

# COUNTRY PRACTICE IN ENERGY STATISTICS

**Topic/Statistics:** **Petroleum & Natural Gas  
Statistics**

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## Abstract

Write a short abstract of the statistics, and try to limit it to one page. The purpose of the abstract is to give the reader a general overview of the statistics/topic. It should therefore include a brief overview of the background and the purpose of the statistics, the population, the sample (if relevant), the main data sources, and the main users of the statistics. The abstract should also mention what is the most important contribution or issue addressed in the country practice (e.g. the practice deals with challenges of using administrative data, using of estimation, quality control, etc.). If there are other elements that are considered important, please feel free to include them in the abstract.

Keep in mind that all relevant aspects of the statistical production will be covered in more detail under the different chapters in the template. Therefore, the abstract should be short and focused on the key elements. What the most important elements are can vary from statistics to statistics, but as a help to write an abstract you can use the table below. The table can either replace a text or can be filled out in addition to writing a short text.

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| Key elements                                     |  |
|--|--|
| <b>Name of the statistics</b>                    | Indian Petroleum & Natural Gas Statistics  |
| <b>Background and purpose of the statistics</b>  | To monitor production performance of Indian Oil Industries.  |
| <b>Population, sample and data sources</b>       | All Public Sector/Private/Joint Venture Oil Companies  |
| <b>Main users</b>                                | The user of petroleum and natural gas statistics are; Government Departments including, Ministry of Commerce & Industry, Ministry of Statistics & Programme Implementation, Ministry of Finance, Ministry of Power, Ministry of Railway, Planning Commission, Ministry of Fertilizers & Chemicals, R.B.I., DGCI&S, Kolkata, United Nations Statistics Division (UNSD), New York, Oil Industries, Research Institutions, etc. |
| <b>Important contribution or issue addressed</b> | Petroleum & Natural Gas Statistics are used for calculation of weekly/monthly/annual <u>inflation</u> . The weight of Fuel, power, light and lubricants etc. in terms of movement in the WPI. Production of oil and gas production also used in impact on country's trade balance and GDP of the country.  |
| <b>Other remarks</b>                             | Nil  |

# 1. General information

## 1.1. Name of the statistics/topic

The statistics/topic could either be a specific energy statistics (e.g. electricity production) or a topic within energy statistics (e.g. energy balances). For more information, please see Section III of the Instructions.

1. Monthly reports on production performance of crude oil, natural gas and petroleum products, imports of crude oil, LNG, petroleum products & exports petroleum products.
2. Indian Petroleum & Natural Gas Statistics
3. Basic Statistics on Petroleum & Natural Gas

## 1.2. History and purpose

State when the statistics were first published.

Indian Petroleum & Natural Gas Statistics since 1967 and Basic Statistics on Petroleum & Natural Gas since 1996

Describe briefly the main purpose of producing the statistics and why it is relevant.

Petroleum & Natural Gas Statistics are used for calculation of weekly/monthly/annual inflation. The weight of Fuel, power, light and lubricants etc. in terms of movement in the WPI. The production performance of petroleum products is also used for performance in Indian industrial growth, infrastructure growth etc. The import of crude oil and petroleum products and exports of petroleum products have an effect on country's imports bills and also Indian economy.

## 1.3. Reference period

State the time period the data are collected for.

Monthly Quarterly & Yearly basis

## 1.4. Frequency

Specify how often the statistics are disseminated (e.g. annually, monthly, quarterly, etc.). If the statistics are not produced at regular intervals, state at what times they have been produced in the past and the main reasons behind the irregularities.

Monthly, Quarterly and Yearly

## 1.5. Dissemination

Describe how the statistics are published (e.g. printed publications, online publications, online databases, etc.). If applicable, include the web address to the main website of the statistics.

[www.petroleum.nic.in](http://www.petroleum.nic.in) and printed publication on Indian Petroleum & Natural Gas Statistics and Basic Statistics on Indian Petroleum & Natural Gas

## 1.6. Regional level

State the lowest geographical level (e.g. administrative regions, municipalities, etc.) for which the statistics are made available to the public.

### 1.7. Main users

Identify the key users of the data and the main applications. Include both internal and external users, and if possible try to distinguish between end users and others.

The user of petroleum and natural gas statistics are; Government Departments including, Ministry of Commerce & Industry, Ministry of Statistics & Programme Implementation, Ministry of Finance, Ministry of Power, Ministry of Railway, Planning Commission, Ministry of Fertilizers & Chemicals, R.B.I., DGCIS&S, Kolkata, United Nations Statistics Division (UNSD), New York, Oil Industries, Research Institutions, etc.

### 1.8. Responsible authority

Write the name of the institution and department/office with the main responsibility for disseminating the statistics (e.g.: Statistics Norway, Department of Economics, Energy and the Environment).

Economic & Statistics Division, Ministry of Petroleum & Natural Gas, Government of India

### 1.9. Legal basis and legally binding commitments

State the national legal basis for the data collection. Include a complete reference to the constitutional basis, and web address to an electronic version (e.g.: The Statistics Act of 16 June 1989 No. 54, §§2-2 and 2-3, [http://www.ssb.no/english/about\\_ssb/statlaw/forskrift\\_en.html](http://www.ssb.no/english/about_ssb/statlaw/forskrift_en.html)).

#### **Provisions under which statutory returns are collected for the petroleum sector:**

##### **(i) For returns on crude oil and natural gas**

##### **A. Principal Legislation:**

THE OILFIELDS (REGULATION AND DEVELOPMENT) ACT, 1948  
(53 of 1948) (8TH SEPTEMBER, 1948)

xxxxxxx

5. Power to make rules as respects mining leases.

xxxxxxx

6. Power to make rules as respects development of mineral oil.

xxxxxxxxx

##### **B. Subordinate Legislation:**

THE PETROLEUM AND NATURAL GAS RULES, 1959  
(As amended from time to time)

G.S.R. 1288. In exercise of the powers conferred by sections 5 and 6 of the Oilfields (Regulation and Development ) Act, 1948 (53 of 1948) and in supersession of the Petroleum Concession Rules, 1949, the Central Government hereby makes the following rules, regulating the grant of exploration licenses and mining leases in respect of petroleum

and natural gas which belongs to Government, and for conservation and development thereof, namely:-

THE PETROLEUM AND NATURAL GAS RULES, 1959

XXXXXXXXXX

14. Royalty on petroleum and furnishing of returns and particulars:

XXXXXXXXXX

(2) The lessee shall, within the first seven days of every month or within such further time as the Central Government or the State Government, as the case may be, may allow, furnish or cause to be furnished to the Central Government or the State Government as the case may be a full and proper return showing the quantity of all crude oil, casing head condensate and natural gas obtained during the preceding month from mining operations conducted pursuant to the lease. The monthly return required to be furnished shall be, as nearly as may be, in the form specified in the schedule annexed to these rules.

**(i) For returns on refinery output (petrol, diesel etc)**

**A. Principal Legislation:**

THE INDUSTRIES (DEVELOPMENT AND REGULATION) ACT, 1951, (ACT NO. 65 OF 1951)

30. Power to make rules: 1) The Central Government may, subject to the condition of previous publication, make rules for carrying out the purposes of this Act.

(2) In particular, and without prejudice to the generality of the foregoing power, such rules may provide for all or any of the following matters, namely:-

XXXXXXXXXX

(g) the collection of any information or statistics in respect of any scheduled industry;

XXXXXXXXXX

First Schedule

XXXXXXXXXX

2. FUELS :

XXXXXXXXXX

(2) Mineral oil (crude oil), motor and aviation spirit, diesel oil, kerosene oil, fuel oil, diverse hydrocarbon oils and their blends including synthetic fuels, lubricating oils and the like.

(3) Fuel gases-(coal gas, natural gas and the like).

**B. Subordinate Legislation:**

Scheduled Industries (Submission of Production Returns) Rules, 1979.

However, collection of data is also governed by the Gazette of India (Extraordinary) Part II-Section 3-Sub Section (i) order No.G.S.R.272(E) dated 16.04.1999 wherein clause 8

states that “Every oil refining company shall furnish to the Central Government or an agency nominated by Central Government any and every information that may be asked for in regard to the procurement, stocking, movements (onshore or offshore), transfers, imports, exports and sales of crude oil and or all products at such period, in such manner and from such of the sources, as may be specified from time to time, in addition to information relating to the matters as specified in above mentioned clause of GSR272(E) dated 16.04.1999 and within the time mentioned against each in respect of such petroleum products or products as may be specified by the Central Government”.

If the data collection is not based on a legal basis, give a short description of other agreements or volunteer arrangements.

Not Applicable (N.A.)

If applicable, give reference to national and international commitments that are legally binding (e.g. EU statistical legal acts).

N.A.

### 1.10. Resource requirements

Specify how the production of the statistics is financed (e.g. over the ordinary budget, project based support, financial support from other institutions or organization). If applicable, state the contracting entity (e.g.: Ministry, EU Commission, OECD). A contracting entity is any entity which is ordering a survey or the compilation of a statistics, and paying for it

The no specific budget is provided.

Specify the resource requirements for producing the statistics (e.g. man-labour days, number of workers involved in the statistical production process of the statistics/topic in question).

Not Required.

### 1.11. International reporting

List any international organizations and names of reporting schemes that the statistics are reported to. If available, also include the website where the reported data are published (e.g. International Energy Agency, Monthly Oil Statistics, UNSD, etc.).

JODI on monthly basis, I E A & UNSD

## 2. Statistical concepts, methodology, variables and classifications

### 2.1. Scope

Describe the scope of the statistics (e.g. the statistics cover supply and use of all energy products in Norway, classified according to International Standard Industrial Classification of All Economic Activities – ISIC).

## 2.2. Definitions of main concepts and variables

Describe the main concepts (e.g.: territory principle, resident principle, net calorific value, gross calorific value).

Describe the main variables (e.g. how are the different energy products defined in the statistics? How are production, intermediate consumption, final consumption, transformation, feed stock, the energy sector, etc. defined?).

## 2.3. Measurement units

Describe in what unit the data is collected (e.g. physical unit (m<sup>3</sup>, metric tons), monetary unit (basic prices, market prices)). Describe in what unit the data is presented. Describe if the calorific values are collected (e.g. on a net vs. gross basis) and how they are used.

If applicable, describe the density of the energy product(s) and the estimated *thermal efficiency coefficients* of different energy products and consumer groups or by appliance. Thermal efficiency coefficient indicates the share of the energy products which is actually usable for end consumption. Descriptions of density and thermal efficiency coefficient could alternatively be put in an annex.

Metric tone, cubic meter etc. for production, import & export and consumption, monetary unit (basic prices, market prices)

## 2.4. Classification scheme

Include references to relevant international and national standard classifications. If national, give a brief description of the standards. If available, include web addresses to the electronic version of the standards).

## 2.5. Data sources

Give an overview of the different data sources used in the collection and compilation of the statistics/topic (e.g. household survey, enterprise/establishment survey, administrative data/registers, foreign trade statistics, production statistics and other primary/secondary data sources).

Examples of administrative sources/registers are: business register for enterprises and establishments, population register, land register, housing and building registers, tax registers, international trade registers, etc.

The data related to petroleum & natural gas sector are production of crude oil, natural gas, all petroleum products, imports of LNG, crude oil and petroleum products, exports of petroleum products, consumption of petroleum products and refinery intake from all concerned Oil Companies, Indian Refineries, Director General of Hydrocarbons (DGH), Petroleum Planning & Analysis Cell (PPAC), DGCI&S, Kolkata

## 2.6. Population

Describe the entire group of units which is the focus of the statistics (the population).

All Public Sector Oil and Private/Joint Venture Companies



Specify the following statistical units:

- Reporting unit
- Observational unit
- Analytical unit

Examples of different kind of statistical units include: enterprise, enterprise group, kind-of-activity unit (KAU), local unit, establishment, homogeneous unit of production.

In most cases the reporting unit, observational unit and analytical unit are identical, but there are examples where this is not the case. In electricity statistics, you may find that energy companies (the reporting unit) provide data about different consumers like the individual household or manufacturing company (the observational unit). The analytical unit may be a group of energy consumers, defined by the ISIC.

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## 2.7. Sampling frame and sample characteristics

Describe the type of *sampling frame* used in the collection and compilation of the statistics (e.g. list, area or multiple frames). A sampling frame is the source material or device from which a sample is drawn. Note that the sampling frame might differ from the population.

|                |
|----------------|
| Not Applicable |
|----------------|

For each survey(s) used for the compilation of the statistics, specify the *sampling design* (e.g. random, stratified, etc.). Describe the routines employed for updating the sample. Include information about the sample size, and discuss to what extent the sample covers the population (e.g. energy consumption in the sample compared to total energy use by the population).

Note that chapter 2.7: *Sample frame and sample characteristics* may overlap with chapter 3.4: *Grossing up procedures*.

|     |
|-----|
| N A |
|-----|

## 2.8. Collection method

For each survey used for the compilation of the statistics/topic, describe how the data are collected (e.g. face-to-face, telephone, self-administered, paper and internet-based questionnaires, or administrative data and registers).

|                                |
|--------------------------------|
| Electronically, FAX, post etc. |
|--------------------------------|

## 2.9. Survey participation/response rate

For each survey used for the compilation of the statistics/topic, specify the average response rate, or refer to response rates for specific surveys conducted.

|                |
|----------------|
| Not Applicable |
|----------------|

### 3. The statistical production process

#### 3.1. Data capture and storage

Describe how the data is captured and stored (e.g. if the respondent replies using Internet-based questionnaire, the received data are electronically transferred to the production database. Paper questionnaire responses are keyed manually to the production database).

Paper questionnaire responses are keyed manually

#### 3.2. Data editing

Describe the regular routines employed for detecting and correcting errors. This may include:

- Manual routines for detecting and correcting errors
- Automatic error-detection (and correction)
- Micro- and macro editing procedures
- Data validation procedures
- Outlier identification
- Processes and sources used for quality controls

Data received from Oil Companies cross checked from other source of data and validated manually

#### 3.3. Imputation

Describe the principles for imputation and the assumptions that these principles are based on. Note that this chapter may overlap with chapter 3.2: *Data editing* and chapter 5.2: *Accuracy*

#### 3.4. Grossing up procedures

Describe how the population is divided into strata and what statistical models the estimations in the strata are based on. Describe how sub-indices are combined into aggregate indices and how uncertainty is estimated.

#### 3.5. Analytical methods

Give a description of any analytical methods used to adjust the data (e.g.: seasonal adjustment and temperature adjustment). A more detailed description of the analytical method can also be included as an annex.

## 4. Dissemination

### 4.1. Publications and additional documentation

Describe the form of dissemination of the statistics/topics in question (e.g. printed publications, website, etc.). Please provide relevant website link(s) if available.

www.petroleum.nic.in and printed publication on Indian Petroleum & Natural Gas Statistics and Basic Statistics on Indian Petroleum & Natural Gas

Give a complete reference to publicly available statistics databases where data from the statistics can be extracted. Include web addresses if available online.

Indicate whether you charge users for access to the statistics at any level of aggregation.

Yes, on printed publication only

### 4.2. Revisions

Describe the current revision policies. E.g.: Is historical data revised when new methodology, new definitions, new classifications etc. are taken into use? Is the data continuously revised, or is the data revised at certain points in times (e.g. every third year, annually, etc.)?

In case there is any revision of previous data the same updated

If applicable, describe any major conceptual or methodological revisions that have been carried out for this statistic/topic in the past.

### 4.3. Microdata

Describe how microdata are stored.

Stored on computer as well as backup on pen drive

Specify if microdata are available for scientific and/or public use. If so, describe under what conditions these are made available.

Available on Ministry's website

### 4.4. Confidentiality

Describe the legal authority that regulates confidentiality, and what restrictions are applied to the publication of the statistics.

Not Applicable (NA)

Describe the criteria used to suppress sensitive data in statistical tables (cell suppression).

N A

Describe how confidential data are handled.

N A

Describe any confidentiality standards that go beyond what is legally required.

N A

## 5. Quality

### 5.1. Relevance

State to which degree the statistical information meet the real needs of clients/users.

90-95%

### 5.2. Accuracy

State the closeness of computations or estimates to the exact or true values that the statistics were intended to measure.

90-95%

#### Measurement and processing errors

Discuss the measurement and processing errors that are relevant for the statistics. Try as far as possible to give an estimation of the size and scope of the errors.

#### Non-response errors

State the size of the unit non-response and the item non-response, distributed by important variables in the population (e.g. region, industry). Consider if the non-response errors are systematic, and if so, describe the methods used to correct it. Indicate whether the effects of correcting non-response errors on the results have been analysed, and, if so, describe them.

#### Sampling errors

Discuss the size of the sampling errors. Compare the population and sample with regards to important properties (e.g. coefficient of variance).

#### Other sources of error

Discuss other sources of errors that might be relevant for the statistics. E.g.: Model assumption errors, coverage errors

### 5.3. Timeliness and punctuality

Specify the time between the end of the reference period and publication.

If the statistics are published both as preliminary and final figures, specify the time between publication of preliminary and final figures. You should also point out whether the publication date is set according to certain rules (e.g. advance release calendar, a specific day or prior to other publications).

Six month between two publications

Point out if there have been any major discrepancies between the planned publication date and the actual publication date in recent years. If so, state the length of this discrepancy and its cause.

It is planned to publish Basic Statistics on Petroleum & Natural Gas Statistics in July-August and Indian Petroleum & Natural Gas Statistics in January-February. However, it depends on timely availability of data.

#### 5.4. Accessibility

Describe how easily accessible the statistics are. In particular, is there an advance release calendar to inform the users about when and where the data will be available and how to access them?

Are metadata and other user support services easily available? Are there particular groups that don't have access to the published statistics (e.g.: visually disadvantaged)?

No

#### 5.5. Comparability

Discuss the comparability of the statistics over time, geographical areas and other domains.

##### Comparability over time

Discuss comparability over time and include information about whether there have been any breaks in the time series of the statistics and why. Also describe any major changes in the statistical methodology that may have had an impact on comparability over time.

No major change in methodology

##### Comparability over region

Discuss comparability over geographical areas, and include information about whether the statistics are comparable to relevant statistics published by other countries and/or international organisations.

Yes

##### Comparability over other domains

Discuss comparability over domains, and include information about whether the statistics are comparable between different industries, different types of households etc.

Yes, data is comparable across companies in sector

#### 5.6. Coherence and consistency

Discuss the coherence/consistency between preliminary and final figures.

Discuss the coherence/consistency between monthly, quarterly or yearly statistics within the same subject area. Can the results of different frequencies for the same reference period be combined in a reliable manner?

Some data is provisional and subject to modification once firm data made available.

Discuss the coherence/consistency with other related statistics (also those produced by other institutions/organisations on the same subject).

## **6. Future plans**

Are there any current or emerging issues that will need to be addressed in the future? These could include gaps in collection, timeliness issues, data quality concerns, funding risks, confidentiality concerns, simplifications to reduce respondents' burden etc.?

## Annexes

### Illustrations and flowcharts

Illustrations and flowcharts are useful to summarize information and to get a better overview of the statistical production process. Illustrations and flowcharts can either be placed in annexes or be included under relevant paragraphs in the template.

E.g.:

- A conceptual flowchart which illustrates the flow of data in the production of the statistics.
- A flowchart which illustrates the main tasks in the production process and the dependency between them.

### Time schedule

Include a time schedule for the different phases of the statistical production process. The statistical production process *may* be divided into the following phases. Phase 1-3 may only be relevant for when a new statistics/survey is set up.

1. **Clarify needs** (e.g. map users needs, identify data sources)
2. **Plan and design** (e.g. plan and design population, sample size, how to analyze and edit data)
3. **Build** (e.g. build and maintain production system, test production system)
4. **Collect** (e.g. Establish a frame, draw the sample, collect data)
5. **Edit** (e.g. identify and code micro data, edit data, imputation)
6. **Analyse** (e.g. quality evaluation, interpret, analyse)
7. **Disseminate** (e.g. publish data, user contact)

### Questionnaires

Include the complete questionnaire(s)/survey form(s) used

### Example of publication tables

Include an example of a typical table published for the statistics. Include web addresses if available online.

### Detailed description on analytical methods

If relevant, a detailed description of analytical methods used in the statistical production (like seasonal adjustment, temperature adjustment etc.) may be described in an annex. A short description can also be included in chapter 3.5: Analytical methods or under other suitable chapters.