Climate project methodology № 0014

# RECOVERY AND UTILIZATION OF GAS FROM OIL FIELDS THAT WOULD OTHERWISE BE FLARED OR VENTED

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## I. TERMS AND DEFINITIONS

For the purpose of this methodology, the following definitions apply:

**Associated gas** means natural gas found in association with the oil, either dissolved in the oil or as a cap of free gas above the oil.

**Compressed natural gas (CNG)** means natural gas treated and compressed to the working pressure of storage and consumption (initial pressure of at least 20 MPa) in order to significantly reduce its volume, used as a gas motor fuel.

**Crediting period** means the period in which verified and certified GHG emission reductions or increases in net anthropogenic GHG removals by sinks attributable to a climate project activity, as applicable, can result in the issuance of carbon units. The time period that applies to a crediting period for a climate project activity, and whether the crediting period is renewable or fixed, is determined in accordance with Section 4 *Project crediting period* of this methodology.

**Field** means an oil, oil and gas or oil and gas condensate field.

**Field pipeline** means a pipeline designed for the transportation of gaseous products, laid between the sites of individual field facilities (including sites located in different fields), as well as to the main gas transportation facilities.

**Gas pipeline** means is a linear structure consisting of interconnected pipes designed for transportation of gas.

**Gas-lift** means an artificial lift method for oil wells exploitation in which gas is injected into the production tubing to reduce the hydrostatic pressure of the fluid column. The resulting reduction in bottomhole pressure allows the reservoir liquids to enter the wellbore at a higher flow rate.

**Gas-lift gas** means high-pressure gas used for gas-lift in the oil wells.

**Liquefied natural gas (LNG)** means natural gas liquefied after processing for storage or transportation purposes.

**Processing plant** means a facility designed to separate or process hydrocarbons through chemical, physical or physical-chemical procedures in order to produce marketable hydrocarbon and other (e.g. sulphur) products.

**Recovered gas** means the associated gas and/or gas-lift gas recovered from the oil wells.

## II. SCOPE AND APPLICABILITY

The methodology is applicable to project activities that recover and utilize the associated gas and/or gas-lift gas from fields that would have been either vented or flared in the absence of the project activity. The recovery may include the pre-treatment (compression and phase separation) in mobile or stationary equipment.

The methodology is applicable under the following conditions:

- Under the project activity the recovered gas is transported to a gas pipeline with or without prior processing. Prior processing may include field transportation to gas treatment facilities, where the extracted gas is brought to a quality that meets the requirements for the product to be transported through the main gas pipeline. Also, the recovered gas can be transported to a processing plant or liquefaction plant and then processed into hydrocarbon products (e.g., dry gas, liquefied natural gas).

  The dry natural gas is either:

  (i) transported to a gas pipeline directly; or

  (ii) compressed to CNG first, then transported by sea/road/rail and then, if necessary, decompressed again.
- All recovered gas comes from wells that are in operation and are producing oil at the time of the recovery of the associated gas and/or gas-lift gas.
- Partial amount of the associated gas and/or gas-lift gas can be used on-site to meet on-site energy demands, i.e. to run auxiliary equipment, prior to the implementation of the project activity and after the implementation of the project activity.

Finally, this methodology is only applicable if the application of the procedure to identify the baseline scenario and demonstrate additionality performed using Guidelines No. 1 “Demonstration of the additionality of the project activity” results in the venting and/or flaring of the associated gas and/or gas-lift gas at the oil production facility as the most plausible baseline scenario.

In case of changes in the GHG regulatory legal framework of the Russian Federation, this methodology is subject to revision in order to take into account the relevant changes.

**Project boundary**

The project boundary encompasses:

- The project field and wells where the associated gas and/or gas-lift gas is collected.
- The site where the associated gas and/or gas-lift gas would have been flared or vented in the absence of the project activity.

- The gas recovery, pre-treatment, field transportation infrastructure, including where applicable, compressors.
- The source of gas-lift gas.

The greenhouse gases included in or excluded from the project boundary are shown in Table 1.

**Table 1 – Emissions sources included in or excluded from the project boundary**

| Source | | Gas | Included | Justification/Explanation |
|---|---|---|---|---|
| **Baseline** | Combustion of fossil fuels at end-users that are produced from non-associated gas or other fossil sources | $CO_2$ | Yes | Main source of emissions in the baseline |
| | | $CH_4$ | No | Excluded for simplification. This is conservative |
| | | $N_2O$ | No | Excluded for simplification. This is conservative |
| **Project activity** | Energy use for the recovery, pre-treatment, transportation, and, if applicable, compression/decompression of the recovered gas | $CO_2$ | Yes | Main source of emissions in the project |
| | | $CH_4$ | No | Excluded for simplification. This emission source is assumed negligible |
| | | $N_2O$ | No | Excluded for simplification. This emission source is assumed negligible |

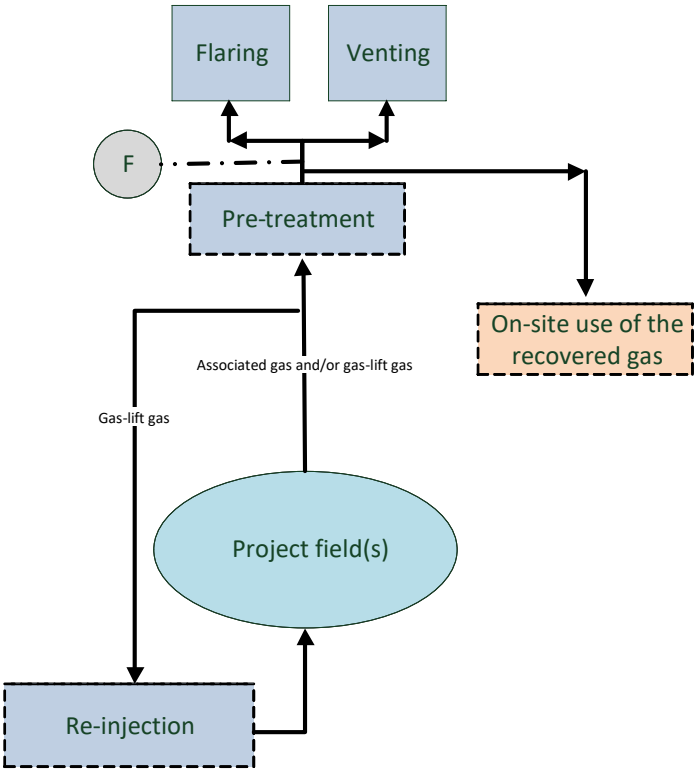


**Figure 1. Schematic illustration of the baseline activity**

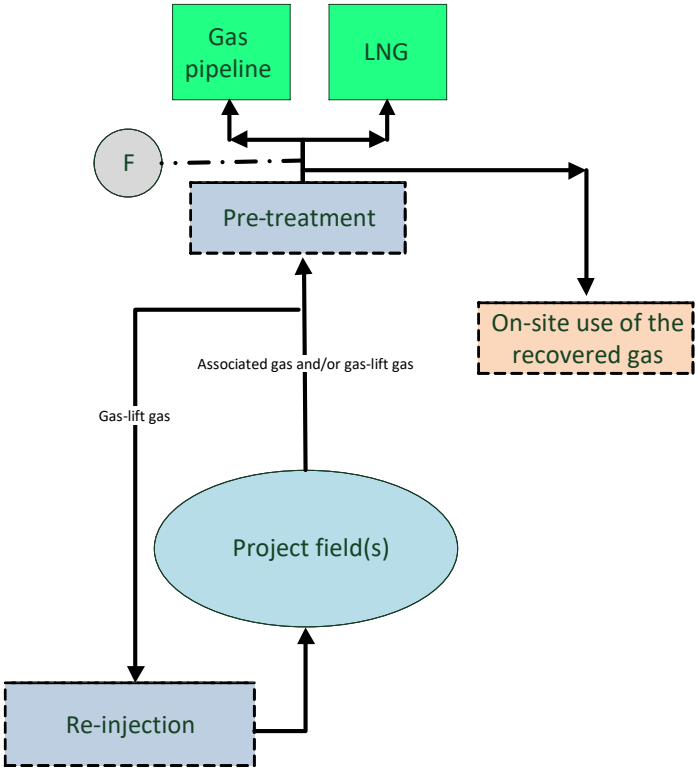


**Figure 2. Schematic illustration of the project activity**

Project scenario may include wells in the field that fall within the boundaries of the project and that are producing under a production sharing contract.

If the facilities within the project boundary as specified in this methodology are owned by different legal entities (or are under the operational management of different legal entities), then the project documentation should include a description of procedures for eliminating the possibility of double counting in GHG emission reductions potentially achieved as a result of project activities, enshrined in contractual agreements.

## III. BASELINE METHODOLOGY

The baseline[1] is set conservatively[2] for a business-as-usual activity, taking into account all existing policies and measures, but not considering additional project activities (Business-as-usual model).

The project developer may use one of the following approaches to determine the baseline with justification for the appropriateness of the choices[3]:

1) best available technologies that represent an economically feasible and environmentally sound course of action;

2) an ambitious benchmark approach where the baseline is set at least at the average emission level of the 20% best performing comparable activities providing similar outputs and services in a defined scope in similar social, economic, environmental and technological circumstances;

3) an approach based on existing actual or historical emissions, adjusted downwards by at least 5%, unless otherwise specified in the project methodology.

The approaches above provide a framework for general understanding of the ways in which baselines can be defined. A detailed approach to determining the baseline for this type of projects is provided in Section 3.

### Baseline emissions

The baseline shall be determined taking into account the projected level of production activities and information on actual greenhouse gas emissions and removals for a period of at least 3 (three) years prior to project implementation. If the field has been in operation for less than three years and, as a result, data on associated petroleum gas flaring or venting over the recent 3 years are not available, one of the alternative approaches described in Section III *Baseline methodology* should be used.

Project activities under this methodology reduce emissions utilizing the recovered gas. The utilization of the recovered gas displaces the use of other fossil fuel sources. For example:

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[1] Greenhouse gas baseline, GHG baseline - quantitative reference(s) of GHG emissions and/or GHG removals that would have occurred in the absence of a GHG project and provides the baseline scenario for comparison with project GHG emissions and/or GHG removals (ISO 14064-2:2019 Greenhouse gases - Part 2)

[2] Calculation of the baseline is considered conservative if the final estimate of emission reductions resulting from project activities will not be overestimated. If there is any doubt, the project developer should better understate the baseline projection.

[3] Approaches to determining baselines are given in Action taken by the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement at its third session (FCCC/PA/CMA/2021/10/Add.1, Article 6, paragraph 4, p. 34, para. 36). URL: https://unfccc.int/sites/default/files/resource/cma2021_10a01E.pdf.

- The use of recovered gas in a plant displaces the use of non-associated gas in that plant;
- The injection of the recovered gas into the pipeline instead of flaring or venting it to the atmosphere.

For the recovered gas that is used under the project activity (e.g. injected into the gas pipeline, compressed to CNG), the exact emission effects are difficult to determine and would require an analysis of the whole fuel supply chain up to the end-users for both the project activity and the baseline scenario.

This methodology provides a simplified and conservative approach, assuming that the use of recovered gas displaces the use of natural gas that, in the absence of project activities, would be burned at the end-user in stationary plants. Emissions from transporting gas through gas pipelines to end-users are neglected for both the project activity and the baseline scenario, as it is assumed that these emissions are similar in their magnitude and level out.

Baseline emissions are calculated taking into account the provisions of Part 1 of Annex 2 to the Methodology for Quantification of Greenhouse Gas Emissions, approved by Order No. 371 of the Ministry of Natural Resources and Environment of Russia dated 27 May 2022 (Methodology No. 371), as follows:

$$BE_y = FC_{F,y} \times EF_{CO2,Methane} \times OF_{F,y} \quad \textbf{(1)}$$

Where:

| | | |
|---|---|---|
| $BE_y$ | = | Baseline emissions in year *y*, t $CO_2e$ |
| $FC_{F,y}$ | = | Volume of total recovered gas in energy equivalent measured at point *F* in Figure 2 in year *y*, TJ |
| $EF_{CO2,Methane}$ | = | $CO_2$ emission factor for methane (t $CO_2$/TJ) |
| $OF_{F,y}$ | = | Fuel oxidation coefficient, fraction (for all gaseous and liquid fuels the default value is 1,0) |

Volume of total recovered gas in energy equivalent per year *y* is determined as follows:

$$FC_{F,y} = FC'_{F,y} \times NCV_y \times 10^{-3} \quad \textbf{(2)}$$

Where:

$FC_{F,y}$ = Volume of total recovered gas in energy equivalent measured at point *F* in Figure 2 in year *y*, TJ

$FC'_{F,y}$ = Volume of total recovered gas measured at point *F* in Figure 2 in year *y*, thousand $m^3$

$NCV_y$ = Average net calorific value of recovered gas at point *F* in Figure 2 in year *y* ($MJ/m^3$)

The value of the average net calorific value of the recovered gas is taken from the actual monitoring data, and in the absence or unrepresentativeness of such data, using the data presented in Table 1.1 of Annex 2 to Methodology No. 371.

The CO2 emission factor value for methane is determined based on the actual data on the chemical composition of gaseous fuel in accordance with the provisions of paragraph 1.6 of Annex 2 to Methodology No. 371, and in the absence of representative actual data on the chemical composition of gaseous fuel for the reporting period, the values of emission factors and carbon content for relevant fuels presented in Table 1.1 of Annex 2 to Methodology No. 371 are used.

## IV. PROJECT CREDITING PERIOD

The starting date of project activities is not regulated.

A crediting period for emission reduction projects is a maximum of 5 years with a maximum of two renewable periods of 5 years each, or a maximum of 10 years with no option of renewal.

The crediting period begins no earlier than 5 years prior to applying for validation for projects validated until 31 December 2025, and no earlier than 2 years prior to applying for validation for projects validated after 1 January 2026.

The additionality and baseline shall be evaluated at the beginning of the crediting period and confirmed or revised at the beginning of the next 5-year phase if the project is implemented in three 5-year phases.

## V. ADDITIONALITY

Additionality shall be demonstrated using Guidelines No. 1 Demonstration of the additionality of the project activity.

It is also necessary to take into account the following factors:

- In accordance with the requirements of Decree No. 1148 of the Government of the Russian Federation dated 08.11.2012 "On peculiarities of the calculation of payment for emissions of pollutants generated by flaring and (or) dispersion of associated petroleum gas" [13], the venting or flaring of associated gas should not exceed 5%. The exception is cases of

development of subsoil plots with the degree of depletion of oil reserves in the subsoil plot less than or equal to 0.01, as well as within 3 years from the moment the specified indicator is exceeded or until the degree of depletion of oil reserves in the subsoil plot is equal to 0.05, whichever occurs earlier. If before the project activity the associated gas flaring indicator was more than 5% of associated petroleum gas production, and after the implementation of the project activity it will be less than 5% of associated petroleum gas production, then in calculating the base emissions from flaring, that is $FC'_{F,y}$ according to Equation 2, the volume of flared associated gas must be taken as 5% of the volume of associated gas produced (according to the above decree).

- The volume of greenhouse gas emissions per ton of associated gas under the project scenario should be no less than a similar indicator of the top 20% of comparable activities implemented in accordance with the applicable best available technologies (Table 5.4 and Table 5.5 of the Best Available Technologies reference document 28-2021 *Oil Production*).

## VI. MONITORING PLAN REQUIREMENTS

All data collected as part of monitoring should be archived electronically and kept for at least two years after the end of the last crediting period. One hundred per cent of the data should be monitored if not indicated otherwise in the tables below. All measurements should be conducted with calibrated measurement equipment according to relevant industry standards.

**Table 2 – Data and parameters for monitoring the volume of extracted gas**

| | |
|---|---|
| Data / Parameter: | $FC'_{F,y}$ |
| Data unit: | thousand $m^3$ |
| Description: | Volume of total recovered gas measured at point *F* in Figure 2 in year *y* |
| Source of data: | Flow meter (e.g. diaphragm gouge) |
| Measurement procedures (if any): | Data should be measured using calibrated flow meters.<br>Measurements should be taken at the point(s) where the recovered gas exits the pre-treatment plant and after the point where the recovered gas is directed for on-site use |
| Monitoring frequency: | Continuously |
| QA/QC procedures: | Volume of gas should be completely metered with regular calibration of metering equipment. The measured volume should be converted to the volume at normal temperature and pressure using the temperature and pressure at the time of measurement |

**Table 3 – Data and parameters for monitoring the average net calorific value of recovered gas**

| | |
|---|---|
| Data / Parameter: | $NCV_y$ |
| Data unit: | $MJ/m^3$ |

| | |
|---|---|
| Description: | Average net calorific value of recovered gas at point *F* in Figure 2 in year *y* |
| Source of data: | On site measurement (Chemical analysis of gas samples taken at point *F* in Figure 2) |
| Measurement procedures (if any): | Sampling equipment and procedure, gas analyzer and analysis procedures must meet the requirements of the relevant reference standards, and if laboratory analysis is used, the laboratory must comply with national accreditation standards |
| Monitoring frequency: | Sampling and compositional analysis and calculation of net calorific value at least monthly |
| QA/QC procedures: | Calibration and maintenance of the gas analyzer must be performed in accordance with the manufacturer's requirements and the reference standard.<br>An internal calibration audit of the analyzer must be performed prior to each monitoring report |

## VII. PROJECT SCENARIO

The following sources of project emissions are accounted for in this methodology:

- $CO_2$ emissions due to consumption of fossil fuels for the recovery, pre-treatment, transportation, and, if applicable, compression of the recovered gas up to the point *F* in Figure 2.
- $CO_2$ emissions due to the use of electricity for the recovery, pre-treatment, transportation, and, if applicable, compression of the recovered gas up to the point *F* in Figure 2.
- Leakage from the recovery, pre-treatment, transportation, and, if applicable, compression of the recovered gas up to the point *F* in Figure 2 as a result of fossil fuel and electricity consumption.

Project emissions are calculated as follows:

$$PE_y = PE_{fossil\ fuel.,\ y} + PE_{energy.,\ y} + PE_{fugitive,\ y} \quad \textbf{(3)}$$

Where:

| | | |
|---|---|---|
| $PE_y$ | = | Project emissions in year *y* ($tCO_2$/year) |
| $PE_{fossil\ fuel.,\ y}$ | = | $CO_2$ emissions due to consumption of fossil fuels for the recovery, pre-treatment, transportation, and, if applicable, compression of the recovered gas up to the point *F* in Figure 2 in year *y* (t CO2e) |
| $PE_{energy.,\ y}$ | = | $CO_2$ emissions due to the use of electricity for recovery, pre-treatment, transportation and, if applicable, compression of the recovered gas up to the point *F* in Figure 2 in year *y*, (t CO2e) |
| $PE_{fugitive,\ y}$ | = | Leakage from the recovery, pre-treatment, transportation, and, if applicable, compression of the recovered gas up to the point *F* in Figure 2, (t CO2e) |

**Calculation of project CO2 emissions from fossil fuel combustion**

CO2 emissions from fossil fuel combustion in technological processes are calculated based on the quantity of fuels combusted and the CO2 emission coefficient of those fuels, as follows:

$$PE_{fossil\ fuel,y} = \sum_i FC_{i,j,y} \times COEF_{i,y} \quad \textbf{(4)}$$

Where:

| | | |
|---|---|---|
| $PE_{fossil\ fuel,y}$ | = | $CO_2$ emissions due to consumption of fossil fuels for the recovery, pre-treatment, transportation, and, if applicable, compression of the recovered gas up to the point *F* in Figure 2 in year *y* (t CO2e) |
| $FC_{i,j,y}$ | = | Quantity of fuel type *i* combusted in process *j* during the year *y* (mass or volume unit/yr) |
| $COEF_{i,y}$ | = | $CO_2$ emission coefficient of fuel type *i* in year *y* ($tCO_2$/mass or volume unit) |
| *i* | = | Fuel types combusted in process *j* during the year *y* |

The $CO_2$ emission coefficient $COEF_{i,y}$ can be calculated using one of the following two Options, depending on the availability of data on the fossil fuel type *i*, as follows:

***Option A***

The $CO_2$ emission coefficient $COEF_{i,y}$ is calculated based on the chemical composition of the fossil fuel type *i*, using the following approach:

If $FC_{i,j,y}$ is measured in a mass unit:

$$COEF_{i,y} = w_{C,i,y} \times 3{,}664 \quad \textbf{(5)}$$

If $FC_{i,j,y}$ is measured in a volume unit:

$$COEF_{i,y} = w_{C,i,y} \times \rho_{i,y} \times 3{,}664 \quad \textbf{(6)}$$

Where:

| | | |
|---|---|---|
| $COEF_{i,y}$ | = | $CO_2$ emission coefficient of fuel type *i* in year *y* ($tCO_2$/mass or volume unit) |
| $w_{C,i,y}$ | = | Weighted average mass fraction of carbon in fuel type *i* in year *y* (tC/mass unit of the fuel) |
| $\rho_{i,y}$ | = | Weighted average density of fuel type *i* in year *y* (mass unit/volume unit of the fuel) |
| $i$ | = | Fuel types combusted in process *j* during the year *y* |

***Option B***

The $CO_2$ emission coefficient $COEF_{i,y}$ is calculated based on net calorific value and $CO_2$ emission factor of the fuel type *i*, as follows:

$$COEF_{i,y} = NCV_{i,y} \times EF_{CO2,i,y} \quad \textbf{(7)}$$

Where:

| | | |
|---|---|---|
| $COEF_{i,y}$ | = | $CO_2$ emission coefficient of fuel type *i* in year *y* ($tCO_2$/mass or volume unit) |
| $NCV_{i,y}$ | = | Weighted average net calorific value of the fuel type *i* in year *y* (GJ/mass or volume unit) |
| $EF_{CO2,i,y}$ | = | Weighted average CO2 emission factor of fuel type *i* in year *y* (tCO2/GJ) |
| $i$ | = | Fuel types combusted in process *j* during the year *y* |

*Option A* should be the preferred approach, if the necessary data are available.

**Calculation project emissions from electricity consumption**

Emissions from electricity consumption include $CO_2$ emissions from the combustion of fossil fuels at any power plants at the site(s) of electricity consumption and, if applicable, at power plants connected physically to the electricity system (grid) from which electricity is consumed.

$$PE_{energy.,y} = EC_{j,y} \times EF_{j,y} \times \left(1 + TDL_{j,y}\right) \quad \textbf{(8)}$$

Where:

| | | |
|---|---|---|
| $PE_{energy.,y}$ | = | $CO_2$ emissions due to the use of electricity for recovery, pre-treatment, transportation and, if applicable, compression of the recovered gas up to the point *F* in Figure 2 in year *y*, (t $CO_2$e) |
| $EC_{j,y}$ | = | Quantity of electricity consumed by the project electricity consumption source *j* in year *y* (MWh/yr) |
| $EF_{j,y}$ | = | Emission factor for electricity generation for source *j* in year *y* (t $CO_2$/MWh) |
| $TDL_{j,y}$ | = | Average technical transmission and distribution losses for providing electricity to source *j* in year *y* |

***Recommended approach for calculation of grid emissions factor (emission factor for an electricity system)***

1. Currently, there are no legislatively approved grid emission factors for greenhouse gases (GHG) in the Russian Federation.

2. If the initial data required to calculate the grid emission factor for the baseline and project scenarios is available, the climate project developer has the right to calculate it independently. In this case, it is recommended to use the Guidelines for the quantitative calculation of the volume of indirect energy emissions of greenhouse gases (Order No. 330 of the Ministry of Natural Resources and Environment dated 29.06.2017 and the principles for calculating indirect energy emissions defined in GOST R ISO 14064-1-2021.

To determine the grid emission factor, a regional method for calculation of indirect energy emissions is used, which reflects the average intensity of greenhouse gas emissions at facilities generating electrical and thermal energy consumed by the organization (Order No. 330 of the Ministry of Natural Resources and Environment).

According to GOST R ISO 14064-1-2021 (Appendix E), emissions from imported electricity must be calculated by the project developer using a location-based approach[4] by applying an emission factor that best characterizes the relevant electric power system, i.e. leased

[4] The location-based approach is a method for quantifying indirect energy emissions based on average emission factors from energy production for a given geographic location, including local, regional or national boundaries

transmission line, local, regional or national grid average emission factor. The grid-averaged emission factors should refer to the emissions of the reporting year, if available, or otherwise the latest available year. Grid-averaged emission factors for imported electricity should be based on the average consumption pattern from the electric power system from which the electricity is consumed.

Grid emission factors may also include other indirect emissions associated with electricity generation, such as transmission and distribution losses.

The requirements and guidance described in ISO 14064-1-2021 for electricity also apply to consumed and transferred heat, steam, cooling air and compressed air.

In case of energy from cogeneration facilities, it is necessary to use approaches to separate various forms of energy[5].

Association "NP Market Council" and JSC "TSA" have developed a concept for calculating and publishing greenhouse gas emission factors for the energy system of the Russian Federation[6]. Based on the results of the peer review, independent international auditors issued an assurance certificate, and this concept received a validation report[7]. It is assumed that the implementation of this concept will lead to the more accurate calculation and publication of grid emission factors. The approaches outlined in the concept can also be used by the project developer to calculate the emission factor of the electric power system.

3. If it is impossible to calculate the grid emission factor on its own, the project developer can use grid emission factors from the following sources:

Source 1. In 2021, JSC "Trading System Administrator of Wholesale Electricity Market Transactions" launched (in test mode) an Internet resource that publishes the grid CO2 emission factor for the first synchronous zone of the Russian Federation for various time periods (hour, day, month, year)[8].

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[5] For example, calculation of specific fuel consumption in accordance with the "Methodological Guidelines for the Distribution of the Specific Consumption of Reference Fuel in the Production of Electric and Thermal Energy in the Cogeneration Mode Used for Tariff Regulation in the Field of Heat Supply", legislatively approved by Order No. 952 of the Ministry of Energy of the Russian Federation dated 12.09.2016

[6] The concept of calculation and publication of greenhouse gas emission factors for the energy system of the Russian Federation URL: https://www.np-sr.ru/sites/default/files/koncepciya_kev.pdf

[7] As part of the validation procedure, a detailed verification of the Concept was carried out for its compliance with the requirements of the international standards in the field of accounting and reporting on greenhouse gas emissions (TÜV AUSTRIA). Based on the results of the audit, the Concept was recognized by international experts as complying with high international standards and best international practices for calculating energy system emission factors. URL: https://www.np-sr.ru/sites/default/files/zaklyuchenie_o_validacii_koncepcii.pdf

[8] URL: https://www.atsenergo.ru/results/co2

Source 2. Emission factors of the International Energy Agency (IEA). The data is updated annually for the entire energy system of the regions of presence (including the Russian Federation) and reflects the average carbon intensity of electricity and heat generation[9].

Source 3. Climate Transparency Global Partnership develops G20 climate indicators. The agency publishes annual reports from the G20[10] countries, including the average energy emission factor.

4. Methods and approaches applied to the calculation of the grid emission factor should be documented and specified in the PDD. It is necessary to justify the chosen calculation methodology, disclose information about the source of the initial data used, transparently and accurately document your own procedure for calculating the grid emission factor, or describe the properties of the selected and applied grid emission factor.

***Recommended approach for calculation of indirect energy emissions factor for captive use and mini-grid***

1. Calculation of the indirect energy emissions factor for captive use and mini-grid electricity consumption is carried out using the market approach (Order No. 330 of the Ministry of Natural Resources of Russia dated 29.06.2017).

2. The market approach is used when the electricity consumed is received under bilateral contracts for the sale of electricity, signed in accordance with the rules of the wholesale electricity and capacity market and provisions on the operation of retail electricity markets[11]. Market factors of indirect energy emissions are indicated in sales contracts, in retail electricity markets contracts; or provided in certificates confirming the volume of electricity production at generating facilities produced from renewable energy sources, information about which is entered in the register[12]; or calculated based on the volumes of electricity received from specific external generating facilities in accordance with the terms of sales contracts, retail market contracts or certificates for the reporting period. Methodological guidelines for the calculation are set out in Order No. 330 of the Ministry of Natural Resources and Environment of Russia dated 29.06.2017.

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[9] URL: https://www.iea.org/data-and-statistics/data-product/emissions-factors-2021

[10] URL: https://www.climate-transparency.org/g20-climate-performance/g20report2022#1531904804037-423d5c88-a7a7

[11] Federal Law No. 35-FZ "On the Electric Power Industry" dated 26.03.2003 (as amended)

[12] Decree No. 117 of the Government of the Russian Federation "On some issues related to the certification of volumes of electrical energy produced at generating facilities operating on the use of renewable energy sources" dated 17.02.2014 (as amended)

3. If the supplier of electricity under sales contracts, retail market contracts or certificates has several generating facilities[13], the market factor is determined only for the generating facility (or generating facilities) from which electricity is supplied to the consumer.

4. If additional electrical energy is consumed under project activity, that was not declared by sales contracts, retail market contracts or certificates (undeclared balance of electricity, i.e. the amount of electricity consumed in excess of the established contract(s) and/or certificate(s)), then the volume of the undeclared balance of electrical energy is determined based on the information on electricity received from external generating facilities located in the regional energy system. Thus, indirect energy emissions from the consumption of electricity received under contracts and/or certificates are calculated based on the approach used for calculation of indirect energy emissions factor in case of direct energy supply (the market approach), and indirect emissions from the consumption of undeclared balance of electricity – using the approach for calculation of the grid emission factor.

5. In the Russian Federation, there are generating facilities that are not connected with the Unified Energy System of Russia (Technologically Isolated Territorial Electric Power System, TITEPS[14]). In such cases, calculation of indirect energy emissions should be based on the individual emission factors of all generating facilities included in the TITEPS mini-grid (Order No. 330 of the Ministry of Natural Resources and Environment of Russia dated 29.06.2017).

6. Market approach is not used to calculate indirect energy emissions from heat consumption. Thermal energy received from external generating facilities is evaluated using the location-based approach (Order No. 330 of the Ministry of Natural Resources and Environment of Russia dated 29.06.2017).

7. The project developer needs to ensure that the used approaches and data comply with the general requirements and guidance for the accounting of imported electricity consumed for the project activity set out in GOST R ISO 14064-1-2021 (Appendix E).

8. The project developer needs to specify input data and data sources in the PDD, as well as the applied calculation methodology and methods used for the separation of different forms of energy (for example, in case of cogeneration, where applicable), and transparently and accurately document the procedure for calculating indirect energy emission factor based on market approach.

[13] For example, hydropower stations or thermal power stations

[14] Technologically Isolated Territorial Electric Power System (TITEPS) is an electric power system located on the territory determined by the Government of the Russian Federation, which has no technological connection with the Unified Energy System of Russia (GOST R 57114-2016 Unified Energy System and Isolated Energy Systems. Electric Power Systems. Operational and Dispatching Management in the Electric Power Industry and Operational-Technological Management. Terms and Definitions.)

**Calculation of project emissions from Leaks**

Sources of fugitive emissions resulting from technological operations include the following:

- fixed flange-type seals, i.e., flanges of pipelines and valves, seals of manhole covers, manholes, etc.;
- seals of movable type, i.e. seals of rotating shafts of pumps, compressors and other process equipment and mechanisms containing process fluids that can cause emissions of harmful substances;
- seals and gates of shut-off and control valves;
- drain, blow-off, discharge, sampling and drainage devices that are not equipped with systems to divert leaks and emissions to the vent or flare.

Calculation of total leaks should be carried out in accordance with the current methods for calculating emissions of harmful substances into the environment from fugitive sources in oil and gas equipment (e.g., RD 39.142-00).

**Emission reductions**

$$\boldsymbol{ER_y = BE_y - PE_y} \quad \textbf{(9)}$$

Where:

| | | |
|---|---|---|
| $ER_y$ | = | Emission reductions in year *y* (t $CO_2e$/year) |
| $BE_y$ | = | Baseline emissions in year *y* (t $CO_2e$/year) |
| $PE_y$ | = | Project emissions in year *y* (t $CO_2$/year) |

**Project risk assessment**

As part of the project implementation, it is recommended to develop a risk assessment system with a description of the most likely risks that may arise at all stages of the climate project. For such an assessment, the project developer should develop a detailed matrix with the following information, as a minimum:

1. The main stages of the implementation of the climate project.

2. Description of the risks that may arise at each stage of the climate project.

3. Description of the probability of occurrence of risks. For this, the rating options "low, medium, high" or any other understandable numerical scales can be used.

4. Description of the impact of each risk on the results of the entire project. This can also be done using "low, medium, high" or any other understandable numerical scale.

5. Description of the period of influence of each risk on the entire climate project.

6. Development of measures to minimize or avoid each type of risks.

7. The time for the implementation of each measure that reduces or prevents the occurrence of risks is indicated.

**Table 4 – Risk assessment matrix**

| Stage of project implementation | Description of risks | Probability of occurrence | Impact on the project | Impact period | Risk minimization methods | Implementation period |
|---|---|---|---|---|---|---|
| | | Low<br>Medium<br>High<br>(scale from 1 to 5 or others) | Low<br>Medium<br>High<br>(scale from 1 to 5 or others) | Preparation period<br>1-2 years after the implementation<br>The entire period of the climate project | Detailed description of mitigation measures for each risk | Description of the time frame for the implementation of these activities |

## VIII. LEAKAGE ASSESSMENT

According to Order No. 248 of the Ministry of Economic Development of Russia dated 11 May 2022, project activities should not lead to an aggregate increase in greenhouse gas emissions or reduce their absorption levels outside the scope of such activities.

At the same time it is necessary to consider and fully account for project leaks (if any) in accordance with the methodology below.

The project developer must independently determine the most relevant methods to be applied to estimate leakage, document and justify the applied algorithms for the validation and verification body, including the approaches applied at the international level.

Leakage due to transfer of equipment. If the project activity involves replacement of equipment, it is necessary to justify and document the absence of leakage due to the possible reuse of the replaced equipment in another activity. The scrapping of replaced equipment must be documented.

The project developer shall indicate in the PDD which leakage sources are included. If emission sources are not accounted for, the project developer shall provide proper justification in the PDD.

## IX. NON-PERMANENCE RISK ANALYSIS

Not applicable to the project activity.

## X. METHODS TO PREVENT DOUBLE COUNTING, NEGATIVE IMPACTS ON THE ENVIRONMENT AND SOCIETY

Climate project should demonstrate its compliance with all legal requirements in the jurisdiction where it is located. The project developer should investigate whether there is a risk that their project might result in negative impacts for local communities, biodiversity and the environment. Such projects should not cause an increase in atmosphere, soil, surface and ground water pollution or lead to any community conflicts, land tenure issues, forceful evictions, human rights violations, or worsened health and wellbeing due to restricted access to a forest or natural area.

Efforts should be made to avoid double counting between project areas (project boundaries), between company reporting and reporting on the project, between the reporting of different companies, between the constituent entities of the Russian Federation and different countries in the case of international transfer of carbon credits. In the latter case, it is necessary to demonstrate that the carbon credits transferred at the international level are excluded from the

accounting of the quantitative goals of the contribution of the Russian Federation defined at the national level.

In order to increase the social factor and the importance of the climate project for the local population, it is recommended to allocate 10-15% of the benefits derived from the sale of carbon credits to the budgets of municipalities, where the climate project is implemented.

## XI. RECOMMENDATIONS FOR UPDATING OR KEEPING THE BASELINE UNCHANGED AT THE RENEWAL OF THE CREDITING PERIOD AND PROJECT ACTIVITY

At the renewal of crediting period the project is subject to verification with elements of validation and a technical assessment by a validation and verification body to determine necessary updates to the baseline, the additionality and the quantification of emission reductions.

In order to update the baseline, the approach to its definition, the main parameters and assumptions used in the analysis are revised and updated. The baseline shall be representative of the conditions for the beginning of a new crediting period and be valid for that period.

The additionality at the renewal of the crediting period is checked for compliance to the criteria under Guidelines No. 001 at the date of the beginning of the new crediting period.

## XII. NORMATIVE REFERENCES


1 AM0009: Recovery and utilization of gas from oil fields that would otherwise be flared or vented --- Version 7.0. CDM Methodology.

2 Order No. 248 of the Ministry of Economic Development of Russia dated 11.05.2022 "On approval of the criteria and procedure for classifying projects implemented by legal entities, individual entrepreneurs or individuals, as climate projects, the form and procedure for reporting on the implementation of a climate project" (registered with the Ministry of Justice of Russia on 30.05.2022, No. 68642).

3 GOST R ISO 14064-1-2021. National Standard of the Russian Federation. Greenhouse Gases. Part 1. Requirements and Guidance for Quantification and Reporting of Greenhouse Gas Emissions and Absorption at the Organization Level (approved and enacted by Rosstandart Order No. 1029-st dated 30.09.2021).

4 GOST R ISO 14064-2-2021. National Standard of the Russian Federation. Greenhouse Gases. Part 2. Requirements and Guidelines for Quantification, Monitoring and Reporting Documents for Projects to Reduce Greenhouse Gas Emissions or Increase Their Absorption at the Project Level (approved and enacted by Rosstandart Order No. 1030-st dated 30.09.2021).

5 GOST R ISO 14064-3-2021. National Standard of the Russian Federation. Greenhouse Gases. Part 3. Requirements and Guidance for Validation and Verification of Greenhouse Gas Statements (approved and enacted by Rosstandart Order No. 1031-st dated 30.09.2021).

6 GOST R ISO 14065-2014 National Standard of the Russian Federation. Greenhouse Gases. Requirements for Greenhouse Gas Validation and Verification Bodies for Their Application in Accreditation or Other Forms of Recognition (approved and enacted by Rosstandart Order No. 1869-st dated 26.11.2014).

7 GOST R ISO 14066-2013. National Standard of the Russian Federation. Greenhouse Gases. Requirements for Competence of Greenhouse Gas Validation and Verification Groups (approved and enacted by Rosstandart Order No. 2274-st dated 17.12.2013).

8 GOST R ISO 14080-2021. National Standard of the Russian Federation. Greenhouse Gas Management and Related Activities. System of Approaches and Methodological Support for the Implementation of Climate Projects (approved and enacted by Rosstandart Order No. 1033-st dated 30.09.2021).

9 Order No. 371 of the Ministry of Natural Resources and Environment of Russia dated 27.05.2022 "On approval of methods for quantitative determination of greenhouse gas

emissions and greenhouse gas removals" (from 1 March 2023, except for certain provisions, coming into force on 1 March 2024).

10 Order No. 300 of the Ministry of Natural Resources and Environment of Russia dated 30.06.2015 "On approval of methodological guidelines and guidelines for quantitative determination of greenhouse gas emissions by organizations engaged in economic and other activities in the Russian Federation" (until 1 March 2023).

11 Order No. 330 of the Ministry of Natural Resources and Environment of Russia dated 29.06.2017 “On approval of methodological guidelines for quantification of indirect energy emissions of greenhouse gases”.

12 IPCC 2006. Guidelines for National Greenhouse Gas Inventories of the Intergovernmental Panel on Climate Change, 2006 / Edited by S. Iggleston, L. Buendia, K. Miwa, T. Ngara and K. Tanabe. // T.1-5. - IGES// Hayyam. 2006.

13 Decree No. 1148 of the Government of the Russian Federation dated 08.11.2012 "On peculiarities of the calculation of payment for emissions of pollutants generated by flaring and (or) dispersion of associated petroleum gas" (As amended by Decrees of the Government of the Russian Federation No. 1381 dated 17.12.2016, No. 1676 dated 28.12.2017, No. 1667 dated 13.12.2019).

14 Methodology for calculating emissions of harmful substances into the environment from uncontrolled sources of oil and gas equipment RD 39.142-00 (approved on 25.04.2001 by NIPIgazpererabotka OJSC)