



**TECHNICAL CONDITIONS**

**OF EUSTREAM, A.S.**

**AS A TRANSMISSION SYSTEM OPERATOR,**

**establishing technical conditions for Access and Connection to the  
Transmission System and operation of the Transmission System**

prepared on December 07, 2022  
and coming into effect on January 07, 2023

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## **PREAMBLE**

**WHEREAS** eustream, a.s., Company ID: 35 910 712, with the registered seat at Votrubova 11/A, 821 09 Bratislava, Slovak Republic, incorporated in the Commercial Register administered by the District Court Bratislava 1, Section: Sa, File No.: 3480/B, is duly authorised to perform transmission of gas (hereinafter referred to as “**TSO**” or “**Transmission System Operator**”);

**WHEREAS**, based on Article 19 of Act No. 251/2012 Coll. on energy of 31 July 2012, amending and supplementing certain acts (hereinafter the “**Energy Act**”), a TSO is obliged (in the interest of preserving non-discriminatory, transparent, safe access, Connection and operation of the Transmission System) to establish the technical conditions for access and Connection to the Transmission System, system operation rules, and to establish criteria for technical safety of the Transmission System (hereinafter the “**Technical Conditions**”);

**WHEREAS**, based on Article 19, par. 5 of the Energy Act, a TSO is obliged to publish the Technical Conditions that shall be binding for all participants in the gas market at the latest one month prior to coming into effect hereof;

**WHEREAS**, in case the Office for the Regulation of Network Industries based on § 19 par. 5 of the Act on Energy, does not start within one month from the submission of the proposal of Technical Conditions the procedure for changing the proposal, it is valid that the proposal is complete and without defects and the Technical Conditions take effect;

**NOW, THEREFORE**, the TSO hereby establishes the following Technical Conditions for the Transmission System operated by the TSO (hereinafter the “**TS**”).

## 1. DEFINITIONS

1.1. The terms that are already defined in the Energy Act, Act no. 250/2012 Coll. of 31 July 2012 on regulation in network industries (hereinafter the "Regulation Act") , the Regulation no. 24/2013 Coll. of the Regulatory Office for Network Industries of 14.1.2013 establishing rules for the functioning of the internal market in electricity and rules for the functioning of the internal market in gas (hereinafter the "Market Rules") and in the document - the Operational Order of eustream, a.s. as the transmission system operator laying down commercial conditions for access to the transmission network and gas transmission and for connection to the transmission network shall have the same meaning in these Technical Conditions. In addition to them, for the purposes of these Technical Conditions the following defined terms shall have the following meaning:

**"Connection Point"** means physical connection point, at which other Connected Network/gas facility is connected to the Transmission System. Connection Points serve for delivery/acceptance of Gas from/to the Transmission System, quantity and quality of which is measured at the given point;

**"Dispatching"** means the commercial and/or technical gas dispatching centre of TSO performing Gas transmission management;

**"Accident"** means a sudden event representing a deviation from standard operating conditions of the Transmission System – failure of a facility caused by substantial damage or destruction and disruption of output capacity of an operating set, of which the damaged facility is part, and constituting an existing or potential threat to human health or human lives, property, threat to the environment or gas facility;

**"Border Delivery Station"** (hereinafter the "BDS") means a set of technological facilities serving for physical delivery/acceptance of Gas crossing the state border;

**"kWh"** means the amount of energy in Gas, calculated as a product of Gas volume and gross calorific value, expressed in kWh at Basic Conditions;

**"m<sup>3</sup>"** means the volume quantity of Gas expressed in cubic meters at Basic Conditions;

**"Gas"** means natural gas, including liquefied natural gas, biomethane, gas produced from biomass, as well as other types of Gas, provided that these other Gases meet the conditions for Gas transmission in accordance with the Technical Conditions and relevant interconnection agreements;

**“Failure”** means deviation from standard operating conditions of the Transmission System, which may threaten safety and/or reliability of Gas transmission;

**“Operational Order”** means the Code of Operations of eustream, a.s. as the transmission system operator laying down commercial conditions for access to the transmission network and gas transmission and for connection to the transmission network issued by eustream,a.s.;

**“Operating Pressure”** means the overpressure expressed in Pa unit multiples, which is maintained by TSO in the Transmission System with the aim of using the network efficiently, and which is calculated as difference between the absolute pressure of Gas and the atmospheric pressure;

**“Connection”** means a set of steps and activities carried out by TSO, which are necessary for the purposes of enabling necessary capacity for Connection to the network and physical connection of the market participant’s gas facility to the Transmission System;

**“Connected Network”** means a network Connected to the Transmission System and operated by other network operator than TSO; for the purpose of these Technical Conditions a Connected Network means a distribution network, storage facility, or a direct pipeline;

**“Hydrocarbons Dew Point”** means a temperature expressed in degrees of Celsius, over which, no condensation of the hydrocarbons occurs at the defined pressure;

**“Water dew point”** means a temperature expressed in degrees of Celsius, over which, no condensation of water occurs at the defined pressure;

**“Gross calorific value”** means amount of heat that would be released by the complete combustion with oxygen of a specified quantity of gas, in such a way that the pressure,  $p$ , at which the reaction takes place remains constant, and all the products of combustion are returned to the same specified temperature,  $T$ , as that of the reactants; all of these products being in the gaseous state, except for water formed by combustion, which is condensed to the liquid state at  $T$ ;

**“Technical Capacity”** means the minimum and maximum daily transmission capacity of the Transmission System specified in kWh;

**“Domestic Transfer Station”** (hereinafter the “DTS”) is a set of technological facilities serving for physical delivery/acceptance of Gas, or possibly for regulation of Gas pressure from a higher to a lower pressure level;

**“Calorific value”** means amount of heat that would be released by the complete combustion with oxygen of a specified quantity of gas, in such a way that the pressure,  $p$ , at which the reaction takes place remains constant, and all the products of combustion are returned to the same specified temperature,  $T$ , as that of the reactants; all of these products being in the gaseous state, except for water formed by combustion, which is condensed to the liquid state at  $T$ ;

**„Wobbe index“** means calorific value on a volumetric basis at specified reference conditions, divided by the square root of the relative density at the same specified metering reference conditions;

**“Basic conditions”** are temperature of 20°C, pressure of 101,325 kPa, relative gas humidity  $\phi=0$  and combustion temperature of 25°C;

**“Connection Agreement”** means the agreement on Connecting a gas facility to the Transmission System, establishing conditions and particulars of implementing the Connection pursuant to the Energy Act.

- 1.2. Any reference to annexes, articles or paragraphs shall mean references to annexes, articles or paragraphs of these Technical Conditions.
- 1.3. The conditions and rules set out in these Technical Conditions shall apply only to gas facilities located on the designated territory pursuant to the Energy Act.
- 1.4. Any references to generally binding regulations, technical standards or technical principles shall represent references to the valid wording thereof. Should these legal regulations, technical standards or technical principles be modified or replaced, the wording valid at the given time shall apply for the purposes of these Technical Conditions.
- 1.5. Any references to specific generally binding regulations, technical standards or technical principles, specified in these Technical Conditions in the footnote, are provided as an example only (sample list). Where appropriate or necessary, the generally binding regulations, technical standards and technical principles not specifically mentioned in these Technical Conditions shall also apply accordingly.

- 1.6. For the purposes of these Technical Conditions, a Technical Standard shall mean any technical standard issued pursuant to a special legal regulation<sup>1</sup>.
- 1.7. For the purposes of these Technical Conditions, a technical principle shall mean a normative document issued by a professional or other expert organisation, containing principles, instructions or characteristics of individual activities or results thereof, which is generally recognised in the respective industry and complied with as a technical principle<sup>2</sup>.
- 1.8. The words stated in these Technical Conditions in singular shall be interpreted as plural, if appropriate given the respective circumstances; this rule shall apply vice versa to the words referred herein in plural.
- 1.9. The conditions, legal relations, and data having character of business terms and conditions or data, as well as the essentials of an Application for connection and an Application for access to the Transmission System and for Gas transmission, shall be governed by the Operational Order.

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<sup>1</sup> 1 Act no. 264/1999 Coll. on technical requirements for products and on conformity assessment, amending and supplementing certain acts

<sup>2</sup> 2 For example: Technical Principle – Gas (hereinafter the “TPG”) issued by Slovenská plynárenská agentúra, s.r.o. (Slovak Gas Agency),



## **2. TECHNICAL CONDITIONS FOR ACCESS TO THE TRANSMISSION SYSTEM**

### **2.1. Technical requirements for access to the Transmission System**

2.1.1. The TSO shall establish minimum operating pressure, minimum operating temperature, maximum operating pressure and maximum operating temperature at the entry to the Transmission System. Values of minimum operating pressure at entry and exit points into/ from the transmission system are set in the Annex No 2 of these Technical Conditions.

2.1.2. The data specified in the Application for access to the Transmission System and transmission of Gas must comply with the requirements of these Technical Conditions.

### **2.2. Qualitative parameters of Gas**

2.2.1. The Gas delivered or accepted to/from the Transmission Systems in the Connection Points must meet the physical and chemical parameters specified in Annex no. 1 to these Technical Conditions (hereinafter the “qualitative parameters”).

2.2.2. The data measured and established by the metering facility operator at the Connection Point to the Transmission System shall be binding for determination of qualitative parameters of Gas at the Connection Points.

2.2.3. The operators of metering facilities at the Connection Point shall be obliged to provide to the network user and TSO/operator of the Connected Network the data on quality of the delivered/accepted Gas.

2.2.4. The average daily values at the Connection Points shall be decisive for evaluation of compliance with the qualitative parameters of Gas. The frequency of measurements and the method of determination of qualitative parameters of Gas shall be the subject of an Interconnection Agreement between TSO and the operator of the respective Connected Network/gas facility.

2.2.5. The Gas delivered for acceptance to the Transmission System may not contain:

- water and hydrocarbons in liquid state,
- solid particles in such quantity that could damage the technological equipment used in Gas transmission,
- other gases that could affect safety or integrity of the Transmission System,

- other gases that could affect precision of determination of quality parameters.

2.2.6. TSO shall be entitled to request performance of extraordinary inspection of metering systems used for determining qualitative parameters of Gas.

### **2.3. Technical & communication criteria**

2.3.1. The operator of a Connected Network must have secured standard voice and data communication with TSO's Dispatching.

2.3.2. In case of communication via data lines, the operator of a Connected Network must have secured their permanent operation.

### **3. TECHNICAL CONDITIONS FOR CONNECTION TO THE TRANSMISSION SYSTEM**

#### **3.1. Technical conditions for connecting the Connected Network to the Transmission System**

3.1.1. The Technical Conditions for connection to the Transmission System are as follows:

- There exists an available Technical Capacity in the Transmission System at the Connection Point;
- The Connection and/or Connected Network/gas facility shall have no negative impact on safety, integrity, or reliability of the Transmission System and/or qualitative parameters of Gas transmitted to other market participants.

3.1.2. The specific Technical Conditions for connection to the Transmission System shall be established individually, depending on technical parameters of the respective Connected Network/gas facility, qualitative parameters of Gas and the requested Connection Point.

3.1.3. Prior to the Connection to the Transmission System, the operator of the Connected Network/gas facility shall be obliged to submit the Connection project prepared in accordance with the respective generally binding regulations<sup>3</sup> technical standards<sup>4</sup> and technical principles<sup>5</sup>.

3.1.4. The settlement of costs for building facilities that are necessary for Connection of the Connected Network/gas facility to the Transmission System shall be governed by the Connection Agreement.

#### **3.2. Determination of pressure level for connecting to the Transmission System**

3.2.1. A precondition for connection to the Transmission System is the sufficient design pressure of the Connected Network/gas facility.

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<sup>3</sup> Act no. 264/1999 Coll. on technical requirements for products and on conformity assessment, amending and supplementing certain acts;

Slovak Ministry of Social Affairs and Family Decree no. 508/2009 Coll. laying down details for ensuring occupational health and safety when working with pressure, lifting, electrical and gas technical equipment and laying down the technical equipment that is considered designated technical equipment;

Regulation of the Slovak Government no. 393/2006 Coll. on minimum requirements for ensuring safety and health protection at work in explosive environment;

Decree no. 147/12013 Coll. laying down details on ensuring safety and health protection during construction works and connected works and details relating to professional competence for executing of some work activities

<sup>4</sup> STN 38 6410- High pressure pipelines and connections.

<sup>5</sup> TPP 701 03 - Technical and safety conditions for works performed in the protection zone of high-pressure gas pipelines.

3.2.2. There must be identical pressure in the Connected Network/gas facility at the Connection Point to the Transmission System as in the Transmission System itself, otherwise it shall be necessary to build technical installations for pressure adjustment.

### **3.3. Determination method of the Connection Point and the metering point**

3.3.1. The Connection Point to the Transmission System shall mean the location of a weld or placement of a flange behind the last closing valve in the direction from the Transmission System.

3.3.2. The specific Connection Point shall be agreed between TSO and operator of a Connected Network/gas facility and shall be defined in the Connection Agreement.

3.3.3. The metering point shall mean the metering device installation location.

3.3.4. The metering point is determined by TSO, while it is usually located at the entry/exit to/from the Transmission System closest possible to the Connection Point. The technical requirements for setting up a metering point shall be governed by the Interconnection Agreement.

3.3.5. The metering point consists of at least the following equipment:

- Metering device,
- Filter,
- Gas pressure and/or flow regulator,
- Equipment for data archiving and remote data transfer.

### **3.4. Technical requirements for metering**

3.4.1. The metering devices installed at metering points must meet the requirements of respective technical regulations, technical standards, and legislative requirements valid at the time of installation.

3.4.2. The metering facility consists at least of a gas meter, pressure and temperature sensors, and a device for determination of quantity of Gas (process chromatograph, devices measuring water dew point and hydrocarbons dew point). At the same time, the metering facility must allow local archiving of data and remote transfer and reading of selected metering parameters.

## **4. TECHNICAL CONDITIONS FOR TECHNICAL INTEROPERABILITY OF NETWORKS**

### **4.1. Description of Connection Points between the Transmission System and interconnected networks and/or Connected Networks/gas facilities**

4.1.1. The Transmission System and interconnected networks and/or Connected Networks/gas facilities are interconnected/Connected via the system of Border Delivery Stations (BDS = HPS) and/or Domestic Transfer Stations (DTS = VPS) serving as physical entry and exit points to/from the Transmission System.

The Transmission System and interconnected networks and/or Connected Networks/gas facilities are interconnected/ Connected via these Connection Points:

- HPS Veľké Kapušany
- HPS Ruská
- HPS Budince
- HPS Lanžhot
- HPS Baumgarten
- HPS Brodské
- HPS Veľké Zlievce
- HPS Výrava
- VPS Rimavská Sobota
- VPS Starý Hrádok
- VPS Ivanka pri Nitre
- VPS Plavecký Peter
- VPS Špačince
- VPS Mikušovce
- VPS Gajary
- VPS CA Nafta
- VPS Ardovo
- VPS Kittsee

The metering of quantity and determination of quality of accepted/delivered Gas is secured at all Connection Points.

4.1.2. The Connection Points usually consist of the following technological equipment:

- isolating valve at the entry/exit to/from the Transmission System;
- filtering unit;
- metering device for measuring Gas quantity;
- equipment for determining Gas quality;
- Gas pressure and/or flow regulator;
- depressurising and repressurising piping;

- equipment allowing remote control of the station, transmission and archiving of data;
- isolating valve at the entry to the Connected Network/gas facility.

#### 4.2. Technical modes of operation of gas pipelines, including entry and exit pressure

4.2.1. TSO shall be responsible that the technical mode of operation of the Transmission System secures safe and reliable Gas transmission.

4.2.2. For the purposes of safeguarding safety and functionality of the Transmission System and Gas transmission in accordance with the agreed conditions of Gas transmission, TSO shall determine for individual Connection Points the range of minimum and maximum pressure, temperature and quantity of Gas.

#### 4.3. Technical Conditions governing mutual interoperability of networks

In order to ensure mutual interoperability of the Transmission System with the interconnected network and/or Connected Network/gas facility, the following must be particularly observed at the Connection Points of these networks:

- maximum and minimum value of Gas pressure;
- maximum and minimum value of Gas temperature;
- required qualitative parameters of gas;
- required Gas flow rate within the agreed tolerances.

## 5. TECHNICAL CONDITIONS FOR OPERATING THE TRANSMISSION SYSTEM

### 5.1. Technical conditions for Gas metering

#### 5.1.1. Basic principles of metering

- 5.1.1.1. The type of the installed metering device must be specified in the Interconnection Agreement between TSO and the operator of a Connected Network/gas facility.
- 5.1.1.2. Only such metering devices may be installed that are of construction design meeting the requirements of respective technical regulations and technical standards<sup>6</sup>. The metering devices at the respective metering points in BDS must also meet the requirements of international standards and international regulations.
- 5.1.1.3. The metering device may only be operated within its measurement range, in accordance with the respective technical standards, international standards or specific technical regulations.
- 5.1.1.4. The metering device may only be operated within the limits of errors permitted by the applicable generally binding legal regulation.
- 5.1.1.5. The business unit, in which transmitted quantities of Gas are expressed and charged, is the quantity unit expressed in kWh.

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<sup>6</sup> VDI/VDE 2040-2 Calculation Principles for Measurement of Fluid Flow Using Orifice Plates, Nozzles and Venturi Plates. Equations and Formulae.

STN EN ISO 12213-1 Natural gas. Compression ratio calculation. Part 1: Introduction and instructions (ISO 12213-1: 2006).

STN EN ISO 12213-2 Natural gas. Compression ratio calculation. Part 2: Calculation based on mol composition analysis (ISO 12213-2: 2006).

STN EN ISO 12213-3 Natural gas. Compression ratio calculation. Part 3: Calculation based on physical properties (ISO 12213-3: 2006).

STN EN 12 261 Gas meters. Turbine gas meters.

STN EN 12 405-1 + A2 Gas meters. Volume converters. Part 1: Volume conversion (Consolidated text).

STN EN 12405-2 Gas meters. Volume converters. Part 2: Energy conversion

STN EN ISO 6976 (2017) Natural gas. Calculation of calorific value, density, relative density and Wobbe Index from composition.

STN EN ISO 10 715 Natural gas. Sampling procedures (ISO 10715: 1997)

STN EN ISO 6974 - 1 - Natural gas. Determination of composition and defined uncertainty by gas chromatography . Part 1: General instructions and composition calculation (ISO 6974 – 1: 2012).

STN EN ISO 6974 - 5 - Natural gas. Determination of composition and defined uncertainty by gas chromatography. Part 5 : Isotermic method for nitrogen, carbon dioxide, C1 to C5 and C6 hydrocarbons together with higher hydrocarbons (ISO 6974-5:2014)

STN EN ISO 5167: 1 Measurement of fluid flow by means of devices with differential pressure sensors embedded in completely filled tubes of circular cross-section. Part 1: General principles and requirements (ISO 5167 – 1: 2003).

STN EN ISO 5167: 2 - Measurement of fluid flow by means of devices with differential pressure sensors embedded in completely filled tubes of circular cross-section: Part 2: Orifices (ISO 5167 – 2: 2003).

STN EN ISO 6327 – Analysis of gases. Determination of the water dew point in natural gas. Condensation hygrometers with cooled surface (ISO 6327: 1981).

STN EN ISO 19739 - Natural gas. Determination of sulphur compounds by gas chromatography (ISO 19739: 2004).

ISO 17 089-1 Measurement of fluid flow in closed conduits - Ultrasonic meters for gas - Part 1: Meters for custody transfer and allocation measurement

5.1.1.6. The metering devices must secure conversion of Gas quantities from operating units to business units (kWh), must allow local archiving of data and remote reading of selected metering parameters.

5.1.1.7. The conversion of Gas quantities metered at operating conditions to business units (kWh) shall be carried out by using flow converters, which are designated metering devices.

## **5.1.2. Operation and inspection of metering devices**

5.1.2.1. The metering devices at metering points are installed, operated and metrologically inspected by TSO at TSO's own costs or by the operator of a Connected network who owns this metering devices at his costs. The method of operation and inspection of a metering device shall be governed by the respective Interconnection Agreement.

5.1.2.2. TSO or an operator of a Connected network secures metrological inspection of a metering device, and this at regular intervals established by the respective generally binding legal regulations.

5.1.2.3. TSO or an operator of a Connected network carries out the operating inspection of a metering device and also determines the date of its performance. TSO or an operator of a Connected network carries out the operating inspection of a metering device with the aim of determining whether a metering device operates within tolerated deviations. The inspection is carried out by using metrologically sealed control meters of higher accuracy than the permitted metering error.

5.1.2.4. In case a metering device is operated by the TSO, the right to participate in the operating or metrological inspection of a metering device shall also apply to the representative of the operator of a Connected Network/gas facility, and this at his/her own costs. TSO shall be obliged to notify the operator of a Connected Network/gas facility in advance about the date of performance of the inspection of a metering device pursuant to the respective Interconnection Agreement. If the representative of the operator of the Connected Network/gas facility fails to appear on the specified date, TSO shall be entitled to perform the inspection of the metering device even without his/her presence and the results of such inspection shall be binding for TSO and also the operator of the Connected Network/gas facility.

5.1.2.5. The quantity of Gas that has passed during the operating or metrological inspection of the metering device through the place of its installation shall be determined as a product of the inspection period



and average value of the Gas flow rate before and after performing the inspection.

5.1.2.6. The metering devices shall be protected against intervention by unauthorised persons by security labels and/or security seals that shall be installed by TSO or a physical or legal person authorised by TSO. TSO shall prepare a protocol on installing security labels and/or security seals. The protocol shall be also prepared in case of removal of security labels and/or security seals. Both protocols shall be confirmed by signatures of the representatives of the operator of the Connected Network/gas facility and TSO.

### **5.1.3. Principles of procedure in case of Failures and damages to metering devices**

5.1.3.1. In the event that the legitimate interests of the operator of the Connected Network/gas facility could be impaired by incorrect metering at the specific entry - exit point from the Transmission System, such operator shall be entitled to request testing of the metering device in accordance with valid legal regulations.

5.1.3.2. Should it be impossible to secure a metrologically sealed replacement metering device during testing of the metering device, the Contractual Parties shall agree on the method of determination of Gas delivered during testing of the metering device.

5.1.3.3. In case a metering device is operated by the TSO, the metering device shall be taken out of operation in case of a failure or damage to this device and TSO shall forthwith inform the operator of the Connected Network/gas facility about this fact.

5.1.3.4. In case that the testing of the claimed metering device discovers error greater than permitted by the valid legal regulation, the costs associated with the testing and replacement of the metering device shall be borne by TSO.

5.1.3.5. In case that the testing of the claimed metering device does not discover error greater than permitted by the valid legal regulation, the costs associated with the testing and replacement of the metering device shall be borne by the Party that requested the testing.

5.1.3.6. TSO shall adjust the quantity of Gas measured by the faulty metering device by difference in quantity caused by the discovered metering error. The adjustment shall be performed for the period of

provable error duration. If it shall be impossible to indisputably determine such period, TSO shall use the assumption of a linear increase of the error since the last inspection of the metering device by TSO.

5.1.3.7. If the metering device did not record any flow rate due to the defect, or if the effect of the metering device's defect on the reported quantity cannot be determined, the delivered quantity of Gas shall be determined based on the data shown by the control metering device.

5.1.3.8. In case of a Failure of the metering device, TSO shall be obliged to eliminate the Failure forthwith or to replace the faulty metering device with a faultless one, metrologically sealed. Where available, a backup metering device shall be used during the elimination of Failure or replacement of the faulty metering device. If no backup metering device is available, the quantity of Gas that flowed through the faulty metering device during the repair or replacement shall be calculated using the method indicated in the Interconnection Agreement between TSO and the respective operator of a Connected Network/gas facility.

5.1.3.9. The procedure to be followed in case of Failures or damages to metering devices shall be specified in more detail in the Interconnection Agreement between TSO and the respective operator of a Connected Network/gas facility.

## **5.2. Principles governing the operation of gas facilities**

5.2.1. TSO shall operate the gas facilities forming part of the Transmission System and perform their maintenance as to ensure safety of the Transmission System and reliable transmission of Gas by the Transmission System.

5.2.2. The operation and maintenance of gas facilities shall be governed and performed in accordance with the respective generally binding legal regulations<sup>7</sup>, technical standards<sup>8</sup> and technical principles<sup>9</sup>.

5.2.3. TSO shall operate the individual technical equipment forming part of the Transmission System in accordance with the respective instructions issued by the manufacturers of this equipment, in particular manuals and instructions for operation and maintenance of these equipments.

### 5.3. Description of existing connections to the network

The connections to the Transmission System are presently under construction, which may be divided into connections via DTS or via BTS in accordance with point 4.1.1.

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<sup>7</sup> Act no. 251/2012 Coll. on energy, amending and supplementing certain acts; Act no. 314/2001 Coll. on fire protection;

Act no. 124/2006 Coll. on health and safety at work, amending and supplementing certain acts; Act no. 543/2002 Coll. on environmental and landscape protection;

Regulation of the Slovak Government no. 393/2006 Coll. on minimum requirements for ensuring occupational health and safety when working in an explosive environment;

Regulation of the Slovak Government no. 576/2002 Coll. establishing details concerning technical specifications and procedures for evaluation of conformity of pressure equipment, amending and supplementing Regulation of the Slovak Government no. 400/1999 Coll. establishing details concerning technical requirements for other designated products, as amended;

Slovak Ministry of Social Affairs and Family Decree no. 508/2009 Coll. laying down details for ensuring occupational health and safety when working with pressure, lifting, electrical and gas technical equipment and laying down technical equipment that is considered designated technical equipment;

Decree of the Slovak Occupational Safety Office no. 59/1982 Coll. establishing basic requirements for ensuring occupational safety and safety of technical equipment, as amended;

Decree of the Slovak Ministry of Interior no. 121/2002 Coll. on fire prevention;

Decree of the Slovak Ministry of Interior no. 94/2004 Coll. establishing technical requirements for fire protection during construction works and use of buildings;

Decree of the Slovak Ministry of Interior no. 96/2004 Coll. establishing principles of fire protection during manipulating and storing inflammable liquids, heavy fuel oils, and fats and oils of plant or animal origin;

Decree no. 147/2013 Coll. laying down the details on ensuring safety and health protection during construction works and connected works and details relating to professional competence for executing of some work activities;

<sup>8</sup> STN 38 6410- High pressure pipelines and connections. STN 38 6405 - Gas equipment. Operating principles.

STN 05 0610 - Welding. Safety provisions for gas welding of metals and cutting of metals. STN 05 0630 - Welding. Safety provisions for arc welding of metals.

STN 05 0601 - Welding. Safety provisions for welding of metals. Operation. STN 27 0143 – Lifting equipment. Operation, maintenance and repairs.

STN EN 1594 - Gas supply systems. Gas pipelines with maximum operating pressure over 16 bars. Operation requirements.

STN EN 12 732 + A1 - Gas infrastructure. Welding of steel pipelines. Functional requirements. STN EN 12 954 Cathodic protection of metal structures installed in soil or water. General rules and application on pipelines.

<sup>9</sup> TPP 701 03 Technical and safety conditions for works performed in the protection zone of high-pressure gas pipelines,

## **5.4. Technical and operating restrictions for the Transmission System**

- 5.4.1. The quantity of Gas that may be transported through a certain section of the pipeline per unit of time depends not just on the maximum operating pressure, pipeline diameter, pipeline length, Gas composition and Gas accumulation in the network at the given time, but also on the location of the Connection Point of the Connected Network/gas facility.
- 5.4.2. Maximum operating pressure in the Transmission System:  
The maximum operating pressure in the pipeline may not exceed the maximum design pressure, respectively the maximum pressure established by TSO for the respective portion of the Transmission System. In accordance with TSO's request, the operator of the Connected Network/gas facility has to deliver Gas at the Connection Points under pressure not exceeding the value of the maximum operating pressure.
- 5.4.3. Minimum operating pressure in the Transmission System:  
The minimum pressure values are determined at the respective Connection Points to the Transmission System in order to maintain the functionality of the system.
- 5.4.4. The technical and operating restrictions for the Transmission System also include restrictions or interruptions of Gas transmission in the respective part of the Transmission System as a result of performing planned reconstructions, modernisations, repairs and maintenance, as well as restrictions or interruptions of Gas transmission caused by an accident or Failure at gas facilities or by elimination of consequences thereof, or by a crisis situation and activities performed in the interest of preventing a crisis situation.

## **6. TECHNICAL CONDITIONS FOR OPERATING A DIRECT PIPELINE**

The provisions in these Technical Conditions, governing the method of operation, method of Connection and technical and operating restrictions in relation to the Connected Networks, shall apply in reasonable scope to the method of operating a direct pipeline, method of Connection of a direct pipeline, as well as technical and operating restrictions for a direct pipeline.

## **7. TECHNICAL CONDITIONS FOR SECURING OPERATING SAFETY AND RELIABILITY**

### **7.1. Technical conditions for inspecting technical condition of gas facilities at the Connection and interconnection points**

7.1.1. In the interest of ensuring operating safety and reliability of the Transmission System, TSO performs expert inspections and expert tests in accordance with the respective generally binding legal regulations<sup>10</sup>, technical standards<sup>11</sup> and technical principles<sup>12</sup>.

### **7.2. Technical conditions for reconstructions**

7.2.1. TSO is obligated to perform in the entire Transmission System and at the Connection Points the inspection of operating facilities in accordance with the respective generally binding regulations<sup>10</sup>, technical standards<sup>11</sup> and technical principles<sup>12</sup>.

7.2.2. Based on the results of performed technical inspections and evaluations of the technical condition of the Transmission System, TSO shall consider implementation of reconstruction or other necessary extraordinary measures.

### **7.3. Technical means for network monitoring and management**

7.3.1. The control systems, using which the Transmission System is remotely monitored and controlled from TSO's Dispatching, serve for supporting the dispatching control of the Transmission System.

7.3.2. The control system is centralised and decentralised, which enables separating the functions to several localities. The measured values and

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<sup>10</sup> Slovak National Council Act no. 264/1999 Coll. on technical requirements for products and on conformity assessment, amending and supplementing certain acts;

Slovak Ministry of Social Affairs and Family Decree no. 508/2009 Coll. laying down the details for ensuring occupational health and safety when working with pressure, lifting, electrical and gas technical equipment and laying down the technical equipment that is considered designated technical equipment;

Regulation of the Slovak Government no. 393/2006 Coll. on minimum requirements for ensuring occupational health and safety when working in an explosive environment;

Decree no. 147/2013 Coll. laying down the details on ensuring safety and health protection during construction works and connected works and details relating to professional competence for executing of some work activities

<sup>11</sup> STN 38 6410 - High pressure pipelines and connections. STN 38 6405 - Gas equipment. Operating principles.

STN 05 0610 - Welding. Safety provisions for gas welding of metals and cutting of metals.

STN 05 0630 - Welding. Safety provisions for arc welding of metals.

STN 05 0601 - Welding. Safety provisions for welding of metals. Operation.

STN 27 0143 – Lifting equipment. Operation, maintenance and repairs.

STN EN 1594 - Gas infrastructure. Gas pipelines with maximum operating pressure over 16 bars. Operation requirements.

STN EN 12 732 +A1 - Gas infrastructure. Welding of steel pipelines. Functional requirements.

<sup>12</sup> TPP 701 03 Technical and safety conditions for works performed in the protection zone of high-pressure gas pipelines.

processed data (logical components, sensors reading metered values, equipment for processing and evaluation of metered values, safety equipment, transmission equipment, control and monitoring systems) are visualised in the format of alarms, reports, protocols and overview schemes and tables directly in the application environment of the control system. The operators enter the remote control commands via the control system, which also allows to automatically control the remote facilities.

#### **7.4. Quantity of Gas in pipelines necessary for ensuring reliable operation of the Transmission System**

7.4.1. The quantity of Gas in pipelines necessary for ensuring reliable operation of the Transmission System represents the minimum value of the quantity of Gas corresponding to the level of values necessary for securing smooth and safe operation of technological facilities. Any eventual decrease of this Gas quantity would cause disruption of the transmission capability of the Transmission System.

7.4.2. The value of this Gas quantity is conditioned by current operating conditions in the Transmission System.

## **8. TECHNICAL CONDITIONS FOR INTERRUPTING GAS TRANSMISSION**

### **8.1. Procedure during planned reconstructions and repairs of gas facilities**

8.1.1. In order to ensure reliable and safe transmission of Gas, it is necessary to perform reconstructions and possibly repairs of gas facilities forming the Transmission System.

8.1.2. In the event that the performance of planned reconstructions, modernisations, repairs, maintenance and revisions of gas facilities causes interruption or restriction of Gas transmission, the Transmission System Operator shall be obliged to notify in writing the affected Gas market participants, for whom TSO performs the transmission, the start and end of restriction or interruption of Gas transmission 30 days in advance, provided that they do not agree on a shorter period<sup>13</sup>.

8.1.3. After elimination of reasons for restriction or interruption of Gas transmission, the TSO shall be obligated to restore the Gas transmission forthwith<sup>14</sup>.

### **8.2. Procedure during accidents and Failures of gas facilities and elimination of their consequences**

If the Accident or Failure of a Gas facility causes interruption of Gas transmission to customers, TSO shall perform all necessary measures to eliminate the accident or Failure, with the aim to quickly restore Gas transmission for Gas market participants.

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<sup>13</sup> Article 49, section 3 of Act no. 251/2012 Coll. on energy, amending and supplementing certain acts.

<sup>14</sup> Article 49, section 4 of Act no. 251/2012 Coll. on energy, amending and supplementing certain acts.



## **9. TECHNICAL CONDITIONS FOR DISCONNECTION FROM THE TRANSMISSION SYSTEM**

### **9.1. Reasons for disconnection from the network from technical, operating or safety viewpoint**

9.1.1. In case of any threat to the safety and/or integrity of the Transmission System, the Transmission System Operator shall be entitled to disconnect gas facility of a gas market participant from the Transmission System.

9.1.2. The disconnection from the network may also take place at the request of the respective Gas market participant.

### **9.2. Technical procedure during disconnection of Gas market participant from the network**

9.2.1. The disconnection of a Gas market participant from the Transmission System shall take place by physical separation of the Gas market participant's pipeline from the Transmission System.

9.2.2. When physically separating these pipelines, TSO shall proceed in accordance with the respective technical standards<sup>15</sup> and technical principles<sup>16</sup>.

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<sup>15</sup> Slovak National Council Act no. 264/1999 Coll. on technical requirements for products and on conformity assessment, amending and supplementing certain acts;

Slovak Ministry of Social Affairs and Family Decree no. 508/2009 Coll. laying down the details for ensuring occupational health and safety when working with pressure, lifting, electrical and gas technical equipment and laying down the technical equipment that is considered designated technical equipment;

Regulation of the Slovak Government no. 393/2006 Coll. on minimum requirements for ensuring occupational health and safety when working in an explosive environment;

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<sup>15</sup> STN 38 6410 - High pressure pipelines and connections. STN 38 6405 - Gas equipment. Operating principles.

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STN 05 0601 - Welding. Safety provisions for welding of metals. Operation.

STN 27 0143 – Lifting equipment. Operation, maintenance and repairs.

STN EN 1594 - Gas infrastructure. Gas pipelines with maximum operating pressure over 16 bars. Operation requirements.

STN EN 12 732 +A1 - Gas infrastructure. Welding of steel pipelines. Functional requirements.

<sup>16</sup> TPP 701 03 Technical and safety conditions for works performed in the protection zone of high-pressure gas pipelines.

## **10. TECHNICAL CONDITIONS FOR TRANSMISSION SYSTEM MANAGEMENT**

### **10.1. Dispatching management tasks**

10.1.1. The primary role of dispatching management of the Transmission System is to secure reliable, safe and efficient transmission of Gas in line with the requests of concerned Gas market participants.

10.1.2. The main activity of TSO's Dispatching is the operative and technical management of the Transmission System in cooperation with other partner dispatching centres.

### **10.2. Technical tools of dispatching management**

The following technical tools are used for the needs of dispatching management:

- Information system of the Transmission System Operator, which is used to manage the Transmission System, collect, process and archive the data;
- Optimisation and simulation systems, which are used to support dispatching management.

### **10.3. Principles of cooperation between gas dispatching centres**

10.3.1. TSO's Dispatching cooperates with other gas dispatching centres based on principles of adequacy and cost efficiency.

10.3.2. The gas dispatching centres mutually inform each other about all circumstances and measures that could affect safety, integrity or reliability of the Transmission System or a Connected Network/gas facility, especially in cases where such circumstances could affect the quantity, pressure or quality of Gas at Connection Points.

### **10.4. Principles of Transmission System management during states of emergency**

10.4.1. In case of emergence of any states of emergency in the Transmission System, in the interest of eliminating the state of emergency the TSO's Dispatching shall usually perform the following steps:

- analyse the arisen situation;
- convene the emergency committee;
- prepare the proposal for solving the state of emergency from the viewpoint of securing the transmission;

- manage the transmission network as to minimise the impacts of the accident on Gas transmission;
- continuously evaluate the situation in the Transmission System;
- secure the transmission within the capacities of the network not influenced by the Accident;
- secure putting the Transmission System back to its original condition.

10.4.2. The coordination of individual activities at the occurrence of a state of emergency shall be secured by the respective units of TSO's Dispatching.

## **11.EFFECTIVENESS**

These Technical Conditions shall come into force and effect on January 07, 2023.

## Annex no. 1

**Qualitative parameters of Gas\***

<b>Gas composition</b>	<b>in mol %</b>
methane (CH <sub>4</sub> )	min. 92
ethane (C <sub>2</sub> H <sub>6</sub> )	max. 4
propane (C <sub>3</sub> H <sub>8</sub> )	max. 2
butane (C <sub>4</sub> H <sub>10</sub> )	max. 2
pentane (C <sub>5</sub> H <sub>12</sub> and other heavier hydrocarbons)	max. 1
nitrogen (N <sub>2</sub> )	max. 3
carbon dioxide (CO <sub>2</sub> )	max. 2
oxygen (O <sub>2</sub> )	max. 0.01
<b>Content of sulphur compounds<sup>17</sup> in mg.m<sup>-3</sup></b>	
hydrogen sulphide (H <sub>2</sub> S)	max. 2
methylmercapthane (CH <sub>4</sub> S)	max. 5
total sulphur <sup>18</sup>	max. 20
<b>Other parameters</b>	
water dew point	max. -8°C at 4.00 Mpa pressure
hydrocarbons dew point	Maximum 0°C in pressure range from 1 to 7 MPa measured at pressure corresponding to critical condensation temperature
net calorific value	min. 9.3 kWh/m <sup>3</sup>
gross calorific value	min. 9.96 kWh/m <sup>3</sup>
	max. 11.92 kWh/m <sup>3</sup>
total Wobbe Index (WI)	min. 13.41 kWh/m <sup>3</sup>
	max. 14.25 kWh/m <sup>3</sup>
relative density (d)	min. 0.555 m <sup>3</sup> /m <sup>3</sup>
	max. 0.7 m <sup>3</sup> /m <sup>3</sup>

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<sup>17</sup> expressed in Basic conditions

<sup>18</sup> Total sulphur is expressed as a sum of concentrations of measured sulphur compounds

Annex no. 2

**Minimum operating pressure values at entry and exit points into/ from the transmission system**

<b>Entry points</b>	<b>Unit</b>	<b>Value</b>
Lanžhot	MPag	5.67
Baumgarten	MPag	4.9
Veľké Zlievce	MPag	6.7
Veľké Kapušany	MPag	4.9
Budince	MPag	5.25
Výrava	MPag	5.67
<b>Exit points</b>	<b>Unit</b>	<b>Value</b>
Lanžhot	MPag	5.67
Baumgarten	MPag	4.9
Veľké Zlievce	MPag	5.3
Veľké Kapušany	MPag	4.9
Budince	MPag	4.705
Výrava	MPag	5.67