PUBLIC JOINT STOCK COMPANY TRANSNEFT
(TRANSNEFT)

# Innovation Development Programme of Transneft for 2022-2026

# PROFILE

Moscow
2023

***1.*** *General Information*

The Profile of the Transneft Innovative Development Programme (hereinafter referred to as the IDP) is worked out and published with the aim to timely inform third-party organisations that are potential partners in the implementation of the IDP about the directions of innovative development of Transneft (the Company) and Transneft subsidiaries (TS), ongoing changes in innovation policy, the needs of Transneft and its subsidiaries in attracting external competencies and resources.

The IDP Profile is primarily intended for:

- third-party Russian organisations – potential suppliers of innovative solutions for Transneft and TS in order to adapt their research, development, and production plans to the future needs of Transneft and TS;
- third-party Russian educational institutions in order to adapt their personnel training plans to the prospective needs of Transneft and TS;
- foreign organisations in order to identify areas of possible cooperation with Transneft and TS in the innovation field.

***2.*** *Goals and Key Performance Indicators of Transneft Innovative Development for 2022-2026*

The objectives of the Transneft Innovation Development Programme is closely related to the objectives stated in corporate strategic documents, including the Development Strategy and the Transneft Long-Term Development Programme.

The objectives of the Transneft Innovation Development Programme for 2022-2026 are:

- increasing Transneft's level of technological development and the role of innovation in achieving the Company's strategic goals;
- introduction of technologies to increase the throughput capacity of trunk pipelines;
- application of advanced industry-specific technologies that ensure a high level of reliability, as well as industrial and environmental safety;
- reducing dependence on foreign manufacturers and increasing the share of hi-tech equipment and domestically produced software;
- development of technologies aimed at improving energy efficiency and energy saving.

Key performance indicators (KPI) of Transneft IDP for 2022-2026 are:

- The volume of manufactured products developed as a result of implementing research and development (R&D) plans and Transneft's innovative projects, RUB million.
- Number of titles of protection for intellectual property obtained during the reporting period, pcs.
- Increased diagnostic data transparency, %.
- General level of the specific number for the trunk pipelines and onsite facilities of the trunk pipelines, people/facility.
- Number of TSs operating in the corporate information system (CorIS) (cumulative), pcs.
- The IDP goals and KPIs take into account the specifics of the Company as an infrastructure business focused on "internal commercialisation" of the innovative projects' and R&D results, meaning their application at the TS trunk pipeline transport facilities to ensure the safety and reliability of their operation. Innovative projects and applied R&D are also aimed at ensuring the complete independence of the Company from foreign markets for the products supply (import substitution).

***3.*** *Medium and Long Term Priority Technologies and Areas of technological Development of Transneft, the Need to Attract External Competencies*

Considering the innovation development goals and based on the findings of the technology audit, a list of technology priorities and technology challenges to be addressed in the medium term has been identified:

- improvement of applied methods and equipment for in-line inspection of trunk pipelines, research of promising in-line inspection technologies;
- developing domestic metrological support systems for the oil and petroleum products pipeline system;
- development of a comprehensive system for monitoring the technical condition of trunk pipelines built or operated in areas where geological hazards may develop;
- developing environmental equipment to maximise import substitution;
- increasing import substitution and developing the national production of drag-reducing agents, energy-efficient pumps, electric motors, as well as oil and petroleum products' lease automatic custody transfer units;
- creating the unified centralised ERP system "Corporate Integrated Management Information System of Transneft and Transneft Subsidiaries.

In addition, Transneft Digital Transformation Strategy will be a separate area of development.

For all of the above mentioned technologies, Transneft has the necessary competence to develop and introduce new products that can improve the Company's efficiency and safety. With that said, it is possible to outsource the joint implementation of innovative projects and the purchase of finished products, if they are unique and economically feasible for a particular project.

*4. Key Transneft Innovative Projects for 2022-2026*

As part of the IDP for 2022-2026, the implementation of the following key innovative projects is planned:

**1.** Development of high-precision in-line inspection systems for ensuring reliability of trunk pipeline facilities.

**2.** Development and implementation of domestic metrological support systems for oil and petroleum product accounting operations.

**3.** Development and production of domestic drag-reducing agents with improved rheological characteristics.

**4.** Production of energy efficient domestically manufactured pumps with enhanced efficiency.

**5.** Development and manufacturing of high-voltage induction and synchronous electric motors of improved design with improved characteristics.

**6.** Development of a comprehensive system for monitoring the technical condition of trunk pipelines with an assessment of their current and projected condition.

**7.** Creating the unified centralized ERP system “Corporate Integrated Management Information System (CIMIS) of Transneft and Transneft Subsidiaries.

Description of the needs for attracting external competencies for the implementation of key innovative projects is given in Table 1.

Additionally, not only projects and activities for the immediate future, but also areas for technology development and future research are identified for the period of up to 2036:

- Monitoring and geolocation;
- The Internet of Things for industrial safety and occupational health;
- Improvement of the construction and operation of storage tanks for oil and petroleum products;
- The technical condition control system with the digital twin technology for the line facilities of trunk pipelines;
- Tools for planning and control of transportation processes;
- Computer modelling;
- Improving the system of diagnostic inspections and surveys;
- Management of greenhouse gas emissions;
- Improving regulation under Industry 5.0;
- Smart power supply technologies;
- Robotic systems;
- Artificial intelligence technologies.

Table 1 – Description of the needs in attracting external competencies for the implementation of key innovative projects

| No. | Project Name | Needs to attract external competencies |
|---|---|---|
| 1 | Development of high-precision in-line inspection sets for ensuring the reliability of trunk pipeline facilities | External participants with unique technologies and/or diagnostic techniques may be engaged (for introduction of in-line inspection methods and technologies). The involvement of external participants for implementation of the project is carried out through R&D or bidding for the supply of products. |
| 2 | Development and introduction of domestic metrological support systems for oil and petroleum product accounting operations | During the project implementation, cooperation with a number of external contractors for technical design and metrological support is planned. |
| 3 | Development and production of domestic drag-reducing agents with improved rheological characteristics | Involving external partners is not planned. Development and production is carried out by using the resources of Transneft subsidiaries. |

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| 4 | Production of energy efficient domestically manufactured pumps with enhanced efficiency. | In the process of the project implementation, there is a need to outsource the following works: expert evaluation of technical decisions, foundry production of body parts and others. |
| 5 | Development and production of high-voltage induction and synchronous electric motors of improved design and characteristics | Involving external partners is not planned.<br>Development and production are carried out by using the resources of Transneft subsidiaries. |
| 6 | Development of a comprehensive system for monitoring the technical condition of trunk pipelines with an assessment of their current and projected condition | The project will be implemented by Transneft's internal resources with the involvement of RAS organisations, higher education institutions, and external organisations on a competitive basis with the best practices and competence. In the process of implementing the Project, there is a need to outsource the following works:<br>- Development of import-substituting equipment and software for the development of a local automated geodetic network;<br>- High precision laser scanning;<br>- Development by an algorithm for calculating frost heaving of soils freezing in natural conditions;<br>Geological surveys and seismic micro-zoning of gate valves sites. |
| 7 | Creating the unified centralised ERP system Corporate Integrated Management Information System (CIMIS) of Transneft and TS | The ERP system is to be built on the Russian-made 1C: ERP Enterprise Management platform.<br>The project implementation will involve outsourcing. |

***5.*** *Developing mechanisms of interaction between Transneft and its potential partners in the field of innovations*

In line with the IDP implementation, it is planned to further develop interaction with third-party organisations, and to apply the principles of “open innovation” in a number of areas.

**5.1. Procurement of Innovative Solutions and Interaction with Suppliers of Innovative Technologies and Products, Including Small and Medium-sized Companies**

The Company's procurement activities are carried out in accordance with the requirements of Federal Law No. 223-FZ On the Procurement of Goods, Works, and Services by Certain Legal Entities dated 18 July 2011 on the principles of open competition.

In recent years, the Company has created all the basic mechanisms to increase the transparency of procurement procedures, information transparency, and the formation of sustainable partnerships. These include, in particular, a “single window” system for implementing innovative solutions, the SME Partnership Programme and the organisation of work of the Procurement Audit Advisory Body. The most important element of the Company’s Long-Term Development Programme is the Setting up Manufacture of Imported Products for Oil and Petroleum Products Trunk Pipeline Transportation in the Russian Federation. Together, these mechanisms provide favourable access to Transneft procurement for the most responsible and qualified suppliers.

The Single-Window system for implementing innovative solutions was created in 2014. The system operation rules are described in the Regulation on the procedure and rules for introducing innovative solutions into the activities of Transneft and Transneft subsidiaries.

To involve a wide range of potential suppliers in the Company's innovation activities in advance and to timely update them on the current needs, the following activities are carried out:

- uploading brief information about the Innovation Development Programme, technological priorities and scientific-technological cooperation with third-party organisations onto the Transneft website, the Sustainable Development - Long-Term Development - Innovations section (https://www.transneft.ru/development/perspective/innovations/);
- posting information on SME support for Transneft procurement (at https://www.transneft.ru/tenders/all/msp-support/);
- posting information on the procedure for collecting innovation proposals (the single-window system), including the Regulations on the procedure and rules for introducing innovative solutions into the activities of Transneft and Transneft subsidiaries, a form for submitting innovation proposals, a model contract for peer review, a list of needs of Transneft subsidiaries in new equipment, technologies and materials in the public

domain of the Internet (https://niitn.transneft.ru/innovacii/innovation/).

The organisation responsible for interaction with potential suppliers of innovative solutions is Transneft R&D (Transneft subsidiary).

### 5.2. Partnership Development in Education and Science

Scientific and educational organisations act as an important source of competence, knowledge, and innovation for Transneft. Improvement of the Company's system of partnership with scientific and educational organisations is aimed at addressing the Company's technological challenges and narrowing the gap with foreign peers, including by expanding and increasing the efficient use of competencies, scientific and technological groundwork, as well as the research and innovation infrastructure of scientific and educational organisations.

During the IDP implementation, close cooperation is planned with higher education institutions and scientific organisations, both as part of technology platforms and through bilateral cooperation agreements as well as direct contracts, in the following main areas:

- carrying out R&D activities;
- maintaining facilities and equipment, research, and test base;
- service rendering;
- supporting basic departments;
- raising the level of skills and retraining of engineering personnel;
- targeted training for students;
- corporate scholarships and social payments programme, organisation of scientific and technical events;
- carrying out all types of student internships, including internships for teaching staff.

Transneft focuses on developing a continuous education system, including training, advanced training, and professional retraining processes in corporate and state educational organisations from school to university. With this in mind, the Company strives to provide the optimal combination of developing its own corporate training system and attracting the educational competencies of third-party organisations.

Transneft and TS will pursue further effective cooperation with higher education institutions on an annual basis as long as the programme lasts in the following main areas:

- organising a targeted training system for specialists in higher education programmes through the development and improvement of the system for detailing the quota of targeted training specifically for Transneft subsidiaries through the Ministry of Energy as well as the Ministry of Education and Science of the Russian Federation;
- inviting lead specialists of the Company to specialised educational institutions to give lectures on issues of engineering and technology of pipeline transportation;
- advanced training and professional retraining of Transneft employees in specialised higher education institutions;
- organisation of group occupational internships for students in TS with practical and laboratory classes at the Company;
- engaging students during occupational and pre-graduation internships to work in the actual workplace, subject to their preliminary training in a corresponding trade, as part of the curriculum at a higher education institution;
- writing graduation theses exclusively on the topics proposed by industry experts and agreed upon by the core department of a higher education institution;
- regular internships for higher education institution professors in Transneft subsidiaries, their introduction to the equipment used and technologies applied, including those developed as part of the Innovation Development Programme.

To improve the quality of education in specialised higher education institutions the following measures will be carried out:

- improving the forecasting system for the need of oil and petroleum products pipeline transportation for senior personnel as well as engineering and technical personnel;
- developing and updating professional standards in the field of oil and petroleum products pipeline transportation;
- developing and updating extended education programmes in cooperation with higher education institutions;
- supporting the specialised departments and occupational internships system for professors at Transneft subsidiaries.
- application of digital technologies (virtual reality, VR-technology) to form modules of training and vocational education programmes to hone competences in the field of maintenance and repair of pipeline transportation facilities. Development of software modules mimicking the processes of line and onsite operating

facilities, with the ability to simulate abnormal situations.

On an annual basis, the material and technical base of higher education institutions and basic departments will be supported. Employees of the Company will continue to participate in teaching and developing curricula, training programs, retraining, and advanced training of Transneft and TS personnel. Senior students will be involved in occupational internship and undergraduate work at the Company's business units and TS. Implementation of projects to work with young specialists will continue (including work with schoolchildren and students, payment of corporate scholarships, youth and professional competitions).

### 5.3. Development of Interaction with Technology Platforms (TPs)

During the programme implementation, Transneft plans to take part in the activities of technological platforms (TPs) which correspond to the Company's profile, as well as expand the forms of such cooperation.

Developing the mechanism of information exchange with relevant TPs about current and future needs for innovative technologies and products will continue, as well as elaborating upon the opportunities to attract specialised TPs and their participants for joint work and projects.

In 2022-2026, the Company plans to participate in the following activities for interaction with the relevant TPs:

- participation in the activities of relevant technology platforms for forecasting and monitoring scientific and technological development, including monitoring information on the best available foreign technologies, and monitoring the state of the core scientific and technological field in Russia;
- participation in the development and adjustment of strategic research programmes of relevant technology platforms, including proposals on the works and projects topics in the interests of the Company to be implemented as part of strategic research and development programmes;
- participation of the Company in the expert evaluation of research and development projects carried out as part of the technological platforms, including through participation of the Company's representatives in the respective advisory bodies of the specialised technological platforms (expert panels, scientific and technical councils);
- participation in the development and approval of the regulatory framework in the technologies of common interest to the Company and the technology platform, including draft technical regulations and standards;
- preparation of proposals for the improvement of existing and development of new educational and professional standards based on technology platforms.

### 5.4. Implementation of the Innovative Potential of Russian Regions

In 2022-2026, bilateral cooperation with regional innovative production clusters is to be expanded and developed along the following lines:

- joint performance of R&D activities;
- informing and advising cluster members about ongoing and planned research and innovation projects of Transneft;
- mutual updates of the parties involved on ongoing and planned activities;
- use of the Innoscope Russian Centre for Open Innovation resource – in particular the posting of technology and engineering requests, in order to find relevant and innovative solutions;
- professional retraining and advanced training for managers and specialists of Transneft and its subsidiaries at additional vocational education institutions (on the basis of regional innovation clusters (RICs));
- development and maintenance of the facilities and equipment of higher education institutions (RICs participants).

It is planned to work on interaction with the innovative infrastructure facilities created:

- science parks, including hi-tech science parks, established to ensure accelerated development of hi-tech sectors of the economy. The development of cooperation with these organisations will enable research and development activities to be carried out in order to introduce new technologies into production processes;
- technology commercialisation and transfer centres, organised to promote the commercialisation of scientific developments, the cooperation of researchers and real economy sector organisations, and the search for practical applications for promising inventions. Cooperation with the centres will enable collaboration with developers of innovative projects and early identification of promising products that can be applied to pipeline transportation facilities in the future;
- training and innovation centres with training and demonstration sites (modern educational organisations with the necessary competencies, experienced teaching staff, and modern training and material facilities, including demonstration sites) for quality and effective advanced training of the staff in line with current realities and the level of technological development in production.

In order to achieve the Company's goals in the field of innovation, and to realise the regions' innovation potential in 2022-2026, it is planned to identify organisations of higher education and secondary vocational education, scientific organisations, small and medium-sized innovative businesses, as well as innovation infrastructure facilities located in constituent entities of the Russian Federation and municipalities, to assess

the innovative potential of these organisations in terms of current and prospective opportunities to cooperate with them as part of the IDP implementation through their involvement in the supply of innovative technologies and products as well, as in research and development activities, and in the development of outsourcing.

**5.5. Development of Foreign Economic Activities and International Cooperation in the Field of Innovation**

The Company's system of foreign economic activity is formed with regard for geopolitical factors and the current international situation, and its tools are selected for specific tasks, depending on the expediency and effectiveness. Approaches to the planning and implementation of activities as part of the Company's foreign economic activities are based on the fact that Transneft's activities in the medium and long term are aimed at implementing strategic objectives regarding the development of the trunk pipelines system infrastructure in the Russian Federation. The Company has no plans to build pipeline infrastructure abroad. Meanwhile, the Company is interested in continuing activities to bring the in-line inspection services of Transneft Diascan to the external market, cooperation of Transneft R&D with foreign scientific organisations and higher education institutions, as well as increasing the efficiency of participation of Transneft and its subsidiaries in intergovernmental and state events of international and regional cooperation (participation in international associations, international technical committees, working and expert groups, international exhibitions and conferences).

Bilateral and multilateral inter-state cooperation mechanisms as part of the Intergovernmental Commissions and Energy Working Groups, as well as joint working groups with foreign fuel and energy companies and also direct contacts with foreign partner companies will be used to promote Transneft subsidiaries in foreign markets.

Particular attention will be paid to organising and preparing the participation of Transneft subsidiaries in international exhibitions and conferences. When laying plans for Transneft subsidiaries' participation in international exhibitions and conferences, preference will be given to professional events allowing for a broad representation of Transneft subsidiaries. Such events will be used to establish contacts with potential consumers of the products and services provided by TS, as well as to position Transneft Group as an active participant in the market for high-tech oil and gas equipment and services.

The main priority in the exhibition area will be to build sustainable relationships with major oil and gas companies, involving Transneft subsidiaries, in the execution of works, rendering of services, and supply of equipment on behalf of such customers. In addition, the Company's subsidiaries will collect information on advanced foreign technologies and technological solutions for future use.

Transneft and its subsidiaries will continue to actively participate in meetings of international and European technical standardisation committees, professional associations, institutes, and specialised standardisation conferences.

***6.*** *The List of Transneft Subsidiaries (TS) Participating in the Implementation of the Innovation Development Programme*

| Item No. | Subsidiaries and Affiliates, Names | Contact Details | Official Website |
|---|---|---|---|
| 1 | Transneft Urals, JSC | 10 Krupskoy str., Ufa, Republic of Bashkortostan, 450077, tel. +7(347)279-25-25 /(347)272-96- 44 | http://www.ural.transneft.ru |
| 2 | Transneft Western Siberia, JSC | 111 Krasny Put str., bldg. 1, Omsk, 644033 Tel. +7(3812) 65-35-02/(3812) 65-98-46 | https://westernsiberia.transneft.ru |
| 3 | Transneft Kama Region, JSC | 20 Patrisa Lumumby str., bldg. 1, Kazan, Republic of Tatarstan, 420081 Tel. +7(843)279-04-20/(843)279-01-12 | https://kama.transneft.ru |
| 4 | Transneft Siberia, JSC | 139 Respubliky str., Tyumen, 625048, tel. +7 (3452)32-27-10/(3452)20-25-97 | https://siberia.transneft.ru |
| 5 | Transneft Druzhba, JSC | 113 Uralskaya str., Bryansk, 241020 Tel. +7(4832)74-76-52/(4832)67-62-30 | http://druzhba.transneft.ru |
| 6 | Chernomortransneft, JSC | 85 Sukhumskoye sh., bld. 1, Novorossiysk, Novorossiysk City District, Krasnodar Territory, Russian Federation, 353902 1 Tel. +7(8617)60-34-51/(8617)64-55- | http://chernomor.transneft.ru |

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| 7 | Transneft Upper Volga, JSC | 4/1 Granitny Lane, Nizhniy Novgorod, 603600<br>Tel. +7(831)438-22-00/(831)438-22-05 | https://uppervolga.transneft.ru |
| 8 | Transneft Baltic, LLC | 11 Arsenalnaya Embankment, lit. A, St. Petersburg, 195009<br>Tel. +7(812)380-62-25/(812)660-07-70 | https://baltic.transneft.ru |
| 9 | Transneft Volga Region, JSC | 100 Leninskaya str., Samara, 443020, tel. +7(846)250-02-41, 250-02-39/(846)999-84-46 | https://volga.transneft.ru |
| 10 | Transneft North, JSC | 2/1 A.I. Zeryunov Avenue, Ukhta Komi Republic, 169313 Tel. +7(8216)77-13-00/(8216)76-01- 71 | https://north.transneft.ru |
| 11 | Transneft East, LLC | 14 Olimpyiskaya St., Energetik District, Bratsk, 665734<br>Tel. +7(3953)300-701/(3953)300-703 | https://vostok.transneft.ru |
| 12 | Transneft Far East, LLC | 1 Zaparina Str., Khabarovsk, Khabarovsk Territory, 680020, tel. +7 (4212)40-11-01/(4212)40-11- 99 | https://fareast.transneft.ru |
| 13 | Transneft Primorsk Port, LLC | 7 Portovy proezd (Primorsky Massiv Territory), Vyborg District, Leningrad Region, 188910<br>Tel. +7(81378)78-778/(81378)78-720 | httns://primorsk.transneft.ru |
| 14 | Transneft Kozmino Port, LLC | 78 Nizhne-Naberezhnaya St., Vrangel City District, Nakhodka, 692941, tel. +7(4236)77-10-00/(4236)77-10- 15 | https://kozmino.transneft.ru |
| 15 | Transnefteproduct, JSC | 2 Vishnyakovsky lane, Moscow, 115184<br>Tel. +7(495)915-98-07/(495) 915-9437 | http://transnefteproduct.transneft.ru |
| 16 | Transneft UW Service, JSC | 19-A Larina Str., Nizhny Novgorod, 603152<br>Tel. +7(831)437-77-63/(831)437-77-79 | https://tps.transneft.ru |
| 17 | Svyaztransneft, JSC | 12 Nametkina Str., Moscow, 117420<br>Tel. +7(495)950-80-70/(495)950-80-75 | https://svyaz.transneft.ru |
| 18 | Giprotruboprovod, JSC | 24 Vavilova Str., building 1, Moscow, 119334<br>Tel. +7(495)950-86-50/(495)950-87-56 | http://giprotruboprovod.transneft.ru |
| 19 | Transneft Diascan, JSC | 7 Kuybysheva Str., Lukhovitsy, Moscow Region, tel. 140501 +7 (496) 632-40-36, add. 5110, 5107/+7(496)635-09-13, +7(496)635-09-23 | http://www.diascan.transneft.ru |
| 20 | Transneft R&D, LLC | 47a Sevastopolskiy prospekt, Moscow, 117186, tel. +7(495)950-82-95/(495) 950-82- 97 | https://niitn.transneft.ru |
| 21 | REM, JSC | 8-I Eniseyskaya st., Chelyabinsk, 454010, tel. +7 (351) 204-44-11 | http://red.transneft.ru |
| 22 | Transneft Oil Pumps, JSC | 8S Eniseyskaya st., Chelyabinsk, 454010, tel. + 7 (351) 204-44-11 | https://pumps.transneft.ru |
| 23 | Transneft Synthesis, LLC | Special Economic Zone Alabuga, SH2 str., building 4/1, Elabuga, Republic of Tatarstan, 423600, tel. +7(987)181-45-98 | - |

7. *Contact Details*

1. Implementation of the innovation development programme – Directorate of R&D and Innovations.

2. Implementation of environmental activities, participation in the technological platform "Technologies for Sustainable Ecological Development" – Environmental Safety and Rational Nature Management Section.

3. Development of power equipment – Chief Power Engineering Directorate.

4. Development of mechanical and power equipment, development of own companies, implementation of the Programme for Setting Up Manufacture of Imported Products in the Russian Federation – Chief Mechanical Engineering Directorate.

5. Implementation of projects in the field of automation and business processes management – IT Department.

6. Advanced training and refreshment, engagement with higher education institutions – Personnel Training and Refreshment Section.

7. Procurement of innovative and hi-tech products, including at SMEs - Tender Organisation and Conduct Department.

8. Single-window system – Transneft R&D, tel. +7 (495) 950-86-77.
(https://niitn.transneft.ru/innovacii/innivation form/).

9. Foreign economic activity (international cooperation, export of innovative products) – External Communications Department.

10. Participation in international events – image-building section.

11. Charitable assistance to higher education institutions – Directorate for Government and Public Organisations Relations.

Contacts:
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