical industries
- Paraffins, isoparafins, olefins, naphthenes & aromatics
- Gas plant volumes
- Double-counting



Country		
Month	Unit:	

									Petr	oleum Pro	ducts			
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Definitions: Products/columns – Gasoline



- Motor & aviation gasoline
- Blending components
- Biofuels only in relation to petroleum products
- Ethanol & methanol



Country		
Month	Unit	:

									Petr	oleum Pro	ucts			
	Crude Oil	NGL	Other	Total (1)+(2)+(3)		LPG	Naphtha	Gasoline	Total Kerosene	Ofwhich: Jet Kerosene	Gas/ Diesel Oil	Fuel Oil	Other Products	Total Products (5)+(6)+(7) +(8)+(10) +(11)+(12)
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= Refinery Intake					= Demand									
Closing stocks					Closing stocks									

Definitions: Products/columns – Kerosenes



- Jet fuel & other kerosene
- Bio jet/kerosene
- International aviation bunkers



Country		
Month		Unit:

									Petr	oleum Proc	ıcts			
	Crude Oil	NGL	Other	Total (1)+(2)+(3)		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)
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- Statistical Difference	0	0	0	0	- Statistical Difference	0	0	0	0	0	0	0	0	0
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Closing stocks					Closing stocks									

Definitions: Products/columns - Gas diesel oil

- Automotive & heating purposes
- Biodiesel
- International marine bunkers



Country		
Month		Unit:

									Petr	oleum Pro	ducts			
	Crude Oil	NGL	Other	Total (1)+(2)+(3)		LPG	Naphtha	Gasoline	Total Kerosene	Ofwhich: Jet Kerosene	Gas/ Diesel Oil	Fuel Oil	Other Products	Total Products (5)+(6)+(7) +(8)+(10) +(11)+(12)
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Closing stocks					Closing stocks									

Definitions: Products/columns - Residual fuel oil



- Heavy residual oil/boiler oil
- International marine bunkers



Country		
Month		Unit:

							Petroleum Products							
	Crude Oil	NGL	Other	Total (1)+(2)+(3)		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)
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Closing stocks					Closing stocks			_			_			

Definitions: Products/columns – Other products



- Refinery gas
- Ethane
- Gasoline type Jet fuel
- Petroleum coke
- Lubricants
- White spirit & SBP
- Bitumen
- Paraffin waxes
- Other: chemicals and organic chemicals (propylene, benzene, toluene, xylene)
- Demand includes direct use of crude & NGLs



Country		
Month	Unit:	

									Petr	oleum Pro	ducts			
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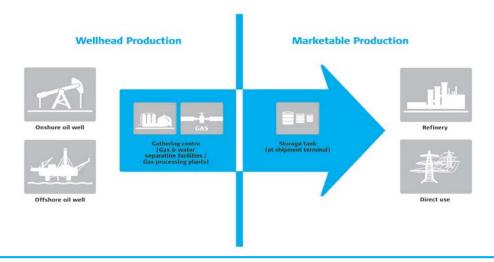
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Month	Unit:	

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Closing stocks					Closing stocks									



Definitions: Flows/rows - Production

- Marketable production after removal of impurities
- Crude oil, NGL & other (additives, from other commodities





Country		
Month	Unit :	

									Petr	oleum Pro	ducts			
	Crude Oil	NGL	Other	Total (1)+(2)+(3)		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)
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Definitions: Flows/rows – From other sources



- Input of additives, biofuels & other hydrocarbons that are produced from non-oil sources
- Liquid biofuels



Country		
Month	Unit:	

									Petr	oleum Pro	ducts			
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Definitions: Flows/rows – Imports/Exports



- National boundaries
- Transit
- International bunkers
- Crude oil & NGL (country of origin)
- Feedstocks & finished products (country of last consignment)



Country		
Month	Unit :	

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Definitions: Flows/rows – Product transferred & backflows from petrochemical industry



- Finished & semi-finished products as input to refineries (processing, blending or sale)
- Naphtha
- Ethane
- Propane
- Gas oil
- Re-classification for processing in refinery (products)



Country		
Month	Unit :	

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Definitions: Flows/rows - Direct use



- Crude & NGL used directly without being processed
- Electricity generation
- Petrochemical industry
- Receipts



Country		
Month	Unit :	

									Petr	oleum Pro	ducts			
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Definitions: Flows/rows – Stocks & change



- Primary stocks
- National territory
- Commercial & government holding
- Stock build vs/ draw



Country		
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Definitions: Flows/rows – Refinery intake



- Observed refinery throughput
- Crude, NGL, feedstocks, additives, biofuels entering the refinery



Country		
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Definitions: Flows/rows - Statistical difference

- Difference between observed supply flows & calculated refinery intake
- Primary supply

```
Stat. difference = Production + From other sources + imports – exports +
                  product transferred/backflows – direct use – stock
                  change – refinery intake
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Country		
Month	Unit :	

									Petr	oleum Pro	ducts			
	Crude Oil	NGL	Other	Total (1)+(2)+(3)		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)
	(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									

Definitions: Flows/rows – Refinery output



Gross output (refinery fuel) Refinery Refinery losses fuel Refinery Refinery output intake LPG Crude oil Naphtha NGI Motor and aviation gasoline Feedstocks Kerosenes Other Gas / diesel oil Etc. Refinery Gross refinery output - Refinery fuel Refinery intake - Refinery losses = Gross refinery output = Net refinery output



Country		
Month	Unit :	

									Petr	oleum Pro	ducts			
	Crude Oil	NGL	Other	Total (1)+(2)+(3)		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)
	(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									

Definitions: Flows/rows - Receipts



- Primary product receipts & recycled products
 - Crude
 - NGL
- Returned of delivered products to supply without reclassification as another product

	NGL		LPG	Other oil products
Production	100	Refinery output	10	
Imports	25	Receipts		> 50
Direct use	50	Exports	5	
Stock Change	6	Interproduct transfers	50 ←	-50
Statistical Difference	4	Stock Change	2	
Refinery Intake	65	Statistical Difference	-2	0
Closing Stocks		Demand	55	



Country		
Month	Unit :	

						Petroleum Products								
	Crude Oil	NGL	Other	Total (1)+(2)+(3)		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)
	(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									

Definitions: Flows/rows – Product transfers & <u>interproduct transfers</u>



- Product transfers
 - Reclassification of finished products as feedstock to refineries
 - Naphtha for upgrading
- Interproduct transfers
 - Reclassification as another product because of spec or blending
 - Positive sign (reclassified product), negative sign product to be reclassified



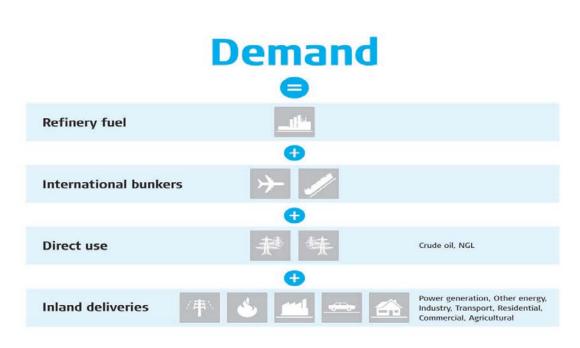
Country		
Month	Unit:	

						Petroleum Products								
	Crude Oil	NGL	Other	Total (1)+(2)+(3)		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)
	(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									

Definitions: Flows/rows – demand



- Deliveries to inland market
- Refinery fuel
- International bunkers
- Direct use



Definitions: Flows/rows - Statistical difference

- Difference between observed supply flows & calculated demand
- Secondary supply

```
Stat. difference = Refinery output + receipts + imports - exports - product transferred + interproduct transfers - stock change - demand
```

Common reporting mistakes



- Large statistical difference
- Negative volumes; for which flows is it possible?
- Sum of interproduct transfers not 0
- Production (foreign companies)
- Refinery output (double-counting of semi-finished products)
- Demand (bunkers, direct use, refinery fuel, gas separation plant products)
- Kerosenes versus jet fuel

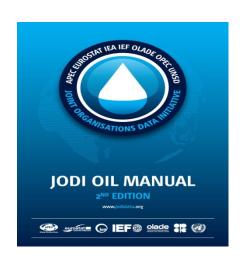
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Thank You.





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