Interconnection of the National Gas Transmission System with the international gas transmission pipeline T1 and reverse flow Isaccea

TRANSGAZ' project for Romania and Europe

INFORMATION LEAFLET

for the Project

” Interconnection of the national transmission system with the international gas transmission pipelines and reverse flow at Isaccea (RO)”

(Reference number in European Union PCIs List: 6.15)

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1. PROJECT DESCRIPTION AND PROJECT SCOPE

By the implementation of the project „Interconnection of the national transmission system with the international gas transmission pipelines and reverse flow at Isaccea (RO)" (hereinafter referred to as the Project) a transmission route is created between the markets in Greece, Bulgaria, Romania and Ukraine provided that the new interconnection between Greece and Bulgaria is achieved as well. At the same time reverse physical flows may be ensured in the Negru Vodă 1 point, according to the requirements of Regulation (EU) no 994/2010 of the European Parliament and of the Council dated 20 October 2010 on the measures to safeguard security of gas supply and repelling Council Directive 2004/67/EC.

The project becomes necessary also in the context of taking over in the Romanian gas transmission system the recently discovered Black Sea gas in order for them to be capitalized on the Romanian and regional markets.

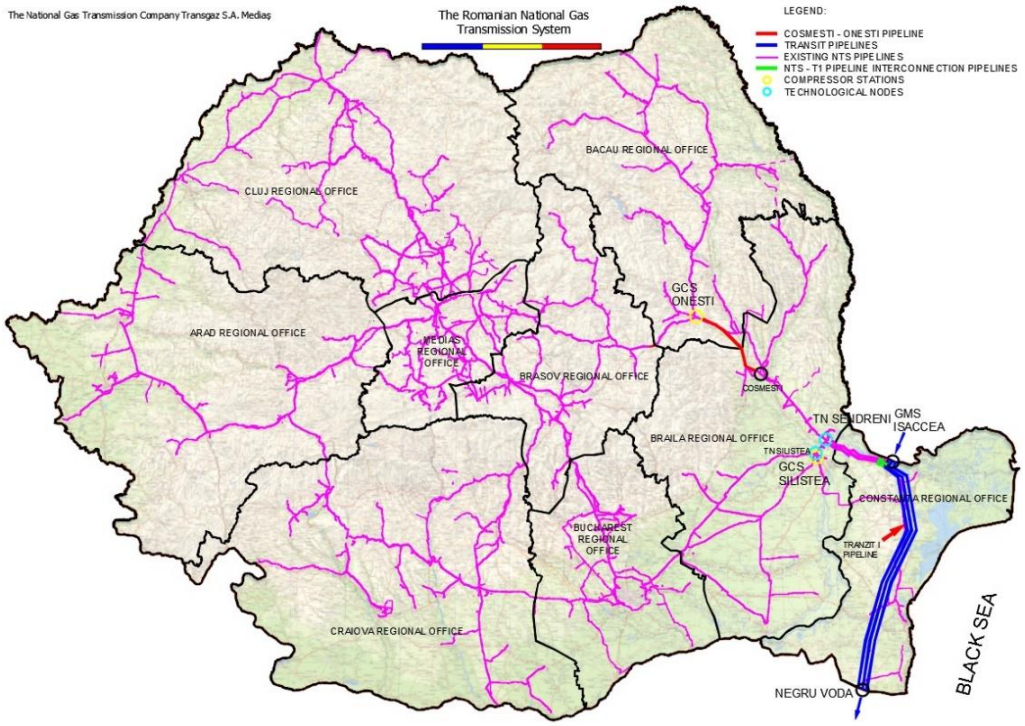

Figure 1 – Representation of the facilities related to the project „Interconnection of the national transmission system with the international gas transmission pipelines and reverse flow at Isaccea (RO)"

The project will be implemented in two phases, as follows:

Phase 1 – including the following investment objectives:

- ✓ *Interconnection Isaccea* – interconnection of the National Gas Transmission system with the T1 Pipeline in the Isaccea Gas Metering Station, located in the territorial administrative unit Isaccea, the county of Tulcea;
- ✓ *Repair works related to the Dn 800 mm Onești – Cosmești pipeline*, following the PIG intelligent inspection, providing for punctual repair works in the existing pipeline on the territory of the counties of Bacău, Vrancea, Galați.

Phase 2 – including the following investment objectives:

- ✓ *Upgrading the Siliștea Gas Compressor Station*, including the Technological Node (TN) Siliștea, located in the territorial administrative unit Siliștea, the county of Brăila;

- ✓ *Works in the Technological Node Şendreni* located in the territorial administrative unit Vădeni, the county of Brăila;
- ✓ *Upgrading the Oneşti Gas Compressor Station*, including the Technological Node (TN) Onești, located in the territorial administrative unit Onești, the county of Bacău.

In the area of the territorial administrative units Cobadin and Grădina located on the route of the Dn 1000 Transit 1 pipeline interconnections of the Transit 1 pipeline will be achieved by means of which gas will be taken over from the Black Sea continental shelf in the NTS.

The achievement of the Project enables the capitalization of the potential of the Transit 1 and Oneşti - Şendreni - Isaccea - Tranzit 1 pipelines to circulate the Black Sea gas, if gas import from the Russian Federation is stopped and the gas from the NTS to new consumer destinations or to old consumer destinations if they have no more established feasible sources.

In the event that gas supply by the Russian Federation is, for various reasons, stopped in Isaccea point, gas supply to Bulgaria and Romania will be affected. By implementing the Project, gas supply to Bulgaria may be ensured from the NTS on the NTS - Oneşti - Şendreni - Isaccea - Transit 1 - Negru Vodă route. At the same time, in case of taking over gas from the Black Sea continental shelf in the Transit 1 pipeline, part of the flows taken into the NTS can ensure gas supply to Bulgaria, and another part of the flows may ensure the supply to the deficient areas of the NTS, a quantity of gas may be directed to Podişor - Moşu and a quantity of natural gas may be exported to the Republic of Moldova.

By implementing the Project the following objectives will be attained:

- creating an alternative for Bulgaria's supply, different from the one implying the gas supplied from the Russian Federation, namely the supply from the National Transmission System;
- ensuring bi-directional gas flows on the Onești - Șendreni - Isaccea - Negru Vodă route and ensuring the delivery parameters requested by Bulgaria in the Negru Vodă point;
- the ability to take over in the NTS the gas from the Black Sea continental shelf by means of the Transit 1 pipeline, ensuring the diversification of gas supply sources;
- improving gas supply in various areas of the NTS especially during the winter season when, because of the low temperatures, consumption increases (the consumed flows) and the pressure in the system decreases;
- NTS operation flexibility from the point of view of the possibilities related to gas supply:
  - by supplying Bulgaria, with gas from the domestic production in the centre of the country, or
  - by supplying the Central or Eastern area of the country with import gas from the Isaccea direction or, in the future, with the gas taken over from the Black Sea continental shelf;
- increasing the safety of the operation of the existing pipelines and facilities;
- decrease the dependency on gas imports from a single source, by covering the constant and predictable increase tendencies of the consumption in the European countries against the background of a constant medium and long term decrease of the gas deliveries from the area of the Russian Federation.

Thus the Project meets the specific criteria provided in Regulation (EU) no 347/2013:

- ***Market integration*** as a result of the decrease in the congestion of the energy infrastructure and the increase in interoperability and flexibility of the system;
- ***Security of supply and competition*** by ensuring the proper interconnections, by the diversification of supply sources, transmission routes and stakeholders thus reducing the market concentration;
- ***Sustainability*** by reducing emissions due to the replacement of pollutant fuels with natural gas issuing less carbon dioxide per delivered energy unit.

According to the provisions of the *Technical Norms for Design and Execution of Gas Transmission Pipelines*, the width of the working strip for pipeline arrangement is 21 m for the pipeline Dn 800 and in agricultural land, grass land, hayfields and non-productive land and for the forested areas, orchards and difficult areas the working strip will be reduced to 10 m for the pipeline Dn 800.

For the repair works related to the pipeline on sections requiring repainting or re-insulation, it is necessary to temporarily occupy 8-14 m working strips of agricultural land, respectively 8-10 m of forest areas, orchards and vineyards.

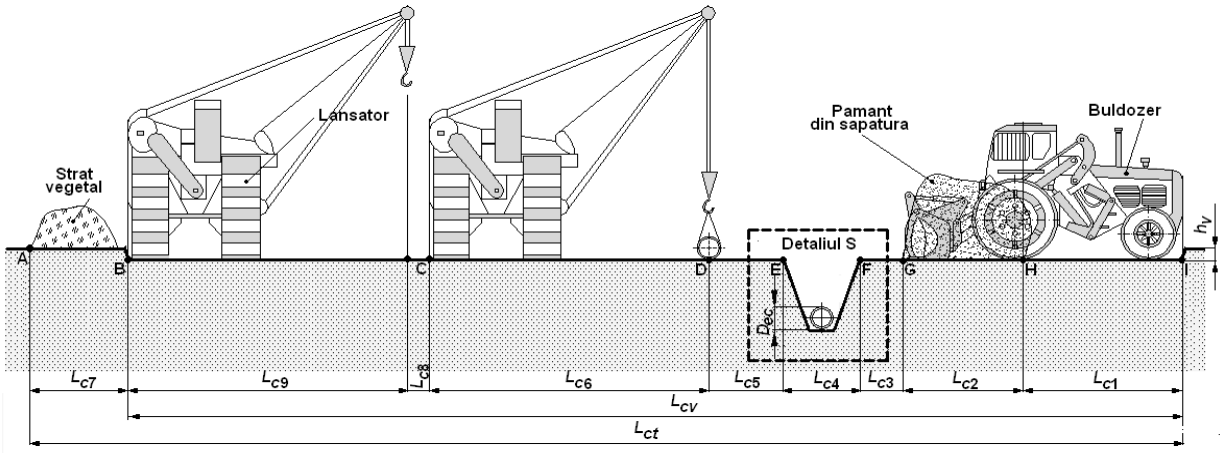

Figure 2 – Organization of the working strip

The total surface to be covered by the works for the construction of the investment objective is approximately 15 ha, of which the temporary occupied land surface is approximately 9.2 ha, and the permanently occupied land surface is approximately 0.8 ha, and the works for the upgrading of the stations inside the existing facilities are carried out on around 5 ha.

Pipeline route

The pipeline is located in the South Eastern area of the country on the territory of the counties Tulcea, Galați, Brăila, Vrancea and Bacău. The route of the gas transmission pipeline Onești – Cosmești follows the general direction from SE to NW, the repaired sections of the pipelines are located on the territory of the counties Galați, Vrancea and Bacău.

2. THE NATIONAL DEVELOPMENT PLAN

The Project is included in the second list of Projects of Common Interest adopted by the European Commission in November 2015 at the position:

- ✓ ***6.15 „Interconnection of the national transmission system with the international pipelines and reverse flow at Isaccea (RO)"***

At the same time it is included in the third List of Projects of Common Interest which was adopted by the European Commission in November 2017 and is to be approved by the European Parliament at the position:

- ✓ ***6.24.10 position 1 „Extension of the Romanian National Transmission System between Onești and Isaccea and reverse-flow at Isaccea"***

and is part of the National Gas Transmission Development Plan 2017-2026 approved by the National Energy Regulatory Authority's Decision 910/22.06.2017, at the position 7.3 „Interconnection of the national transmission system with the international gas transmission T1 pipeline and reverse flow Isaccea".

Link:

http://www.transgaz.ro/sites/default/files/uploads/users/admin/plan_de_dez_2017_-_2026.pdf

3. IMPACT ON THE ENVIRONMENT

3.1. CROSSING PROTECTED AREAS

The facilities related to the project are located in what the natural protected areas are concerned as follows:

- The *Isaccea Interconnection* is located inside the ROSPA0031 Danube Delta and the Razim Sinoie Complex and at an approximate distance of 270 m from the ROMAB003 Danube Delta (biosphere reserve);
- *The TN Șendreni 1* is located at an average distance of 80 m from ROSCI0162 Lower Siret Meadow and ROSPA0071 Lower Siret Meadow;
- *The GCS Silistea* is not located within or near the natural protected areas, the site is about 5,400 m from the site limit Natura 2000 ROSPA0071 Lower Siret Meadow;
- *The GCS Onesti* is not located within or near the natural protected areas, the site is about 1,500 m from the site limit Natura 2000 ROSCI0059 Perchiu Hill;
- The intervention points/areas for the repair works related to the Dn 800 mm Onești – Cosmești pipeline:
    - a section of 175 m of the temporary access road to the Dochia Meadow Area (erosion in the Forest) - between the 30 + 240 and 33 + 100 km of the pipeline (D7 additional point) at Urecheşti, Bacău County is found within the natural protected areas of community interest ROSPA 0071 Lower Siret Meadow;
    - an intervention area TIN 51 (area with nut plantations, sea buckthorn and other shrubs specific to the area) from Cosmeşti, Galaţi county is located within the natural protected areas of community interest ROSCI 0162 Lower Siret Meadow and ROSPA 0071 Lower Siret Meadow.

3.2. ALTERNATE ROUTES

Within the Feasibility Study **3 gas transmission scenarios** were analysed, namely:

Scenarios 1 and 2 propose the export of natural gas from Romania to Bulgaria, from the National Transmission System on the Onesti - Şendreni - Isaccea - Negru Vodă corridor, using the Onesti and Şendreni gas compressor stations in Scenario 1 and the Oneşti and Siliştea gas compressor stations in Scenario 2.

Scenario 3 proposes to take over the gas from the Black Sea continental shelf in the National Transmission System, by circulating gas to the Central Corridor along the Transit 1 - Isaccea - Şendreni - Oneşti pipeline route and ensuring the export capacity to Bulgaria on the Transit 1 pipeline.

The endorsed option of the Feasibility Study (Scenario 2) includes the execution of the Isaccea Interconnection so as to ensure reverse flow between the National Transmission System and the Transit 1 gas pipeline, the upgrading of the existing gas compressor stations GCS Onesti and GCS Silistea, as well as the works in the technological nodes Oneşti, Şendreni and Siliştea.

In view of the streamlining and selection of the final route the following aspects were taken into account:

- minimum impact on agricultural lands;
- avoidance of landslide areas;
- necessity of minimum land improvement as compared to other possible alternatives;
- technical, economical and construction related considerations, and the possibilities to monitor the stations and the pipeline during operation;
- minimum impact on the environment (and on all environmental aspects);
- assurance of conditions for mechanical digging and construction-mounting works;
- safety of operation;
- observance of safety distances to nearby objectives;
- minimum social impact.

3.3. CHARACTERISTICS OF POTENTIAL PROJECT IMPACT

Impact on population and human health

The impact on population and human health is insignificant because the construction-mounting works will be mainly performed outside town limits.

Due to the fact that the works execution team will observe the labour health and safety security, the possibility of technical or human accidents is reduced to minimum.

The potential impact on population and on human health may be caused by the following factors:

- Loss of income source following the permanent occupation of the land (direct, long term, permanent negative impact);
- Loss of income source following the temporary occupation of the land (direct, medium term, temporary, negative impact);
- Possible deterioration of local roads because of the construction site traffic (direct, short term, temporary, negative impact);
- Noise and vibrations caused by the construction site traffic (direct, short term, temporary, negative impact);
- Use of local work force (direct impact, during the construction works, temporary, positive).

Impact on fauna and flora

The potential impact on fauna is caused by the presence of devices and labour force in the working area and by the construction-mounting works. The following factors may have an potential impact:

- Sound pollution in the working area (direct, short term, temporary, negative impact);
- Disruption of access to feeding and drinking areas (direct, short term, temporary, negative impact).

The impact on flora is caused by:

- Loss of habitat because of the permanent occupation of land (direct, long term, permanent, negative impact);
- Loss of habitat because of the temporary occupation of land (direct, medium term, temporary, negative impact);
- Preparation of land surface for the construction-mounting works, where the topsoil needs to be removed before the digging and pipe laying works.

Impact on soil and on land use

The project is carried out in accordance with the provisions of the "Technical Norms for the Design and Execution of the Natural Gas Transmission Pipelines" approved by the Order of the President of the National Energy regulatory Authority no.118/2013.

The FEED provides for the removal and separate storage of the vegetation layer on the pipeline route, so that once the works have been completed, the land is restored to its original state.

The potential impact on the soil may be generated by the following factors:

- Soil pollution because of the inadequate waste disposal, because of pipeline cleaning that leaves dust and metal oxides on the soil, and because of fuel and lubricant leakage during the operation and maintenance of the devices (direct, short term, temporary, negative impact);
- Alteration of soil structure that may lead to lower soil fertility because of the digging works needed for pipeline laying (direct, short term, temporary, negative impact).

Works will be performed with observance of the project execution stages, of the technological discipline during the construction-mounting works, of adequate waste storage and land reinstatement program. Impact on soil will thus be reduced.

The impact on land use may be caused by the following factors:

- permanent land removal from the Agricultural Land Reserve for arrangement of aboveground facilities (direct, long term, permanent, negative impact);
- temporary land removal from the Agricultural Land Reserve / Forestry Land Reserve for the entire route of the pipeline, in the working strip and in the site management areas (direct, medium term, temporary, negative impact).

Impact on water quality and quantity regime

The impact on some water bodies is caused by the undercrossing works.

Water undercrossing works will be carried out as follows:

- Pipeline lowered in to the open ditch;

The potential impact on water quality and quantity regime may be caused by the following factors:

- increased water turbidity because of the ditches executed to lay the pipeline (direct, short term, temporary, negative impact);
- accidental spilling of fuels and lubricants from the undercrossing works devices (direct, short term, temporary, negative impact).

The execution works are supposed not to affect water quality in the working area, and the physical-chemical, biological and bacteriological quality parameters are supposed to remain within admissible limits.

As one may notice, the impact on surface waters is temporary during Project execution stage, and when works are completed shores will be rehabilitated.

Impact on air quality and on climate

During pipeline mounting works the air pollution sources are represented by the engines of vehicles and machines, as well as the welding works for pipeline sections and paint coating protection works for fittings.

Under these circumstances the potential impact on air and climate is caused by the following factors:

- pollutants caused by burning emissions (exhaust gas) from engines (direct, short term, temporary, negative impact);
- emissions of volatile organic compounds caused by paint coating operations (direct, short term, temporary, negative impact).

Devices at working points will work intermittently and, as a result, engines emissions will be punctiform and instantaneous, which makes the impact on air insignificant.

Paint coated surfaces will also be reduced.

Impact of noise and vibrations

The sources of noise and vibrations are represented by the equipment needed to dig and cover the ditch, needed to transport and handle the pipeline, to transport staff during works execution.

Since the devices and equipment used must be homologated, the noise and vibrations are considered to be within admissible limits and the impact is considered to be insignificant, namely within the admissible limits.

In order to comply with the maximum noise level for inhabited areas, as set by Order 119/2014 on the approval of the public hygiene and public health regarding the population's way of life, namely 55/40 dB day/night, the Project's design will provide for adequate measures.

Impact on landscape and scenery

The impact on landscape is caused by the following factors:

- change of use of land during the pipeline mounting works (direct, medium term, temporary, negative impact);
- deforestation of forest areas on the working strip (direct, long term, negative impact for the entire period pipeline is in operation);
- the aboveground facilities of the gas transmission system (direct, long term, permanent, negative impact).

At the end of the pipeline construction-mounting works land will be reinstated to its initial use, the deforested area will be reforested, save for the 6m area to the left and to the right of the pipeline generatrix where no trees, bushes, neither vineyards may be planted.

Impact on the interaction between environment components

Taking into account all the activities necessary to carry out the project we believe there is no impact on the interaction of such components.

Impact on the historical and cultural heritage

In the area of the site works foreseen within the Interconnection Isaccea, for the upgrading of gas compressor stations or in the intervention points/areas for the repair of the natural gas transmission pipeline, as well as in their vicinity there are no historical/architectural monuments and archaeological sites to be affected.

Cross-border impact

There was no environmental cross-border impact identified.

3.4. MEASURES TO AVOID AND REDUCE THE SIGNIFICANT IMPACT ON THE ENVIRONMENT

Measures to reduce the impact on population and on human health

Taking into account the potential impact on population and on human health, we propose the following measures to reduce the impact:

- compensation of affected land owners in line with the laws in force;
- rehabilitation of infrastructure affected by heavy traffic;
- reduction, to the minimum necessary, of running time for devices;
- reduction of speed for moving the devices on access roads to the working space in order to diminish dust emissions during draught times.

Measures to reduce the impact on fauna and flora

Considering the impact on flora and flora, we propose the following measures to reduce the impact:

- upon the execution of the project all the specific requirements and conditions of the custodians/ administrators of the natural protected areas, respectively of the issuer of the environmental agreement will be taken into account,
- assurance of legal limits for noise emissions of devices and correct maintenance thereof;
- observance of technical norms on design and execution of gas transmission pipelines with regards to the preparation of the land surface for the construction-mounting works;
- deforestation will be performed with observance of the exploitation and cleaning of branches and vegetable waste technical norms;
- the exploitation technology will be the technology that causes minimal damage to soil and vegetation in the neighbouring area of the deforested perimeter;
- save for the surfaces of land that have permanently changed their initial use, the surfaces of land that are temporary affected will be brought back to their initial state when works are completed.

Measures to diminish the impact on soil and on land use

During the execution stage control is recommended by execution phases, and adequate storage of topsoil is recommended in order to reinstate land quality by ploughing, braking and fertilizing operations.

In order to avoid soil pollution the following measures will be taken:

- there will be no dumping, no burning, no storage on soil and no burying of garbage or other type of waste (used tires, oil filters, cloths, paint recipients, etc.);
- waste will be stored separately, by categories (paper, metal, plastic and glass, polyethylene packing, metals, etc.) in specially designed recipients or containers;
- any spilling of used oils or fuels is forbidden;
- only pre-set access ways and parking areas will be used for devices;
- any storage of tubing outside the working strip is forbidden.

During the pipeline execution works the following works are envisaged for soil/subsoil protection:

- digging operations for pipeline mounting will be executed in correlation with the general flow of the pipeline mounting works so as to reduce the time when ditch is kept open and to avoid caving, water filling, infiltrations in lower layers, landslides;
- topsoil will be stored separately to be later used for soil reinstatement when works are completed;
- after pipeline is laid, ditch is to be filled and adequately compacted so as to avoid rain water infiltrations through the sandy ground of the pipeline ditch.

In case of permanent and temporary removal from the Agricultural Land Reserve / Forestry Land Reserve the following measures are proposed to reduce the impact:

- sizing of the works to the minimum necessary surface;
- strict delineation of the working strip.

Measures to diminish the impact on water quality and quantity regime

For safe exploitation of the pipeline under-crossings, geotechnical and hydrological studies have been performed to determine the maximum levels for the calculation and control of water bodies and of general scouring.

Storage of materials, of waste, and stationing of devices in the river beds are forbidden.

After the execution of the works the affected shores will be reinstated to their initial state.

During works execution the constructor and the beneficiary are bound to assure free flow of water.

Appropriate wastewater collection and disposal systems will be provided. Evacuation of any categories of wastewater shall be carried out in compliance with the requirements imposed by the legal provisions in force.

Measures to reduce the impact on air and climate quality

During the construction-mounting works the impact on air is represented by the flue gas from engines and devices, by insignificant emissions of volatile organic compounds from valves and fittings painting jobs.

In order to reduce flue gas emissions devices and/or vehicles will be stopped during the breaks.

To reduce the impact on the air we propose rigorous technical checking of vehicles engines and devices used for project works.

Measures to reduce the impact of noise and vibrations

The undertakers have the following obligations:

- to assure the adequate quality of their own quality system designed and created by own staff, with certified technical staff;
- to use only the products and equipment specified in the project for works execution;
- to observe the execution details as specified in the project.

Construction control and quality are performed by investors through their site supervisors or through expert consultants.

For observance of the maximum noise level at inhabited dwellings, as set by Order no.119/2014 on the approval of the Public hygiene and public health regulation regarding the population's way of life, namely 55/40 dB day/night, the Project's design will provide for adequate measures.

Measures to reduce the impact on landscape and visual environment

Considering the potential impact on landscape and visual environment the proposed measure to reduce the impact is the restoration of the temporary occupied land to its initial state upon the completion of the works related to the Project.

4. PROJECT PRELIMINARY SCHEDULE

Development and implementation stages	Period
Prefeasibility study	Complete
Feasibility study	Complete
Environmental Impact assessment	2017 – 2018
FEED and permitting documentation for the construction permit	2017 – 2018
Construction Phase 1	2018
Construction Phase 2	2018 – 2019
Technological probes and commissioning Phase 1	2018
Technological probes and commissioning Phase 2	2018 – 2019
Start of operation Phase 1	2018
Start of operation Phase 2	2019

5. SUMMARY ON PROJECT STATUS

The feasibility study related to "The NTS Interconnection with the IS and reverse flow at Isaccea" and DALI for "Repair works related to the DN 800 mm Onești- Cosmești pipeline" was completed. Within such study the

technical solution was selected and the following specialty studies were prepared: topographical studies, geotechnical studies and hydrological studies.

The activity related to the identification of land owners affected by the Project execution works is ongoing, and so is the procedure for the permitting of the construction works, namely the granting of the Town Planning Certificates and permits. All the Town Planning Certificates were obtain, as follow:

- Town Planning Certificate no 562/05.12.2017 issued by County Council Bacău
- Town Planning Certificate no 347/20.11.2017 issued by County Council Vrancea
- Town Planning Certificate no 209/21.11.2017 issued by County Council Galați
- Town Planning Certificate no 90/22.11.2017 issued by County Council Tulcea
- Town Planning Certificate no 277/16.11.2017 issued by County Council Brăila
- Town Planning Certificate no 276/16.11.2017 issued by County Council Brăila
- Town Planning Certificate no 264/28.11.2017 issued by Bacău Municipality

6. PUBLIC CONSULTATIONS

According to the provisions of Art. 9 (7) under "*Regulation (EU) 347/2013 of the European Parliament and European Council, dated April 17th, 2013 on the guidelines for trans-European energy infrastructure and repealing Decision no. 1364/2006/CE and amending Regulations (EC) No.713/2009, (EC) No. 714/2009 and (EC) No. 715/2009",* S.N.T.G.N. Transgaz S.A. invites the interested public to take part in the public consultations. The times and locations for such consultations will be established and published on the company's webpage.

The interested public may get additional information on the Project from the following contact:

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7. OTHER RELEVANT INFORMATION

The Page of the Project:

http://www.transgaz.ro/ro/consultarea-publicului-interconectare-snt-t1-si-reverse-flow-isaccea

For information on EU PCIs access the following link:

https://ec.europa.eu/energy/en/topics/infrastructure/projects-common-interest

The manual of procedures for the permit granting process applicable to PCIs and elaborated according to Regulation (EU) no. 347/2013 has been published for public consultation purposes by the Competent Authority for PCIs and may be found on the Ministry of Energy webpage:

http://energie.gov.ro/manual-privind-procedura-de-autorizare-a-proiectelor-de-interes-comun/