



European Gas Fundamentals data Methodology

Latest update: 29 April 2013

To comment on any aspect of this methodology, or to propose changes, please contact **Daniela Rosci**, analyst, ICIS at Daniela.roschi@icis.com or energyinfo@icis.com .

Introduction

ICIS harvests and normalises gas flow data for 19 European countries (Austria; Belgium; Bulgaria; Czech Republic; Denmark; France; Germany; Greece; Hungary; Italy; the Netherlands; Poland; Portugal; Romania; Slovakia; Slovenia; Spain; Great Britain; Norway) at a disaggregated level where possible, feeding the data into the company's FTP. The data presented is divided in 8 sections/folders according to the gas fundamentals category they belong to (physical gas flows; nominations/day-ahead nominations/renominations; storage; LNG; demand; production).

Publication times

Gas flow data for the gas day prior to the gas day of publication will be published as soon as the gas day ends or as soon as data is available and then updated every hour throughout the gas day.

Intra-day gas flow data for the current gas day of publication will be published as soon as it becomes available and then updated every hour throughout the gas day.

Data is available every day via the company's TFP data feed, including the weekends and public holidays, in the form of both csv and xml files.

General Methodology

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1. Unit of measure

All data is expressed in both megawatt hour (MWh) and million standard cubic metres (mcm) at 15°C and at an absolute pressure of 101.325 kPa (kiloPascal).

LNG data is also expressed in both cubic metres of LNG (cmLNG) and (tonnes of LNG (LNG).

Conversions between values in energy and volumes are made through punctual hourly/daily/monthly gross calorific values where available from infrastructure operators. Reference gross calorific values are used in all other cases.

Data published is differentiated by gas quality in H gas, high calorific gas, and L gas, low calorific gas.

2. Gas day

Data fed into the FTP is collected and aggregated according to the specific country's gas day but expressed in current British time (GMT/BST, referenced to UTC).

The gas day, in local time, for all European countries covered is as follows:

1. Austria: 6:00:00-5:59:59 CET/CEST
2. Belgium: 6:00:00-5:59:59 CET/CEST
3. Bulgaria: 6:00:00-5:59:59 EET/EEST
4. Czech Republic: 6:00:00-5:59:59 CET/CEST
5. Denmark: 6:00:00-5:59:59 CET/CEST
6. France: 6:00:00-5:59:59 CET/CEST
7. Germany: 6:00:00-5:59:59 CET/CEST
8. Great Britain: 6:00:00-5:59:59 GMT/BST
9. Greece: 8:00:00-7:59:59 EET/EEST
10. Hungary: 6:00:00-5:59:59 CET/CEST
11. Italy: 6:00:00-5:59:59 CET/CEST
12. The Netherlands: 6:00:00-5:59:59 CET/CEST
13. Poland: 6:00:00-5:59:59 CET/CEST from 01/07/12, 22:00:00pm-21:59:59pm CET/CEST up to 30/06/12
14. Portugal: 0:00:00- 23:59:59 WET/WEST
15. Romania: 6:00:00-5:59:59 EET/EEST
16. Slovakia: 8:00:00-7:59:59 CET/CEST

17. Slovenia: 8:00:00-7:59:59 CET/CEST
18. Spain: 0:00:00- 23:59:59 CET/CEST
19. Norway: does not have a gas day. In this report, data follows the British gas day.

Daily gas flow data calculated when just hourly data is published by the System Operators (SOs) is affected by daylight saving changes (i.e. start and end of daylight saving period). In these instances, the daily values will be calculated aggregating the 23 values published by the system operator (SO) when the daylight saving starts and using 25 values when the daylight saving ends (following the usual TSOs' practise).

3. Data sources

Gas flow data is derived from the ICIS proprietary Energy Data Warehouse. The primary sources of raw data are the European infrastructure operator websites.

ICIS does not estimate any value if missing. All values published are actual values, SO forecasts or TSO estimated values. However, some indicators for storage and LNG data are calculated by ICIS if not available on the SO' websites (see the following paragraph).

4. Gas fundamentals categories:

4.1. Physical gas flow

Values are displayed by gas day until the end of gas day prior to the gas day of publication. For the publication's gas day, according to the data availability, either daily values updated hourly or intra-day (hourly) values updated hourly during the gas day of publication will be published.

Data is disaggregated by cross-border and market interconnection area point where available. Data is differentiated by market area where applicable.

Denmark/the Netherlands

Exports from Denmark to the Netherlands through the undersea NOGAT pipeline have been assumed as being always equal to 15% of the gas flowing at Nybro in Denmark. This percentage has been calculated comparing yearly figures (for the last 5 years) on gas production and exports to

the Netherlands published by the Danish Energy Agency.

Great Britain

St Fergus Shell and St Fergus Total are both capable of receiving gas that is either produced domestically offshore, or imported from Norway. On a daily basis ICIS compares the data produced by National Grid and by Gassco to establish how much gas is domestic UK production and how much is imported.

For St Fergus Total, Vesterled flows as published by Gassco are subtracted from the overall St Fergus Total entry volume, as published by National Grid. All Vesterled gas is assumed to be Norwegian imports. The remainder, which is gas transported via Frigg, is assumed to be domestic British production.

At St Fergus Shell, Norwegian gas is assumed to be all volume that passes through the Tampen Link into FLAGS as measured by Gassco at its Entry SEGAL point. This figure – allowing for an approximate 10-hour time-lag and losses – is subtracted from National Grid's recorded volume at St Fergus Shell. This remaining volume is assumed to be British production.

ICIS is aware that gas produced at the Statfjord field which flows through the Tampen Link includes 14.53% of British production, as the field is proportionally shared between Great Britain and Norway. It is not possible, however, to separate the ownership of the gas in the daily flows.

Italy

Figures for physical gas flows expressed in mcm are assuming the same underlying gross calorific value used by the Italian TSO Snam Rete Gas, 38.1MJ/Sm³.

The Netherlands

Figures for physical gas flows expressed in mcm are assuming the same underlying gross calorific value used by the Dutch TSO Gasunie Transport Services, 9.77kWh/m³(n).

Norway

Instantaneous flows are collected every 15 minutes by ICIS and the daily values are calculated averaging the 96 values collected for each gas day.

4.2 Nominations/Renominations

Values are displayed by gas day until the gas day prior to the gas day of publication. For the publication's gas day and future gas days, according to the data availability either daily values updated hourly or intra-day (hourly) values updated hourly during the gas day of publication will be published.

Data is disaggregated by cross-border and market interconnection area point. Data is differentiated by market area where applicable.

Nominations, Day-ahead nominations and renominations are published as different categories if published under those indicators in the TSOs' websites or if possible to distinguish between according to the TSOs' websites notes.

Netherlands

Nominated backhaul quantities are considered as counter-nomination and net against forward nominations.

4.3 Storage data

Values are displayed by gas day until the gas day prior to the gas day of publication. Data is disaggregated by storage facility level where possible and differentiated by market area where applicable.

If information is available, data is displayed for the country which makes use of the storage facility independently from the storage facility's location.

The indicator Capacity Total represents the maximum technical capacity of a certain storage facility including, if applicable, reserves for strategic purposes.

The indicator Capacity Available represents the maximum technical capacity of a certain storage facility excluding, if applicable, reserves for strategic purposes.

The indicator Inventory Total represents the storage level of a certain storage facility at the end of the gas day, including, if applicable, also strategic gas.

The indicator Inventory Available represents the storage level of a certain storage facility at the end of the gas day, excluding, if applicable, strategic gas. Where strategic gas reserves are available and just the Inventory Total is published by the sourced website, ICIS calculates the Inventory Available.

This is the case for the Hungarian's Storage System Operator

MMBF, Poland, Portugal and Spain. Where strategic reserves are available and used, the indicator Inventory Available will be shown as equal to 0. Negatives will be published just if the SSOs will publish a negative inventory level.

The indicator Full represents the percentage of fullness of a certain storage facility in a certain gas day and is calculated by ICIS. Where strategic reserves are available and used, the indicator Full relative to Inventory Available will be shown as equal to 0.

The indicator Country Percentage represents the capacity of the facility with respect to the total country's capacity and is calculated by ICIS.

Germany

The storage facility of Berlin operated by Berliner Gaswerke, is assumed to be equally accessible via both NCG and Gaspool market areas but with the possibility to inject into storage just from the Gaspool market area.

The storage facility of Etzel ESE, operated by EON Gas Storage, is assumed to be accessible via the NCG's market area by 34% of its capacity, via Gaspool market areas by 33% and by 33% via the Gasunie Transport Services grid in the Netherlands.

4.4 LNG data

Values are displayed by gas day until the gas day prior to the gas day of publication. Data is disaggregated by LNG plant level and differentiated by market area where applicable.

The indicator Unloaded-inflow could represents either Unloaded LNG from vessels or gas sent back to the LNG plant from the grid or both, depending on the country. ICIS calculates this for: Belgium, France, Greece, the Netherlands, and Portugal.

The indicator Reloaded represents the total amount of gas reloaded from the facility into the cargoes throughout the day, where applicable. It is calculated by ICIS for: Belgium, France, Portugal, and Great Britain. It is not applicable for Greece, Italy, and the Netherlands.

The indicator Full represents the fullness of a certain LNG plant in a certain gas day and is calculated by ICIS.

The indicator Country Percentage represents the capacity of the LNG facility with respect to the total country's capacity and is calculated by ICIS.

4.5 Demand data

With demand we refer to domestic demand, excluding demand for storage injections.

Values are displayed by gas day until the gas day prior to the gas day of publication. For the publication's gas day, according to the data availability either daily values updated hourly or intra-day (hourly) values updated hourly during the gas day of publication will be published. If actual flows for demand are not available, TSOs' forecast values or nominations will be published.

Data is presented aggregated at TSO or country level and, if available, is also disaggregated by sector. Data is differentiated by market area where applicable.

Losses, line pack changes, fuel consumption and unaccounted gas are not considered.

Great Britain

Daily data for domestic demand are disaggregated by sector until the gas day prior to publication.

Aggregated daily data referring to the gas day of publication and forecast values represent the total British demand (including demand for storage and demand from abroad).

4.6 Production data

Values are displayed by gas day until the gas day prior to the gas day of publication. For the publication's gas day, according to the data availability either daily values updated hourly or intra-day (hourly) values updated hourly during the gas day of publication will be published. If actual flows for production are not available, TSOs' forecast values or nominations will be published.

Data is presented aggregated at TSO or country level and, if available, is also disaggregated at production point level. Data is differentiated by market area where applicable.

Losses, line pack changes, fuel consumption and unaccounted gas are not considered.

5. ICIS policy on new data

ICIS reserves the right to add new sources of data for existing or new countries when they become available at any

point. Data is expected to be then available on the FTP after a reasonable number of days necessary for the technological set-ups to be modified.

6. Frequency of data updates for historical data

For questions about frequency of data refreshes, please contact ICIS at energyinfo@icis.com.

7. Data characteristics

Data is published in absolute value, with the exception of net values: net actual physical flows is positive if a certain interconnection point's/country's pipeline imports are higher than its pipeline exports; net storage is positive if a certain storage facility's/aggregated country's storage facilities' withdrawals are higher than injections into storage. Other exceptions are detailed in the storage data paragraph.

The state of the file published could be:

- Missing – if all daily/hourly indicators included in the file are not available at the time of data harvesting.
- Provisional – if there is data in the file published but it might be subject to review/reconciliation.
- Definitive – if the data has been officially finalised (e.g. after reconciliation) by the SO

There is a version attribute for each file. The value of the version attribute starts from 1 in each gas day and gets increased every time the data is updated. The version number is not increased when the same entity (i.e. data for a given gas day) is scraped multiple times but the data does not change. The version number increases when the state changes.

For specifics about csv and xml files' data fields, please see the EGF's xml schemas.

8. Data availability by gas data type: see reference document