DRAFT
DEVELOPMENT PLAN
of the NATIONAL NATURAL GAS SYSTEM 2024 – 2033

September 2024

Contents

ABBREVIATIONS

BMS: Border Metering Station
CCTV: Closed Circuit Television
CHP: Combined Heat and Power unit
CNG: Compressed Natural Gas
DESFA: TSO of the Greek Natural Gas System
EIB: European Investment Bank
HP: High Pressure
IGB: Interconnector Greece Bulgaria
IISNG: Integrated IT System for Natural Gas
L/V: Linevalve
LNG: Liquefied Natural Gas
M/R: Metering/Regulating
NNGS: National Natural Gas System
NNGTS: National Natural Gas Transmission System
NSRF or PA: National Strategic Reference Framework or Partnership Agreement 7-year E.U. program for the support of the Greek economy
O&M Centers: Centers of Operation and Maintenance
PLC: Programmable Logic Controller
RAB: Regulated Asset Base
RAWEW: Regulatory Authority for Waste, Energy, Water
RRF: E.U. Recovery and Resilience Facility
SCADA: Supervisory Control and Data Acquisition
TAP: Trans Adriatic Pipeline
TSO: Transmission System Operator
Nm^3: Normal Cubic meter
UGS: Underground Storage

Executive Summary

According to the current provisions of the Network Code, DESFA, as the TSO of the National Natural Gas System (NNGS) prepares on a yearly basis and puts in public consultation the Draft Ten Year Development Plan (TYDP). The aim of this document is to inform the market participants on the infrastructures - new and planned-that DESFA is currently materializing and maturing.

The draft TYDP 2024-2033 comprises of 72 projects, with a total budget 1,37 billion €, out of which 69 projects are included in the three years (3YR) development period with a relevant CapEx of 1,34 billion €. Three new projects of a total budget of 18,98 mln €, are included in a TYDP for the first time. The rest are projects which have been included in a TYDP in previous years and are currently under development.

More specifically, the new projects are:

1. **Amyntaio-Komnina** pipeline (ca. 13 mln€): The project refers to the construction of a 100% H2 8" pipeline of approximately 9.05 km, from Amyntaio to Komnina for the injection of green hydrogen produced in Amyntaio, to the West Macedonia' s HPP, where it will be blended with natural gas for the supply of a CHP district heating unit.
2. Technical Training Center **H2 Injection Facility** (768k€): The Project pertains to the design and development of a pilot scale injection point to the DESFA Technical Training Center simulation facility comprising of an array of three M/R Stations (70/19 to 19/4 to 4/1) at Nea Mesimvria. The aim is to develop know how in the blending of H2 with natural gas in the various levels of operating pressure of the gas networks in Greece.
3. Renovation of DESFA's headquarters (ARKAT) (5,2 mln€): Taking into consideration the updated needs of DESFA, but also the need to improve energy efficiency and its overall carbon footprint according to its net zero plan, the company proceeded with a thorough analysis of the option to relocate its headquarters. As a result, the decision that it would be more beneficial to enter into a long-term lease agreement with ARKAT SA following relevant renovation of the building and proceed with the resale of N. Kifissia was taken. To this end, the planned project "New building for DESFA's headquarters" is excluded from the draft TYDP 2024-2033 and a new project for the renovation of the existing HQ is proposed.

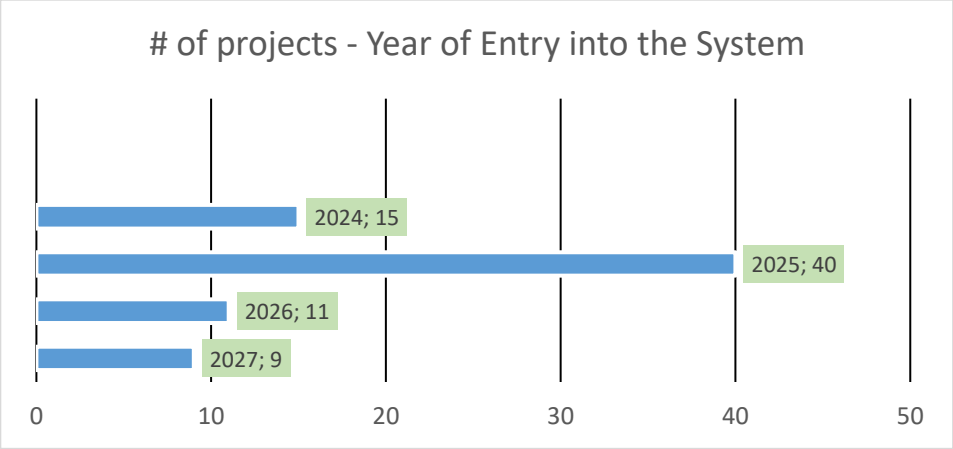
It should be noted that, following the new Tariff Regulation (Decision E59/2023- Gov.Gazzette 4192B/29.6.2023) from 2024 onwards own production costs is part of the Regulated Asset Base (RAB) (Art. 15 par. 2) and not of the operating expenses. In that respect in the draft TYDP 2024 -2033 own production costs are incorporated in projects' CapEx amount for Development and Connection Projects (for the latter according to Art. 24 par. 3) with a total amount for the period 2024-2033 of apprx. 63,2mln€.

In addition to the above, in the draft TYDP 2024-2033 capex revisions and timeline have been incorporated reflecting the most updated picture of the projects.

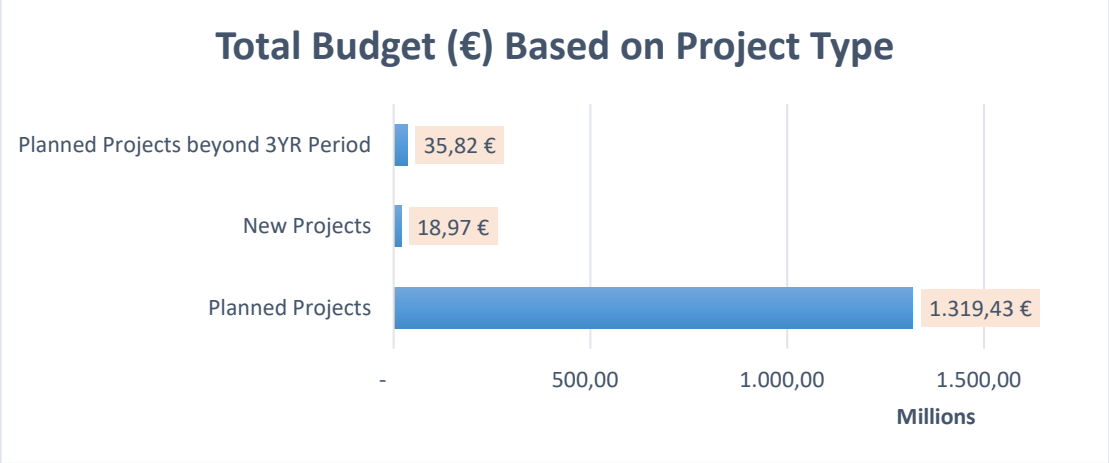
The following graphs include in summary the analysis of the total budget of this draft TYDP, in relation to:

1. The budget allocation per type of project
2. The expected FID date
3. The expected Entry into the System

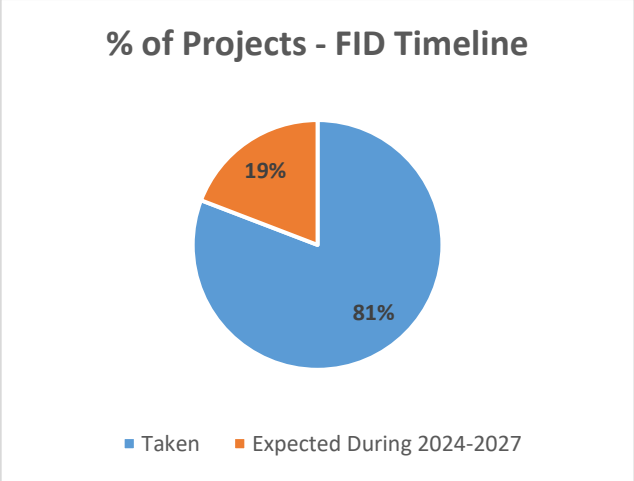
Graph 1: Number of projects related to the Entry into the System Date



Graph 2: Budget per type of project



Graph 3: Quota in relation to FID status


% of Projects - FID Timeline
19%
81%
Taken
Expected During 2024-2027

CHAPTER I.

INTRODUCTION

Chapter I. Introduction

The Development Plan 2024-2033 is conducted in accordance with applicable legislation, namely article 14, article 68 par.2 (ka) of L. 4001/2011 and applicable provisions of the NNGS Network Code.

As per the provisions of the legislation, for the preparation of the Development Plan, the following parameters are considered:

a) data of the current and the estimated supply and demand of natural gas
b) the fulfillment of obligations to provide public utility services and gas supply security, aiming at the continuity of supply and prevention of congestions and of refusal of access for new users, in a reliable and economically efficient manner
c) the continuous improvement of the NNGS safety, reliability and efficiency, aiming at the prevention of incidents, failures and emergencies, in a reliable and economically efficient manner
d) the supply of new areas with natural gas and the ensuring of new Users' potential access
e) the protection of the environment, also by expanding the use of natural gas as an alternative, cleaner and more sustainable fuel, among others, in maritime and road transportation
f) the European development plan and the regional investment programs in accordance with the provisions of part (b) of paragraph 3 of Article 8 and of paragraph 1 of Article 12 of Regulation 715/2009[1]
g) the viability of projects that are included in the Plan and their potential financing
h) the ongoing developments regarding the system's readiness to accept H_2 and other renewable gases' volumes, in compliance with EU Green Deal requirements.

The Development Plan includes projects whose construction is scheduled to begin within the timeframe of the Plan (i.e., for the period 2024-2033) as well as the Planned Projects, the construction of which has not been completed yet.

The TSO substantiates the rationale of the inclusion of the new projects in the Development Plan and includes information about the construction method, the estimated budget, the time schedule of the implementation, the way of financing the relevant investments as well as the cost recovery method.

In the following paragraphs the projects of the Development Plan 2024-2033 are presented, including for each project all the necessary elements arising from the NNGS Network Code.

The Development Plan is structured as follows:

[1] Regulation (EC) No 715/2009 of the European Parliament and of the Council of 13 July 2009 on conditions for access to the natural gas transmission networks and repealing Regulation (EC) No 1775/2005 (Text with EEA relevance)

Chapter I. Introduction

Chapter II. Projects included in the three years Development Period (namely 2024-2027)

A. New Projects

1. Projects for the interconnection of NNGS with other interconnected systems (connection/development projects)
2. Projects for the connection of Users
3. Development Projects: Expansion of NNGTS to new areas connected to distribution network
4. Development Projects: Expansion of NNGS to new markets
5. Development Projects: Increase of capacity & security of supply of NNGS
6. Development Projects: Improvement / modernization/ maintenance of NNGS
7. Projects relating to energy transition, decarbonization and innovation
8. Incremental Capacity Projects according to CAM NC

B. Planned Projects[2]

1. Projects for the interconnection of NNGS with other interconnected systems (connection/development projects)
2. Projects for the connection of Users
3. Development Projects: Expansion of NNGS to new areas connected to distribution network
4. Development Projects: Expansion of NNGS to new markets
5. Development Projects: Increase of capacity & security of supply of NNGS
6. Development Projects: Improvement / modernization/ maintenance of NNGS
7. Projects relating to Energy transition, decarbonization and innovation

Chapter III. Projects outside the three years Development Period

A. New Projects

1. Projects for the interconnection of NNGS with other interconnected systems (connection/development projects)
2. Projects for the connection of Users
3. Development Projects

B. Planned Projects

1. Projects for the interconnection of NNGS with other interconnected systems (connection/development projects)
2. Projects for the connection of Users
3. Development Projects

Chapter IV. Projects that have been removed from the Development Plan 2024-2033

DESFA also provides justification and reasons for deviations or exclusion from the proposed draft Development Plan of any Planned Project.

[2] Planned Projects are the projects already included in any of the previous TYDPs or in the List of Small Projects but are not yet concluded.

For each project a Table similar to the template below, summarizes the main elements of the project, that is:

- the type of project (Planned or New/ Development or Connection Project)
- the type of investment (pipeline, compressor station, metering station, LNG and small-scale LNG facilities, CNG facilities, including all related plants, machineries, devices, equipment and systems for process monitoring/supervision/control/management and ancillary facilities such as consolidation/protection works, service roads, buildings, offices, IT systems, etc.)
- the expected benefit (according to the criteria of art. 92 par. 2 of NNGS Network Code)
- the current status:
  - under preliminary study, which includes preliminary market analysis, dimensioning and cost estimation that will allow the definition of the project for approval by RAE
  - under maturity, which includes basic design study, environmental authorization, that is all the actions from approval by RAE up to the Final Investment Decision (i.e. Resolution to Construct) according to the definition of the NNGS Administration Code
  - under construction, which includes the detailed design, procurement of materials and construction of the project as well as any tests following mechanical completion, that are all the actions from the Final Investment Decision (i.e., Resolution to Construct) and up to inclusion of the project in the system
- the project milestone dates:
  - the start date, which is the date of the first inclusion of the project to the Development Plan or List of Small Projects according to the NNGS Network Code
  - the date of Final Investment Decision, as this term described in the NNGS Network Code, i.e., "*the approval decision for the implementation of the project by the Operator without technical, commercial or financial conditions*. *The FID is taken after (a) the approval of the Development Plan or the publication of the Small Projects List, in which it is included, (b) the execution of Connection Agreement for the Connection Projects, (c) the financing decisions, at least in relation to own capital and grants and (d) the approval of Environmental Terms. Contracts for procurement of materials and construction of projects are executed by the Operator after the taking of the FID"* (art. 1 par. 95 of the Network Code).
  - Duration of the project, referring to the necessary time in months from the FID date till the start of normal operation of the project (only for new projects)
  - the estimated Operation Date, as described in the NNGS Network Code, which is the starting date of operation (for testing if necessary) after the mechanical completion of the project.
  - the scheduled day for Entry into System, which is the start of normal operation (or Commercial Operation Date). Entry of a project into the system is performed after the issuance of operation license, where relevant.
- the current budget of the project
- for new projects their impact on the Average NNGS Tariff is calculated, as described and provided for in the Tariff Regulation in force
- the financing plan and the recovery method of the investment

- whether a commitment with a User has been made for booking of Transmission Capacity for a certain period of time
- whether the project is part of the three-year Development Period provided for in the respective NNGS Network Code. This period includes projects for which the final Investment Decision (i) has been taken, or (ii) is considered possible to be taken within three (3) years from the publication of the draft Development Plan on DESFA's website (i.e., up to September 2027). For projects not included in the 3-year Development Period, no planning is given.

Project Summary	
Type of project	
Type of investment	
Current Budget	
Expected benefit	
Start date	
Final Investment Decision	
Duration of the project[3] (for "New" projects only)	
Operation Date	
Entry in the system	
Current Status of Project	
Financing plan	
Recovery method	
Connection Agreement with User	
Impact on the Average Tariff for the use of NNGS (for "New" projects only)	
Inclusion in the 3 years Development Period	
First approval from RAEWW (for Planned Projects)	

Following the project summary of each project, a short description of the scope of it and any other necessary relevant information is given.

[3] Duration in months from FID to Entry into the system.

CHAPTER II.

PROJECTS INCLUDED IN THE THREE YEARS' DEVELOPMENT PERIOD

Chapter II. Projects included in the three years' Development Period

A. New Projects

A1. Projects for the interconnection of NNGS with other interconnected systems (connection/development projects)

No new projects are proposed in this TYDP in this category.

A2. Projects for the connection of Users

No new projects are proposed in this TYDP in this category.

A3. Development Projects: Expansion of NNGS to new areas connected to distribution network

No new projects are proposed in this TYDP in this category.

A4. Development Projects: Expansion of NNGS to new markets

No new projects are proposed in this TYDP in this category.

A5. Development Projects: Increase of capacity & security of supply of NNGS

No new projects are proposed in this TYDP in this category.

A6. Development Projects: Improvement / modernization/ maintenance of NNGS

This chapter presents projects aimed at the continuous improvement of the NNGS, its modernization and maintenance to ensure safety, reliability and efficiency.

1. Renovation of DESFA's headquarters

Project Summary	
Type of project	New Project
Type of investment	Project for the control/management of the NNGS
Current Budget	5,2 million €
Expected benefit	Increased efficiency
Start date	July 2024

Final Investment Decision	August 2024
Project Duration[1]	17 months
Operation Date	January 2026
Entry in the system	January 2026
Current Status of Project	Under maturity
Financing plan	DESFA's own equity or loan
Recovery method	Inclusion in RAB of Transmission and LNG Services
Impact on the Average Tariff for the use of NNGS	0,17%
Inclusion in the 3 years Development Period	Yes

Following an assessment of the needs of the company and elaborating on the importance to proceed with the most efficient operation of the company, the renovation of DESFA's headquarters' building is necessary . The renovation of the building aims to improve employee working conditions as well as to foster DESFA's cultural transformation in alignment with the brand entity and energy efficiency objectives.

The scope of the project includes works related to architectural design and electromechanical equipment as well as necessary actions to secure static stability of the building. The renovation will upgrade both the infrastructure and the working place in accordance with the market requirements of the international design and efficiency standards allowing DESFA to cover current and future needs.

It should be highlighted that this new project is closely related to the removal of the project "New building for DESFA's headquarters" which based on the latest assessment of DESFA does not seem the optimal solution for the company. In that respect, although the projects have a slight impact on the average tariff, this can be counterbalanced from the decrease in the average tariff stemming from the aforementioned exclusion.

A7. Projects relating to energy transition, decarbonization and innovation

1. Technical Training Center H2 Injection Facility

Project Summary	
Type of project	New Project
Type of investment	M/R Station
Current Budget	0,77 million €
Expected benefit	Energy transition
Start date	July 2024

Final Investment Decision	September 2024
Project Duration[1]	15 months
Operation Date	December 2025
Entry in the system	December 2025
Current Status of Project	Under maturity
Financing plan	DESFA's own equity or loan
Recovery method	Inclusion in RAB of Transmission Services
Impact on the Average Tariff for the use of NNGS	0,03%
Inclusion in the 3 years Development Period	Yes

The Project pertains to the design and development of a pilot scale H2 injection point to the DESFA Technical Training Center simulation facility comprising of an array of three M/R Stations (70/19 to 19/4 to 4/1) at Nea Mesimvria.
The design and construction will include the following:
1. Construction for the possibility of hydrogen injection into the input line of the NG network (before MR 70/19).
2. PLC installation that will regulate the pressure and amount of H2 injection.
3. Branch construction after the output of the MRs 4/1 low pressure station to the final device (burner).

2. Amyntaio-Komnina pipeline

Project Summary	
Type of project	New Project
Type of investment	Pipeline, M/R
Current Budget	13,01 million €
Expected benefit	Energy transition
Start date	July 2024
Final Investment Decision	December 2025[4]
Project Duration	24 months
Operation Date	October 2027
Entry in the system	December 2027
Current Status of Project	Under maturity
Financing plan	DESFA's own equity or loan

[4] Subject to the FID of a H2 production unit in the area

Recovery method	Inclusion in RAB of Transmission Services
Impact on the Average Tariff for the use of NNGS	0,34%[5]
Inclusion in the 3 years Development Period	Yes

DESFA has received increased interest for green H_2 production in the area of West Macedonia. Already from 2027 Hellenic Hydrogen (HH) plans to develop the construction and operation of a Renewable Hydrogen Production Unit (RFNBO), with an initial capacity of 50 MW (expandable to 200 MW) within the former Amyntaio - Filota Steam Power Station. Other H_2 production and consumption points are foreseen in the wider area in the future.
The produced hydrogen will be injected downstream of DESFA's main pipeline (at point Komnina) so that it can be blended at a rate of 20% (volumetric) with natural gas in the dedicated branch to feed the new CHP unit in Kardia.
DESFA plans to construct a H_2 pipeline of approximately 9.05 km and 8'' diameter from Amyntaio to Komnina valve station. At the injection point of H_2 with the DESFA pipeline, all necessary equipment will be installed to measure and homogenize the flow and composition of the gas mixture such as a Metering/Regulating Station. It is again stressed that the FID for the construction of the project will not be taken before a corresponding FID from the H2 producers is also taken.

A8. Incremental Capacity Projects according to CAM NC

No projects are proposed in this TYDP.

A9. Impact of the Development projects in the Average Tariff for the Use of the system of NNGS

It is estimated that the inclusion in the RAB of the above new projects increase the Average Tariff for the usage of NNGS by **0,54%**. In addition to that, it should be highlighted that the benefits achieved from the above-mentioned projects would be important for the continuation of the efforts of DESA towards energy transition, also in view of the forthcoming implementation of the new Gas and Hydrogen Package legislation which will be put in force later this year.

[5] This impact is indicative and does not include the revenues which will stem from the usage of the H2 pipeline, since the corresponding methodology has not been developed yet. However, since the FID of the development of the project will not be taken before an FID has also be taken by the producers that will use the pipeline, the corresponding tariff methodology and the resulting tariffs will have been set by the Regulator.

B. Planned Projects

B1. Projects for the connection of NNGS with other interconnected systems (connection/development projects)

1. Pipeline Nea Messimvria – Evzoni/ Gevgelija and Metering Station

Project Summary	
Type of project	Planned Project
Type of investment	Pipeline & M Station
Current Budget	92,04 million €
Expected benefit	Development SEE market, increase of usage of NNGS
Start date	June 2017
Final Investment Decision	Taken
Operation Date	December 2025
Entry in the system	January 2026
Current Status of Project	Under construction
Financing plan	EIB loan[6], DESFA's own equity or other loan
Recovery method	Inclusion in RAB of Transmission Services
Inclusion in the 3 years Development Period	Yes
First approval from RAEWW	Decision 236/2019 (TYDP 2017-2026)

The project aims at the interconnection of natural gas transmission systems of Greece and North Macedonia which will enhance the diversification of supply sources for North Macedonia. The latter one is currently solely dependent on the supply of gas from its congested interconnection with Bulgaria.

DESFA and NER signed a Memorandum of Understanding for the project in October 2016 but also concluded, on 10 September 2021, a Cooperation Agreement for the construction of the pipeline on both parts of the border.

Access to NNGS, and especially to the LNG terminal of Revithoussa and to natural gas through TAP pipeline, can benefit market competition thus leading to lower prices for the supply of natural gas in the neighboring country. Meanwhile, the project enhances the regional development of natural gas market and the involvement of more market players thus enhancing the role of Greece as a hub. Furthermore, it will lead to the increased usage of the

[6] Application submitted for up to a maximum of 25 million €.

NGTS and will thus lead to a reduction of the tariffs for the usage of the transmission system in the long term.

The Greek Part of the project comprises of:

- Approx. 55 km pipeline of 30'' in with 80 barg design pressure and 66,4 barg maximum operating pressure starting from DESFA's O&M Centre at Nea Messimvria (downstream of the current compressor station) and ending to the Border Station U-7550 which will be installed to the administrative limits of the Community of Evzoni, eastern of river Axios.
- A Border Metering Station (BMS) in the interconnection area (estimated capacity 430.000 Nm^3/h), with a central bypass arrangement of the station at 50% of the final capacity.

  The new Border Metering Station design philosophy is a configuration of separate section, as follows:

  a. filtering section (1+1), one filtering stream in operation and one stand-by - each stream's capacity of 430.000 Nm^3/h,
  b. metering section (2+1), two metering streams in operation and one stand-by - each stream's capacity of 215.000 Nm^3/h,
  c. flow control section (2+1), two flow control streams in operation and one stand-by - each stream's capacity of 215.000 Nm^3/h,
- A ~1,5Km 28'' diameter High-Pressure pipeline from the BMS area to the Interconnection Point with North Macedonia
- A Block Valve Station along the pipe routing, in the area of Kilkis
- A Scraper Station (Launcher) installed in the connection with NNGTS in Nea Messimvria
- A Launcher and a Receiver Scraper Station installed in the Border Station area.

DESFA launched a Market Test process in July 2022, which was successfully concluded and the ARCAs with the relevant participant were signed by the end of 2022. The timeline of the project has been updated to align with the timeschedule of the upstream natural gas pipeline project of Nomagas in North Macedonia.

The project been designed and constructed as pipeline able to transport H_2 up to 100%, in line with the decarbonization plan of DESFA and the existing plans for the development of hydrogen production in West Macedonia region. In the future, should market circumstances so require, the pipeline to North Macedonia will be connected to the planned H2 backbone project[7] to formulate part of the Hydrogen transportation infrastructure of Greece and the wider SEE region.

[7] Commission Delegated Regulation 2024/1041, Hydrogen interconnections in Central Eastern and Southeastern Europe (HI East), 10.3.1 Internal hydrogen infrastructure in Greece towards the Bulgarian border/

Figure 1: Routing of the pipeline from Nea Messimvria to the border with North Macedonia

2. Metering and Regulating Station for connecting with Dioriga Gas FSRU

Project Summary	
Type of project	Planned Project
Type of investment	Metering & Regulating Station
Current Budget	20,67 million €
Expected benefit	Enabling access to new Users
Start date	March 2021
Final Investment Decision	February 2025
Operation Date	October 2026
Entry in the system	December 2026
Current Status of Project	Under maturity
Financing plan	DESFA's own equity
Recovery method	Connection Fee/Additional Connection Fee
Connection Agreement with User	Not yet
Inclusion in the 3 years Development Period	Yes
First approval from RAEWW	Decision 116/2021 (TYDP 2021-2030)

The Connection Project includes a new Metering/Regulating (M/R) Station where the natural gas pipeline that Dioriga Gas plans to construct will end up. This new M/R Station will be located near the existing M/R Stations for the supply of MOTOR OIL HELLAS (MOH) refinery and the Korinthos Power S.A. Power Plant, in the area of Agioi Theodoroi in Corinthia. This

new M/R station will have a capacity of 490.000 Nm^3/h and a central bypass arrangement of the M / R station at 50% of the final capacity.

Upon the completion of the project, a new Entry Point "DIORIGA GAS" will be created, which will satisfy Dioriga Gas' request for a total natural gas delivery of 11,76 million Nm^3/d. The M/R station's maximum output pressure will be equal to 66,4 barg.

The new M/R Dioriga Gas Station design philosophy is a configuration of separate section, as follows:

1. filtering section (1+1), one filtering stream in operation and one stand-by - each stream's capacity of 490.000 Nm^3/h,
2. metering section (2+1), two metering streams in operation and one stand-by - each stream's capacity of 245.000 Nm^3/h,
3. gas heating section (1+1), one gas heating stream in operation and one stand-by - each stream's capacity of 490.000 Nm^3/h,
4. regulating section (2+1), two regulating streams in operation and one stand-by - each stream's capacity of 245.000 Nm^3/h,
5. flow control section (2+1), two flow control streams in operation and one stand-by - each stream's capacity of 245.000 Nm^3/h,

The project is designed to allow for a specific percentage of blends; the allowable blend of H2 and natural gas is under evaluation, according to the specifications of the existing infrastructures.

B2. Projects for the connection of Users

1. Metering station at SALFA A. Liossia

Project Summary	
Type of project	Planned Project
Type of investment	Metering station
Current Budget	0,97 million €
Expected benefit	Enabling access to new Users
Start date	June 2017
Final Investment Decision	Taken
Operation Date	September 2024
Entry in the system	September 2024
Current Status of Project	Under construction
Financing plan	DESFA's own equity
Recovery method	Connection Fee
Connection Agreement with User	Yes
Inclusion in the 3 years Development Period	Yes

First approval from RAEWW	Decision 236/2019 (TYDP 2017-2026)

The project is developed according to the provisions of the Tariff Regulation as well as the relevant request and agreement with the "DEPA Commercial SA".

The new Metering Station will be designed with a total capacity of 5.000Nm^3/h in a configuration of (1+1) – one metering stream in operation and one stand-by.

2. Connection of ELVAL plant to the NNGTS in Inofyta

Project Summary	
Type of project	Planned Project
Type of investment	Pipeline/Metering station
Current Budget	5,45 million €
Expected benefit	Enabling access to new Users
Start date	December 2015[8]
Final Investment Decision	Taken
Operation Date	December 2026
Entry in the system	March 2027
Current Status of Project	Under construction
Financing plan	DESFA's own equity
Recovery method	Connection Fee
Connection Agreement with User	Yes
Inclusion in the 3 years Development Period	Yes
First approval from RAEWW	Decision 755/2020 (TYDP 2020-2029)

The project will be implemented for natural gas supply of the ELVAL SA plant in Inofyta, Viotia, for various thermal uses. A new pipeline (extending the NNGTS), two scraper stations (launcher/ receiver) and a M / R station will be constructed for the supply of ELVAL plant.

The new M/R Station is designed with an initial capacity of 11.500Nm^3/h, in a configuration of (1+1) – one metering/regulating stream in operation and one stand-by), with future provision for expansion to max capacity of 23.000 Nm^3/h, when this will be justified by demand-wise by the downstream connected system.

3. Connection with THERMOILEKTRIKI KOMOTINIS Power Plant to the NNGTS

Project Summary

[8] The Start date refers to the day of submission of the application for Advanced Reservation of Capacity.

Type of project	Planned project[9]
Type of investment	Pipeline / Metering station
Current Budget	6,75 million €
Expected benefit	Enabling access to new Users
Start date	June 2020
Final Investment Decision	Taken
Operation Date	September 2024
Entry in the system	October 2024
Current Status of Project	Under construction
Financing plan	DESFA's own equity
Recovery method	Connection Fee/ Additional Connection Fee
Connection Agreement with User	Yes
Inclusion in the 3 years Development Period	Yes
First approval from RAEWW	Decision 116/2021 (TYDP 2021-2030)

The project comprises construction of a new 1,5km pipeline that will be connected to the branch of ''Komotini-Alexandroupoli'' with the method of hot-tapping and construction of one-line valve station, construction of one Metering station with two metering skid, 1 working + 1 stand by, with capacity of 142.000 Nm^3/h, construction of central inlet and outlet Emergency Shut Down valve stations, and construction of one-line valve station as NNGTS exit point.

4. Connection with ELPEDISON Power Plant to the NNTGS

Project Summary	
Type of project	Planned project[10]
Type of investment	Pipeline/ Metering station
Current Budget	3,99 million €
Expected benefit	Enabling access to new Users
Start date	June 2020
Final Investment Decision	Taken

[9] Transferred from the Small Projects' List.

[10] Transferred from the Small Projects' List.

Operation Date	October 2025
Entry in the system	November 2025
Current Status of Project	Under construction
Financing plan	DESFA's own equity
Recovery method	Connection Fee
Connection Agreement with User	Yes
Inclusion in the 3 years Development Period	Yes
First approval from RAEWW	Decision 116/2021 (TYDP 2021-2030)

The aim of this project is to install one Metering Station at the west area of Thessaloniki in order to supply with natural gas the new Power Plant of ELPEDISON. The project comprises construction of a new 0,3km pipeline that will be connected to the branch of 'Pentalofos - Diavata'' with the method of hot-tapping, construction of one-line valve station, construction of one Metering station with two metering skid, 1 working + 1 stand by, with capacity of 130.000 Nm^3/h and construction of central inlet and outlet Emergency Shut Down valve stations inside DESFA's property.

5. Connection of "Alexandroupolis SA" power station with NNGS and Metering Station

Project Summary	
Type of project	Planned Project
Type of investment	Pipeline, Metering Station
Current Budget	12,81 million €
Expected benefit	Enabling access to new Users
Start date	June 2023
Final Investment Decision	May 2025
Operation Date	April 2027
Entry in the system	May 2027
Current Status of Project	Under maturity
Financing plan	DESFA's own equity or loan
Recovery method	Connection Fee / Inclusion in RAB of Transmission Services
Connection Agreement with User	No yet

Inclusion in the 3 years Development Period	Yes
First approval from RAEWW	Decision E68/2023 (TYDP 2023-2032)

The project will enable connection between "Alexandroupolis SA" power station and the NNGS, in order to operate a new gas turbine plant of electricity production with 840 MWe capacity.
It consists of:

- a High-Pressure Natural Gas pipeline with a diameter of 14" and a design pressure of 80 barg, with a length of approximately 6,5 km.
- a new Metering Station (M/S) in the area of Alexandroupoli.

The project will be 100% H2 ready.

6. Connection of " Larisa Thermoelectriki" power station with NNGS and Metering Station

Project Summary	
Type of project	Planned Project
Type of investment	Pipeline, Metering Station
Current Budget	7,52 million €
Expected benefit	Enabling access to new Users
Start date	June 2023
Final Investment Decision	June 2025
Operation Date	May 2027
Entry in the system	June 2027
Current Status of Project	Under maturity
Financing plan	DESFA's own equity or loan
Recovery method	Connection Fee / Inclusion in RAB of Transmission Services
Connection Agreement with User	No yet
Inclusion in the 3 years Development Period	Yes
First approval from RAEWW	Decision E68/2023 (TYDP 2023-2032)

The project will enable connection between "Larisa Thermoelectriki" power station and the NNGS, in order to operate a new gas turbine plant of electricity production with 872.6 MWe capacity.

It consists of:

- a High-Pressure Natural Gas pipeline with a diameter of 14" and a design pressure of 80 barg, with a length of approximately 1,1 km.
- a new Metering Station (M/S).

The project will be 100% H2 ready.

B3. Development Projects: Expansion of NNGS to new areas connected to distribution network

B.3.1. Supply of West Macedonia

1. High Pressure pipeline to West Macedonia

Project Summary	
Type of project	Planned Project
Type of investment	Pipeline & M station
Current Budget	184,6 million €
Expected benefit	the supply of new areas with natural gas ensuring new Users' potential access/ decarbonization of Greek System
Start date	July 2020
Final Investment Decision	Taken
Operation Date	Pipeline: May 2025 M station Kardia-Kozani: November 2025
Entry into the system	Pipeline: June 2025 M station Kardia-Kozani: December 2025
Current Status of Project	Under construction
Financing plan	DESFA's own equity or loan, possible NSRF 2021-2027 grant[11]
Recovery method	Inclusion in the RAB of Transmission System (w/o possible grants)

[11] DESFA has applied for inclusion in the NSRF 2021-2027

Inclusion in the 3 years Development Period	Yes
First approval from RAEWW	Decision 116/2021 (TYDP 2021-2030)

The project is included to support the decarbonization policy introduced by the Hellenic Republic and it concerns the extension of the existing NGTS via a new pipeline branch up to the region of West Macedonia. According to the basic design study the project consists of 157 km Natural Gas High Pressure pipeline, out of which:

- **93,4 Km/30" HPP** starting from the existing LVS at Trikala Imathias and ending north of Ptolemaida (Komnina new LVS)
- **29,8 Km/ 14" HPP** branch for connection to Kardia M Station
- **3,4 Km/10'' HPP** branch for connection to Aspros M/R station
- **9,1 Km/10'' HPP** branch for connection to Perdikkas M/R station
- **21,3Km/ 10" HPP** branch for the supply of Veria/Naoussa district and

including all the necessary auxiliary facilities and line valve stations for the operation of the project as well as provisions for future extensions.

The project also includes Kardia Metering Station to supply the district heating installations for the cities of Kozani, Ptolemaida and Amyntaio, as well as line valves to supply other consumption in the region. The Metering Station is designed with a total capacity of 50.000Nm3/h, in a configuration of (1+1) – one metering stream in operation and one stand-by.

The project has been designed and constructed as a pipeline able to transport H2 up to 100%, in line with the decarbonization plan of DESFA and the existing plans for the development of hydrogen production in West Macedonia region. In the future, should market circumstances so require, the West Macedonia pipeline will be connected to the planned H2 backbone project[12] to formulate part of the Hydrogen transportation infrastructure of Greece and the wider SEE region. An extension of the West Macedonia pipeline to the Western Coast of Greece has already been included in the ENTSOG's TYDP[13], as the future connection to the hydrogen pipeline towards Italy.

In the meantime, the project will also be connected to the Amyntaio- Komnina pipeline transporting blend of natural gas and hydrogen to the CHP unit in Kardia. The timeline of the project is aligned with the teleheating installations project time schedule.

[12] Commission Delegated Regulation 2024/1041, Hydrogen interconnections in Central Eastern and South Eastern Europe (HI East) 10.3.1 Internal hydrogen infrastructure in Greece towards the Bulgarian border

[13] TYNDP | ENTSOG, H2T-A-1091/ Connection of DESFA's transmission system with East Med pipeline/ Komnina-Florovouni section

2. M/R Station in the region of Aspros

Project Summary	
Type of project	Planned Project
Type of investment	Metering & Regulating Station
Current Budget	5,03 million €
Expected benefit	Supply of new areas
Start date	December 2019
Final Investment Decision	Taken
Operation Date	May 2025
Entry in the system	June 2025
Current Status of Project	Under construction
Financing plan	DESFA's own equity or loan
Recovery method	Inclusion in RAB of Transmission Services
Inclusion in the 3 years Development Period	Yes
First approval from RAEWW	Decision 755/2020 (TYDP 2020-2029)

Aspros M/R Station will be fed with natural gas from the West Macedonia Pipeline, and it will supply the cities of Edessa, Skidra and Gianitsa via two distribution companies.

The new M/R Station is designed with an initial capacity of 15.000Nm^3/h and outlet pressure of 16,7 barg, (in a configuration of (1+1) – one metering/regulating stream in operation and one stand-by), with future provision for expansion to max capacity of 30.000 Nm^3/h, when this will be justified by demand-wise by the downstream connected system.

The project is designed to be 100% H_2 ready.

3. M/R Station in the region of Perdikas Eordeas

Project Summary	
Type of project	Planned Project
Type of investment	Metering & Regulating Station
Current Budget	4,43 million €
Expected benefit	Supply of new areas
Start date	December 2019
Final Investment Decision	Taken

Operation Date	April 2025
Entry in the system	June 2025
Current Status of Project	Under construction
Financing plan	DESFA's own equity or loan
Recovery method	Inclusion in RAB of Transmission Services
Inclusion in the 3 years Development Period	Yes
First approval from RAEWW	Decision 755/2020 (TYDP 2020-2029)

The new M/R Station is designed with an initial capacity of 5.000Nm^3/h and outlet pressure of 16,7 barg, (in a configuration of (1+1) – one metering/regulating stream in operation and one stand-by), with future provision for expansion to max capacity of 10.000 Nm^3/h, when this will be justified by demand-wise by the downstream connected system. The project is designed to be 100% H_2 ready.

B.3.2. Supply of Western Greece & Peloponnese

1. High Pressure Pipeline to Patras

Project Summary	
Type of project	Planned Project
Type of investment	Pipeline & M/R Station
Current Budget	101,4 million €
Expected benefit	the supply of new areas ensuring potential access of new Users'
Start date	July 2020
Final Investment Decision	June 2025
Operation Date	December 2026
Entry in the system	March 2027
Current Status of Project	Under maturity
Financing plan	DESFA's own equity or loan
Recovery method	Inclusion in RAB of Transmission Services
Inclusion in the 3 years Development Period	Yes
First approval from RAEWW	Decision 116/2021 (TYDP 2021-2030)

In line with relative request of the Western Greece Region, the project concerns the connection of the city of Patras and the Industrial Area (VIPE) of Patras with the NNGS, with provision for future extensions to other cities of the Western Greece Region.

According to Basic Design, the project consists of a high-pressure pipeline, of approximately 145 km and 20" diameter, starting from a suitable point on the HPP branch of Megalopolis. The project also includes all necessary infrastructure and a Metering/ Regulating station. The M/R Station will be designed with an initial capacity of 27.500Nm^3/h with configuration of (1+1) – one metering/regulating stream in operation and one stand-by, with future provision for expansion to max capacity of 55.000 Nm^3/h, when this will be justified demand-wise by the downstream connected system.

DESFA will coordinate with the Distribution System Operator who will undertake the development of the distribution network in the region.

The project has been designed and constructed as a pipeline able to transport H2 up to 100%, in line with the decarbonization plan of DESFA. In the future, should market circumstances so require, the Patras pipeline will be connected to the planned H2 backbone project[14] to formulate part of the Hydrogen transportation infrastructure of Greece and the wider SEE region.

Figure 2: Pipeline Routing

2. Korinthos M/R city gate station

Project Summary

[14] Commission Delegated Regulation 2024/1041, Hydrogen interconnections in Central Eastern and Southeastern Europe (HI East) 10.3.1 Internal hydrogen infrastructure in Greece towards the Bulgarian border

Type of project	Planned Project
Type of investment	M/R Station
Current Budget	2,83 million €
Expected benefit	Supply of new areas
Start date	July 2020
Final Investment Decision	Taken
Operation Date	July 2024
Entry in the system	August 2024
Current Status of Project	Under construction
Financing plan	DESFA's own equity or loan
Recovery method	Inclusion in RAB of Transmission Services
Inclusion in the 3 years Development Period	Yes
First approval from RAEWW	Decision 116/2021 (TYDP 2021-2030)

The investment consists of one Metering Regulating city gate station at the area of Korinthos including construction of Metering and Regulating skid, construction of auxiliary installations, construction of steel shelter for the protection of M/R skid (Skid Shelter), as well as connection with the existing NNGTS pipeline. The capacity of the station has been estimated at 10.000 Nm^3/h with a (1+1) configuration with provision for expansion to totally 20.000 Nm^3/h with a (2+1) configuration.

Construction of the project will be awarded following coordination with the Distribution System Operator who will undertake the development of the distribution network in the city of Korinthos.

The project is designed to allow for a specific percentage of blends; the allowable blend of H2 and natural gas is under evaluation, according to the specifications of the existing infrastructures.

3. Argos/Nafplio M/R city gate station

Project Summary	
Type of project	Planned Project
Type of investment	M/R Station
Current Budget	3,09 million €
Expected benefit	Supply of new areas
Start date	July 2020

Final Investment Decision	Taken
Operation Date	May 2026
Entry in the system	June 2026
Current Status of Project	Under construction
Financing plan	DESFA's own equity or loan
Recovery method	Inclusion in RAB of Transmission Services
Inclusion in the 3 years Development Period	Yes
First approval from RAEWW	Decision 116/2021 (TYDP 2021-2030)

The investment consists of one Metering Regulating city gate station including construction of Metering and Regulating skid, construction of auxiliary installations, construction of steel shelter for the protection of M/R skid (Skid Shelter), as well as connection with the existing NNGTS pipeline.

The new M/R Station is designed with an initial capacity of 10.000Nm^3/h and outlet pressure of 16,7 barg, in a configuration of (1+1) – one metering/regulating stream in operation and one stand-by, with future provision for expansion to max capacity of 20.000 Nm^3/h, when this will be justified demand-wise by the downstream connected system.

Construction of the project will be awarded following coordination with the Distribution System Operator who will undertake the development of the distribution network in the cities of Argos and Nafplio.
The project is designed to allow for a specific percentage of blends; the allowable blend of H_2 and natural gas is under evaluation, according to the specifications of the existing infrastructures.

B.3.3. Supply of Central Macedonia

1. Drymos/Liti M/R city gate station

Project Summary	
Type of project	Planned Project
Type of investment	Metering & Regulating station
Current Budget	4 million €
Expected benefit	Supply of new areas
Start date	July 2020
Final Investment Decision	Taken
Operation Date	April 2027

Entry in the system	July 2027
Current Status of Project	Under construction
Financing plan	DESFA's own equity or loan
Recovery method	Inclusion in the RAB of Transmission Services
Inclusion in the 3 years Development Period	Yes
First approval from RAEWW	Decision 116/2021 (TYDP 2021-2030)

Drymos Metering / Regulating Station will be fed from the National Natural Gas Transmission System (NNGTS) through the existing main pipeline with Hot-Tapping Method. New M/R station's maximum capacity will be 18.000Nm^3/h and it will be constructed in two phases: Phase 1: 9.000 Nm^3/h, Phase 2: 18.000 Nm^3/h.

In the first phase, two (2) gas metering and regulating streams shall be installed in a (1+1) configuration – one in operation and one stand-by – with each stream's capacity of 9.000 Nm^3/h, an interconnecting pipeline of 100m estimated length, Hot-Tapping configuration with all relevant equipment and installations, as well as Control Room's and RCC's equipment that will be installed at M/R station's Cabinet.

The project is designed to allow for a specific percentage of blends; the allowable blend of H_2 and natural gas is under evaluation, according to the specifications of the existing infrastructures.

2. M/R Station to Veroia

Project Summary	
Type of project	Planned Project
Type of investment	M/R Station
Current Budget	3,67 million €
Expected benefit	Supply of new areas
Start date	October 2021
Final Investment Decision	Taken
Operation Date	June 2025
Entry into the system	July 2025
Current Status of Project	Under maturity
Financing plan	DESFA's own equity or loan
Recovery method	Inclusion in RAB of Transmission Services

Inclusion in the 3 years Development Period	Yes
First approval from RAEWW	Decision 666/2022 as valid (TYDP 2022-2031)

The purpose of the project is the installation of a Metering/Regulating Station (along with the necessary building facilities and supporting equipment) in the extended area of Veroia for the supply with natural gas. The M/R station will be connected to the 10'' branch Arsenio-Veroia which is part of the HPP to West Macedonia (already planned project) upstream and downstream with the expected distribution network of DEDA.

The M/R Station will be designed with an initial capacity of 8.000 Nm^3/h and outlet pressure of 16,7 barg, (8.000 Nm^3/h, configuration 1+1 – one metering/regulating stream in operation and one stand-by), with future provision for expansion to max capacity of 16.000 Nm^3/h, when this will be justified demand-wise by the downstream connected system. The project is designed to be 100% H2 ready.

3. M/R Station to Naousa

Project Summary	
Type of project	Planned Project
Type of investment	Metering & Regulating Station
Current Budget	3,67 million €
Expected benefit	Supply of new areas
Start date	October 2021
Final Investment Decision	Taken
Operation Date	June 2025
Entry in the system	July 2025
Current Status of Project	Under maturity
Financing plan	DESFA's own equity or loan
Recovery method	Inclusion in RAB of Transmission Services
Inclusion in the 3 years Development Period	Yes
First approval from RAEWW	Decision 666/2022 as applicable (TYDP 2022-2031)

This new M/R Station U-9130 concerns the installation of a Metering/Regulating Station at the Kopanos area of Naousa for the supply with natural gas.

The M/R station will be fed through LVS U-9120 of the 10"branch Arsenio-Veria, which is part of the 30'' HHP to West Macedonia.

The M/R Station will be designed with a total capacity of 6.000Nm^3/h and outlet pressure of 16,7 barg, (6.000 Nm^3/h, configuration 1+1 – one metering/regulating stream in operation and one stand-by), including as well as skid shelter, Control Room and RCC building Station and supporting equipment. The project is designed to be 100% H2 ready.

4. Temporary supply of Naousa through ssLNG Installations

Project Summary	
Type of project	Planned Project[15]
Type of investment	SSLNG infrastructure
Current Budget	2,25 million €
Expected benefit	Supply of new areas
Start date	January 2023
Final Investment Decision	Taken
Operation Date	September 2024
Entry in the system	September 2024
Current Status of Project	Under construction
Financing plan	DESFA's own equity or loan
Recovery method	Inclusion in the RAB of Transmission Services
Inclusion in the 3 years Development Period	Yes
First approval from RAEWW	Decision E68/2023 (TYDP 2023-2032)

The project consists of the necessary ssLNG installations for the supply of Naousa in Central Macedonia temporarily until the region is supplied from the HP Pipeline to West Macedonia. It should be highlighted that DESFA, with this investment, will undertake responsibility for the installation of the storage, regasification, heating and metering and regulating facilities. The implementation will be realized with modular small size tanks and gasifiers, which are easy to be relocated, thus maximizing possible synergies, and minimizing relevant cost.

B4. Development Projects: Expansion of NNGS to new markets

1. Port's Extension for the LNG Trucks transfer to and from Revithoussa Terminal

(remaining part of Truck Loading (first) station)

[15] Included in the List of Small Projects ver. 25/25.01.2023

Project Summary	
Type of project	Planned Project
Type of investment	Small scale LNG facility
Current Budget	1,72 million €
Expected benefit	Supply of new areas/markets/ decarbonization of the Greek energy system
Start date	April 2016
Final Investment Decision	Taken
Operation Date	June 2025
Entry in the system	June 2025
Current Status of Project	Under construction
Financing plan	DESFA's own equity or loan
Recovery method	Inclusion in RAB of Ancillary LNG Services
Inclusion in the 3 years Development Period	Yes
First approval from RAEWW	Decision 64/2017 (TYDP 2016-2025)

The project refers to the remaining part of truck loading pilot station, i.e., the expansion of ports for the LNG trucks transfer to and from Revithoussa Terminal station.

2. New jetty for small-scale LNG in Revithoussa

Project Summary	
Type of project	Planned Project
Type of investment	Small Scale LNG facility
Current Budget	37,51 million €
Expected benefit	Supply of new areas/markets/opening of a new gas market sector for Greece (bunkering)/ decarbonization of the Greek energy system
Start date	June 2017
Final Investment Decision	Taken
Operation Date	October 2025
Entry in the system	December 2025

Current Status of Project	Under Construction
Financing plan	Poseidon Med II Grants (for studies), NSRF 2014-2020 grants[16], DESFA's own equity or loan
Recovery method	Inclusion in RAB of Ancillary LNG Services
Inclusion in the 3 years Development Period	Yes
First approval from RAEWW	Decision 755/2020 (TYDP 2020-2029)

The new jetty system for loading/unloading LNG small-scale ships with capacity from 1.000 m^3 and up to 30.000 m^3 will be realized in the north-east area of Revithoussa Island. The project will consist of the onshore infrastructures of cryogenic piping and utilities and the marine facilities of a multi-buoy mooring system, a loading/unloading floating platform, and hoses for transferring LNG to small-scale LNG ships.

The smallest ships will primarily be used to supply vessels powered by LNG (cruisers, containerships, Ro-Pax), in the port of Piraeus primarily and possibly other ports in the vicinity of Revithoussa.

The larger ships will transport LNG to satellite LNG storages and distribution stations in other coastal locations in in Greece, either to ports (such as Patras, as foreseen in the Poseidon Med II program), or off-grid installations where gas consumption will be regarded as feasible, including islands, through virtual pipeline schemes. In addition, the new jetty system will allow the unloading of small LNG ships that have been loaded in other European LNG Terminal, thus enabling the terminal to receive small ships and optimize its storage utilization.

Following the assessment of the Geotechnical Investigations findings and the latest global developments of LNG market, the optimal solution is to proceed with a Floating Platform System in the north side of the island; the finalization of the project's design led also to the respective timeline update of the project.

The project is an implementation of the studies under POSEIDON MED II[17].

[16] Approved with apprx. 50% of the eligible budget.

[17] POSEIDON MED II, under the auspices of the INEA (Innovation and Network Executive Agency), is part of the necessary steps towards adopting liquefied natural gas as a marine fuel in the Eastern Mediterranean, making Greece the focal point for supplying and distributing liquefied natural gas in Southeast Europe, implementing Directive 94/2014 / EU and Law 4439/2016 incorporating the above Directive into Greek law. In this action 26 partners from shipping and gas industry from three EU Member States are involved (Cyprus, Greece, Italy)

B5. Development Projects: Increase of capacity & security of supply of NNGS

1. Compression Station in Komotini

Project Summary	
Type of project	Planned Project
Type of investment	Compressor station
Current Budget	124,93 million €
Expected benefit	Technical adequacy of NNGS, increase of capacity of NNGS
Start date	July 2007[18]
Final Investment Decision	Taken
Operation Date	Phase A: February 2025 Phase B: May 2025
Entry in the system	Phase A: March 2025 Phase B: June 2025
Current Status of Project	Under construction
Financing plan	DESFA's own equity or loan
Recovery method	Inclusion in RAB of the Transmission Services
Inclusion in the 3 years Development Period	Yes
First approval from RAEWW	Decision 64/2017 (TYDP 2016-2025)

Regarding the Compressor Station in Komotini, following RAE's Decision 666/5.8.2022, DESFA expeditiously launched the process of award of the project which was completed successfully.

In phase A, three compressor units of 8,2MW each will be installed with a configuration of 2+1 (2 in operation and one stand-by unit), while in phase B an additional unit (4th CS unit) with the same characteristics will be installed; the relevant final configuration of the station will be 3+1 (3 in operation and one stand-by unit). Regarding H_2 readiness of the asset it is noted that the Compressor will be Electric Motor Driven and will be able to operate with up to 10% hydrogen.
For the power supply of the above-mentioned Compressor Units via High-Voltage (H/V) network, a High Voltage Substation needs to be constructed and connected to the existing network of the Independent Power Transmission Operator (IPTO). H/V Substation will be constructed as per IPTO provisions.

The H/V Substation will comprise of:

[18] Approval time of basic design, for the initial project of Kipi compressor station.

- High Voltage 150/21 kV Substation
- Two Underground 150 kV Connection Cable Lines between the new Substation and IPTO (two lines for full backup operation),
- 150 kV Connection with PPC in Komotini area (two connections),
- Engineering, Supervision, and Management Services.

The updated timeline mainly stems from delays during the permitting process of the project.

2. Compressor Station in Ampelia

Project Summary	
Type of project	Planned Project
Type of investment	Compressor Station
Current Budget	73,94 million €
Expected benefit	Efficiency of NNGS, effective operation in respect to prevent congestion
Start date	June 2017
Final Investment Decision	Taken
Operation Date	May 2025
Entry in the system	June 2025
Current Status of Project	Under Construction
Financing plan	NSRF 2014-2020 grants[19], DESFA's own equity or loan
Recovery method	Inclusion in RAB of Transmission Services
Inclusion in the 3 years Development Period	Yes
First approval from RAEWW	Decision 236/2019 (TYDP 2017-2026)

The project is necessary on the basis of the hydraulic simulation studies carried out by DESFA and increases the transported quantities of natural gas from north to south. The project accommodates the additional daily flow from the TAP pipeline through its interconnection with NNGTS in Nea Messimvria.

In order to ensure the hydraulic stability and efficiency of the system, irrelevant of the entry point in the northern section of the NNGTS the Users will select, it is necessary to increase the technical capacity of the said NNGS entry points with the installation of a compressor station at the southern part of Greece, which concentrates the larger part of the demand.

According to the Basic Design, the compressor station will include two compressor units plus one spare with size (2+1) x 10 MW. Furthermore, the station will be designed to provide also

[19] Approved with 50,84% of eligible budget.

the possibility of compression in reverse flow. The Compressor is Gas Turbine Driven and will be able to operate with up to 10% hydrogen. The extreme weather events in the area in 2023 and the damages/implications that were casued led to the updated timeline of the project. Following the entry into the system a three-month initial trial operation will follow.

3. Booster Compressor for TAP in Nea Messimvria

Project Summary	
Type of project	Planned Project
Type of investment	Compressor station
Current Budget	47,97 million €
Expected benefit	Efficiency of NNGS, effective operation enabling transit flows
Start date	December 2019
Final Investment Decision	Taken
Operation Date	November 2025
Entry in the system	December 2025
Current Status of Project	Under construction
Financing plan	DESFA's own equity or loan
Recovery method	Inclusion in RAB of Transmission Services
Inclusion in the 3 years Development Period	Yes
First approval from RAEWW	Decision 755/2020 (TYDP 2020-2029)

The project concerns the installation of a new Compressor Station in order to supply the Trans Adriatic Pipeline with delivery pressure significantly higher than the NNGS operating pressure.

According to the provisions of the paragraph 4.7.4 of Joint Decision of Greek, Albanian and Italian Regulators for the exemption of TAP from articles 9, 32, 41(6), (8) and (10) of Directive 2009/73/EC (Decision of RAE 269/2013 Gov. Gaz. 1833/29.07.2013) at least one (1) Tie-In Point between NNGS and TAP pipeline should be realized, with a nominal capacity of 10 mil. Nm^3/ day and bi-directional flow capability. The cost of construction of the above-mentioned investment, based on the exemption decision, will be covered by DESFA and will be recovered through the tariffs of the Users of the National Natural Gas System.

According to the regulatory framework the tie in point must be bidirectional. Flow from NNGTS to TAP due to the difference in the operating pressure (66,4 barg vs 93 barg respectively) requires the installation of a Compressor Station.

This investment enables the full bi-directional flow in the interconnection (2^{nd} phase of the project).

The characteristics of the compressor station refer to the installation of 2 units of 1,1 MW and 1 unit of 3,3 MW, with no spare capacity. This configuration can cover a widespread range of flows, from very low up to 10 million Nm^3 per day.

The Compressors will be Electric Motor Driven Variable Speed. The Compressor will be able to operate with up to 20% hydrogen. The timeline of the project has been updated to reflect the delays during the permitting procedure.

4. Duplication of the HP branch Karperi-Komotini

Project Summary	
Type of project	Planned Project
Type of investment	Pipeline
Current Budget	310,56 million €
Expected benefit	Increase of capacity of NNGTS
Start date	February 2023
Final Investment Decision	June 2025
Operation Date	December 2026
Entry in the system	March 2027
Current Status of Project	Under Maturity
Financing plan	DESFA's own equity or loan
Recovery method	Inclusion in RAB of Transmission Services
Inclusion in the 3 years Development Period	Yes
First approval from RAEWW	Decision E68/2023 (TYDP 2023-2032)

The proposed project refers to the construction of a 30'', 215 km 100% H2 ready[20] pipeline parallel to the existing network from Karperi to Komotini (refer to the map for the project's indicative routing).

The project is a priority project for DESFA since it will increase the ability of the NGTS to accommodate additional gas flows between the Northern and the Southern parts of the System. Its main aim is to eliminate the bottlenecks for the provision of firm capacity to the new entry and exit points of the northern part of the NGTS, as well as the provision of firm access to the VTP. Such removal of the bottlenecks will increase the liquidity of the Greek VTP

[20] H_2 ready pipeline means that this pipeline will be able to operate with 100% H2.

and provide to all NGTS Users equitable access to all northern exit points, increasing in such a way the benefits for the Greek market.

The design of the said project has been based on the aim to enable firm capacity of up to 3bcma in the NGTS for export to IGB, the eventual capacity of which is up to 5bcma, also exploiting the operation of the compressor station in Komotini (Project B.5.1), as well as for additional domestic consumption and supply.

This H_2 ready pipeline, should the market circumstances so require and permit, may be linked in the future to the H_2 backbone in Karperi and be used to transport pure hydrogen to the Eastern part of the network, where a fertilizer and two combined cycle power plants able to consume natural gas in high percentages of blending with H_2 will be in operation.

Figure 3: Map of Karperi Komotini project

5. Duplication of the HP branch Patima – Livadeia

Project Summary	
Type of project	Planned Project
Type of investment	Pipeline
Current Budget	150,55 million €
Expected benefit	Increase of capacity of NNGTS
Start date	February 2023
Final Investment Decision	October 2025
Operation Date	December 2026
Entry in the system	March 2027
Current Status of Project	Under Maturity
Financing plan	DESFA's own equity or loan

Recovery method	Inclusion in RAB of Transmission Services
Inclusion in the 3 years Development Period	Yes[21]
First approval from RAEWW	Decision E68/2023 (TYDP 2023-2032)

The project includes the duplication of approximately 100km of the main HP pipeline of NGTS with a 100% H_2 ready, 30'' diameter pipeline, from Megara up to Livadeia, as is indicatively shown in the following map. The aim of the project is to reduce the pressure drop in the main pipeline, when the flow of gas is from the South to the North, and thus will increase the pressure level at Ampelia CS upstream side. The project reflects the upgrade of the NGTS required to provide firm capacity to the Floating Storage and Regasification Unit (FSRU) of Dioriga Gas, in the sea area of Agioi Theodoroi in Corinthia, as per the calculations performed by DESFA in the Evaluation report in response to the application of Dioriga Gas for an ARCA, according to Article 95 B of the Network Code.

Figure 4: Map of Patima -Livadeia project

The project is included in the TYDP considering that Dioriga Gas has already concluded a binding market test for the reservation of capacity in the FSRU, under the condition that Dioriga Gas will finally proceed with a Final Investment Decision for the relevant FSRU. A positive conclusion of the market test process is expected to provide the need for firm capacity to Dioriga Gas Users for export purposes or for the coverage of new domestic market needs.

B6. Development Projects: Improvement / modernization/ maintenance of NNGS

1. Design, supply and installation of a daily gas flow system design[22]

Project Summary	
Type of project	Planned Project
Type of investment	Scada equipment of the NNGTS

[21] Subject to the FID of Dioriga Gas.

[22] Former part of the project "Upgrading Projects of NNGS -1st group"

Current Budget	0,25 million €
Expected benefit	Efficiency of NNGS, effective operation
Start date	May 2010
Final Investment Decision	Taken
Operation Date	December 2024
Entry in the system	December 2024
Current Status of Project	Under construction
Financing plan	DESFA's own equity or loan
Recovery method	Inclusion of cost in RAB of Transmission Services
Inclusion in the 3 years Development Period	Yes
First approval from RAEWW	Ministerial Decision Δ1/Α/1271

The establishment of a system for forecasting-planning-control of daily gas flow will provide DESFA the ability to:

- estimate the volume of gas that will be transmitted,
- increase the level of accuracy in the prediction of the volume
- embody a regular review of the progress of the daily planning of gas and
- adjust the levels of unexpected consumption or shortages in supply.

The investment will:

- unburden DESFA from operating costs (overtime of field staff, unnecessary start-up/shut-down of LNG terminal, Compressor N. Messimvria, etc.)
- optimize the management of Users' reports and
- provide daily justified gas flow plans.

2. LNG Terminal Boil-off Gas Compressor Station

Project Summary	
Type of project	Planned Project
Type of investment	LNG facility compressor station
Current Budget	14,41 million €
Expected benefit	Efficiency of NNGS, effective operation
Start date	April 2016
Final Investment Decision	Taken
Operation Date	November 2023
Entry in the system	May 2025

Current Status of Project	Under construction
Financing plan	NSRF 2014-2020 grants[23], DESFA's own equity or loan
Recovery method	Inclusion in RAB of LNG Services
Inclusion in the 3 years Development Period	Yes
First approval from RAEWW	Decision 64/2017 (TYDP 2016-2025)

In order for DESFA to manage with the best possible way the produced boil-off gases (BOG) in the LNG Terminal of Revithoussa from the cryogenic facilities (2nd upgrade) as well as from the unloading/loading phase and mainly to avoid the combustion of the gases in the flair of the facility in the case of no send-out operation, DESFA will install a new compressor station for BOG so as to increase the pressure and inject them to the national natural gas system.

The new project consists of the following parts:

- Compressor station unit of total throughput of 10.000 kg/h and discharge pressure 26÷64 barg
- Knock Out Drum container in the sanction of compressors
- System for water cooling with cooler and re-circulation pumps
- Metal building for the accommodation of the compressor unit of 420 m^2 surface, including the electromechanical infrastructure
- Electrical facility for the power supply to compressors, coolers, pumps and building
- Installation of automation and control of new installations and interconnection with the central control room
- Pipeline networks for the transport of wastewater and extension of the existing auxiliary networks of the station (compressed air, nitrogen, water etc.)
- Extension of the plant's fire protection facilities
- Decommissioning of the existing nitrogen facility and relocation to a new location

This project, apart from saving LNG significantly for the users of the station, has an important environmental benefit by eliminating the carbon dioxide emissions during the period of non-operation of the Terminal.

The date of entry into the system is linked to the operational feasibility of the shutdown period of the existing Revithoussa terminal, completely free of gas, in order to carry out the final activities.

3. Upgrading Projects of NNGS -3rd group

Project Summary	
Type of project	Planned Project
Type of investment	Equipment for the NNGTS and LNG

[23] It has been re-submitted with a percentage of 60,43% of eligible budget.

Current Budget	0,14 million €
Expected benefit	Efficiency of NNGS, effective operation to prevent emergency situations
Start date	June 2017
Final Investment Decision	Taken
Operation Date	October 2025
Entry in the system	November 2025
Current Status of Project	Under construction
Financing plan	DESFA's own equity or loan
Recovery method	Inclusion in RAB of Transmission Services
Inclusion in the 3 years Development Period	Yes
First approval from RAEWW	Decision 236/2019 (TYDP 2017-2026)

The project will further develop DESFA's geographic database (Upgrade of Geographical Information System (GIS) system) in order to fully integrate DESFA's assets and their efficient performance through GIS-web applications to the end users.

4. Replacement of Metering and Supervision/ Control systems at NNGTS M and M/R stations of NNGTS

Project Summary	
Type of project	Planned Project
Type of investment	Equipment for control/management of NNGS
Current Budget	4,7 million €
Expected benefit	Efficiency of NNGS, effective operation
Start date	June 2017
Final Investment Decision	Taken
Operation Date	December 2024
Entry in the system	February 2025
Current Status of Project	Under construction
Financing plan	DESFA's own equity or loan
Recovery method	Inclusion in RAB of Transmission Services
Inclusion in the 3 years Development Period	Yes

First approval from RAEWW	Decision 236/2019 (TYDP 2017-2026)

The project concerns the replacement of the Measurement Management and Supervision / Control Systems in twenty-four (24) existing Metering (M) and Metering / Regulating (M / R) Stations, to achieve:

- the compatibility with each other as well as with the already upgraded 15 M/R stations and the planned new stations as presented in the planned projects herein, through similar equipment and software as well as similar architecture, achieving on the one hand direct economies of scale, by maintaining a smaller number of required spare parts and consumables and on the other hand by the support services of these systems during their operational phase,
- the separation to the maximum extent of the Measurement Management System from the Supervision /Control System at NNGTS Stations, achieving (a) the stations' measurement data to be collected in the SCADA of the Control and Load Distribution Centers (KEKF) of DESFA directly - without intermediate processing - by the certified Multi-Stream Flow Computers which will be installed in the framework of this project at the NNGTS stations and (b) by extension the optimization of the services provided by DESFA under the requirements of European and national regulatory framework (e.g. publication of data, validation of measured quantities etc.), and
- to ensure the operation of the Measurement Management and Supervision / Control Systems of the Stations for the next decade as the equipment and software at these Stations operate on average for a decade and is expected not to be supported by the manufacturers in the coming period.

The replacement of the Measurement Management and Supervision / Control Systems in the Stations of DESFA refers to the following elements:

- SCADA & Telecom
- programmable Logic Controller – PLC
- flow computer
- gas chromatograph, and
- equipment of local stations network.

5. Upgrade of LNG and O&M Facilities for energy saving

Project Summary	
Type of project	Planned Project
Type of investment	Equipment for NNGTS & LNG Facility
Current Budget	2,09 million €
Expected benefit	Increased efficiency of the system

Start date	December 2019
Final Investment Decision	Taken
Operation Date	O&M Transmission: completed LNG Terminal : November 2024
Entry in the system	O&M Transmission: completed LNG Terminal : November 2024
Current Status of Project	Under construction
Financing plan	DESFA's own equity or loan
Recovery method	Inclusion in RAB of Transmission and LNG Services
Inclusion in the 3 years Development Period	Yes
First approval from RAEWW	Decision 755/2020 (TYDP 2020-2029)

1. **Upgrade of LNG Facilities**
   This project includes interventions in heating/cooling systems and external lighting in order to achieve energy savings. The estimated budget is 100.000 €.

2. **Upgrade of O&M Facilities**
   The aim of the project is the energy upgrading of the Building and Electrical / Mechanical Facilities of the Operation and Maintenance Centers in order to achieve energy savings in accordance with the Energy Performance Regulation of buildings "KENAK" (Government Gazette B 2367/12.07.2017). This upgrade includes interventions at buildings' shells, heating/cooling systems, lighting, installation of photovoltaic etc. The budget is estimated at 1.900.000 €.

6. Cathodic Corrosion Protection System Upgrading

Project Summary	
Type of project	Planned Project
Type of investment	Equipment for NNGTS
Current Budget	2,04 million €
Expected benefit	Increased efficiency of the system
Start date	July 2019
Final Investment Decision	Taken
Operation Date	June 2025
Entry in the system	June 2025
Current Status of Project	Under construction
Financing plan	DESFA's own equity or loan

Recovery method	Inclusion in RAB of the Transmission Services
Inclusion in the 3 years Development Period	Yes
First approval from RAEWW	Decision 755/2020 (TYDP 2020-2029)

A continuous monitoring of Cathodic Protection System (CPS) can be used as a pipeline integrity diagnostics tool complementary to In-Line Inspection (ILI), enriching also with valuable data the Pipeline Integrity Management System (PIMS).

The upgrading of the CPS, involves three main components two of which are completed (Equipment for remote monitoring and control of CPS, Revision - Updating of proximity effects (electromagnetic interference) studies) and only the following remains:

1. **Replacement of DC decoupling devices in the existing pipeline earthing system**

The pipeline is subject to Electro-Magnetic Interference (EMI) caused by electric powerlines and lightning activity around. At various sites along the pipeline route, it is hence connected to earthing electrodes via electric/electronic equipment, namely 'dc decoupling devices'. This earthing system prevents direct current (dc) leak to earth thus keeping cathodic corrosion protection system effective while simultaneously enables the earthing and mitigation of the - detrimental to the safety and integrity of the gas transmission system - steady state and short-term EMI overvoltages and currents developed on the pipeline. The existing dc decoupling devices were obsolete, worn-out, or damaged, thus the replacement of them with sophisticated equipment was necessary for the safety of people and equipment.

7. IT Transformation

Project Summary	
Type of project	Planned Project
Type of investment	IT System
Current Budget	10 million €
Expected benefit	Digitalize and automate DESFA's core processes Enhance data-driven insights and decision-making Enable seamless collaboration and communication across departments and 3rd Parties Achieve Asset Lifecycle Management excellence by shortening maintenance work cycles

	Leverage Innovation Technologies for Gas Transmission Network Monitoring, Inspection and Defects Detection Gain a holistic view of the organization's risks and compliance with the Regulatory Framework
Start date	September 2019
Final Investment Decision	Taken
Operation Date	December 2024
Entry in the system	December 2024
Current Status of Project	Under construction
Financing plan	DESFA's own equity or loan
Recovery method	Inclusion in RAB of Transmission and LNG Services
Inclusion in the 3 years Development Period	Yes
First approval from RAEWW	Decision 755/2020 (TYDP 2020-2029)

With the strategic goal of digital transformation and in response to market challenges and requirements, DESFA has developed a five-year transformation roadmap for the transition to the new IT/OT Operating model. In this context, the "IT/OT Transformation Programme" constitutes the full implementation of the five-year roadmap, which includes the establishment of a Data Governance and Security Framework and the further development of existing and implementation of new IT services. This project consists of two main workstreams:

1. **Workstream 1**: Including actions aiming at further improving the IT Governance Model and achieving an optimal level of Information Security. Amongst others, the stream includes the design of an Information Security Framework based on best practices and international standards, the implementation of security mechanisms / controls to achieve optimum level of security as well as the development of appropriate procedures for the optimal provision of IT services internally and externally. In addition, this stream includes Digital Transformation activities in Cloud environments and the implementation of periodic security risk assessments on IT services and critical transmission network infrastructure of the National Natural Gas System.
2. **Workstream 2**: Including actions related to further improving and replacing part of existing applications as well as introducing new technologies. Specifically, the upgrade of core applications to cover DESFA's financial services and procurement activities is included as well as the design and implementation of necessary applications to optimize the complaints and customer care management and the achievement of optimal asset lifecycle management of the National Natural Gas System.

The purpose of this project is to meet the objectives of the corporate strategy; DESFA intends to replace part of the existing IT services that support its core business operations and introduce new technologies aiming at a continuous process for: the modernization of the IT Landscape, the automation and digitalization of business processes, the optimization of the operational activities, the increase of reliability and compliance with the regulatory framework, the reduction of operational costs.

Main pillars of this project are the new ERP SAP system, the implementation of the disaster recovery center, the creation of a document management system, the upgrade of the human capital management system, the introduction of modeling tools, an upgrade of the Integrated Project Management System, that will allow a faster, more reliable and efficient operation of the company.

8. Asset management IT & OT Equipment

Project Summary	
Type of project	Planned Project
Type of investment	Equipment for the NGTS
Current Budget	0,075 million €
Expected benefit	Increased efficiency of the system
Start date	April 2022
Final Investment Decision	Taken
Operation Date	SP1: Completed SP2: November 2024
Entry in the system	SP1: Completed SP2: December 2024
Current Status of Project	Under Construction
Financing plan	DESFA's own equity or loan
Recovery method	Inclusion in RAB of Transmission Services
Inclusion in the 3 years Development Period	Yes
First approval from RAEWW	Decision 666/2022 as applicable (TYDP 2022-2031)

The project consists of two sub-projects (SP):

Subproject 1: Operations Technology Hardware and Software -completed

The Project refers to i) the supply of one (1) Schneider Electric license package of M580 PLC programming software "EcoStruxure Control Expert, extra-large (XL), group (3 users)", ii) the supply and installation of two (2) permanent licenses of SCADA system software Genesis 32 V9 of ICONICS, Inc. in the supervisory computers of Thessaloniki North and Thessaloniki East M/R stations, iii) the supply of one (1) storage server RS1221RP+ of Synology Inc. with five (5)

Western Digital Gold Hard Disks of 8TB each, iv) the supply of one (1) portable Hart Communicator instrument with hazardous area enclosure (ATEX) and v) the supply of one (1) GAMS (Base Module and CPLEX) license to be used by the Gas Demand Forecast system. It is deemed necessary to procure the software licenses and equipment in order to i) maintain the installed PLCs at Kipi Border Metering Station, ii) to make the licenses of SCADA software of Thessaloniki North and Thessaloniki East M/R stations transferrable to other supervisory computers, iii) to store diverse SCADA and Telecommunications software in a central storage server and to support restoration activities required by security procedures, iv) to support and facilitate the main activity of the accredited calibration laboratory of DESFA, and v) to facilitate the short-term gas demand forecast of the gas-fired power plants.

Subproject 2. GIS software upgrade

The Scope of Services pertains to the provision of services for upgrading the existing status of ArcGIS server to expand the capabilities of DESFA GIS.

In particular, the Scope of Services shall include the following:

i. Upgrade of existing ArcGIS Enterprise workgroup Standard to ArcGIS Enterprise Standard version
ii. Upgrade of existing ArcGIS Geoevent Workgroup server to ArcGIS Enterprise Geoevent server
iii. Technical services for the implementation of the above

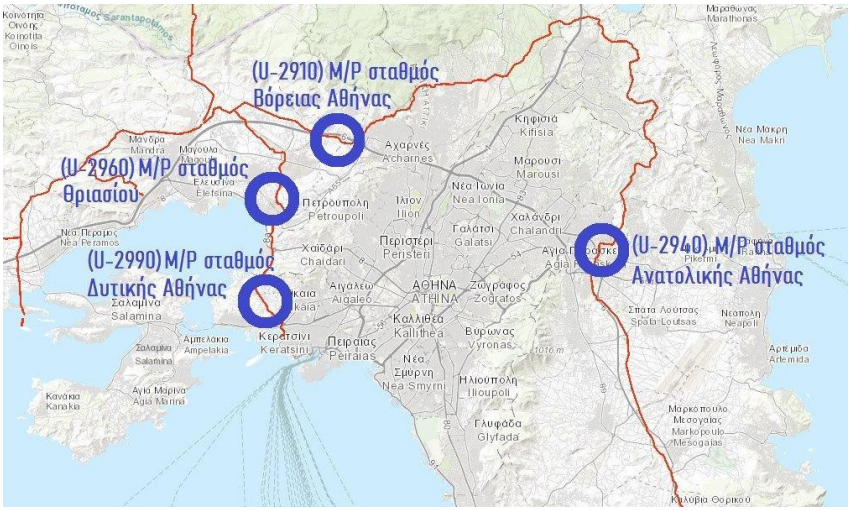
9. Expansion and Upgrade of M/R Stations of Exit Point to Distribution Network 'Athens'

Project Summary	
Type of project	Planned Project
Type of investment	M/R equipment
Current Budget	3,31 million €
Expected benefit	Improvements to the efficiency and effectiveness of the NNGS
Start date	October 2021
Final Investment Decision	Taken
Operation Date	December 2025
Entry into the system	December 2025
Current Status of Project	Under maturity
Financing plan	DESFA's own equity or loan
Recovery method	Inclusion in RAB of Transmission Services
Inclusion in the 3 years Development Period	Yes

First approval from RAEWW	Decision 666/2022 as applicable (TYDP 2022-2031)

The Exit Point to Distribution Network 'ATHENS' is served by the Metering/Regulating Stations 'ATHENS NORTH', 'ATHENS EAST', 'ATHENS WEST') and 'THRIASSIO' as shown on the map below.

Figure 5 : Overview of exit point to Athens



The first three (3) Metering/Regulating Stations were designed to be installed in two phases. The first phase, which has been implemented, includes the installation of two (2) metering/regulating lines (one in operation and one in standby mode), while the second phase provides for the installation of additional metering/regulating lines in such a way that one line will be in standby mode.

Since the maximum capacity of the first phase in the Metering/Regulating Stations 'ATHENS NORTH' and 'ATHENS EAST' has already been used in peak loads during the last winter seasons and considering the expected increase in Natural Gas consumption in the domestic sector, in the coming years (appr. 40% between 2022 and 2031), due to the new connections that are planned to be made by the Distribution Network Operator, it is deemed necessary to upgrade the four Metering/Regulating Stations that serve the Exit Point to Distribution Network 'ATHENS', as follows:

1. Detailed engineering, procurement and construction of additional Metering/Regulating lines at the M/R stations 'ATHENS NORTH' and ATHENS EAST' to the existing stub outs, including all the attached electrical and electronic equipment, with the aim of securing the supply of Natural Gas in the greater Athens area. The station's existing capacity of 110.219 Nm^3/h will be upgraded to 269.862 Nm^3/h in order to ensure the supply to the Exit Point to Distribution Network 'Athens' in peak hourly loads in the next winter periods.
2. Installation of flow control valves at the four (4) Metering/Regulating Stations at the Exit Point to Distribution Network 'ATHENS' with the aim of optimizing the control of allocation of Natural Gas flow among them – especially in periods of high demand for Natural Gas – by the Control & Dispatching Center of DESFA.

The Project aims to improve the smooth operation of the NNGTS by servicing an Exit Point connected to the Distribution Network and at the same time servicing the expected increase in Natural Gas consumption in the domestic sector.

The project is designed to allow for a specific percentage of blends; the allowable blend of H2 and natural gas is under evaluation, according to the specifications of the existing infrastructures.

10. Construction of a new Metering & Regulating Station in Markopoulo Site to replace the existing temporary M/R

Project Summary	
Type of project	Planned Project
Type of investment	M/R Station
Current Budget	2,4 million €
Expected benefit	Improvements to the efficiency and effectiveness of the NNGS
Start date	October 2021
Final Investment Decision	Taken
Operation Date	December 2025
Entry into the system	December 2025
Current Status of Project	Under maturity
Financing plan	DESFA's own equity or loan
Recovery method	Inclusion in RAB of Transmission Services
Inclusion in the 3 years Development Period	Yes
First approval from RAEWW	Decision 666/2022 as applicable (TYDP 2022-2031)

The Exit Point "SPATA" is supplied by Metering / Regulating Station "MARKOPOULO", which is served by the temporary station TM2. Since the Metering / Regulating Station TM2 is a temporary and portable installation (compact), it does not support all the functions and redundancies provisioned for the Metering Regulating Stations of NNGTS. Therefore, it is deemed necessary to build a new fully operational Metering / Regulating Station based on the applicable specifications of the company. The new station can be installed on the SE side of the available plot considering the requirements of the legislation in force and any modifications required. The station's final capacity will be 28.800 Nm^3/h in a configuration of (2+1) - two metering/regulating streams in operation and one stand-by, with each stream's capacity of 14.400 Nm^3/h.

The Project aims to improve the smooth operation of the NNGTS in servicing an Exit Point connected to the Distribution Network.

The project is designed to allow for a specific percentage of blends; the allowable blend of H2 and natural gas is under evaluation, according to the specifications of the existing infrastructures.

11. Electronic Information System (EIS)- functionalities upgrade

Project Summary	
Type of project	Planned Project
Type of investment	IT System
Current Budget	0,51 million €
Expected benefit	Ensure high quality offered services
Start date	October 2021
Final Investment Decision	Taken
Operation Date	December 2025
Entry into the system	December 2025
Current Status of Project	Under construction
Financing plan	DESFA's own equity or loan
Recovery method	Inclusion in RAB of Transmission and LNG Services
Inclusion in the 3 years Development Period	Yes
First approval from RAEWW	Decision 666/2022 as applicable (TYDP 2022-2031)

DESFA is required to update the existing commercial IT system (EIS) to be able to provide new services and products and to comply with regulatory changes triggered either by the market or internally by DESFA to improve the level of services already offered. Most notable examples for 2022 are:

- Introduction of Small-Scale LNG Truck Loading Services
- Interconnection with IGB and offering of new relevant capacity products at said Interconnection Point
- Balancing Regime overhaul with the introduction of Commercial Balancing
- Expansion of secondary market flexibility by redesigning the regime in force and integrating such transactions with PRISMA Platform (requires new interfaces between EIS and PRISMA).
- 7th Code revision

The project concerns the upgrade of DESFA EIS to ensure the high quality of offered services through an integrated electronic environment, as provided for in the Network Code, as in force.

12. New electronic information system for natural gas

Project Summary	
Type of project	Planned Project
Type of investment	IT System
Current Budget	4,15 million €
Expected benefit	Ensure high quality offered services
Start date	October 2021
Final Investment Decision	Taken
Operation Date	August 2025
Entry into the system	August 2025
Current Status of Project	Under construction
Financing plan	DESFA's own equity or loan
Recovery method	Inclusion in RAB of Transmission and LNG Services
Inclusion in the 3 years Development Period	Yes
First approval from RAEWW	Decision 666/2022 as applicable (TYDP 2022-2031)

DESFA is going to develop and operate a new commercial IT system (EIS) to:

i. secure the smooth operation and the business continuity of such an important system provided that the existing system is a transitional solution, built to satisfy the imminent need to implement the (mandatory) EU legislation provisions in 2016 (indicatively, CAM Capacity Auctions, Interconnection Agreement with Bulgarian TSO, renominations, etc.). Furthermore, it is fully custom developed and supported by a very small company. On top of structural issues, lack of expandability and low responsiveness increase the Operational Risks at the highest levels

ii. be able to provide new services and products and to comply with regulatory changes triggered either by the market or internally by DESFA to improve the level of services already offered. Most notable examples for 2022 are:
   - Introduction of Small-Scale LNG Truck Loading Services and Small-Scale LNG Jetty
   - Balancing Regime overhaul with the introduction of Commercial Balancing
   - Expansion of secondary market flexibility by redesigning the regime in force and integrating such transactions with PRISMA Platform (requires new interfaces with PRISMA)

Although there is some overlap of the items mentioned in ii. above with the project "Electronic Information System - functionalities upgrade", the reason is that, as at least some aspects of are required earlier where the new system will not be ready, some upgrades are required to the existing one to be able to support them. The upgrade project is meant as bridge solution, until the time of completion of the new system, which will cover all new and existing services.

13. New project management system

Project Summary	
Type of project	Planned Project
Type of investment	IT System
Current Budget	1,49 million €
Expected benefit	Ensure high quality offered services
Start date	October 2021
Final Investment Decision	Taken
Operation Date	December 2024
Entry into the system	December 2024
Current Status of Project	Under construction
Financing plan	DESFA's own equity or loan
Recovery method	Inclusion in RAB of Transmission & LNG Services
Inclusion in the 3 years Development Period	Yes
First approval from RAEWW	Decision 666/2022 as applicable (TYDP 2022-2031)

DESFA has a leading project management environment, which has been operating smoothly for the last 15 years. This environment, which was designed and implemented according to the global standard PMBOK 7.0 of PMI, allowed the successful implementation of DESFA's complex projects. The Project Management Integrated Information system plays a vital role in this environment.

Desfa requested for the Project Management Integrated Information system's operating system to change how it worked to be fully compatible with the central ERP system SAP4HANA. An advanced dynamic data exchange process was also developed.

As new needs derived by DESFA next decade's TYDP program, DESFA wants to

- Re-evaluate the state of the environment created.
- Consider complementary technological solutions offered by the international industry that could improve it, through a process of obtaining well-defined consulting services and searching for the relevant market.

- Implement any necessary steps concerning new complementary IT solutions. These solutions should be fully integrated with the current PM information systems, compatible with DESFA Projects Management Environment and able to provide further services for CAPEX Monitoring of all the categories of Projects (IT, Maintenance, Development, etc.)

The implementation of the final solution should, in any case, ensure

- that DESFA will continue to have a top project management environment,
- the smooth operation and the business continuity without the slightest interruption of its operation.

14. Upgrade of Fire Fighting System & replacement of the pressure relief valves at BMS Sidirokastro

Project Summary	
Type of project	Planned Project
Type of investment	Equipment for NNGTS
Current Budget	0,88 million €
Expected benefit	Improvements to the efficiency and effectiveness of the NNGS
Start date	October 2021
Final Investment Decision	Taken
Operation Date	March 2025
Entry into the system	March 2025
Current Status of Project	Under maturity
Financing plan	DESFA's own equity or loan
Recovery method	Inclusion in RAB of Transmission Services
Inclusion in the 3 years Development Period	Yes
First approval from RAEWW	Decision 666/2022 as applicable (TYDP 2022-2031)

The project consists of the following:

1. Upgrade of the Fire Fighting system so as to operate remotely and to support the unmanned operation of the station (BMS Sidirokastro operates remotely since September 2019). It consists of the Upgrade of the Fire Fighting system (Fire Detection System, CO2 system, etc.) of the Diesel Tank room, the EDG room, the Fuel Gas room, the Gas Analyzer room, the Administration room and the Control room of BMS Sidirokastro.

2. The replacement of eight Pressure Relief Valves of the Filters, of the condensate vessel, of the Gas Heaters and of the Fuel Gas skids, including piping and new Vent lines, to be in compliance with relative legislation.

The project aims to improve the safety, security of gas supply at entry point Sidirokastro and the smooth operation of the NNGTS.

15. Nitrogen Injection System

Project Summary	
Type of project	Planned Project
Type of investment	Equipment for the NGTS
Current Budget	2,78 million €
Expected benefit	Effective operation
Start date	October 2021
Final Investment Decision	Taken
Operation Date	November 2025
Entry in the system	November 2025
Current Status of Project	Under maturity
Financing plan	DESFA's own equity or loan
Recovery method	Inclusion in RAB of Transmission Services
Inclusion in the 3 years Development Period	Yes
First approval from RAEWW	Decision 666/2022 as applicable (TYDP 2022-2031)

The Nitrogen Injection System is required in order to support the Booster Compression Station in Nea Messimvria.

Due to the difference between the upper limit of the Wobbe Index between the gas transmitted in NNGTS and the one transmitted in the TAP pipeline, where the Wobbe index (i.e., calorific value) is significantly lower, a Nitrogen Injection System shall be installed to mix with the gas prior to its injection in the TAP pipeline and decrease the Wobbe index.

The Nitrogen injection System is composed of the following equipment:

- Liquid Nitrogen Storage Tanks with PBU (Three (3) tanks with 57,3m3 capacity each)
- Liquid Nitrogen HP Pumps
- Nitrogen Ambient Air vaporizers
- Nitrogen Trim Heaters
- Nitrogen Injection Mixing Tree

Based on the Booster Station Capacity, the maximum permissible flow N_2 in the gas injected to the TAP pipeline is 4.190 kg/h.

16. LNG Upgrade Projects 2022

Project Summary	
Type of project	Planned Project
Type of investment	Equipment for the NGTS
Current Budget	0,77 million €
Expected benefit	Effective operation
Start date	May 2022
Final Investment Decision	Taken
Operation Date	December 2024
Entry in the system	December 2024
Current Status of Project	Under maturity
Financing plan	DESFA's own equity or loan
Recovery method	Inclusion in RAB of LNG Services
Inclusion in the 3 years Development Period	Yes
First approval from RAEWW	Decision 666/2022 as applicable (TYDP 2022-2031)

The project refers to a set of LNG Maintenance works or upgrades on the LNG Terminal of Revithoussa. In particular, the Project includes the following subprojects:

i. Supply and installation of new online CL / PH analyzer system in sea water channel ORV-D
ii. Supply and installation of new battery of UPS chargers in tanks A/B
iii. Recertification of inergen vessels for fire equipment units
iv. Re-thermal Coating of Panels in ORVs M3101 A & B (completed)

The project is important for maintaining or extending the useful life of the LNG Terminal asset and its components, which is crucial for satisfying its obligations as the LNG Operator, in the most cost–effective, transparent and direct way.

17. Necessary modifications to Nea Messimvria M/R Station for the interconnection of NNGTS with TAP, for Reverse Flow Operation

Project Summary	
Type of project	Planned Project
Type of investment	Equipment for the NNGTS
Current Budget	2,27 million €

Expected benefit	Effective operation
Start date	July 2022
Final Investment Decision	Taken
Operation Date	October 2025
Entry in the system	November 2025
Current Status of Project	Under construction
Financing plan	DESFA's own equity or loan
Recovery method	Inclusion in RAB of Transmission Services
Inclusion in the 3 years Development Period	Yes
First approval from RAEWW	Decision 666/2022 as applicable (TYDP 2022-2031)

The project concerns the modifications of Nea Messimvria M/R station in order to supply the compressed natural gas quantities from National Natural Gas System to Trans Adriatic Pipeline system, with delivery pressure significantly higher than the NNGS operating pressure.

This investment enables the full bi-directional flow in the interconnection point with the implementation of supplementary pipework connections and equipment changes at the existing area of Nea Messimvria M/R station. The changes will accommodate the uninterrupted transportation and measurement of compressed Natural Gas quantities from the new Booster compressor station to the TAP pipeline.

18. Relocation of Ampelia – Karditsa – Trikala Pipeline

Project Summary	
Type of project	Planned Project
Type of investment	Equipment for the NNGTS
Current Budget	5,12 million €
Expected benefit	Effective operation
Start date	July 2022
Final Investment Decision	Taken
Operation Date	December 2024
Entry in the system	December 2024
Current Status of Project	Under construction
Financing plan	DESFA's own equity or loan

Recovery method	Inclusion in RAB of Transmission Services
Inclusion in the 3 years Development Period	Yes
First approval from RAEWW	Decision 666/2022 as applicable (TYDP 2022-2031)

The need for relocation for a section of the Ampelia-Karditsa-Trikala Pipeline occurs due to the final location of the new project of Ampelia Compressor Station. A number of installations must be based on the land that HPPL passes through. The Ampelia-Karditsa-Trikala Pipeline will be relocated for a length of about 300 meters using the Line Stop Hot-Tapping method, and the construction of a new bypass in order to provide continuous operation of the Pipeline without any interruption during the relocation period.

19. Anti-Flood works and Damage Restoration in the Ampelia Station

Project Summary	
Type of project	Planned Project
Type of investment	Equipment for the NGTS
Current Budget	5,06 million €
Expected benefit	Effective operation
Start date	July 2022
Final Investment Decision	Taken
Operation Date	January 2025
Entry in the system	March 2025
Current Status of Project	Under construction
Financing plan	DESFA's own equity or loan
Recovery method	Inclusion in RAB of Transmission Services
Inclusion in the 3 years Development Period	Yes
First approval from RAEWW	Decision 666/2022 as applicable (TYDP 2022-2031)

The proposed project concerns the restoration of damages caused in the area of Ampelia before the construction of the planned Compressor Station, due to extensive floods that occurred in recent years and the installation of an anti-flood network that will mitigate any future flood damages.

Thus, with the present project, flood works of existing structures that have been affected by the occurrence of severe weather phenomena will be executed, with indicative but not restrictive works such as topographic survey, hydraulic study, restoration or maintenance of

existing flood defenses and the design of new slopes and water channels which will protect the area from future damages.
The works will result in a uniform slope and uniform flow, in order to avoid as much as possible, the stagnant waters and the local deposition of sediments.

20. Geohazards Management Upgrade Project

Project Summary	
Type of project	Planned Project
Type of investment	Project for management of NGTS
Current Budget	0,92 million €
Expected benefit	Increased efficiency of the system
Start date	January 2023
Final Investment Decision	Taken
Operation Date	December 2025
Entry in the system	December 2025
Current Status of Project	Under maturity
Financing plan	DESFA's own equity or loan
Recovery method	Inclusion in RAB of Transmission services
Inclusion in the 3 years Development Period	Yes
First approval from RAEWW	Decision E68/2023 (TYDP 2023-2032)

This Project includes several actions for improving procedures and techniques concerning the identification and monitoring of geo-hazards in the onshore gas pipeline Right Of Way (ROW) with an emphasis on the incorporation of new technologies.

The actions to be implemented refer to the following:

- Geotechnical Monitoring instrumentation Upgrade: Upgrade of the geotechnical monitoring instrumentation for the sites already monitored for slope instabilities including supply and installation.
- Web based monitoring software: A dedicated software is necessary to incorporate and visualize all monitoring data (automated or manually taken) in a single system, enhanced with capabilities for future extension without further need for programming.
- Real time notification & Seismic Impact Assessment: Development of Real time earthquake notification & impact assessment

- Real time notification for forest fires: Implementation of a Real-Time Fire Monitoring service, i.e., a 24/7 active fire detection service for effectively monitoring forest fires close to DESFA transmissions system, all over Greece in near-real time
- Supply of 2 GNSS receivers-survey equipment
- Drones for ROW monitoring: Supply of 6 suitable flexible drones, which will enable visual inspection from a safe distance with the simultaneous recording of image and video
- Supply of 2 drones for survey works & supplementary equipment
- Pilot ROW Light Detection and Ranging (LidaR) scan
- Real time notification for rainfall: Implementation of real-time notification of rainfall events and, at the same time, assessment of their criticality.

21. Replacement of obsolete safety vehicles in LNG terminal

Project Summary	
Type of project	Planned Project
Type of investment	Upgrade works for LNG Terminal
Current Budget	0,76 million €
Expected benefit	Increased efficiency of the system
Start date	January 2023
Final Investment Decision	Taken
Operation Date	January 2025
Entry in the system	January 2025
Current Status of Project	Under maturity
Financing plan	DESFA's own equity or loan
Recovery method	Inclusion in RAB of LNG services
Inclusion in the 3 years Development Period	Yes
First approval from RAEWW	Decision E68/2023 (TYDP 2023-2032)

This project includes the replacement of 3 obsolete safety vehicles in LNG terminal.

More specifically is planned to replace:

- a 20years old ambulance with a new one with upgraded equipment that is critical and necessary for the emergency cases that may happen at the LNG terminal.
- two 25years old fire trucks with a new one in order to upgrade and increase response readiness of LNG terminal in case of emergency.

22. Upgrade of physical access control systems

Project Summary	
Type of project	Planned Project
Type of investment	Equipment of the NNGTS and LNG facility
Current Budget	0,56 million €
Expected benefit	Efficiency of NNGS, effective operation
Start date	January 2023
Final Investment Decision	Taken
Operation Date	January 2025
Entry in the system	January 2025
Current Status of Project	Under maturity
Financing plan	DESFA's own equity or loan
Recovery method	Inclusion in RAB of Transmission and LNG services
Inclusion in the 3 years Development Period	Yes
First approval from RAEWW	Decision E68/2023 (TYDP 2023-2032)

This project refers to the upgrade of the physical access control system of DESFA premises both in terms of software and hardware in order to enhance physical security based on new requirements and new technology.

23. Operations technology upgrades

Project Summary	
Type of project	Planned Project
Type of investment	Equipment for NNGTS
Current Budget	0,16 million €
Expected benefit	Improvements to the efficiency and effectiveness of the NNGS
Start date	February 2023
Final Investment Decision	Taken
Operation Date	December 2025
Entry in the system	December 2025

Current Status of Project	Under Maturity
Financing plan	DESFA's own equity or loan
Recovery method	Inclusion in RAB of Transmission Services
Inclusion in the 3 years Development Period	Yes
First approval from RAEWW	Decision E68/2023 (TYDP 2023-2032)

The Project refers to operational technology upgrades. Namely, it includes:

i) Supply of a pressure controller for use in the ISO 17025 accredited Pressure Calibration Laboratory of DESFA. It will replace the Laboratory's damaged pressure controller, which is out of maintenance by the vendor company and thus cannot be repaired.

ii) Small-scale upgrades to the Operational Technology systems (proprietary communication system, SCADA system, local control systems) of the National Natural Gas Transmission System (NGTS) with the aim of improving their level of functionality and protecting them from cyber-attacks.

24. Transmission Maintenance Projects 2023

Project Summary	
Type of project	Planned Project
Type of investment	Equipment for NNGTS
Current Budget	1,3 million €
Expected benefit	Improvements to the efficiency and effectiveness of the NNGS
Start date	February 2023
Final Investment Decision	Taken
Operation Date	December 2026
Entry in the system	December 2026
Current Status of Project	Under maturity
Financing plan	DESFA's own equity or loan
Recovery method	Inclusion in RAB of Transmission Services
Inclusion in the 3 years Development Period	Yes
First approval from RAEWW	Decision E68/2023 (TYDP 2023-2032)

The project refers to a set of maintenance works or upgrades of the Transmission Network System. The Project includes the following subprojects:

i. Maintenance and Hydraulic Test of Inergen & CO_2 Cylinders in NGTS Installations

ii. Upgrade of Nea Messimvria Compressor Distribution Control System (DCS)

The upgrade of DCS foresees the following:

a. Upgrade of the DCS Human Machine Interface (HMI)

b. DCS Connectivity interface

c. Upgrade of the old generation DCS Field Control Stations

The Upgrade of the DCS ensures lifetime extension for the next 10 years, connectivity with other domains (WFM, SAP, etc.), OT Security framework and readiness for expansion.

iii. Replacement of obsolete extinguishing system in Remote Control Center (RCC) buildings (completed).

25. Upgrade of Control Room, Guardhouse and Fire Brigade Building of the LNG Terminal in Revithoussa – Phase 1

Project Summary	
Type of project	Planned Project
Type of investment	Project for control/management of NGTS
Current Budget	0,1 million €
Expected benefit	Increased efficiency of the system
Start date	February 2023
Final Investment Decision	Taken
Operation Date	June 2025
Entry in the system	June 2025
Current Status of Project	Under maturity
Financing plan	DESFA's own equity or loan
Recovery method	Inclusion in RAB of LNG services
Inclusion in the 3 years Development Period	Yes
First approval from RAEWW	Decision E68/2023 (TYDP 2023-2032)

The Project is part of a greater project under the name Upgrade Control Room, Guardhouse and Fire Brigade Building of the LNG Terminal in Revithoussa. The project refers to the execution of all relevant engineering studies including, but not limited, to Architectural, Civil, Mechanical, Electrical, HVAC, Plumbing and Sanitary, for the upgrade of the following three (3) buildings: a) Control Room, b) Guardhouse, c) Fire Brigade Building.

The engineering studies shall detail all necessary aspects for the complete architectural and electromechanical renovation of the previous said areas, whereas also provide specifications, technical descriptions to be followed during construction.

The project shall proceed to Phase 2-Construction, subject to the successful conclusion of Phase 1.

26. LNG Maintenance Projects 2023

Project Summary	
Type of project	Planned Project
Type of investment	Maintenance of LNG Terminal
Current Budget	1,07 million €
Expected benefit	Increased efficiency of the system
Start date	February 2023
Final Investment Decision	Taken
Operation Date	December 2024
Entry in the system	December 2024
Current Status of Project	Under construction
Financing plan	DESFA's own equity or loan
Recovery method	Inclusion in RAB of LNG services
Inclusion in the 3 years Development Period	Yes
First approval from RAEWW	Decision E68/2023 (TYDP 2023-2032)

The project refers to a set of maintenance projects or upgrades on the LNG Terminal in Revithoussa.

The Project includes the following subprojects:

i. **Procurement of new special tools (completed)**

ii. **Hydraulic testing and recertification of FM 200 cylinders (completed)**

Hydraulic testing and recertification of FM 200 cylinders of firefighting system will be in accordance with the ELOT EN ISO 9001:2015 quality management system.

Works will include disconnecting & reinstalling existing cylinders, hydraulic cylinder testing, retreading and refitting cylinders.

The work also includes replacement of pressure gauges, hoses, cylinder valves, actuators, pressostats and installation of new bases.

The control certificate will be valid for 10 years.

iii. **Upgrading of lighting of tanks, A&B and safety lights (completed)**

The upgrade of the lighting of Tanks A & B includes the change of the lamps to LED and their circuit, replacement of the explosion-proof polyester junction boxes and their compression fittings, as they have been damaged since the 25-year installation.

The project of upgrading the security lights includes replacing the external security lights with a new type of led and an explosion-proof autonomy battery for the field, as the existing ones need battery replacement and show damage in their assembly that makes them unmaintainable.

iv. **Replacement of air conditioners with new type INVERTER (completed)**

The replacement of the air conditioning units of the buildings due to age (difficulty in finding spare parts and maintenance as well as poor energy efficiency), the air conditioning units of the substations S / S 3601, S / S 3602, S / S 3603 and S / S 3610 will be replaced. The air conditioning units proposed are the latest generation.

In addition to the procurement of the air conditioning units the following tasks are included:

- Retrieving and storing of the cooling liquid of the old units with alternative management through a certified handler, issuing the appropriate certification
- Dismantling old units and placing them with a crane in the scrap place
- Installing the new HVAC units
- Ducting connection to the existing duct network of each building
- New isolation of the existing ducts
- Installation of fresh air damper
- Electric connection of the existing power supply
- Installation of the control unit of heating, ventilation, and air conditioning unit (HVAC)
- Commissioning and start up in full operation of all HVAC units

v. **Upgrade of SCVs A&B**

This project includes the supply of special maintenance tools (capex) for the mechanical, electrical and instrumentation sectors. It concerns battery chargers, washing machines, dynamometers, portable measuring instruments, etc.

vi. **Upgrade of seismic detection system**

The LNG terminal earthquake detection system has been installed since the beginning of the LNG plant for the purpose of detecting, measuring, recording and producing an emergency shutdown signal in the event of a major earthquake from two (2) installed seismographs.

The upgrade of the earthquake detection system includes the placement of three (3) new detectors in different parts of the facility and a new recorder with the corresponding software. The emergency shutdown signal will be generated when two (2) of the three (3) detectors detect an earthquake greater than the upper limit.

27. Replacement - Upgrade of the Central Control System (DCS - FGS – ESD) of Revithoussa Terminal

Project Summary	
Type of project	Planned Project
Type of investment	Upgrade works for LNG Terminal
Current Budget	3,04 million €
Expected benefit	Increased efficiency of the system
Start date	February 2023
Final Investment Decision	Taken
Operation Date	December 2026
Entry in the system	December 2026
Current Status of Project	Under maturity
Financing plan	DESFA's own equity or loan
Recovery method	Inclusion in RAB of LNG services
Inclusion in the 3 years Development Period	Yes
First approval from RAEWW	Decision E68/2023 (TYDP 2023-2032)

The Central Control System (CCS) at the Revithoussa LNG Terminal was initially deployed in 1999 and has been expanded as part of capacity expansion project, 3rd Tank and the Truck Loading project. The CCS comprises a Distributed Control System (DCS), an Emergency Shutdown System (ESD) and a Gas, Fire and Spill Control System (FGS).

The replacement - upgrade foresees the following:

a. Upgrade of the DCS HMI
b. DCS Connectivity interface
c. Upgrade of the old generation DCS Field Control Stations
d. Extension of ESD-SLS Lifetime
e. Upgrade of the FGS in two phases

- **Phase A**: The reverse engineering, HAZOP, SIL/SIF evaluation and conceptual design
- **Phase B**: The detailed design, implementation, testing, site installation, commissioning: The Replacement – Upgrade of the CCS ensures the lifetime extension for the next 10 years, connectivity with other domains (WFM, SAP, PBI etc.), OT Security framework and readiness for expansion.

28. Replacement - Upgrade of M-4500 compressed air system

Project Summary	
Type of project	Planned Project
Type of investment	Upgrade works for LNG Terminal
Current Budget	1,22 million €
Expected benefit	Increased efficiency of the system
Start date	February 2023
Final Investment Decision	Taken
Operation Date	December 2025
Entry in the system	December 2025
Current Status of Project	Under maturity
Financing plan	DESFA's own equity or loan
Recovery method	Inclusion in RAB of LNG services
Inclusion in the 3 years Development Period	Yes
First approval from RAEWW	Decision E68/2023 (TYDP 2023-2032)

To provide the air requirements of the Terminal for instrument air and plant air supply for pneumatic tools, three air compressors, an air receiver, a dedicated plant air distribution system, a dryer package and dedicated instrument air distribution system are provided. The unit was installed in 2000 and since then there have been 3 upgrades of the terminal with new consumptions with no upgrade of the unit.

The project of upgrading includes replacement of the air compressors with new type inverter electric drive, a new air receiver and a new dryer package. The unit after upgrade (which will take future upgrades of new B.O.G. compressors, small scale jetty, into account) will become more efficient and will fully cover the needs of the Terminal.

29. New quay for passenger boat at Agia Triada & Revithoussa

Project Summary	
Type of project	Planned Project
Type of investment	Upgrade works for LNG Terminal
Current Budget	2,21 million €
Expected benefit	Increased efficiency of the system
Start date	February 2023

Final Investment Decision	January 2025
Operation Date	December 2025
Entry in the system	December 2025
Current Status of Project	Under maturity
Financing plan	DESFA's own equity or loan
Recovery method	Inclusion in RAB of LNG services
Inclusion in the 3 years Development Period	Yes
First approval from RAEWW	Decision E68/2023 (TYDP 2023-2032)

The Ferry boat occupies the quay with its approach, making it unsafe for passengers to board and disembark at the personnel lances. Also, the existing quays in Agia Triada and Revithoussa are not fully protected from the weather.

The project includes the construction of new quays exclusively for the approach of the personnel lances in Agia Triada and Revithoussa with access from both (2) sides of the lance, fully protected from the weather conditions, with fenders, mooring hooks, sheltered stand, power supply and marina type water.

30. Replacement of obsolete Fire and Gas Systems of NNGTS Stations

Project Summary	
Type of project	Planned Project
Type of investment	Upgrade works for Transmission Network
Current Budget	1,01 million €
Expected benefit	Increased efficiency of the system
Start date	February 2023
Final Investment Decision	Taken
Operation Date	June 2026
Entry in the system	June 2026
Current Status of Project	Under maturity
Financing plan	DESFA's own equity or loan
Recovery method	Inclusion in RAB of Transmission services
Inclusion in the 3 years Development Period	Yes
First approval from RAEWW	Decision E68/2023 (TYDP 2023-2032)

The project refers to the replacement of obsolete Fire and Gas Systems of NNGTS Stations

In particular, the Project consists of two subprojects:

i. Replacement of gas detectors in 21 NNGTS Stations. The scope of supply includes:

- Removal of all installed devices of the existing Gas Detection system
- Transportation and installation of new equipment including any modifications, materials, and consumables required.
- Testing and commissioning of the new system
- Delivery of as built installation Block Diagram, certificates and operating / installation manuals of the new equipment

ii. Replacement of fire detectors in 19 NNGTS Stations. The scope of supply includes:

- Removal of all installed devices of the existing fire detection system.
- Transportation and installation of new equipment including any modifications, materials, and consumables required.
- Testing and commissioning of the new system.
- Delivery of as built installation (new or revised) Layout Diagram, Block Diagram, Cause and Effect, certificates and operating / installation manuals of the new equipment.

31. Digital Transformation Program Phase (EDGE) III

Project Summary	
Type of project	Planned project
Type of investment	IT system
Current Budget	3,95 million €
Expected benefit	Improvement on Business processes tools and services provided to users or 3rd parties
Start date	February 2023
Final Investment Decision	Taken
Operation Date	December 2026
Entry in the system	December 2026
Current Status of Project	Under maturity
Financing plan	DESFA's own equity or loan
Recovery method	Inclusion in RAB of Transmission and LNG services
Inclusion in the 3 years Development Period	Yes
First approval from RAEWW	Decision E68/2023 (TYDP 2023-2032)

The project consists of the following initiatives:

1. Frontier II (BIM): this project will exploit BIM technology. Building Information Modeling (BIM) is a collaborative real-time work method for structuring, managing, and using data and information about our assets throughout their lifecycle. Managing multi-dimensional data involves creating data (i.e., supplying data using data models), preserving data (i.e., storing, archiving, securing, and retrieving data), and, provisioning, exchanging, or sharing data with other stakeholders including contractors for use during a variety of business operations.

2. AI (Artificial Intelligence): Compiling and sharing current information on asset health throughout a pipeline is a major challenge. To that end, our AHM AI System will complete, support and advance our integrated asset management systems (AMS) with an end-to-end asset discovery and tracking featuring predictive maintenance, failure analysis, and asset health awareness programs. Such systems typically present a single inventory view of all our assets, enabling better decision-making for asset maintenance and replacement. AI will also come to leverage and build upon the "digital twin" of Frontier II, drawing data from the asset into a model and projecting into the future to understand what could happen to the asset given a change in the surrounding environment.

3. Frontier III ('IoT & Emergent Technologies): IoT enables devices across the Internet to send data to private, public or blockchain networks to create tamper-resistant records of shared transactions. In conjunction with Frontier I (the basis), Frontier II (the multidimensional modelling), the underlying idea of this initiative in DESFA is to give devices in our sites and hot spots, at the time of their creation, an identity that can be validated and verified throughout their lifecycle with blockchain. With a device identity protocol, each of our devices will have its own blockchain public key and send encrypted challenge and response messages to other devices, thereby ensuring a device remains in control of its identity. In addition, a device with an identity can develop a reputation or history that is tracked by a blockchain.

4. Enterprise Intelligence: In our journey towards Intelligent Enterprise, it is essential to deploy the right business intelligence infrastructure and platforms. Business intelligence encompasses all the processes and methods of collecting, storing, and analyzing data from business operations to provide a comprehensive view of a business. In that context, this initiative will provide us with the content (facts, KPIs formulas, dimensions, etc.) and the platform to do exactly this, to provide a clear, interactive, open single version of the truth across the board such as:

1. Consistent and single view of the enterprise reporting and analytics needs.
2. Benefits for aiding the business with decision making in key areas of focus such as operations and support
3. Better access to enterprise-wide information also generates better visibility, increased understanding of cross-sector operational, sales and marketing dependencies and guides decision making
4. Elimination of any inefficiencies and/or duplications in terms of information/data gathering and reporting
5. Track organizational KPIs in real-time with up-to-the-minute updates to your interactive dashboards.

5. Smart Contracts: Smart contracts are simply programs stored on a blockchain that run when predetermined conditions are met. They typically are used to automate the execution of an agreement so that all participants can be immediately certain of the outcome, without any intermediary's involvement or time loss. They can also automate a workflow, triggering the next action when conditions are met. In that context, Smart Contracts is expected to become extremely useful either in DESFA construction contracts or mainly in Commercial Processes. The expected benefits will be the following:

- Speed, efficiency, and accuracy
- Trust and transparency
- Security
- Savings

6. Financial Planning: DESFA will upgrade its Budgeting, Planning and Consolidation solution, in combination with all the new systems in place such as Frontier Components and Venture capabilities to offer the following capabilities:

1. Planning - outlining the company's financial direction and expectations for the next three to five years.
2. Budgeting - documenting how the entire plan will be executed on a monthly basis, specifying expenditures.
3. Forecasting - using accumulated historical data to predict financial outcomes for future months or years.
4. Consolidation and centralization of financial information, which can make it easier for managers to produce more accurate budgets and perform what-if scenarios analysis

Data Governance: aims to develop a robust Data Governance Framework, ensuring that high data quality exists throughout the complete data lifecycle with a key focus on data availability, usability, consistency, integrity, architecture and security.

32. Overhaul of LNG pumps

Project Summary	
Type of project	Planned Project [24]
Type of investment	Equipment of NNGTS
Current Budget	4,05 million €
Expected benefit	Increased efficiency of the system
Start date	January 2024
Final Investment Decision	Taken

[24] List of Small Projects ver.26/31.01.2024

Operation Date	Part A: December 2024 Part B: December 2025
Entry in the system	Part A: December 2024 Part B: December 2025
Current Status of Project	Under maturity
Financing plan	DESFA's own equity or loan
Recovery method	Inclusion in RAB of LNG Services
Inclusion in the 3 years Development Period	Yes

The scope of services pertains to the provision of services, required spare parts and supervision by suitable engineers and subcontractors for inspection, overall predictive maintenance and execution of necessary repairs of the LNG pumps. The projected works will include: - Removal of the pumps & transportation to LNG plant workshop - Disassembly and subsequent inspection by specialized engineers provided by subcontractors - Maintenance of the pumps (by replacement of consumable spare parts) and/or execution of necessary repairs to return pumps into satisfactory working condition - Assembling of all parts - Reinstallation & Commissioning - Test runs – performance tests

Part A: Refers to Low Pressure pumps of LNG Tanks A& B as well as two (2) out of six (6) High Pressure pumps of the terminal.

Part B: Refers to Low Pressure pumps of Tank C as well as two (2) additional out of six (6) High Pressure pumps of the terminal.

33. Metal Roof at BMS Sidirokastro

Project Summary	
Type of project	Planned Project
Type of investment	Equipment of NNGTS
Current Budget	0,1 million €
Expected benefit	Increased efficiency of the system
Start date	January 2024
Final Investment Decision	Taken
Operation Date	June 2025
Entry in the system	June 2025
Current Status of Project	Under maturity
Financing plan	DESFA's own equity or loan
Recovery method	Inclusion in RAB of Transmission Services

Inclusion in the 3 years Development Period	Yes

The project refers to the preparation of a study/design, the issuance of a Building Permit and the construction of a single storey metal building, for industrial use, for the storage & maintenance of objects within the facilities of DESFA at the Metering Station of Sidirokastro. The metal building will have a total area of 450.00 sq.m. (sides 30.00m x 15.00m) and a clear height of 7.00m with a pitched roof. The foundation and construction of the metal building, as well as the works in the surrounding area will include the following: a. Demolition and removal of the existing concrete slab, measuring about 30.00m x 15.00m. b. Excavation and construction of the foundation and floor slab of the building from reinforced concrete category C20/25 and S500 steel, according to the static study of the project that will accompany the Building Permit of the construction in question and the applicable specifications. c. Placement of the metal elements of the metal structure, in application of the corresponding static study. d. Placing overlays in accordance with the approved architectural plans. e. Electrical installation, according to the approved E/M study, including supply & installation. f. Plumbing installation (water supply – drainage) according to the approved E/M design, including supply & installation of all required materials/equipment. g. Industrial floor construction (heavy duty).

34. Required electromechanical equipment and tools

Project Summary	
Type of project	Planned Project
Type of investment	Equipment of NNGTS
Current Budget	2,55 milion €
Expected benefit	Increased efficiency of the system
Start date	January 2024
Final Investment Decision	Taken
Operation Date	December 2025
Entry in the system	December 2025
Current Status of Project	Under maturity
Financing plan	DESFA's own equity or loan
Recovery method	Inclusion in RAB of Transmission Services
Inclusion in the 3 years Development Period	Yes

The project refers to a basket of capital expenses related to acquisition of machinery (tools) and small equipment necessary for the operation and maintenance of DESFA's O&M centers across the NNGTS. The range of tools and equipment varies according to the needs of the O&M centers, including but not limited to: Pressure test pumps, portable generators, calibration instruments, electrician tools and measuring instruments, replacements, etc.

35. Renovation of Patima O&M Center

Project Summary	
Type of project	Planned Project
Type of investment	Equipment of NNGTS
Current Budget	0,25 million €
Expected benefit	Increased efficiency of the system
Start date	January 2024
Final Investment Decision	Taken
Operation Date	June 2025
Entry in the system	June 2025
Current Status of Project	Under maturity
Financing plan	DESFA's own equity or loan
Recovery method	Inclusion in RAB of Transmission Services
Inclusion in the 3 years Development Period	Yes

The project scope refers to the renovation of the Operation & Maintenance Office Building in Patima Elefsina. Renovation study/work will include but is not limited to the following items: a) internal frames redesign, b) modification of false ceilings, c) new floors for office and corridors, d) decorations on wall surfaces for entrance area and multipurpose hall

36. Intelligent Pigging inspection project of NNGTS

Project Summary	
Type of project	Planned Project [25]
Type of investment	Equipment of NNGTS
Current Budget	1,01 million €
Expected benefit	Increased efficiency of the system
Start date	May 2024
Final Investment Decision	Taken
Operation Date	December 2026

[25] List of Small Projects ver.27/13.05.2024

Entry in the system	December 2026
Current Status of Project	Under maturity
Financing plan	DESFA's own equity or loan
Recovery method	Inclusion in RAB of Transmission Services
Inclusion in the 3 years Development Period	Yes

DESFA intends to execute an In-line Inspection project from 2024 to 2026 for geometric measurement, pipeline mapping, metal loss or other anomaly detection during ILI tools passage through NNGTS pipelines. The main objective of in-line inspection (ILI) is to obtain data on pipeline condition as part of the integrity management process. The ILI tools should pass through the pipeline driven by the gas flow and may be automatic and self-contained or may be operated from outside the pipeline via a data and power link.

37. LNG Maintenance Projects 2024-2025

Project Summary	
Type of project	Planned Project[26]
Type of investment	Equipment of the LNG facility
Current Budget	1,51 million €
Expected benefit	Increased efficiency of the system
Start date	May 2024
Final Investment Decision	Taken
Operation Date	December 2024
Entry in the system	December 2024
Current Status of Project	Under maturity
Financing plan	DESFA's own equity or loan
Recovery method	Inclusion in RAB of LNG Services
Inclusion in the 3 years Development Period	Yes

The project refers to a basket of capital expenses related to upgrading of the existing equipment – systems of the LNG Terminal. The upgrades include but not limited to: the

[26] List of Small Projects ver.27/13.05.2024

Rethermal coating of ORV's, the upgrade of level system of the Tanks A&B, the replacement of emergency lighting of process, the upgrade of firefighting network, the overhaul maintenance of electrochlorination unit, the upgrade of emergency loundspeaker system and the overhaul maintenance of automatic filters of sea water intake.

38. Upgrade of Valves - Installation of electric actuators

Project Summary	
Type of project	Planned Project[27]
Type of investment	Equipment of NGTS
Current Budget	1,52 million €
Expected benefit	Increased efficiency of the system
Start date	May 2024
Final Investment Decision	Taken
Operation Date	December 2026
Entry in the system	December 2026
Current Status of Project	Under maturity
Financing plan	DESFA's own equity or loan
Recovery method	Inclusion in RAB of Transmission Services
Inclusion in the 3 years Development Period	Yes

DESFA is planning to upgrade existing block valves in all valve stations of the Natural Gas System accordingly: a) installing electric motors (electric actuators) to existing manual block valves, b) replacing of existing hydraulics- pneumatic systems (gas overoil actuator) block valves with electric driven ones, c) replacing of existing electric motors of block valves with new ones. All new valves shall be remotely controlled by SCADA.

As part of the installation procedure, Basic Engineering Design shall be performed in order to develop a complete Basic Design Package including description of the Scope of Work and all documents and drawings connected to the SoW for the potential EPC contractors.

Indicatively, the main components of installation in the stations include, but are not limited to, the following: a) Interconnection of new facilities and utilities with the existing, b) Control System and integration with existing or new installations, c) Equipment arrangement for the existing RCC building, d) SCADA system, FTS system & Fibre Optic Cable (where necessary), e) New UPS installation. The stations will be designed for unmanned operation.

[27] List of Small Projects ver.27/13.05.2024

39. Replacement & Upgrade of Unloading Arm C

Project Summary	
Type of project	Planned Project[28]
Type of investment	Equipment of LNG facility
Current Budget	3,01 million €
Expected benefit	Increased efficiency of the system
Start date	May 2024
Final Investment Decision	Taken
Operation Date	December 2025
Entry in the system	December 2025
Current Status of Project	Under maturity
Financing plan	DESFA's own equity or loan
Recovery method	Inclusion in RAB of LNG Services
Inclusion in the 3 years Development Period	Yes

The project refers to the replacement of Unloading Arm C, in the LNG Terminal in Revithoussa, with a new one. Simultaneously DESFA plans to upgrade the existing unloading arm that is being replaced so that it can be used as a spare in future overhaul maintenance.

B7. Projects relating to energy transition, decarbonization and innovation

1. Installation of Recompression System for Process & Dry Seal methane emissions in Compressor stations

Project Summary	
Type of project	Planned Project
Type of investment	Upgrade works for NNGTS
Current Budget	13,94 million €
Expected benefit	Increased efficiency of the system
Start date	February 2023
Final Investment Decision	refer to Table 2

[28] List of Small Projects ver.27/13.05.2024

Project Duration	
Operation Date	
Entry in the system	
Current Status of Project	Under maturity
Financing plan	DESFA's own equity or loan
Recovery method	Inclusion in RAB of Transmission services
Inclusion in the 3 years Development Period	Yes
First approval from RAE	Decision E68/2023 (TYDP 2023-2032)

Table 1: Timeline of projects

CS	Current Budget, €	FID	Operation Date	Entry into the system
N. Messimvria	4.820.000	09/2024	9/2025	10/2025
Booster at N. Messimvria	4.562.000	03/2025	11/2025	12/2025
Ampelia	4.562.000	03/2025	11/2025	12/2025

The project refers to the installation of Process & Dry Seal Recompression System for methane emissions in the Compressor Stations in Nea Messimvria, Booster Nea Messimvria and Ampelia to reduce operational methane emissions. In particular, the Process & Dry Seal Recompression System is a combined solution to capture fugitive methane from the primary seal vent and the gas from the process vent between the suction and discharge valves of the compressor.

The size of the recompression system is based on the volume and the flow rate of process gas through the gas compressor and is not a function of the time to capture and recompress the process gas. The scope of work for the project consists of the basic design of the system, the supply of the basic equipment and the programming of the system.

2. Pilot Pyrolysis project

Project Summary	
Type of project	Planned Project
Type of investment	Special Equipment

Current Budget	0,43 million €
Expected benefit	Energy transition
Start date	February 2023
Final Investment Decision	Taken
Operation Date	April 2026
Entry in the system	April 2026
Current Status of Project	Under maturity
Financing plan	DESFA's own equity or loan
Recovery method	Inclusion in RAB of Transmission services
Inclusion in the 3 years Development Period	Yes
First approval from RAE	Decision E68/2023 (TYDP 2023-2032)

DESFA's continuous effort towards environmental improvement of provided goods and services includes the exploitation of novel technological concepts contributing to the development of a lower carbon economy. Hydrogen is expected to play a vital role in the new energy production scheme.

According to current Research & Development literature assessment, natural gas pyrolysis is a promising CO_2 free technological solution for natural gas utilization, which is expected to be economical competitive in the future, compared to green electrolysis process. Natural Gas pyrolysis research is mainly focusing on process energy efficiency and economic competitive increase, as well as high quality mass hydrogen production and carbon black.

DESFA is focusing on the exploitation of such a technological concept investigating the case of building and operating a pilot pyrolysis fluidized bed (FBR) unit using nearly atmospheric catalysts process (TRL4). Types of catalyst and deactivation and possible regeneration will be investigated, as well as hydrogen production efficiency and quality. Suitable operation conditions for maximum performance and proper reaction kinetics will be also investigated.

The proposed pilot unit's technical characteristics involve a design operation pressure of 1.5 bar, a range of operation temperature from 600 to 1200^{o}C, fuel input up to 3 m^{3}/h (25^{o}C, 1.5 bar) and a heat requirement approximately of 10 kW.

CHAPTER III.

PROJECTS OUTSIDE THE THREE YEARS' DEVELOPMENT PERIOD

Chapter III. Projects outside the three years Development Period

A. New Projects

A1. Projects for the interconnection of NNGS with other interconnected systems (connection/development projects)

There are no projects in this section.

A2. Projects for the connection of Users

There are no projects in this section.

A3. Development Projects

There are no projects in this section.

B. Planned Projects

B1. Projects for the interconnection of NNGS with other interconnected systems (connection/development projects)

1. Metering and Regulating Station for connecting South Kavala underground storage

Project Summary	
Type of project	Planned Project
Type of investment	Metering & Regulating Station
Current Budget	8,28 million €
Expected benefit	Security of Supply
Start date	-
Final Investment Decision	-
Operation Date	-
Entry in the system	-
Current Status of Project	-
Financing plan	DESFA's own equity or loan

Recovery method	-
Connection Agreement with User	Not yet
Inclusion in the 3 years Development Period	No
First approval from RAE	Decision 755/2020 (TYDP 2020-2029)

The Metering and Regulating Station is necessary for the injection and withdrawal of gas to and from the Underground Storage in South Kavala to NNGTS, for which no FID has been taken yet.

2. Metering and Regulating Station for the connection to East Med Pipeline

Project Summary	
Type of project	New Project
Type of investment	Metering & Regulating Station
Current Budget	8,27 million €
Expected benefit	Interconnection to a n.g. system
Start date	-
Final Investment Decision	-
Operation Date	-
Entry in the system	-
Current Status of Project	-
Financing plan	DESFA's own equity or loan
Recovery method	-
Inclusion in the 3 years Development Period	No

The project consists of the implementation of one Metering & Regulating station at Megalopoli, in the Peloponnese, for the potential interconnection of the Greek gas transmission system with the East-Med pipeline.

The realization of the project strongly depends on the advancement and the FID of the East Med Pipeline.

B2. Projects for the connection of Users

1. Construction of High Pressure Pipeline Mavromati (Vagia)-Larymna and necessary Metering Station for the Connection of LARCO GMM SA with NNGS

Project Summary

Type of project	Planned Project
Type of investment	Pipeline, Metering Station
Current Budget	19,28 million €
Expected benefit	Enabling access to new Users
Start date	-
Final Investment Decision	-
Operation Date	-
Entry in the system	-
Current Status of Project	-
Financing plan	-
Recovery method	-
Connection Agreement with User	Not yet
Inclusion in the 3 years Development Period	No
First approval from RAE	Decision 525/2013 (TYDP 2013-2022)

The project consists of:

- A Pipeline of 36 km and 10inch diameter which will start from the main natural gas pipeline line valve station "Mavromati (Vagia)" and ends up in the facility of LARCO in Larymna.
- A Metering station that will be installed in land provided by LARCO

Technical studies as well as licenses procedures for the project are in progress. These studies are carried out under DESFA's contract with LARCO for the "Elaboration of studies for the connection of the installations of LARCO SA with NNGS".

The project is not included in the projects of the three-year period as there is no progress regarding User's commitment from its starting date until now.

B3. Development Projects

There are no projects in this section.

CHAPTER IV.

PLANNED PROJECTS THAT ARE NOT INCLUDED IN THE DEVELOPMENT PLAN 2024 – 2033 OR WERE COMPLETED

Chapter IV. Planned projects that are not included in the Development Plan 2024-2033 or were completed

The following projects have been successfully **completed** and are currently in operation. Therefore, they are removed from the current version of the TYDP.

1. Temporary supply of Aspros through ssLNG Installations
2. M/R station AdG III
3. Metering station at Agios Nikolaos Viotia (AdG IV)
4. Connection with the FSRU of Alexandroupolis
5. Technical Training Centre in Nea Messimvria
6. NGS Modernization projects – 4th compilation
7. Upgrade of LNG Facilities
8. LNG Maintenance Projects
9. Required O&M Equipment for 2022
10. Overhaul maintenance of the two (2) BOG Compressors V-3101 A & V-3101 B
11. Overhaul maintenance of GE 1 Unit of CHP Plant
12. Transmission System Upgrade Projects
13. Replacement of Telecommunication and Network Equipment in NNGS Fixed Telecommunication System
14. Development of an Information System for DESFA to undertake the role of forecasting party for the NNGTS Balancing Zone
15. Connection of the new Power Plant of Thermoelectriki up to the NNGTS West of LVS Komotini (pipeline from the M-station up to the 24'' network)
16. Construction of LVS and Hot-tapping connection for the new Power Plant of Thermoelectriki, West of LVS Komotini
17. Technical Training Center: Training Equipment & Facilities
18. Regulating station Komotini

The following project is **excluded** from the current version of the TYDP.

1. New building for DESFA's headquarters: DESFA reevaluated the decision to relocate in a new building and considered more beneficial to undergo a renovation to the current HQ (ARKAT) building in relation to architectural, electromechanical, indoor/outdoor areas etc.

2. Keratsini branch rerouting (Mavri Ora): This project is a consequence of a prior re-routing and construction works from the Prefecture, which have been not materialized yet and Desfa has not a clear horizon for the time being. When we do, we shall include it back.

3. NNGTS connection with the West Macedonia Green Hydrogen Replication Valleys: The project did not go forward since financing from HORIZON program was not secured.

Annex I

Summary Table of the Projects of the NNGS Development Plan 2024-2033

	Three Year Development projects [29]		
	INVESTMENT	**COST (€)**	**MILESTONES**
A. NEW PROJECTS			
A1. Projects for the interconnection of NNGS with other interconnected systems (connection/development projects)			
A2. Projects for the connection of Users			
A3. Development Projects: Expansion of NNGS to new areas connected to distribution network			
A4. Development Projects: Expansion of NNGS to new markets			
A5. Development Projects: Increase of capacity & security of supply of NNGS			
A6. Development Projects: Improvement / modernization/ maintenance of NNGS			
1	Renovation of DESFA's headquarters	5.200.000	FID: 8/2024 Operation Date/ Entry in the system: 01/2026
A7. Projects relating to energy transition, decarbonization and innovation			
1	Technical Training Center H2 Injection Facility	768.000	FID: 9/2024 Operation Date/Entry in the system: 12/2025
2	Amyntaio-Komnina pipeline	13.006.000	FID: 12/2025 Operation Date: 10/2027 Entry in the system: 12/2027
B	**PLANNED PROJECTS**		
B1. Projects for the interconnection of NNGS with other interconnected systems (connection/development projects)			
1	Pipeline Nea Messimvria – Evzoni/ Gevgelija and M Station	92.036.000	Final Investment Decision: Taken Operation date: 12/2025

[29] Projects which the Final Investment Decision (i) has been taken, (ii) is considered possible to be taken within three (3) years from the publication of the draft Development Plan in DESFA's website

			Entry in the system: 01/2026
2	Metering and Regulating Station for connecting with Dioriga Gas FSRU	20.668.700	Final Investment Decision: 02/2025 Start of operation: 10/2026 Inclusion in the System: 12/2026
B2. Projects for the connection of Users			
1	M Station at SALFA Ano Liossia	972.000	Final Investment Decision: Taken Operation date/Entry in the system: 09/2024
2	Connection of ELVAL plant of NNGTS in Inofyta	5.447.000	Final Investment Decision: Taken Operation date: 12/2026 Entry in the system: 03/2027
3	Connection with THERMOILEKTRIKI KOMOTINIS Power Plant to the NNTGS	6.746.000	Final Investment Decision: Taken Operation date: 09/2024 Entry in the system: 10/2024
4	Connection with ELPEDISON Power Plant to the NNTGS	3.993.000	Final Investment Decision: Taken Operation date: 10/2025 Entry in the system: 11/2025
5	Connection of "Alexandroupolis SA" power station with NNGS and Metering Station	12.806.800	Final Investment Decision: 05/2025 Operation date: 04/2027 Entry in the system: 05/2027
6	Connection of " Larisa Thermoelectriki " power station with NNGS and Metering Station	7.521.500	Final Investment Decision: 06/2025 Operation date: 05/2027 Entry in the system: 06/2027
B3.	**Development Projects: Expansion of NNGS to new areas connected to distribution network**		
B.3.1. Supply of West Macedonia			
1	High Pressure pipeline to West Macedonia	184.600.500	Final Investment Decision: Taken Operation date Pipeline: 05/ 2025

			Operation date M station Kardia-Kozani: 11/2025 Entry into the system Pipeline: 06/ 2025 Entry into the system M station Kardia-Kozani: 12/ 2025
2	M/R Station at the prefecture of Aspros	5.034.000	Final Investment Decision: Taken Operation date: 05/2025 Entry in the system: 06/2025
3	M/R Station in the region of Perdikas Eordeas	4.433.000	Final Investment Decision: Taken Operation date: 04/2025 Entry in the system: 06/2025
B.3.2. Supply of Western Greece & Peloponnese			
1	High Pressure Pipeline to Patras	101.395.000	Final Investment Decision: 06/2025 Operation date: 12/2026 Entry in the system:03/2027
2	Korinthos M/R city gate Station	2.834.500	Final Investment Decision: Taken Operation date: 07/2024 Entry in the system: 08/2024
3	Argos/Napflio M/R city gate Station	3.092.000	Final Investment Decision: Taken Operation date: 05/2026 Entry in the system:06/2026
B.3.3. Supply of Central Macedonia			
1	Drymos/Liti M/R city gate station	4.000.000	Final Investment Decision: Taken Operation date: 04/2027 Entry in the system: 07/2027
2	M/R Station to Veroia	3.666.000	Final Investment Decision: Taken Operation date: 06/2025 Entry in the system: 07/2025

3	M/R Station to Naousa	3.666.000	Final Investment Decision: Taken Operation date: 06/2025 Entry in the system: 07/2025
4	Temporary supply of Naousa through ssLNG Installations	2.254.000	Final Investment Decision: Taken Operation date/Entry in the system: 09/2024
B.3.4. Supply of other areas			
B4. Development Projects: Expansion of NNGS to new markets			
1	Ports' Extension/Upgrade for the LNG Trucks transfer to and from Revithoussa Terminal Station	1.720.000	Final Investment Decision: Taken Operation date/Entry in the system: 06/2025
2	New jetty for small scale LNG in Revithoussa	37.507.000	Final Investment Decision: Taken Operation date: 10/2025 Entry in the system: 12/2025
B5. Development Projects: Increase of capacity & security of supply of NNGS			
1	Compression station at Komotini	124.928.000	FID: Taken *Phase A:* Operation date: 02/2025 Entry in the system:03/2025 *Phase B:* Operation date: 05/2025 Entry in the system: 06/2025
2	Compressor Station in Ampelia	73.936.000	Final Investment Decision: Taken Operation date: 05/2025 Entry in the system: 06/2025

3	Booster Compressor for TAP in Nea Messimvria	47.968.000	Final Investment Decision: Taken Operation date: 10/2025 Entry in the system: 12/2025
4	Duplication of Karperi - Komotini HP branch	310.563.000	Final Investment Decision: 06/ 2025 Operation date: 12/2026 Entry in the system: 03/2027
5	Duplication of the HP branch Patima – Livadeia	150.550.000	Final Investment Decision: 10/2025 Operation date: 12/2026 Entry in the system: 03/2027
B6. Development Projects: Improvement / modernization/ maintenance of NNGS			
1	Design, supply, installation of a system for the daily gas flow	245.600	Final Investment Decision: Taken Operation date / Inclusion in the system: 12/2024
2	LNG Terminal Boil-off Gas Compressor Station	14.405.000	Final Investment Decision: Taken Operation date: 09/2023 Entry in the system: 05/2025
3	Upgrading Projects of NNGS -3rd group	135.300	Final Investment Decision: Taken Operation date: 10/2025 Entry in the system: 11/2025
4	Replacement of Metering and Supervision/ Control systems at NNGTS M and M/R stations of NNGTS	4.700.000	Final Investment Decision: Taken Operation date: 12/2024 Entry in the system: 02/2025

5	Upgrade of LNG and O&M Facilities for energy saving	2.090.000	Final Investment Decision: Taken O&M Transmission: completed LNG terminal operation date/entry in the system: 11/2024
6	Cathodic Protection System Upgrading	2.041.545,71	Final Investment Decision: Taken Operation date/ Entry in the system: 06/2025
7	IT Transformation	10.000.000	Final Investment Decision: Taken Operation date/ Entry in the system: 12/2024
8	Asset management IT & OT Equipment	75.000	Final Investment Decision: Taken SP1: completed SP 2: Operation date/ Entry in the system: 12/2024
9	Expansion and Upgrade of M/R Stations of Exit Point to Distribution Network 'Athens'	3.307.000	Final Investment Decision: Taken Operation date/ Entry in the system: 12/2025
10	Construction of a new Metering & Regulating Station in Markopoulo Site to replace the existing temporary M/R	2.401.000	Final Investment Decision: Taken Operation date/ Entry in the system: 12/2025
11	Electronic information system - functionalities upgrade	507.000	Final Investment Decision: Taken Operation date/ Entry in the system: 12/2025
12	New electronic information system for natural gas	4.150.000	Final Investment Decision: Taken Operation date/ Entry in the system: 08/2025
13	New project management system	1.490.000	Final Investment Decision: Taken Operation date/ Entry in the system: 12/2024
14	Upgrade of Fire Fighting System & replacement of the pressure relief valves at BMS Sidirokastro	879.500	Final Investment Decision: Taken Operation date/ Entry in the system: 03/2025
15	Nitrogen injection system	2.783.000	Final Investment Decision: Taken Operation date/ Entry in the system: 11/2025

16	LNG Upgrade Projects 2022	773.000	Final Investment Decision: Taken Operation date/ Entry in the system: 12/2024
17	Necessary modifications to Nea Messimvria M/R Station for the interconnection of NNGTS with TAP, for Reverse Flow Operation	2.267.000	Final Investment Decision: Taken Operation date: 10/2025 Entry in the system: 11/2025
18	Relocation of Ampelia – Karditsa – Trikala Pipeline	5.122.000	Final Investment Decision: Taken Operation date/ Entry in the system: 12/2024
19	Anti-Flood works and Damage Restoration in the Ampelia Station	5.062.000	Final Investment Decision: Taken Operation date:01/2025 Entry in the system: 03/2025
20	Geohazards Management Upgrade Project	920.000	Final Investment Decision: Taken Operation date/ Entry in the system: 12/2025
21	Replacement of obsolete safety vehicles in LNG terminal	760.000	Final Investment Decision: Taken Operation date/ Entry in the system: 01/2025
22	Upgrade of physical access control systems	555.000	Final Investment Decision: Taken Operation date/ Entry in the system: 01/2025
23	Operations technology upgrades	160.000	Final Investment Decision: Taken Operation date/ Entry in the system: 12/2025
24	Transmission Maintenance Projects 2023	1.302.000	Final Investment Decision: Taken Operation date/ Entry in the system: 12/2026
25	Upgrade of Control Room, Guardhouse and Fire Brigade Building of the LNG Terminal in Revithoussa – Phase	100.000	Final Investment Decision: Taken Operation date/ Entry in the system: 06/2025
26	LNG Maintenance Projects 2023	1.066.000	Final Investment Decision: Taken Operation date/ Entry in the system: 12/2024

27	Replacement - Upgrade of the Central Control System (DCS - FGS – ESD) of Revithoussa Terminal	3.037.000	Final Investment Decision: Taken Operation date/ Entry in the system: 12/2026
28	Replacement - Upgrade of M-4500 compressed air system	1.215.000	Final Investment Decision: Taken Operation date/ Entry in the system: 12/2025
29	New quay for passenger boat at Agia Triada & Revithoussa	2.211.400	Final Investment Decision: Taken Operation date/ Entry in the system: 12/2025
30	Replacement of obsolete Fire and Gas Systems of NNGTS Stations	1.010.000	Final Investment Decision: Taken Operation date/ Entry in the system: 06/2026
31	Digital Transformation Program Phase III	3.950.000	Final Investment Decision: Taken Operation date/ Entry in the system: 12/2026
32	Overhaul of LNG pumps	4.045.000	Final Investment Decision: Taken Part A Operation date/ Entry in the system: 12/2024 Part B Operation date/ Entry in the system: 12/2025
33	Metal Roof at BMS Sidirokastro	100.000	Final Investment Decision: Taken Operation date/ Entry in the system: 06/2025
34	Required electromechanical equipment and tools	2.548.000	Final Investment Decision: Taken Operation date/ Entry in the system: 12/2025
35	Renovation of Patima O&M Center	253.000	Final Investment Decision: Taken Operation date/ Entry in the system: 06/2025
36	Intelligent Pigging inspection project of NNGTS	1.013.000	Final Investment Decision: Taken Operation date/ Entry in the system: 12/2026
37	LNG Maintenance Projects 2024-2025	1.514.000	Final Investment Decision: Taken Operation date/ Entry in the system: 12/2024
38	Upgrade of Valves - Installation of electric actuators	1.521.000	Final Investment Decision: Taken Operation date/ Entry in the system: 12/2026
39	Replacement & Upgrade of Unloading Arm C	3.011.000	Final Investment Decision: Taken

			Operation date/ Entry in the system: 12/2025
B7. Projects relating to Energy transition, decarbonization and innovation			
1	Installation of Process & Dry Seal Recompression System in Compressor Stations	13.944.000	Final Investment Decision: 09/ 2024-03/2025 Operation date/ Entry in the system: 09/2025-12/2025
2	Pilot Pyrolysis project	425.000	Final Investment Decision: Taken Operation date/ Entry in the system: 04/2026
	Subtotal	**1.338.406.346 €**	

	PROJECTS NOT INCLUDED IN THE 3YR DEVELOPMENT PERIOD	**COST(€)**
	A. NEW PROJECTS **A1. Projects for the interconnection of NNGS with other interconnected systems (connection/development projects)**	
	B. PLANNED PROJECTS **B1. Projects for the interconnection of NNGS with other interconnected systems (connection/development projects)**	
1	Metering and Regulating Station for connecting South Kavala underground storage	8.275.300
2	Metering and Regulating Station for the connection to East Med Pipeline	8.270.500
	B2. Projects for the connection of Users	
1	Construction of high pressure pipeline Mavromati (Vagia) - Larymna and the necessary Metering Station for the connection of LARCO GMM SA with NNGS	19.278.000
	Subtotal	**35.823.800,00 €**
Total		**1.374.230.145,71 €**

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