

Project Application Form

Under the Recovery and Resilience Facility

1. Project name
Digitization in railway transport through modernization of the safety and energy efficiency systems by railway directions of the core and comprehensive TEN-T network
2. Description of the project (objectives, main activities)
<p>Digital technologies provide huge potential for optimization of the transport system and open up new opportunities for production and services. They support integration of transport with other systems of the economy, such as energy, and significantly enhance the sector efficiency.</p> <p>The development of digital technologies and their penetration into all spheres of economic and social life necessitates a rethinking of the approach with respect to utilizing their exceptional potential for increasing the competitiveness of the Bulgarian economy, increasing the demand and supply and efficiency of the public services and successfully dealing with the main social challenges in the period up to 2030. Digital transformation is a process characterized by widespread introduction and combination of digital technologies in all spheres of public and economic life.</p> <p>The project will contribute to the implementation of Bulgaria's commitments for development of railway infrastructure, reaching European standards and for the stable development of the Trans-European Transport Network.</p> <p>Main objectives:</p> <ul style="list-style-type: none">- Increasing safety by implementing modern signalling and telecommunication systems that minimize the subjective factor- Increasing the throughput capacity and accuracy of the implementation of the train timetable- Improving the competitiveness of railway transport compared to other modes of transport, especially for the shift of freights from road to railway transport, which would lead to lower greenhouse gas emissions, i.e. to reducing the overall negative impact of transport on the environment.- Ensuring functional and visual control over the condition of all signals/traffic lights, switches and tracks in a railway station and creating conditions for full information of the station staff, including and the on-duty traffic manager.- Improving the quality of railway transport services by controlling the operating parameters and increasing the security, reliability and safety of transport operations by implementing a check point. As a result, transport safety and accident and incident prevention is ensured, as well as reducing the costs for maintaining the railway infrastructure and RUs, ensuring equal access to the railway infrastructure.- Reduction of the cost price for 1 MWh of electricity, consumed at the objects of the SE NRIC, by construction of photovoltaic power plants in the areas of railway stations.- Improving energy efficiency by implementing new LED lighting in the areas of railway stations. LED illuminators provide higher quality light and reduced need of maintenance.- Implementation of network and information security measures of the SE NRIC as part of the national cybersecurity system and construction of an integrated cybersecurity system of the SE NRIC with capabilities to adapt to the dynamics of the global cyber threats and to respond to large-scale attacks on infrastructure information resources. <p>The project includes upgrading the optical cable network to meet the requirements of the railway Infrastructure and the Bulgarian railway carriers for a long period of time, providing management and servicing of trains, administrative and operational management of railway stations and units of the SE NRIC and railway operators in the sections included in the scope of the project.</p>

- Improving the quality of railway transport services by controlling the operating parameters and increasing the security, reliability and safety of transport operations.

The scope of the project includes the design and construction of an innovative system - an automated hub for information management at the SE NRIC. The aim is to create a unified information management system at the SE NRIC - an information hub.

The platform will contain the following submodules:

- ✓ control module;
- ✓ IoT module;
- ✓ mobile app.

Processes and procedures can only function effectively if data is available across organizational and system boundaries. For this purpose, a single coordination center should be established at the information hub, which would simplify the flow of data thanks to:

- ✓ intelligent information sharing;
- ✓ end-to-end process monitoring;
- ✓ vertical and horizontal coordination of the organization;
- ✓ possibility for effective integration of sensors and available systems.

Through the information hub of the SE NRIC it will be possible to digitize the entire structure of the SE NRIC, together with the flow of information used in it. This includes digitalization of the overall communication between the various units and structures at the SE NRIC, which will help to achieve the following results:

- ✓ Creating a unified system for internal and external communication through a platform (telephone calls and e-mails that are not tied to a specific project/resource/task are minimized - e-mail is passive communication, and the platform will make it active)
- ✓ Consolidation of the information from the different systems used at the SE NRIC (information management from one centralized place - the information hub):
 - CCTV systems;
 - SCADA systems;
 - GIS;
 - Operational passports;
 - Monitoring of strategic sites and areas under the Cyber Security Act;
 - Train Performance Management System (TPMS);
 - Resource Planning and Management System (RPMS).
- ✓ Construction of a "digital twin" of the SE NRIC infrastructure, including:
 - Railway track (switches; traffic lights);
 - Main and auxiliary equipment;
 - Protective equipment;
 - Equipment, part of catenary (poles; transformer stations; cable network, etc.);
 - Crossing infrastructure;
 - Tunnels, bridges, culverts.
- ✓ Creation of applications for management and control of the life cycle of infrastructure sites, resources and equipment (rails, power supply network, bridges, tunnels, railway stations, etc.), from their construction or inclusion in the system to the end of their life cycle;
- ✓ Providing an opportunity for digital monitoring and management of the staff through a mobile application:
 - Paper media will be replaced (notebook; folder);
 - The information will be transmitted and stored in real time;
 - Communication will be instantaneous and will be received by all interested units in the chain.
- ✓ Improving the inventory process - with the help of the digital archive the time and the necessary resource for its implementation will be reduced many times;
- ✓ Ability to extract comprehensive in content and in type reports;
- ✓ Creation of additional IoT-applications for monitoring, analysis and control of connected infrastructure objects, resources and equipment.

The platform will be based on separate modules and can be configured according to the specific needs and requirements of the organization.

Main activities included in the project:

The project covers the following objects, including specific activities:

- 1. Object 1 - direction Sofia - Mezdra.** Construction of Dispatching Centralization Sofia - Mezdra. The object provides for design, delivery, construction and commissioning of:
 - dispatching centralization with automatic control of the movement of trains and train operation, situated in a single dispatching center at Sofia Central Railway Station.
- 2. Object 2 - direction Mezdra - Gorna Oryahovitsa.** Construction of Dispatching centralization Mezdra - Gorna Oryahovitsa. The object provides for design, delivery, construction and commissioning of:
 - dispatching centralization with automatic control of the movement of trains and train operation, situated in a single dispatching center at Gorna Oryahovitsa Railway Station.
 - route-computer interlocking at 7 railway stations (Mezdra, Kunino, Cherven Bryag, Gorni Dabnik and Dolni Dabnik, Pleven Zapad and Yasen).
- 3. Object 3 - direction Gorna Oryahovitsa - Kaspichan.** Construction of Dispatching Centralization Gorna Oryahovitsa - Kaspichan. The object provides for design, delivery, construction and commissioning of:
 - dispatching centralization with automatic control of the movement of trains and train operation, situated in a single dispatching center at Gorna Oryahovitsa Railway Station.
 - route-computer interlocking at 5 railway stations (Dralfa, Targovishte, Khan Krum, Shumen and Matnitsa) and provided interface to the dispatching centralization.
- 4. Object 4 - direction Ruse - Gorna Oryahovitsa.** Modernization of the telecommunication systems in the section. The object provides for design, delivery, construction and commissioning of:
 - modern digital telecommunication system based on optical cable network in the section of the 4th Ruse - Gorna Oryahovitsa railway line;
 - passenger information systems (public address system, electronic boards, clock systems);
 - construction of video surveillance of railway stations and station areas.
- 5. Object 5 - direction Karnobat - Sindel.** - The scope includes design, delivery, construction and commissioning of:
 - dispatching centralization with automatic control of the movement of trains and train operation, situated in a single dispatching center at Gorna Oryahovitsa Railway Station.
 - route-computer interlocking of Asparuhovo railway station;
 - automatic interlocking with axle counters without through signals;
 - construction of a modern digital telecommunication system based on optical cable network.
- 6. Object 6 - direction Kaspichan - Sindel.** The object provides for design, delivery, construction and commissioning of:
 - dispatching centralization with automatic control of the movement of trains and train operation, situated in a single dispatching center at Gorna Oryahovitsa Railway Station.
 - automatic interlocking with axle counters to ensure the movement of trains in the adjacent railway spans.
- 7. Object 7 - Implementation of a System for Monitoring and Control of Parameters of Railway Rolling Stock in Motion, with the following included activities:**
 - Construction of a System for Monitoring and Control of Parameters of Railway Rolling

Stock in Motion (SMCPRRSM). Through the implementation of SMCPRRSM, conditions are created for continuous objective monitoring in real time of train operation and rolling stock. SMCPRRSM will perform real-time inspection/control of the weight of freight wagons that are not weighed on electronic scales or enter the SE NRIC network with already prepared documents for verification of the calculated infrastructure charges. SMCPRRSM will check in real time the gauge, the correct distribution of the load of the rolling stock between the bogies of the wagons, damages to bearings and brakes and derailed rolling stock.

- Monitoring and control during system implementation.

8. Object 8 - Construction of solar/photovoltaic/power generation plants in the area of railway stations for the needs of the SE NRIC, including activities, such as:

- design, coordination of the prepared projects and issuance of a construction permit;
- construction and installation work;
- connection to the electrical equipment of the SE NRIC, acceptance and commissioning of the object.

9. Object 9 - Modernization of new energy-saving /LED/ lighting in the area of 120 railway stations and stops, with included activities:

- elaboration of projects for each station separately with the respective light technical calculations;
- installation of illuminators on railway poles and pylons;
- possibility for manual control from the spot, automatic control and control from the dispatch center - SCADA;
- rehabilitation of electrical control panels;
- settings and commissioning.

10. Object 10 Construction of optical cable network and digital telecommunication equipment in the section Sofia - Karlovo - Filipovo

- construction of optical cable network in the section;
- digital integrated telecommunication system for voice and data transmission;
- specialized dispatch communications and railway station concentrators for operational connections;
- passenger information systems (public address system, electronic boards, clock systems);
- construction of video surveillance of railway stations and station areas.

11. Object 11 Providing a system of solutions in the field of cybersecurity, contributing to the achievement of cyber safe and secure infrastructure of the SE NRIC

- Carrying out an audit, inspection and preparation of the information environment of the SE NRIC for introduction of cybersecurity requirements in order to achieve rapid and effective compliance with regulatory requirements and technical means needed to achieve a synergistic cyber environment.
- Creation of internal rules and policies in accordance with the specifics of the infrastructure and the needs of the SE NRIC.
- Providing all hardware and software resources in order to bring the information, communication and computer infrastructure of the SE NRIC to full compliance with regulatory and technical requirements arising from the Cyber Security Act and the Ordinance on minimum requirements for network and information security.
- Reservation of all critical information resources and systems in order to achieve high fail-safety and reliability.
- Construction of a log management system from servers and workstations with included hardware server for data storage and management.
- Building a system for auditing the active directory, file servers tracking user accesses.
- Building a system against leakage of sensitive information through various channels

<p>(Data Leakage Protection), including system for PKI (Public Key Infrastructure) infrastructure for min. 500 users in order to minimize the risk of leaking sensitive information.</p> <ul style="list-style-type: none"> – Construction of an integrated system monitoring all input-output communication points of the SE NRIC, notifying and taking primary actions in case of vulnerability detection (Network Access Control). – Establishment of a centralized system for access control of all administrative buildings of the SE NRIC in order to prevent unauthorized access. – Conducting periodic trainings for a minimum period of 36 months after the introduction of each of the systems of all interested employees of the SE NRIC on cybersecurity prevention, detection of cyber threats and dangers, anti-phishing and malicious emails. Conducting periodic penetration resistance testing of key users. – Building a cybersecurity center. – Complete replacement of the hardware equipment providing the needs of the geographical information system of the SE NRIC with included reservation and warranty support for min. 3 years. – Modernization by upgrading the existing SAP ERP system of SE NRIC and migration to SAP S/4HANA with included staff training and warranty support for min. 3 years. <p>12. Object 12 Design and development of an automated unified hub for information management at the SE NRIC</p> <ul style="list-style-type: none"> – Surveys and studies; – Preparation of an investment project in the “Conceptual design” and “Detailed design” phase – Construction – Exercising author’s supervision and preparation of executive documentation – Conformity assessment and implementation of construction supervision during construction and coordination of contracts on the object
3. Beneficiary:
State Enterprise “National Railway Infrastructure Company”
4. Time schedule for project implementation, including activities, stages¹
<ol style="list-style-type: none"> 1. Object 1 – 2021-2026 2. Object 2 - 2021-2026 3. Object 3 - 2021-2026 4. Object 4 - 2021-2025 5. Object 5 - 2022-2026 6. Object 6 - 2022-2026 7. Object 7 - 2021-2026 8. Object 8 - 2021-2026 9. Object 9 - 2021-2026 10. Object 10 - 2021-2026 11. Object 11 - 2021-2025 12. Object 12 - 2021-2025

¹ The schedule will be relevant for setting intermediate targets under the Recovery and Resilience Plan and is directly related to the release of tranches of financial support from the Recovery and Sustainability Fund.

	2021	2022	2023	2024	2025	2026
Project 1 – Construction of Dispatching Centralization Sofia - Mezdra						
Preparation of tender documents for construction works						
Tender procedure for construction works						
Signature of construction contract						
Preparation of tender documents for supervision						
Tender procedure for supervision						
Signature of supervision contract						
Technical Design						
Compliance Assessment Report						
Building Permit						
Protocol 2A						
Implementation						
Act 15						
Act 16						
Project 2 - Construction of Dispatching centralization Mezdra - Gorna Oryahovitsa						
Preparation of tender documents for construction works						
Tender procedure for construction works						
Signature of construction contract						
Preparation of tender documents for supervision						
Tender procedure for supervision						
Signature of supervision contract						
Technical Design						
Compliance Assessment Report						
Building Permit						
Protocol 2A						
Implementation						
Act 15						
Act 16						
Project 3 – Construction of Dispatching Centralization Gorna Oryahovitsa - Kaspichan						
Preparation of tender documents for construction works						
Tender procedure for construction works						
Signature of construction contract						
Preparation of tender documents for supervision						
Tender procedure for supervision						
Signature of supervision contract						
Technical Design						
Compliance Assessment Report						
Building Permit						
Protocol 2A						
Implementation						
Act 15						
Act 16						
Project 4 – Direction Ruse - Gorna Oryahovitsa. Modernization of the telecommunication systems in the section						
Preparation of tender documents for construction works						
Tender procedure for construction works						
Signature of construction contract						
Preparation of tender documents for supervision						
Tender procedure for supervision						
Signature of supervision contract						
Technical Design						
Compliance Assessment Report						
Building Permit						
Protocol 2A						
Implementation						
Act 15						
Act 16						
Project 5 – Direction Karnobat - Sindel						
Preparation of tender documents for construction works						
Tender procedure for construction works						
Signature of construction contract						
Preparation of tender documents for supervision						
Tender procedure for supervision						
Signature of supervision contract						
Technical Design						

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4.1. When can the project implementation start at the earliest after its approval?
Immediately after approval - 2021
5. Indicative financial resource by activity, including sources of financing (national budget, European funding, private funding, IFIs)
<p>Indicative value - BGN 267,705,000, VAT excluded, including:</p> <ol style="list-style-type: none"> 1. Object 1 - BGN 8,962,306, VAT excluded 2. Object 2 - BGN 61,507,956, VAT excluded 3. Object 3 - BGN 42 963 493, VAT excluded 4. Object 4 - BGN 9,750,000, VAT excluded 5. Object 5 - BGN 23,003,992, VAT excluded 6. Object 6 - BGN 3,462,253, VAT excluded 7. Object 7 - BGN 60,000,000, VAT excluded 8. Object 8 - BGN 7,200,000, VAT excluded 9. Object 9 - BGN 7,500,000, VAT excluded 10. Object 10 - BGN 19,020,000, VAT excluded 11. Object 11 - BGN 6,335,000, VAT excluded 12. Object 12 - BGN 18,000,000, VAT excluded <p>The indicative values are determined on the basis of the accumulated experience and data from similar contracts for the implementation of similar types of projects as shown in Table 3b.</p> <p>Sources of funding: EU – 100 %, according to the rules of Recovery and Resilience Facility (RRF) and National Recovery and Resilience Plan (NRRP).</p>

	Indicative value, in BGN VAT excluded	Justification for formation of the indicative value by contracts*activities	Indicative value per stage, in BGN VAT excluded
Object 1 – Construction of Dispatching Centralization Sofia-Mezdra – Detailed calculation is given in file “Detailed financial statement Signalling and Telecommunications”, sheet OT SK			
WORKS contract	8 374 382,00	<p>The indicative value is calculated on the basis of concluded similar contracts for similar activities, namely Contract № 6555/18.09.19 „Design, delivery and construction of the site "Restoration of dispatch centralization of stations equipped with Route Relay Interlockings (RRI) in Sofia-Karlovo section", worth 9 855 361,87 BGN.</p> <p>Based on the price offer from the above-mentioned contract, the average value for a station included in dispatch centralization has been determined. The same value is multiplied by a factor of 1.2, taking into account the fact that the dispatching centralization in the current object is on a double-track section. The price of the object includes 5 % contingencies.</p>	8 962 306
Supervision contract	587 924,00	<p>The indicative value is calculated on the basis of the document "Market research for determination of indicative construction values", approved by the Director General of NRIC. Referring to this document, we assume that the indicative value of this object will be 2.75 % of the indicative value of the construction and installation works on the site. The indicative value of the assessment of compliance with the interoperability requirements is calculated on the basis of a contract for similar activities, namely Contract № 6331/19.12.2018 for “Assessment of compliance with the interoperability requirements under project “Rehabilitation of Plovdiv-Burgas railway line, Phase 2”, value for part “Design and construction of signalling and telecommunication systems along Plovdiv-Burgas railway line” amounting at BGN 598 750. This value is multiplied by inflation rate 5,2 % for 2019 and 2020. The value of the object includes 5 % contingencies.</p>	
object 2 - Construction of Dispatching centralization Mezdra-Gorna Oryahovitsa - Detailed calculation is given in file “Detailed financial statement Signalling and Telecommunications”, sheet OT SK			

WORKS contract	59 313 615,00	<p>The indicative value is calculated on the basis of concluded similar contracts for similar activities, namely: 1. Contract № 6611/07.11.19 for "Modernization of the railway section Orizovo-Mihaylovo" under the project "Rehabilitation of the railway line Plovdiv-Burgas, phase 2", worth 217 982 167,08 BGN; 2. Contract № 6509/12.08.2019 "Modernization of the Kostenets-Septemvri railway section", worth 379 989 739,23 BGN; 3. Contract № 6564/30.09 .19 for "Reconstruction of the turnout development of Zimnitsa station and rehabilitation of the catenary network in Zimnitsa and Straldzha stations" under the project "Rehabilitation of the railway line Plovdiv-Bourgas, phase 2", worth 26 279 829,71 BGN; 4. Contract № 6567/03.10.19 for "Design and construction of signaling and telecommunications systems on the railway line Plovdiv-Burgas" under the project "Rehabilitation of the railway line Plovdiv-Burgas, phase 2", worth 184 999 094,47 BGN; 5. Contract № 11275/30.10.20 for "Design and construction of a system for signaling and telecommunications and European Rail Traffic Management System (ERTMS) for the project "2014-BG-TMC-0133-W - Development of railway junction Sofia: Sofia-Voluyak railway section", worth 45 499 420,29 BGN; 6. Contract № 6555/18.09.19 for "Design, delivery and construction of the object "Restoration of dispatch centralization of stations, equipped with RRI in Sofia-Karlovo section", worth 9 855 361,87 BGN.</p> <p>On the basis of the price offers from the above-mentioned contracts under №№ 1, 2, 3, 4 and 5 the average value of the turnout/signal element is determined, which is the base for determining the indicative value in the implementation of route-computer interlockings.</p> <p>This same value is multiplied by the inflation index for 2021 (2.1 %).</p> <p>On the basis of the price offer from the above-mentioned contract under № 6 the average value for the station included in the dispatching centralization is determined. The same value is multiplied by a factor of 1.2, taking into account the fact that the dispatching centralization in the current object is on a double-track section. The price of the object includes 5 % contingencies.</p> <p>Note: the valuation of Cherven Bryag station was performed on the basis of the design of track development</p>	61 507 956
Supervision contract	2 194 341,00	<p>The indicative value is calculated on the basis of the document "Market research for determination of indicative construction values", approved by the Director General of NRIC. Referring to this document, we assume that the indicative value of this object will be 2.75 % of the indicative value of construction and installation work on the site. The indicative value of the assessment of compliance with the interoperability requirements is calculated on the basis of a contract for similar activities, namely Contract № 6331/19.12.2018 for "Assessment of compliance with the interoperability requirements under project "Rehabilitation of Plovdiv-Burgas railway line, Phase 2", value for part "Design and construction of signalling and telecommunication systems along Plovdiv-Burgas railway line" amounting at BGN 598 750. This value is multiplied by inflation rate 5,2 % for 2019 and 2020. The value of the object includes 5 % contingencies.</p>	
Object 3 – Construction of Dispatching Centralization Gorna Oryahovitsa – Kaspichan - Detailed calculation is given in file "Detailed financial statement Signalling and Telecommunications", sheet OT SK			
WORKS contract	41 492 163,00	<p>The indicative value is calculated on the basis of concluded similar contracts for similar activities, namely: 1. Contract № 6611/07.11.19 for "Modernization of the railway section Orizovo-Mihaylovo" under the project "Rehabilitation of the railway line Plovdiv-Burgas, phase 2", worth 217 982 167,08 BGN; 2. Contract № 6509/12.08.2019 "Modernization of the Kostenets-Septemvri railway section", worth 379 989 739,23 BGN; 3. Contract № 6564/30.09.19 for "Reconstruction of the turnout development of Zimnitsa station and rehabilitation of the catenary network in Zimnitsa and Straldzha stations" under the project "Rehabilitation of the railway line Plovdiv-Bourgas, phase 2", worth 26 279 829,71 BGN; 4. Contract № 6567/03.10.19 for "Design and construction of signaling and telecommunications systems on the railway line Plovdiv-Burgas" under the project "Rehabilitation of the railway line Plovdiv-Burgas, phase 2", worth 184 999 094,47 BGN; 5. Contract № 11275/30.10.20 for "Design and construction of a system for signaling and telecommunications and European Rail Traffic Management System (ERTMS) for the project "2014-BG-TMC-0133-W - Development of railway junction Sofia: Sofia-Voluyak railway</p>	42 963 493

		<p>section", worth 45 499 420,29 BGN; 6. Contract № 6555/18.09.19 for "Design, delivery and construction of the object "Restoration of dispatch centralization of stations, equipped with RRI in Sofia-Karlovo section", worth 9 855 361,87 BGN.</p> <p>On the basis of the price offers from the above-mentioned contracts under №№ 1, 2, 3, 4 and 5 the average value of the turnout/signal element is determined, which is the base for determining the indicative value in the implementation of route-computer interlocking.</p> <p>This same value is multiplied by the inflation index for 2021 (2.1 %).</p> <p>On the basis of the price offer from the above-mentioned contract under № 6 the average value for the station included in the dispatching centralization is determined. The same value is multiplied by a factor of 1.2, taking into account the fact that the dispatching centralization in the current object is on a double-track section. The price of the object includes 5 % contingencies.</p>	
Supervision contract	1 471 330,00	<p>The indicative value is calculated on the basis of the document "Market research for determination of indicative construction values", approved by the Director General of NRIC. Referring to this document, we assume that the indicative value of this object will be 2.75 % of the indicative value of the construction and installation works on the site. The indicative value of the assessment of compliance with the interoperability requirements is calculated on the basis of a contract for similar activities, namely Contract № 6331/19.12.2018 for "Assessment of compliance with the interoperability requirements under project "Rehabilitation of Plovdiv-Burgas railway line, Phase 2", value for part "Design and construction of signalling and telecommunication systems along Plovdiv-Burgas railway line" amounting at BGN 598 750. This value is multiplied by inflation rate 5,2 % for 2019 and 2020. The value of the object includes 5 % contingencies.</p>	
Object 4 – direction Ruse - Gorna Oryahovitsa - Modernization of the telecommunication systems along the section - Detailed calculation is given in file "Detailed financial statement Signalling and Telecommunications", sheet TK SK			
WORKS contract	9 475 000,00	<p>The indicative value is calculated on the basis of concluded similar contracts for similar activities, namely: 1. Contract № 6673/30.12.2019 with subject: "Optical cable network and digital telecommunication equipment in the section Sofia - Mezdra - Cherven Bryag from the 2nd main railway line", LOT 1 - "Construction of optical cable network in the section Sofia - Mezdra from the 2nd main railway line - stage 1 of the construction", contract value: 5 918 801,74 BGN VAT excluded; 2. Contract № 6674/30.12.2019 with subject: "Optical cable network and digital telecommunication equipment in the section Sofia - Mezdra - Cherven Bryag from the 2nd main railway line", LOT 2 - "Construction of an optical cable network in section Mezdra - Cherven Bryag from the 2nd main railway line - stage 2 of the construction", contract value: 2 461 697,21 BGN VAT excluded; 3. Contract № 6567/03.10.2019 for "Design and construction of signaling and telecommunications systems on the railway line Plovdiv - Burgas", contract value BGN 184 999 094,47 VAT excluded (including - 36 503 836,35 BGN VAT excluded for telecommunications); 4. Contract № 11275/30.10.2020 with subject "Design and construction of signaling and telecommunications systems and European Rail Traffic Management System (ERTMS) for project 2014-BG-TMS-0133-W Development of railway junction Sofia: Sofia-Voluyak railway section", contract value: 45 499 420,29 BGN VAT excluded (including 13,559,421.63 BGN VAT excluded for telecommunications).</p>	9 750 000

Supervision contract	275 000,00	The indicative value is calculated on the basis of concluded similar contracts for similar activities, namely: 1. Contract № 6581/25.10.2019 for "Compliance assessment of the investment project with the essential requirements for the constructions in the Republic of Bulgaria according to the Spatial Development Act and exercise of construction supervision for construction "Optical cable network and digital telecommunication equipment in the section Sofia - Mezdra - Cherven Bryag from the 2nd main railway line" by LOTs", contract value: 155 450,00 BGN VAT excluded; 2. Contract № 5631/25.01.2017 for "Conformity assessment and implementation of construction supervision during construction and coordination of contracts under the project "Rehabilitation of the railway line Plovdiv - Burgas, phase 2", contract value: 16 600 BGN 000 VAT excluded (including 3 225048,00 BGN VAT excluded for signaling and telecommunications); 3. Contract № 6331/19.12.2018 for "Compliance assessment with the requirements for interoperability under the project "Rehabilitation of the railway line Plovdiv-Burgas, Phase 2", contract value: 2 395 000 BGN VAT excluded; 4. Contract № 6174/24.07.2018 for "Compliance assessment with the basic requirements for construction according to the Spatial Development Act, construction supervision during the construction and management of the implementation of the contracts for design/construction and construction for the project "2014-BG-TMC-0133-W - Development of the railway junction Sofia: Sofia - Voluyak railway section", contract value: 4 747 000,00 BGN VAT excluded.	
Object 5 – direction Karnobat – Sindel - Detailed calculation is given in file "Detailed financial statement Signalling and Telecommunications", sheet OT SK and TK SK			
WORKS contract	14 355 429,00	<p>The indicative value is calculated on the basis of concluded similar contracts for similar activities, namely: 1. Contract № 6611/07.11.19 for "Modernization of the railway section Orizovo-Mihailovo" under the project "Rehabilitation of the railway line Plovdiv-Burgas, phase 2", worth 217 982 167,08 BGN; 2. Contract № 6509/12.08.2019 for "Modernization of the Kostenets-Septemvri railway section", worth 379 989 739,23 BGN; 3. Contract № 6564/30.09.19 for "Reconstruction of the turnout development of Zimnitsa station and rehabilitation of the catenary network in Zimnitsa and Straldzha stations" under the project "Rehabilitation of the railway line Plovdiv-Bourgas, phase 2", worth 26 279 829,71 BGN; 4. Contract № 6567/03.10.19 for "Design and construction of signaling and telecommunications systems on the railway line Plovdiv-Burgas" under the project "Rehabilitation of the railway line Plovdiv-Burgas, phase 2", worth 184 999 094,47 BGN; 5. Contract № 11275/30.10.20 for "Design and construction of a system for signaling and telecommunications and European Rail Traffic Management System (ERTMS) for the project "2014-BG-TMC-0133-W - Development of railway junction Sofia: Sofia-Voluyak railway section", worth 45 499 420,29 BGN; 6. Contract № 6555/18.09.19 for "Design, delivery and construction of the object "Restoration of dispatch centralization of stations, equipped with RRI in Sofia-Karlovo section", worth 9 855 361,87 BGN.</p> <p>On the basis of the price offers from the above-mentioned contracts under №№ 1, 2, 3, 4 and 5 the average value of the turnout/signal element is determined, which is the base for determining the indicative value in the implementation of route-computer interlocking.</p> <p>This same value is multiplied by the inflation index for 2021 (2.1 %).</p> <p>On the basis of the price offer from the above-mentioned contract under № 6 the average value for the station included in the dispatching centralization is determined. The same value is multiplied by a factor of 1.2, taking into account the fact that the dispatching centralization in the current object is on a double-track section. The price of the object includes 5 % contingencies.</p>	23 003 992
Supervision contract	745 766,00	The indicative value is calculated on the basis of the document "Market research for determination of indicative construction values", approved by the Director General of NRIC. Referring to this document, we assume that the indicative value of this object will be 2.75 % of the indicative value of construction and installation work on the site. The indicative value of the assessment of compliance with the interoperability requirements is calculated on the basis of a contract for similar activities, namely Contract № 6331/19.12.2018 for "Assessment of compliance with the interoperability requirements under project "Rehabilitation of Plovdiv-Burgas railway line, Phase 2",	

		value for part "Design and construction of signalling and telecommunication systems along Plovdiv-Burgas railway line" amounting at BGN 598 750. This value is multiplied by inflation rate 5,2 % for 2019 and 2020. The value of the object includes 5 % contingencies.	
WORKS Contract for deployment of optical cable line and telecommunication systems	7 675 000,00	The indicative value is calculated on the basis of concluded similar contracts for similar activities, namely: 1. Contract № 6673/30.12.2019 for "Optical cable network and digital telecommunication equipment in the section Sofia - Mezdra - Cherven Bryag from the 2nd main railway line", LOT 1 - "Construction of optical cable network in the section Sofia - Mezdra from the 2nd main railway line - stage 1 of the construction", contract value: 5 918 801,74 BGN VAT excluded; 2. Contract № 6674/30.12.2019 for "Optical cable network and digital telecommunication equipment in the section Sofia - Mezdra - Cherven Bryag from the 2nd main railway line", LOT 2 - "Construction of an optical cable network in section Mezdra - Cherven Bryag from the 2nd main railway line - stage 2 of the construction", contract value: 2 461 697,21 BGN VAT excluded; 3. Contract № 6567/03.10.2019 for "Design and construction of signaling and telecommunications systems on the railway line Plovdiv - Burgas", contract value: 184 999 094,47 BGN VAT excluded (including - 36 503 836,35 BGN VAT excluded for telecommunications); 4. Contract № 11275/30.10.2020 for "Design and construction of signaling and telecommunications systems and European Rail Traffic Management System (ERTMS) for project 2014-BG-TMS-0133-W Development of railway junction Sofia: Sofia-Voluyak railway section", contract value: 45 499 420,29 BGN VAT excluded (including 13,559,421.63 BGN VAT excluded for telecommunications).	
Supervision Contract of optical cable line and telecommunication systems deployment	227 797,00	The indicative value is calculated on the basis of concluded similar contracts for similar activities, namely: 1. Contract № 6581/25.10.2019 for "Compliance assessment of the investment project with the essential requirements for the constructions in the Republic of Bulgaria according to the Spatial Development Act and exercise of construction supervision for construction "Optical cable network and digital telecommunication equipment in the section Sofia - Mezdra - Cherven Bryag from the 2nd main railway line" by LOTs", contract value: 155 450,00 BGN VAT excluded; 2. Contract № 5631/25.01.2017 for "Conformity assessment and implementation of construction supervision during construction and coordination of contracts under the project "Rehabilitation of the railway line Plovdiv - Burgas, phase 2", contract value 16 600 BGN 000 VAT excluded (including 3 225048,00 BGN VAT excluded for signaling and telecommunications); 3. Contract № 6331/19.12.2018 for "Compliance assessment with the requirements for interoperability under the project "Rehabilitation of the railway line Plovdiv-Burgas, Phase 2", contract value: 2 395 000 BGN VAT excluded; 4. Contract № 6174/24.07.2018 for "Compliance assessment with the basic requirements for construction according to the Spatial Development Act, construction supervision during the construction and management of the implementation of the contracts for design/construction and construction for the project "2014-BG-TMC-0133-W - Development of the railway junction Sofia: Sofia - Voluyak railway section", contract value: 4 747 000,00 BGN VAT excluded.	
Object 6 – direction Kaspichan – Sindel - Detailed calculation is given in file "Detailed financial statement Signalling and Telecommunications", sheet OT SK			
WORKS contract	3 275 746,00	The indicative value is calculated on the basis of concluded similar contracts for similar activities, namely Contract № 6555/18.09.19 „Design, delivery and construction of the site "Restoration of dispatch centralization of stations equipped with Route Relay Interlockings (RRI) in Sofia-Karlovo section", worth 9 855 361,87 BGN. Based on the price offer from the above-mentioned contract, the average value for a station included in dispatch centralization has been determined. The same value is multiplied by a factor of 1.2, taking into account the fact that the dispatching centralization in the current object is on a double-track section. The price of the object includes 5 % contingencies.	3 462 253

Supervision contract	186 507,00	The indicative value is calculated on the basis of the document "Market research for determination of indicative construction values", approved by the Director General of NRIC. Referring to this document, we assume that the indicative value of this object will be 2.75 % of the indicative value of the construction and installation works on the site. The indicative value of the assessment of compliance with the interoperability requirements is calculated on the basis of a contract for similar activities, namely Contract № 6331/19.12.2018 for "Assessment of compliance with the interoperability requirements under project "Rehabilitation of Plovdiv-Burgas railway line, Phase 2", value for part "Design and construction of signalling and telecommunication systems along Plovdiv-Burgas railway line" amounting at BGN 598 750. This value is multiplied by inflation rate 5,2 % for 2019 and 2020. The value of the object includes 5 % contingencies.	
Object 7 – Implementation of a System for Monitoring and Control of Parameters of Railway Rolling Stock in Motion			
WORKS contract	55 474 000,00	<p>The indicative value is calculated on the basis of concluded similar contracts for similar activities, namely: 1. Contract № 4077/31.08.2012 for "Design and construction of signaling systems in the section September - Plovdiv and Sofia - Plovdiv telecommunications", worth 69 245 183 BGN VAT excluded.</p> <p>https://zop.rail-infra.bg:3737/DocumentList.aspx?SXHmTXofHwBKcrywn%2b9EtO8LGfleL88</p> <p>2. Contract № 6567/03.10.2019 for "Design and construction of signalling and telecommunication systems along Plovdiv-Burgas railway line" under project "Rehabilitation of Plovdiv-Burgas railway line, Phase 2", amounting at BGN 184 999 094,47.</p> <p>https://zop.rail-infra.bg:3737/DocumentList.aspx?SXHmTXofHwDMoP5OgpzNuamBwAba%2bjan</p> <p>Based on of the prices indicated in the price breakdowns under the two contracts and converting the prices by 2021, the unit price for design, construction and commissioning of one system for monitoring and control of parameters of rolling stock in motion, along with the necessary software for integration of all constructed systems, amounts at BGN 2 773 700.</p>	60 000 000
Supervision contract	1 526 000,00	The indicative value is calculated on the basis of the document "Market research for determination of indicative construction values", approved by the Director General of NRIC. Referring to this document, we assume that the indicative value of this object will be 2.75 % of the indicative value of the construction and installation works on the site.	
Technical assistance	3 000 000,00	<p>This activity will support the implementation of the objectives of the stage and refers to the support of its organization and management by NRIC. The main tasks are: time management of the stage; risk and change, quality; control of the expenses for execution of the separate contracts in the scope of the stage and the execution of the payments; control of the communication system.</p> <p>The expenses are planned according to the following items: Coordination of the technical and administrative activities, monitoring of the technical and financial progress and control of the incurred expenses, preparation of reports, financial statements, etc .; Arranging of technical meetings, communication activities, reporting and auditing; Remuneration costs of a team of experts responsible for the management of the stage; Transport costs related to the management, verification and audits during the implementation of the stage; Transport costs (business trips, accommodation, fuel); Costs for delivery of equipment, software and consumables; Expenses for administrative fees and permits; External services costs - These are costs for specialized consulting services from specialists and experts, external to NRIC, which may need to assist the Team in the management and implementation of the stage and for which there are no necessary competencies (specialized reports and opinions, engineering and laboratory research, legal aid, financial advice).</p>	

Object 8 – Construction of solar/photovoltaic/power generation plants in the area of railway stations for the needs of the SE NRIC - Detailed calculation is given in file “Detailed financial statement Signalling and Telecommunications”, sheet ESiEK_SK			
WORKS contract	7 200 000,00	<p>The indicative value is calculated on the basis of concluded similar contracts for similar activities, namely: Contract № 40042/27.11.2020 for Construction of electricity supply from renewable energy sources/WER/ at Stamboliyski railway station, amounting to 38 522,37 BGN VAT excluded.</p> <p>Based on a market research, in which average prices are formed on the basis of unit prices from an Internet market research conducted by the following sources: https://www.euomatica.bg; https://www.xpi.bg; https://www.filkab.solar; https://www.solarsolution.bg; https://www.motto-engineering.com; https://www.xpi.bg; https://www.shop.chepakov.com; https://www.ecosolar-bg.com; https://www.ecosolar-bg.com; https://www.solarenergy.bg</p>	7 200 000
Object 9 – Modernization of new energy-saving /LED/ lighting in the area of 120 railway stations and stops - Detailed calculation is given in file “Detailed financial statement Signalling and Telecommunications”, sheet ESiEK_SK			
WORKS contract	7 500 000,00	<p>The indicative value is calculated on the basis of concluded similar contracts for similar activities, namely: 1. Contract № 6666/19.11.2019 for Restoration of design parameters in Senovo station from km 46 + 843 to km 47 + 842 with a length of 999 m on the IX main railway line, amounting to 7 800 158,90 BGN VAT excluded - Total value of the contract; 2. Contract № 6719/21.02.2020 for Restoration of design parameters in Yastrebovo station from km 21 + 534 to km 22 + 502 with a length of 968 m on the IX main railway line, amounting to 6 790 108,18 BGN VAT excluded - Total value of the contract.</p> <p>Based on a market research, in which price proposals were used under concluded contracts for: "Repair and restoration works, overhaul, design and construction of public lighting on the territory of the Municipality of Poduyane"</p> <p>- http://www.zop1.bg/organization/bid/1000545; "Repair and restoration works, major repairs and construction of public lighting on the territory of Vazrazhdane Municipality"</p> <p>- http://www.so-vazrazhdane.bg/profil-na-kupuvacha/id/osvetlenie</p>	7 500 000
Object 10 - Construction of optical cable network and digital telecommunication equipment in the section Sofia - Karlovo – Filipovo - Detailed calculation is given in file “Detailed financial statement Signalling and Telecommunications”, sheet TK_SK			
WORKS contract	18 480 000,00	<p>The indicative value is calculated on the basis of concluded similar contracts for similar activities, namely: 1. Contract № 6673/30.12.2019 for “Optical cable network and digital telecommunication equipment in the section Sofia - Mezdra - Cherven Bryag from the 2nd main railway line”, LOT 1 -“Construction of optical cable network in the section Sofia - Mezdra from the 2nd main railway line - stage 1 of the construction”, contract value: 5 918 801,74 BGN VAT excluded; 2. Contract № 6674/30.12.2019 for “Optical cable network and digital telecommunication equipment in the section Sofia - Mezdra - Cherven Bryag from the 2nd main railway line”, LOT 2 - “Construction of an optical cable network in section Mezdra - Cherven Bryag from the 2nd main railway line - stage 2 of the construction”, contract value: 2 461 697,21 BGN VAT excluded; 3. Contract № 6567/03.10.2019 for "Design and construction of signaling and telecommunications systems on the railway line Plovdiv - Burgas", contract value: 184 999 094,47 BGN VAT excluded (including - 36 503 836,35 BGN VAT excluded for telecommunications); 4. Contract № 11275/30.10.2020 for "Design and construction of signaling and telecommunications systems and European Rail Traffic Management System (ERTMS) for project 2014-BG-TMS-0133-W Development of railway junction Sofia: Sofia-Voluyak railway section", contract value: 45 499 420,29 BGN VAT excluded (including 13,559,421.63 BGN VAT excluded for telecommunications).</p>	19 020 000
Supervision contract	540 000,00	<p>The indicative value is calculated on the basis of concluded similar contracts for similar activities, namely: 1. Contract № 6581/25.10.2019 for "Compliance assessment of the investment project with the essential requirements for the constructions in the Republic of Bulgaria</p>	

		according to the Spatial Development Act and exercise of construction supervision for construction "Optical cable network and digital telecommunication equipment in the section Sofia - Mezdra - Cherven Bryag from the 2nd main railway line" by LOTs", contract value: 155 450,00 BGN VAT excluded; 2. Contract № 5631/25.01.2017 for "Conformity assessment and implementation of construction supervision during construction and coordination of contracts under the project "Rehabilitation of the railway line Plovdiv - Burgas, phase 2", contract value: 16 600 BGN 000 VAT excluded (including 3 225048,00 BGN VAT excluded for signaling and telecommunications); 3. Contract № 6331/19.12.2018 for "Compliance assessment with the requirements for interoperability under the project "Rehabilitation of the railway line Plovdiv-Burgas, Phase 2", contract value: 2 395 000 BGN VAT excluded; 4. Contract № 6174/24.07.2018 for "Compliance assessment with the basic requirements for construction according to the Spatial Development Act, construction supervision during the construction and management of the implementation of the contracts for design/construction and construction for the project "2014-BG-TMC-0133-W - Development of the railway junction Sofia: Sofia - Voluyak railway section", contract value: 4 747 000,00 BGN VAT excluded.	
Object 11 - Providing a system of solutions in the field of cybersecurity, contributing to the achievement of cyber safe and secure infrastructure of the SE NRIC – Detailed calculation is given in folder "Cyber Security Study"			
Service/Supply (?) Contract	6 335 000,00	The indicative value of 6 335 000,00 BGN is calculated on the basis of offers received from Simargal Security OOD and Integrity EOOD and performed market and internet studies for price comparison in cases of publicly announced assigned procedures and activities of similar and/or identical nature. From the received offers with taken and summarized higher values given the anomalies observed in the IT sector due to the pandemic situation and the inability to predict exactly in which direction the market in the IT sector will move next year.	6 335 000
Object 12 - Design and development of an automated unified hub for information management at the SE NRIC - Detailed calculation is given in folder "Automated Hub Study"			
Service/Supply (?) Contract for design and development of automated unified hub	15 615 000,00	Based on market consultation for "Design and construction of an automated sensor monitoring system for reporting the activity of available staff and registration of various changes in the surrounding railway environment", worth 7 776 000 BGN, VAT included. The market study is carried out for construction of part of the project scope, and the technical assistance value is not calculated in it. Respectively, the full completion of the project based on the market study amounts to the value set for the implementation of the project.	18 000 000
Supervision contract	315 000,00	Contract № 6620/12.11.2019 for "Conformity assessment and construction supervision for site: "Reconstruction of Stara Zagora station complex", worth 492 108 BGN and Contract № 6653/10.12.2019 for "Conformity assessment and construction supervision for site: "Reconstruction of Nova station complex Zagora", worth 131 999 BGN, representing about 4 % of the implementation contract. The percentage for the procedure is 2 % due to the specifics of the consultant work. https://www.rail-infra.bg/%D0%BF%D1%80%D0%BE%D1%84%D0%B8%D0%BB-%D0%BD%D0%B0-%D0%BA%D1%83%D0%BF%D1%83%D0%B2%D0%B0%D1%87%D0%B0	

Service Contract for studies, preparation of preliminary design, preparation of documentation for assignment of engineering	270 000,00	<p>Contract № 5864/11.09.2017 for "Research and preparation of a Preliminary design for Reconstruction of the Stara Zagora station complex", worth 140 808 BGN and Contract № 5939/08.12.2017 for "Research and preparation of a Preliminary design for Reconstruction of Nova Zagora station complex", worth 60 360 BGN, representing about 1.4 % of the implementation contract.</p> <p>https://www.rail-infra.bg/%D0%BF%D1%80%D0%BE%D1%84%D0%B8%D0%BB-%D0%BD%D0%B0-%D0%BA%D1%83%D0%BF%D1%83%D0%B2%D0%B0%D1%87%D0%B0</p>	
Technical assistance	1 800 000	<p>The proposed activity is intended to assist implementation of the Object 1 objectives and refers to the provision of support to its management by NRIC. The main tasks are: time management of the object; risk and change, quality; control of the expenses, control over implementation of the individual contracts in the scope of the object and the execution of payments; control over the communication system.</p> <p>The expenses are calculated according to the following items: Coordination of the technical and administrative activities, monitoring of the technical and financial progress and control of the expenses incurred, preparation of reports, financial statements, etc.; Organizing technical meetings, communication activities, reporting and audit activities; Provision of remuneration for the team of experts responsible for the management of the object; Transport costs related to the management, verification and audit during the implementation of the stage.</p> <p>Transport costs (business trips, accommodation, fuel); Costs for delivery of office equipment, software and consumables; Expenses for administrative fees and permits; External services costs - These are costs for specialized consulting services to be provided by external experts, who may need to assist the Team in the management and implementation of the object and for which services there is insufficient internal competence and expertise (specialized reports and opinions, engineering and laboratory research, legal aid, financial advice).</p> <p>Envisaged within the limit of up to 10 % of the project cost.</p>	

5.1. Indicative allocation of the financial resource, depending on the type of expense
<ul style="list-style-type: none"> - Infrastructure construction/rehabilitation (Construction and Installation Works) - 40% - Physical capital (purchase of machinery and equipment) - 40% - Human capital (skills development, retraining...) - 1% - Labor (wage costs, consulting services...) - 10% - Technology (costs for acquisition of intangible fixed assets - patents, software...) - 9%
6. Indicators
6.1. Result indicator/s
Number of tender procedures announced
<ul style="list-style-type: none"> - Initial value – 0 [year 2020] - Intermediate value – 2 [I First half of 2021]; - Intermediate value – 6 [Second half of 2021]; - Intermediate value – 8 [First half of 2022]; - Intermediate value – 6 [Second half of 2022]; - Intermediate value – 5 [First half of 2023]; - Intermediate value – 1 [Second half of 2023]; - Intermediate value – 1 [First half of 2024]; - Intermediate value – 2 [Second half of 2024]; - Intermediate value – 1 [First half of 2025]; - Intermediate value – 1 [Second half of 2025]; <p>Target value - 33 [year 2026]</p>
Number of contracts signed with the selected contractors after public procurement conducted
<ul style="list-style-type: none"> - Initial value – 0 [First half of 2021] - Intermediate value – 3 [Second half of 2021]; - Intermediate value – 5 [First half of 2022]; - Intermediate value – 8 [Second half of 2022]; - Intermediate value – 8 First half of 2023]; - Intermediate value – 3 [Second half of 2023]; - Intermediate value – 2 [First half of 2024]; - Intermediate value – 2 [First half of 2025]; - Intermediate value – 2 [Second half of 2025]; <p>Target value - 33 [year 2026 =]</p>
Number of technical designs prepared
<ul style="list-style-type: none"> - Initial value – 0 [First half of 2021] - Intermediate value – 2 [Second half of 2021]; - Intermediate value – 2 [Second half of 2022]; - Intermediate value – 4 [First half of 2023]; - Intermediate value – 4 [Second half of 2023]; - Intermediate value – 4 [First half of 2024]; - Intermediate value – 1 [Second half of 2024]; - Intermediate value – 2 [First half of 2025]; - Intermediate value – 2 [Second half of 2025]; <p>Target value - 21 [year 2026]</p>
Number of building permits issued
<ul style="list-style-type: none"> - Initial value – 0 [year 2021] - Intermediate value – 1 [Second half of 2021];

<ul style="list-style-type: none"> - Intermediate value – 1 [Second half of 2022]; - Intermediate value – 6 [Second half of 2023]; - Intermediate value – 3 [First half of 2024]; - Intermediate value – 2 [Second half of 2024]; - Intermediate value – 1 [First half of 2025]; - Intermediate value – 1 [Second half of 2025]; <p>Target value - 15 [year 2026]</p>
Implemented dispatching centralization on the railway line Sofia - Mezdra
<ul style="list-style-type: none"> - Initial value 0 - 2022 - Intermediate value - N/A - Target value 1 - [First half of 2026];
Implemented dispatching centralization on the railway line Mezdra - Gorna Oryahovitsa
<ul style="list-style-type: none"> - Initial value 0 - 2021 - Intermediate value - N/A - Target value 1 - [First half of 2026];
Implemented dispatching centralization on the railway line Gorna Oryahovitsa - Kaspichan
<ul style="list-style-type: none"> - Initial value - 0 - 2021. - Intermediate value - N/A - Target value 1 - [First half of 2026];
Modernized telecommunication systems on the Ruse - Gorna Oryahovitsa railway line
<ul style="list-style-type: none"> - Initial value 0 - 2021 - Intermediate value - N/A - Target value 1 - [Second half of 2025]
Implemented dispatching centralization on the railway line Karnobat - Sindel
<ul style="list-style-type: none"> - Initial value 0 - 2023 - Intermediate value - N/A - Target value 1 - [First half of 2026]
Implemented dispatching centralization on the railway line Kaspichan - Sindel
<ul style="list-style-type: none"> - Initial value 0 - 2022 - Intermediate value - N/A - Target value 1 - [First half of 2026]
Installed information system for control of the rolling stock parameters
<ul style="list-style-type: none"> - Initial value - 0 [2021] - Intermediate value - N/A - Target value - 1 [First half of 2026]
Number of built solar parks
<ul style="list-style-type: none"> - Initial value - 0 pieces - [2021] - Intermediate value - 120 pcs. solar parks - [2024] - Target value - 180 pcs. solar parks [First half of 2026]
Number of railway stations with the introduction of new LED lighting

<ul style="list-style-type: none"> - Initial value - 0 pcs. 2021. - Intermediate value - 70 pcs. – [Second half of 2024] - Target value - 120 pcs. – [First half of 2026]
Developed optical cable network and digital telecommunication equipment in the section Sofia - Karlovo - Filipovo
<ul style="list-style-type: none"> - Initial value 0 - 2021 - Intermediate value - N/A - Target value 1 - [First half of 2026]
Increasing the reliability and resilience of the SE NRIC infrastructure to external cyber influences
<ul style="list-style-type: none"> - Initial value - 1 [2021] - Intermediate value - 3 – [Second half of 2023] - Target value - 5 – [Second half of 2025]
Built automated electronic hub
<ul style="list-style-type: none"> - Initial value - 0 [2021] - Intermediate value - N/A - Target value - 1 - [Second half of 2025]
6.2. Effect indicator/s
7. Does the project require the opening of a procedure pursuant to the Public Procurement Act (PPA)?
Yes
7.1. If a procedure under the Public Procurement Act is required, what part of the activities and financial resources will be the subject of the public procurement?
About 95 %
7.2. If a procedure under the Public Procurement Act is required, what is the indicative schedule for its implementation?
The project will be implemented by objects in the period 2021-2026, as for each separate object several procedures under the Public Procurement Act are envisaged, with an indicative time of 9 months for conducting a procedure for selection of a contractor.
8. Demarcation and complementarity
8.1. If similar projects have been implemented (regardless of their source of funding), describe how this project builds on/complements what has been achieved with previous projects.
<p>The project is related to the following projects:</p> <ul style="list-style-type: none"> - Modernization and rehabilitation of the railway section Mezdra - Gorna Oryahovitsa - Development of railway junctions Ruse, Varna and Gorna Oryahovitsa. - Modernization of the railway line Karnobat - Sindel - Implementation of the Train Performance Management System (TPMS), financed under OPTTI 2014-2020. The initial scope of the project implemented under OPTTI included the implementation of the system for control of the rolling stock parameters, but given the emergency situation caused by the COVID-19 pandemic, the initial scope of the project was reduced in order to free up the European Regional Development Fund (ERDF) resources and implement the measures taken by the government to minimize the negative

effects of the pandemic by transferring funds between operational programs. In view of the measures taken, BGN 48.666 million were transferred from the ERDF of the OPTTI to the OP "Innovation and Competitiveness".

The above projects are not entirely chronological, but are located in the same geographical regions as the objects included in this proposal. Their implementation together with the current project will achieve rehabilitation, modernization, interoperability and modern development of the railway infrastructure in a large part of Northern Bulgaria.

The activities described in this project proposal and the estimated costs are not funded under any other EU project and/or national budget/other financing instrument and are not envisaged for future funding.

8.2. If similar projects are envisaged to be implemented under the Partnership Agreement programs, the centrally managed facilities of EU or the Just Transition Fund, outline the demarcation with this project.

Under the Partnership Agreement and the Connecting Europe Facility - 2, various railway projects are expected to be funded, which in their entirety will contribute to the development of railway infrastructure and the deployment of intelligent transport systems along the Trans-European Transport Network - core and comprehensive, as well as along the OEM Corridor. The objects in this project are located partly along the OEM Corridor, the core and comprehensive TEN-T network in Bulgaria and are related to the Partnership Agreement (PA) and CEF-2 projects, and are expected to contribute to the overall improvement of the railway sector, but at the same time its implementation is clearly distinguished and separated from the funding under the above programs.

The scope of this project is fully in line with all other projects planned for implementation under the Partnership Agreement and the Connecting Europe Facility - 2, in order to avoid overlapping costs for the same activities under different instruments and duplication of projects.

Under the Transport Connectivity Program in the period 2021 - 2027, it is planned to finance investment projects for:

- completion of the modernization of the railway section Elin Pelin-Kostenets;
- modernization of the railway line Sofia-Pernik and Pernik-Radomir;
- building a railway connection between Bulgaria and Northern Macedonia;
- completion of the facilities on the railway line Karnobat-Sindel;
- implementation of ERTMS Level 1 on lines beyond the above-mentioned.

In addition, priority 4 "Transport innovation, modernized traffic management systems, improving transport security and safety" also envisages projects for the development of intelligent transport systems, including implementation of ERTMS.

Given the opportunities provided under the Transport Connectivity Programme (TCP) 2021-2027 and in view of the limited financial resources, it is planned to finance the following projects related to the implementation of ERTMS under the programme:

- Implementation of ERTMS Level 1 (ETCS and GSM-R) with included replacement of Signalling and Telecommunications systems, dispatching centralization, station centralizations and level crossing devices on the railway line Radomir-Kulata, including:
 - ERTMS - part ETCS, on-track equipment
 - ERTMS - part GSM-R (or newer generation digital radio of the FRMCS type or equivalent)
 - construction of route-computer interlockings in 13 stations: D. Rakovets, Galabnik, Delyan, Dyakovo, Dupnitsa, Boboshevo, Kocherinovo, Simitli, Cherniche, P. Yavorov, Kresna, Strumyani, Sandanski, which will replace the technologically obsolete key dependence relay systems (KDRSs) requiring significant human resources and will limit the speed of traffic, inclusion in the dispatching centralization of these stations
 - construction of an interface for inclusion in the dispatching centralization of the existing route-relay interlocking in the stations: Blagoevgrad, Damyanitsa, Gen. Todorov, Petrich and Kulata
 - Construction of dispatching centralization with automatic control of train traffic and train operation situated at the unified dispatch center at Sofia station

- replacement of the automatic interlocking equipment with axle counters for the railway spans
- replacement of level crossings with manual control or automatic level crossings with technically depreciated equipment with new equipment with axle counters at 15 level crossings
- construction of a modern digital telecommunication system based on an optical cable network in the section of the 5th railway line Sofia - Kulata;
- passenger information systems (public address system, electronic boards, clock systems);
- construction of video surveillance of railway stations and station areas.
- Implementation of ERTMS Level 1 (ETCS and GSM-R) in the direction Ruse - Kaspichan, dispatching centralization with included design, delivery, construction and commissioning of:
 - ERTMS - part ETCS, on-track equipment;
 - ERTMS - part GSM-R (or newer generation digital radio of the FRMCS type or equivalent);
 - Construction of dispatching centralization with automatic control of the movement of trains and train operation, situated in a single dispatching center in Gorna Oryahovitsa;
 - route-computer interlockings of 10 stations in the section Obratsov Chiflik - Pliska with provided interface to the dispatching centralization and provision of equipment for realization of interface to the dispatching centralization for the stations from Ruse railway junction and Kaspichan station;
 - automatic interlocking with axle counters without through signals;
 - replacement of level crossings with manual control or automatic level crossings with technically depreciated equipment with new equipment with axle counters for 20 level crossings;
 - construction of a modern digital telecommunication system based on an optical cable network in the section of the 9th railway line Ruse - Kaspichan;
 - passenger information systems (public address system, electronic boards, clock systems);
 - construction of video surveillance of railway stations and station areas.
- Implementation of ERTMS Level 1 (construction of ETCS and displacement of GSM-R) in the direction Elin Pelin - September.
- Implementation of ERTMS Level 1 (ETCS and GSM-R) as part of the scope of projects for modernization of the railway line Sofia-Pernik and Pernik-Radomir.

This project proposal is consistent with and complements the current and forthcoming Union programs, while avoiding duplication of financing for the same costs. All this contributes to the efficient and coherent distribution of funds from the Union budget and to the observance of the principle of sound financial management.

In view of the above, we believe that the preparation of the project proposal follows the recommendations for promoting synergies and contributes to the effective coordination between the investments planned under the Recovery and Resilience Facility and other programs and instruments of the Union.

The project provides complementarity, synergies, consistency and coherence between different tools and programs.

The financial support for the proposed project proposal under the mechanism will be complementary to the support provided under other Union funds and programs.

The activities described in this project proposal and the estimated costs are not envisaged for future funding under any other EU project and/or national budget/other financing instrument.

9. Does the project directly contribute to the implementation of any of the Council's Specific Recommendations addressed to Bulgaria in the framework of the European Semester in the period 2017-2020? Please describe how.

A recommendation of the European Council on the 2020 National Reform Programme of Bulgaria,

delivering a Council opinion on the 2020 Convergence Programme of Bulgaria, states that **the coverage and quality of transport infrastructure in Bulgaria remains below the EU average**, and the Trans-European Transport Network is still incomplete. The multimodal platforms network, some rail and road sections, as well **the European Rail Traffic Management Systems and intelligent transport systems are still underdeveloped**. A recommendation has been made to **focus investments on the green and digital transition**, in particular on clean and efficient production and use of energy and resources, **environmental infrastructure and sustainable transport, contributing to the gradual decarbonisation of the economy**.

According to the Report for Bulgaria for 2020, significant investments are reported in the field of e-government, but nevertheless Bulgaria still lags behind the EU average levels. It is noted that one of the main issues to be addressed is cybersecurity and critical infrastructure security. On the one hand, this corresponds directly with the technologies used and on the other hand, with the capacity, knowledge and skills of the employed and engaged persons in the use and maintenance of modern systems. Increasing cyber resilience for strategic infrastructures such as ours is directly related to the ever-changing and evolving cyber threats. In this regard, taking the necessary measures and ensuring the necessary levels of cybersecurity will directly contribute to the improvement of specific Council recommendations in the area of improving the communication infrastructure, which is directly dependent on the railway transport infrastructure.

The findings, conclusions and recommendations of the previous Council report from 2019 are similar.

In pursuance of the above recommendations for overcoming the identified weaknesses, it is necessary to support projects in the railway sector that implement intelligent transport systems. This is the essence of the proposed project. Its implementation will contribute to the reflection of the recommendations of the European Council to Bulgaria, aimed at transport as well as to the contribution to the digital transition in railway transport.

10. Does the project contribute to the implementation of a reform in a given sector? Please describe how.

The project will contribute to the improvement of safety and modernization of the railway sector, and to its reform by achieving interoperability in accordance with the requirements of the CCS TSI.

Supporting impact of the railway digitization process.

11. Does the project contribute to the development of any aspect of sustainable economic development? Please describe how.

Digital transformation, along with the European Green Deal, is a key priority at European level. The European Commission annually reports the digital progress in the EU member states through indicators, which make up the index for the penetration of digital technologies in the economy and society (Digital Economy and Society Index (DESI)). Unfortunately, Bulgaria ranks last under this indicator. There is also a significant lag behind the average European levels of digital connectivity, the use of digital skills online, the digitalisation of enterprises and digital public services. The COVID-19 crisis has also confirmed the need to accelerate the digital transformation in virtually all economic and social sectors and has proved that large-scale efforts to exploit the potential of digital technologies are not only necessary but also mandatory. Through them, the economy will increase its competitiveness and sustainability, as well as create new sources of revenues from new business models and services that create jobs. Investments in digital technologies are also investments in achieving the ambitious goals of the European Green Deal, such as building a clean and circular economy, intelligent mobility, energy integration, precision agriculture and others. The pandemic has demonstrated the growing importance of digitalisation for all aspects of the economy, society and government. It has also reaffirmed the need to build high-speed digital connectivity and harness the potential of data by removing barriers to data sharing. This complex environment has shown that artificial intelligence and robotics can provide many solutions to improve healthcare. Undoubtedly, the benefits of e-education and training and their social effect

have been proven. In these changed realities, the public sector, and in particular public institutions, will play an increasingly important role in establishing the necessary legal and regulatory environment to promote innovation by facilitating business access to finance and attracting investment, including through European Union funds. The private sector can benefit from the new conditions for creating efficient supply chains, opening up new markets and creating innovative business models that are also in line with the digital transition goals. The economic and social consequences of COVID-19 are unprecedented and call for strong, collective and urgent measures to restore Bulgaria's economy to sustainable and inclusive growth.

The digital transformation is a necessary process of technological development of Bulgaria to create conditions for innovation and business growth, enhance the efficiency of the workforce, competitive digital economy and high standard of citizens.

Digital technologies provide huge potential for optimization of the transport system and open up new opportunities for production and services. They support integration of transport with other systems of the economy, such as energy, and significantly enhance the sector efficiency.

The latest annual report of the European Commission for Bulgaria for 2020 regarding transport states that our country has limited progress in the context of sustainability, because especially for the railway infrastructure serious efforts are needed to avoid segmentation by modernized and non-modernized sections. It is stated that railway transport has a limited contribution to total transport revenues, which calls into question its sustainability.

Funding for the development of railway transport, and in particular the specific project, will contribute to increasing sustainability. The project implementation will strengthen the potential for growth, especially in Northern Bulgaria, given the fact that most objects are located there.

The quality of the infrastructure will be improved in terms of its safety, security, efficiency, resilience to climatic conditions, as well as the quality of services and the continuity of transport flows. The introduction and deployment of telematics applications, as well as encouraging the development of innovative technologies, will have a direct impact on sustainable economic development.

Also, new jobs will be created in the implementation process.

The planned activities will not have a significant negative impact on the components and factors of the environment, nor will they cause damage to the habitats of species in the protected areas of the European Natura 2000 network. No greenhouse gas emissions are expected in the atmosphere, as the activities are not related to the generation of such.

All this will have a direct impact and contribution to Europe's green transition.

12. Does the project contribute to the implementation of the objectives of the National Development Program BULGARIA 2030? Please describe how.

The project is directly related to the objectives of the NDP Bulgaria 2030 and its implementation is in accordance with Priority P7 - "Transport Connectivity", 7.1 "Railway Transport" and Area of Impact 7.1a - "Railway Sector Management" and 7.1b - "Railway Infrastructure". It states that **railway transport will remain a priority area in transport policy**, as the sector will be developed and managed in a way that will allow it to compete effectively in the transport market, providing quality passenger and freight transport for customers, to invest wisely and maintain the necessary assets in good condition and to support itself financially with acceptable level of state support. Efforts to build the Trans-European Railway Network in the country will continue. **The implementation of innovative systems will continue, which will further increase traffic safety and will enhance the sector efficiency. Efforts to improve the quality of the country's railway lines will continue.** The implementation of the proposed project will contribute to the achievement of the above objectives and priorities of the NDP BG2030.

The digital transformation is a necessary process of technological development of Bulgaria to create conditions for innovation and business growth, enhance the efficiency of the workforce, competitive digital economy and high standard of citizens. Guided by the strategic goals of our country for accelerated economic development, demographic growth and reduction of inequalities,

set in the “National Development Program Bulgaria 2030”, by 2030 Bulgaria shall build a functioning and secure environment to unlock the full potential of digital technologies for digital transformation of all key sectors, reaching the average European values of the Index for the penetration of digital technologies in the economy and society DESI.

Secure cyberspace and trust are drivers of demand and use of ICT-based products and services and are key factors for successful digital transformation. Providing a system of solutions aimed at increasing the state of cybersecurity in the infrastructure of the SE NRIC is a step towards building a fully integrated national cybersecurity ecosystem with the ability to adapt to the dynamics of global cyber threats and to respond to large-scale attacks on the Bulgarian information resources.

13. Does the project contribute to the implementation of the objectives and priorities set out in the National Integrated Energy and Climate Plan? If yes, please describe how.

The section of “Energy Efficiency” Dimension of NIECP states that the planned policies, measures and programs for achievement of the indicative national energy efficiency targets for 2030, as well as the other targets for promoting energy efficiency in the “Transport” sector require efforts to be aimed at deploying electric mobility, developing and stimulating the use of public electric transport, as well as **accelerating the integration of modern technologies into the innovative railway sector**.

In addition, the main objectives of the policy for reduction of the greenhouse gas emissions in the Transport sector are to reduce road freights over 300 km, **by shifting them to greener modes of transport, such as railway transport**, in line with the Third National Action Plan on Climate Change 2013-2020 (extended until 2030).

The main measures by which Bulgaria seeks to improve energy efficiency in the sector include increasing the share of public electric transport **by improving the railway infrastructure**.

Taking into account the above-mentioned priorities and measures in NIECP, it can be concluded that the proposed project will contribute to their implementation in the field of energy efficiency of railway transport.

We declare that none of the activities mentioned in the project proposal significantly harm the six environmental and climate objectives set out in Regulation (EU) 2020/852 of the European Parliament and of the Council of 18 June 2020 establishing a framework to facilitate sustainable investment and to amend Regulation (EU) 2019/2088 ("EU Taxonomy Regulation"):

- 1) climate change mitigation;
- 2) adaptation to climate change;
- 3) sustainable use and protection of water and marine resources;
- 4) transition to a circular economy;
- 5) pollution prevention and control;
- 6) protection and restoration of biological diversity and ecosystems