Report on the operation and efficiency of the Coordination System for the LNG Terminal in Świnoujście
This report presents the experience of the company Gas Transmission Operator GAZ-SYSTEM S.A., Coordinator of the investment programme implemented in Świnoujście, which is of strategic importance to the Polish economy. The programme is, namely, the construction of the breakwater and port as well as the liquefied natural gas (LNG) Terminal and the Szczecin-Świnoujście gas pipeline. After commissioning, the Terminal and the gas pipeline will become an important component of the gas transmission system, and allows the sources of gas supply to Poland to become diversified.

Another aim of the Report is to present the experience arising from the application of a unique approach to the coordination of the complex investment programme. This experience can be made use of in the implementation of similar projects.
The coordination tasks implemented by the Gas Transmission Operator GAZ-SYSTEM S.A. (GAZ-SYSTEM) arose directly from the Act of 24 April 2009 on the investments in the liquefied natural gas regasification Terminal in Świnoujście. The investment projects concerned comprise four independently implemented and interrelated projects. Within the framework of these projects, an external harbour basin sheltered by a breakwater was constructed in the open sea; an entrance waterway to the external port was built, and the approach fairway to Świnoujście was dredged; a jetty for handling LNG ships was constructed. Furthermore, a regasification Terminal was constructed, which allows LNG to be loaded into truck cisterns. The Terminal was connected with the national transmission network through a gas pipeline. On 11 December 2015, the first LNG ship entered the new port, and on 7 January 2016, the Terminal delivered the first batch of (regasified LNG) to the national gas transmission pipeline network.

The main aim of the Report is to present the experience arising from the application of a unique approach to the coordination of the complex investment programme. It was based on international standards and the considerable practical experience of the team made responsible for the coordination. The Report indicates that due to the choice of the specific, well-thought-out concept of the Coordination System and the manner of its implementation, the System had a significant impact on the entire investment process and its environment. Having observed the completion of numerous major investment projects being implemented in Poland, we believe that only a few investors pay attention to this particular part of the project environment.

The Report also presents concrete examples of coordination activities and, above all, their effects. The last part of the Report describes twelve practices which have been applied by us and have helped Coordination activities and, above all, their effects on the environment. It describes the processes and the manner of handling them which play the key role in this type of task. It also describes the measures which, while not having been specified by the legislator, were required to be taken in order to achieve consistency of the Programme under implementation, and the preparation of the Programme’s environment for operational functioning. The main aspect of these measures is the coordination of tasks necessary for the achievement of the so-called Full Operational Capability (FOC) of the port, Terminal and gas pipeline as well as the entire business and administrative environment. Having observed the completion of numerous major investment projects being implemented in Poland, we believe that only a few investors pay attention to this particular part of the project environment.

Dear Ladies and Gentlemen,

It is my pleasure to announce that the Programme involving the construction of the LNG Terminal in Świnoujście has just come to an end. This is a historic moment in our efforts to gain both energy independence for the country and diversification of natural gas supply sources.

Pursuant to the Special Purpose Act on the construction of the LNG Terminal, GAZ-SYSTEM S.A. was Coordinator of the entire Programme; therefore, in this Report, I would like to present a summary of the completed work, and to show how the Coordination System operated.

An advanced coordination project was implemented by all Partners involved in the implementation of the Programme, namely the Maritime Office in Szczecin, the Szczecin and Świnoujście Seaports Authority S.A., Polskie LNG S.A. and GAZ-SYSTEM S.A. The responsibility for coordinating such a large-scale undertaking was a new experience for the company, given the strategic nature of the Programme and the large number of Programme components. This required the harmonisation of activities between the four entities, the implementation of a professional System which allowed the tasks included in the Component Projects to be properly synchronised, the development, together with Partners, of actions to streamline the implementation of the Programme and their recommendation and also the minimisation of risks to the Programme.

The efforts of several thousand employees involved in the construction enabled the start-up of the Terminal which currently allows us to receive the delivery by sea of 5 billion m³ of natural gas per year. This accounts for over 30% of Poland’s current annual demand for natural gas. Therefore, the LNG Terminal is a crucial element in Poland’s energy security system. Along with new gas pipelines, interconnectors, the virtual reverse on the Yamal-Europe gas pipeline and the underground gas storage facilities, the Terminal will strengthen the gas independence of our country and open up new business opportunities to its customers. It can be said without hesitation that the Terminal will allow us to shape the Polish gas market, and that for the first time in history the direction of gas transmission from East to West will not play a dominant role. The Polish economy and customers have a chance to use the new infrastructure to source liquefied natural gas from suppliers worldwide.

The construction of the LNG Terminal in Świnoujście, which is one of the most technologically complex projects carried out in recent years in Poland, posed an enormous challenge to the entities involved in its implementation. I would like to thank the employees of the Maritime Office in Szczecin, the Szczecin and Świnoujście Seaports Authority, Polskie LNG and GAZ-SYSTEM for their involvement in the implementation of such a complex and important project for our country.
This part of the Report presents the organisational background to the construction of the external port, the LNG Terminal and the Świnoujście-Szczecin Gas Pipeline, and the roles of particular Programme Partners. The result of the Programme, coordinated by the Gas Transmission Operator GAZ-SYSTEM and implemented by four Partners, namely the Maritime Office in Szczecin, Polskie LNG S.A., the Szczecin and Świnoujście Seaports Authority S.A., and GAZ-SYSTEM, is the first large-scale onshore LNG terminal in the Central and Eastern Europe.

The construction of the LNG Terminal follows the European trend towards the dynamic growth of the LNG sector, which results from the ambitious EU climate policy objectives. It is of a key strategic importance not only to Poland’s energy security but also to the development of a common gas market and the European gas transmission network, particularly the construction of the North-South Gas Corridor.
LNG – LIQUEFIED NATURAL GAS

LNG is one of the main commodities on the global gas market, and it contributes significantly to meeting the world’s energy needs. Currently, more than one quarter of the natural gas traded in the world is transported in a liquid form (LNG).

Every day, hundreds of LNG ships, including the largest ones, namely Q-Flexes and Q-Maxes with carrying capacities of over 200 thousand m³, sail across the seas and oceans. LNG is liquefied natural gas, i.e., a liquid fuel with a temperature of below -162°C (the boiling point of methane, the principal component of LNG). During liquefaction, the volume of natural gas decreases approx. 600 times. This process also removes impurities, making LNG a very clean fuel.

These years of experience have enabled the establishment of a global system of best practices allowing LNG to be used safely. These days LNG, which is available under both long- and short-term contracts, shapes the global gas market. The experience of this market worldwide, and in Europe in particular, indicates that LNG is a safe and effective way of meeting energy needs. Poland also makes use of this experience as it is diversifying gas supplies through the implementation of projects connected with the liquefied natural gas regasification terminal in Świnoujście.

AN ECOLOGICAL FUEL OF THE 21ST CENTURY

The interest in natural gas, and thus LNG, is an effect of the EU climate policy and high environmental standards. Burning this fuel does not increase the emissions of particulates and sulphur oxides, and the emissions of greenhouse gases are significantly lower than for coal or crude oil.

The role of natural gas is also increasing in the transport sector due to the increasing strictness of standards for the sulphur content in marine fuels – the aim here is to reduce the emissions of sulphur oxides. Natural gas is often referred to as the fuel of the 21st century. Both the very dynamic growth of the LNG sector and the development of the associated infrastructure have been observed. Currently, there are more than 110 import terminals worldwide, while in 2004 there were only 47. The impressive development of import LNG infrastructure has also occurred in Europe: in 2004, there were 10 terminals, while in 2014 there were 23. Currently in Europe, more of them are under construction: 22 onshore terminals and 7 floating terminals.

LNG terminals in Europe

<table>
<thead>
<tr>
<th>Terminals</th>
<th>Operational</th>
<th>Under construction</th>
<th>Planned</th>
</tr>
</thead>
<tbody>
<tr>
<td>Onshore, large-scale</td>
<td>23</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Onshore, small-scale</td>
<td>22</td>
<td>4</td>
<td>7</td>
</tr>
<tr>
<td>Floating terminals</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Annual regasification capacity of large-scale LNG import terminals (Billion m³ (N)/year)

<table>
<thead>
<tr>
<th>Terminals</th>
<th>Operational</th>
<th>Under construction</th>
<th>Planned</th>
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</thead>
<tbody>
<tr>
<td>EU-28</td>
<td>191</td>
<td>23</td>
<td>146</td>
</tr>
<tr>
<td>Europe</td>
<td>203</td>
<td>23</td>
<td>170</td>
</tr>
</tbody>
</table>
THE LNG TERMINAL IN ŚWINOUJŚCIE – A KEY COMPONENT OF THE NORTH-SOUTH GAS CORRIDOR

The North-South Gas Corridor, which will connect the Polish terminal in Świnoujście with a planned terminal on the Croatian island of Krk, is a key element of the common European policy on the safety and diversification of gas supplies. Poland’s contribution to the implementation of this concept was the construction and start-up of the LNG Terminal in Świnoujście, as well as the programme for the construction of gas transmission pipelines, which is carried out by GAZ-SYSTEM. Up to now, over 1,200 km of new gas pipelines have been constructed, and connections with the Czech Republic, Germany and Ukraine have been provided. By 2025, a further 2,000 km of new gas pipelines will be constructed in the Western, Southern, and Eastern parts of Poland.

The North-South Gas Corridor is a symbol of a change to the energy situation in Europe. The European Union has considered it to be an infrastructural project of strategic importance. Hence, in 2013, the construction of the LNG Terminal in Świnoujście was granted the status of Project of Common Interest by the European Commission.

Very soon, we will import liquefied natural gas on a commercial scale, and the LNG Terminal will be a part of a modern gas system, which will be connected to the global gas market. Before our very eyes, the LNG Terminal is becoming an important component of the European and Polish gas system.

The investment process for such an advanced infrastructural project posed a huge challenge from the very beginning. As a project of strategic importance to the development of the entire region and Poland’s economy, it required efficient and effective management in accordance with the principles of sustainable development and respect for the natural environment.

To this end, a Coordination System for the construction of the LNG Terminal in Świnoujście was designed and implemented. It provided for the harmonisation of operational activities aimed at the effective implementation of the project, which was of strategic importance to Poland’s energy economy. The Programme is complex. This is reflected in the fact that it was implemented by four entities, namely the Maritime Office in Szczecin, the Szczecin and Świnoujście Seaports Authority S.A., Polskie LNG S.A. and GAZ-SYSTEM. It appeared necessary to establish an efficient system that would not disrupt Partners’ ongoing work. In retrospect, it must be stated that the System was designed in such a manner that it made it possible to set standards for coordination and management activities within the Programme. In particular, standards for the exchange of crucial information between all Programme Stakeholders were established. The tools implemented within the Coordination System create an efficient mechanism for providing information on the course of work on the entire Programme, and of its potential risks. Thanks to these new solutions, effective cooperation was established between all Partners, and this guaranteed the efficient implementation of key Component Projects.

While making the decision on the establishment of the specific shape of the Coordination System, individuals with experience in the construction and operation of such projects were employed – this was significant to the success of the Programme. An efficient and well-motivated team was assembled, and it introduced new standards to the culture of the organisation. Thanks to the new coordination and management processes, challenges which could have jeopardised the implementation of the Programme were overcome.

The LNG Terminal in Świnoujście is a programme whose significance goes far beyond the gas market, and embraces virtually all sectors of the economy. It required the competence of Polish specialists in areas that Poland had previously made no contribution to. The Programme provided workplaces for thousands of workers, engineers, IT specialists and many other professionals, and a site on which not only major construction work was carried out but also where numerous innovative construction and technological solutions were implemented. Thanks to the joint effort, in harmony with the natural environment, and with the approval of the local community, a programme that is unique throughout the region has been created – one that will be able to meet the needs of both the Polish economy and our neighbours.

Before our very eyes, the LNG Terminal is becoming an important component of the European and Polish gas system. Very soon, we will import liquefied natural gas on a commercial scale, and the LNG Terminal will be a part of a modern infrastructure that is consistently developed. Due to the implementation of numerous projects in Poland, and thanks to their integration with European infrastructure, we will be able to make effective use of market opportunities. Poland, as a country whose position in the gas market has been dependent on one supplier, will be able to become a kind of a gas “hub” and, due to its geographical location, to play a crucial role in the market. Efforts should be made to ensure that the LNG Terminal will be broadly used in Central Europe and bring specific benefits to the economy. Hence the plans of the further extension of the LNG Terminal in Świnoujście, which will help make use of the competitive advantages of the Programme.
INVESTMENT PROJECT IN ŚWINOUJŚCIE – ORGANISATIONAL BEGINNINGS

The construction of the external port, the liquefied natural gas (LNG) terminal, and the Świnoujście-Szczecin Gas Pipeline is the first project of its type in Central and Eastern Europe. It is of key strategic importance not only to Poland’s energy security but also to the development of a common gas market and the European gas transmission network.

The starting point for the launch of the Programme was the December 2006 decision of the Polish Oil and Gas Company S.A. (PGNiG) on the selection of the location for the LNG Terminal in Świnoujście. In May 2007, PGNiG established a special-purpose company, Polskie LNG Sp. z o.o., for the construction of the LNG Terminal.

The programme involving the “Construction of a protective breakwater for the external port in Świnoujście” was initiated by the Council of Ministers’ Resolution No. 167/2007 of 20 September 2007. The investor responsible for its implementation was the Maritime Office in Szczecin (UMS), for the construction of the protective breakwater for the external port in Świnoujście, and the Szczecin and Świnoujście Seaports Authority S.A. (ZMPSiŚ), for the construction of the jetty in the external port in Świnoujście.

Another investment task was entrusted to Polskie LNG Sp. z o.o., for the construction of a protective breakwater for the external port in Świnoujście, and GAZ-SYSTEM, whose shares are 100% owned by the Treasury. Therefore, the government made a decision requiring PGNiG to sell Polskie LNG Sp. z o.o., and on 28 November 2008, PGNiG and GAZ-SYSTEM signed an agreement on the sale of the company.

A special role of GAZ-SYSTEM in the external port was the December 2006 decision of the Government of Poland to entrust the work related to the implementation of the Programme to GAZ-SYSTEM. While preparing the draft Special Purpose Act, the government formally indicated the investors and defined the scope of their responsibilities. For the implementation of the Programme, the following entities were designated:

- The Maritime Office in Szczecin (UMS), for the construction of a protective breakwater for the external port in Świnoujście.
- The Szczecin and Świnoujście Seaports Authority S.A. (ZMPSiŚ), for the construction of the jetty in the external port in Świnoujście.
- Polskie LNG S.A. (PLNG), for the construction of the Terminal.
- The Gas Transmission Operator GAZ-SYSTEM S.A. (GAZ-SYSTEM), for the construction of the Świnoujście-Szczecin Gas Pipeline.

The government recognised the need to coordinate the work related to the implementation of the entire Programme.

An additional significant role of GAZ-SYSTEM in the Programme was initiated by the Council of Ministers’ Resolution of 19 August 2008. In this resolution, the government declared the construction of the LNG Terminal in Świnoujście as compatible with the strategic interests of Poland, and especially with plans for the diversification of the sources and routes of natural gas supplies and with plans for ensuring the country’s energy and economic security. The Council of Ministers obliged the Minister of Treasury to take over control of the construction of the LNG Terminal in Świnoujście. It was also decided that this control would be best ensured by a transfer of the majority shares in Polskie LNG Sp. z o.o. (later transformed into a joint stock company) to GAZ-SYSTEM, whose shares are 100% owned by the Treasury. Therefore, the government made a decision requiring PGNiG to sell Polskie LNG Sp. z o.o., and on 28 November 2008, PGNiG and GAZ-SYSTEM signed an agreement on the sale of the company.

The Special Purpose Act is a legal act whose provisions take precedence over the provisions of other laws providing the basis for the design and implementation of public purpose investment projects. It introduced a number of solutions in the area of administrative procedures that enabled the efficient implementation of the Programme. The document also included regulations concerning the projects accompanying the construction of the Terminal, gas transmission pipeline network, and underground storage facilities.

In order to streamline the process of the preparation of the Programme connected with the Terminal, simplified and shortened administrative procedures and public procurement procedures were established.

While preparing the draft Special Purpose Act, the government formally indicated the investors, and defined the scope of their responsibilities. For the implementation of the Programme, the following entities were designated:

- The Maritime Office in Szczecin (UMS), for the construction of a protective breakwater for the external port in Świnoujście.
- The Szczecin and Świnoujście Seaports Authority S.A. (ZMPSiŚ), for the construction of the jetty in the external port in Świnoujście.
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The government recognised the need to coordinate the work related to the implementation of the entire Programme.

1Pursuant to the Act of 11 February 2016 (Article 11) on the amendment to the Act on Government Administration activities and certain other laws (published on 02 March 2016 in the Journal of Laws (Dz.U.) of 2016, item 30). From that date, the term “Minister of Treasury” used in this Report shall be understood as “Government Plenipotentiary for the Strategic Energy Infrastructure”.

The legal basis of the Programme of the construction of the LNG Terminal in Świnoujście is the Act of 24 April 2009 on the investments in the liquefied natural gas regasification Terminal in Świnoujście, referred to as the Special Purpose Act. Its provisions define the tasks to be implemented in order to not only enhance Poland’s energy security, but also to support the EU’s strategic objective of establishing a common market for natural gas.
The system that connects

Report on the operation and efficiency of the Coordination System for the LNG Terminal in Świnoujście

**ROLES OF PARTNERS IN THE INVESTMENT PROGRAMME**

**Maritime Office in Szczecin (UMS)**
Construction of a protective breakwater for the external port in Świnoujście

**Szczecin and Świnoujście Seaports Authority (ZMPSiŚ)**
Construction of the jetty in the external port in Świnoujście

**Polskie LNG S.A. (PLNG)**
Construction of the LNG Terminal

**GAZ-SYSTEM SKBT**

**Gas Transmission Operator GAZ-SYSTEM S.A. (GAZ-SYSTEM)**
Construction of the Świnoujście-Szczecin Gas Pipeline

The tasks performed as part of the Breakwater Component Project: the infrastructure securing access to the external port, including a breakwater, waterway, turning basin and navigation marks.

In addition, the following were performed:
- clearing the waterway of hazardous materials,
- construction of additional fixed navigation marks on the sea,
- widening of the external access waterway to the newly constructed port.

The tasks performed as part of the Jetty Component Project include: the port infrastructure comprising a ship docking station with related mooring, fender, and navigation systems as well as the infrastructure enabling the mounting of installations for LNG and gas transmission and seawater uptake.

In addition, the following were performed:
- construction of the process wastewater connection to the SCV,
- increasing the flexibility of the jetty through the reconfiguration of mooring hooks.

The tasks performed as part of the LNG Terminal Component Project: the LNG Terminal which consists of port facilities for receiving LNG from ships, installations for LNG transmission from the port to the onshore part of the Terminal, two tanks and installations for LNG regasification including facilities for the transmission of gas from the gas pipeline connecting the Terminal with the national gas transmission system, and installations for loading LNG into truck cisterns.

The tasks performed as part of the Gas Pipeline Component Project included: the construction of the Świnoujście-Szczecin gas pipeline to connect the Terminal to the gas transmission system, along with the infrastructure necessary for its operation within the province of Zachodniopomorskie (West Pomerania).

The Special Purpose Act defined four responsibilities of Coordinator:

- preparing a Consolidated Programme Schedule for the entire Programme,
- monitoring the performance of tasks under Component Projects (CP) for compliance with the Schedule,
- coordinating the document and information flow between Partners,
- preparing reports and making recommendations for actions to streamline the implementation of the Programme.
The Programme involving the construction of the LNG Terminal is a large-scale project with a high level of complexity. The coordination process has been essential for its progress. This role was entrusted to GAZ-SYSTEM. In order for it to be performed, the Coordination System for the LNG Terminal was designed. Conclusions from the experience of GAZ-SYSTEM may serve as a set of best practices for other entities involved in similar projects.

This part of the Report presents the origin of the Coordination System and the justification of a selected model thereof. It explains the concepts of coordination and management that are crucial for the understanding of the role of Coordinator in the implementation of the Programme. The chapter describes the roles of GAZ-SYSTEM and other Partners in the Coordination system, and presents its components i.e. tools and processes developed by Coordinator for the coordination of the course of the Programme.
The origin of the Coordination System

We have prepared the "Report on the operation and efficiency of the Coordination System for the LNG Terminal in Świnoujście" with the intention of sharing our experience.

While designing the Coordination System, we paid particular attention to establishing conditions of cooperation in accordance with the principles of professionalism and partnership. We believe that they provide a basis for ensuring high standards of cooperation and effectiveness as the foundation for efficient coordination. Now we can confirm that due to the full involvement of all System participants representing a variety of organisational cultures and different business objectives, we have met the coordination assumptions.

All the planned and implemented components of the Coordination System were very significant and important; however, the people involved in the preparation, maintenance and, ultimately, the use of the System were of paramount importance.

It is with satisfaction that I stress that in the LNG Division we have formed a very well prepared and competent team for task performance. The distinctive features of the team members included: multitasking, high adaptability to change, proactiveness, and the ability to work independently under pressure in the process culture. This allowed us to face challenges, including in the periods of the most intense work, and develop a number of solutions to be potentially used in the future.

We would like to thank all Partners and participants who implemented the complex Programme involving the construction of the LNG Terminal in Świnoujście for their professional cooperation and effective communication within the Coordination System.
In order to be able to consider further in the Report an assessment of the effectiveness of the designed Coordination System, it is necessary to make a clear distinction between the concepts of “coordination” and “management”. These two concepts, and in particular the expected effects of actions which may result from them, are very important for the correct understanding of the functions of particular Programme participants.

As early as in January 2011, in the “Report on implementation and operation of the Coordination System for the LNG Terminal in Świnoujście”, we drew attention to the significant difference between these concepts. In all projects, and in particular in those carried out by more than one entity, a clear specification of responsibilities and accountability is required. Coordinator is responsible for cooperation among all Partners, but it is a Project Manager (i.e. Partner) who is accountable for the implementation of individual Component Projects.

The Special Purpose Act imposed on GAZ-SYSTEM the task of coordinating the construction of the LNG Terminal in Świnoujście, which comprised four Component Projects, each managed and carried out by an independent Partner. The task of GAZ-SYSTEM, as Coordinator, was to organise and oversee the harmonious performance of the joint actions of all entities involved. Partners undertook to manage the individual Component Projects, the management tasks of which comprised planning, organising, motivating, and monitoring the efforts aimed at task completion.

It should be noted that Coordinator, in contrast to a Project Manager, did not enjoy executive authority in relations with Partners. This means that Coordinator could not issue or enforce orders i.e. impose its will on Partners, except in situations where Partners delegated to Coordinator some of their own powers.

In project management, unlike in the coordination process, organisation is not implemented in the form of organisational arrangements but rather in the form of formal orders on how subordinates should cooperate. Moreover, in contrast to Coordinator, a Project Manager is responsible, within their executive authority, for the operation of their staff and resources entrusted to them.

<table>
<thead>
<tr>
<th>COORDINATION</th>
<th>MANAGEMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Responsibility for the efficient cooperation between entities implementing particular projects</td>
<td>Responsibility for project implementation at the executive level</td>
</tr>
<tr>
<td>Basic mechanisms:</td>
<td>Basic mechanisms:</td>
</tr>
<tr>
<td>• organisational arrangements between Partners – cooperation,</td>
<td>• decisions (orders),</td>
</tr>
<tr>
<td>• reporting on the performance of an organisational arrangement.</td>
<td>• reports on the implementation of decisions (orders).</td>
</tr>
<tr>
<td>Organisational arrangements may take the form of:</td>
<td>Both mechanisms are the basis of supervision by the Project Manager who makes decisions based on inspection results, i.e. the comparison of actual performance with the desired (planned) situation.</td>
</tr>
<tr>
<td>• action in concert (Partners inform one another of their decisions, plans or activities),</td>
<td></td>
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<tr>
<td>• action agreed (Partners mutually agree their plans or activities),</td>
<td></td>
</tr>
<tr>
<td>• action approved (pre or post factum approvals of certain activities, etc.).</td>
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Responsibility and scope of Coordinator
Responsibility and scope of Partners

It is clear from the above analysis that in all its activities, Coordinator had an impact on the course of the coordinated Programme to the extent that could be agreed with the entities implementing the Projects. A tool which Coordinator also had at its disposal was the formulation of recommendations. However, in this case the carrying out of recommendations was also dependent on the will of the entities that were to implement them. Where there was no such will, the only possibility left was Sponsors’ conclusive action.
The Coordination System for the LNG Terminal in Świnoujście had to meet numerous requirements in order to operate efficiently under the conditions of such a complex Programme. It was expected that the System would be user-friendly and efficient, not interfere with Partners’ work, be based on a clear and transparent legal foundation, and be flexible so that it could be improved and adjusted to the evolving Programme. GAZ-SYSTEM undertook to create such a system from the ground up.

The first stage streamlined and formalised the methods of performing the obligations imposed on all Partners by the Special Purpose Act. That stage began on 20 August 2009 with all Partners signing a Cooperation Agreement at the initiative of GAZ-SYSTEM. The document set out the mutual obligations and outlined the time frame within which the subsequent Programme stages would be performed. Furthermore, it set the deadline of June 2014 for the Terminal to achieve full operability. An agreement between PGNiG and a Qatari contractor, which provided the basis for the setting of that deadline, allowed it to be extended until 30 December 2014.

As early as in the first period before the establishment of a standardised system for collecting information, Partners passed on substantive information which was very extensive and detailed. The skilful standardisation of the form and scope of the transferred data was challenging. Partners employed various methods of supervision over the Projects they were implementing. This affected the scope and form of the information they passed on. Due to the lack of a uniform and agreed-upon standard of information exchange and processing, at that time:
- the materials received differed in their form and level of detail,
- the process of the verification of the data to be used for the preparation of reports for the Stakeholders was hampered.

At that stage, it was important to understand that a joint project of several Partners does not translate directly into either common tactical targets or common methods of operation. Therefore, a coordination agreement was drawn up within the Coordination System team, which set forth the principles of cooperation between the Parties. The agreement was designed to support the uniform management of the entire Programme while respecting the autonomy and independence of particular Partners.

At the same time, the organisational structure of the Coordination System was designed, and clearly defined separate functions were assigned to each component thereof. The importance of the separability of functions was stressed, as experience shows that for such major projects, even seemingly slight uncertainties or gaps in competency lead to the paralysis of work progress even where the Parties do not act with malice.

The procedures established together with the CCO’s team were simple, therefore they proved to be easy to accept and flexible enough to deal with all cases in the practical implementation of the Programme. They could systematically evolve towards simplification due to the increasing experience of both Coordinator and the Project Managers of particular projects. On the other hand, the agreement and other acts of a higher order, which were limited to the governing of crucial issues, rarely required changes. This is a fundamental feature of well-designed systems of normative acts.

An important component of the Coordination System was the designing, at the preparation stage, of templates for managerial documents; this was done based on the experience of the team. As part of the support, the System was provided with advanced software for the analysis of schedules for the Programme. It was used to detect hazards associated with the potential lack of coordination of the actions of independent contractors. Given the complexity of the Programme and the high quality requirements of Coordinator, certain algorithms required computational runs lasting for many hours.
the time necessary for the preparation of the Consolidated Progress Report on the progress of work for Component Projects was extended,

information exchange between Partners was difficult (due to the lack of established methods of communication).

In accordance with the authorisation provided for in the Special Purpose Act, measures were taken with the aim of selecting an independent entity to which selected coordination tasks would be entrusted. This process was cancelled due to the high amount of remuneration for the provision of services proposed by bidders. In view of this situation, at the end of 2009, the LNG Division which was responsible for fulfilling the obligation to coordinate the construction of the LNG Terminal was established within GAZ-SYSTEM. The LNG Division was provided with the task of designing, implementing and operating the Coordination System.

A careful analysis of the existing situation and the adoption of modern, proven project management practices allowed GAZ-SYSTEM to develop a user-friendly and efficient system of coordination. The system was designed to minimise interference with Partners’ work and to allow the standards for activities related to coordination and management to be developed as part of the Programme – this was particularly the case for standards for the exchange of critical information between all Programme Stakeholders.

As a result of earlier decisions and the work commenced in February 2010, a fully controllable environment was created. It contained simple proposals for approaching difficult problems arising from the complexity of the Programme under implementation.

The environment, known as the Coordination System, contained the following components:

- internal regulations in the form of a Partner Agreement, rules of procedure, and procedures;
- expertise and skills in the application of the above-mentioned regulations;
- a dedicated functional structure consisting of the coordination team, project teams applying these regulations, educated system Clients, and expert teams;
- IT tools to support the System;
- basic methodology, based on which the above-mentioned regulations were developed;
- information collected by the System;
- methodology for the confirmation of efficiency and improvement of the System.

Attention should be paid to the significant feature of the proposed solution, namely the efficiency of the System. The designing and implementation of the Coordination System based on accurately described processes, and thus a high degree of standardisation of activities, allowed a small team of several people to smoothly perform the complex task of coordinating four investment projects.

No competence problems occurred in the process of coordination. The roles and principles of cooperation with the internal and external Clients were defined in operational procedures, and the scope of responsibilities of particular System participants referred to the procedures describing the manner for handling coordination processes.

Returning to the selection process for an external entity to perform coordination tasks – it appeared that, given the savings when compared to the amount of the lowest bid, an taking into account the duration of the period it served as Coordinator, GAZ-SYSTEM saved at least 10 million PLN. This estimation includes no such important elements as: a considerable extension of the scope of coordination to include risk monitoring; coordination of environmental measures; support in communication with the local community; the introduction of a new area, namely the coordination of tasks associated with Full Operational Capability (FOC); building new competencies in GAZ-SYSTEM; the impact on the development of modern methods within the project management system; an increase over time in the cost of commissioning the coordination to an independent entity.

The most important area of coordination, which did not arise directly from provisions of the Special Purpose Act, and which the LNG Division took upon themselves, was the preparation and implementation of the concept of the coordination of work of not only the four Partners but, more broadly, of the legal and organisational environment leading to the achievement of Full Operational Capability of the LNG Terminal in Świnoujście. Both a Definition of Full Operational Capability along with the Checklist covering the entire future operating activity as regards LNG Terminal and the external port in Świnoujście were prepared and approved for use. The tasks arising from the Checklist were introduced into the Consolidated Programme Schedule.

Best practices applied in the establishing of the coordination system, assessed by an EnergSys advisor:

1. Dedication of enough time to understand the expectations and potentially different organisational cultures of the most important stakeholders of the Programme. Investigation of the limits of acceptable compromises – quiet, multi-stage negotiations are necessary.

2. The application of the principles of change management from an early stage of the Programme. Remembering that listening is more important than being heard.

3. Not using only one, ready-made project management methodology – acquiring thorough knowledge of many leading standards of project management and, for specific implementations, selecting the adequate and valuable elements of each of them.

4. Unwavering application of the principle of systems engineering in designing management structures, and of the principle of governance in drawing up normative acts governing their operation.

5. For the implementation of the system, it is worth employing experienced managers along with small experienced teams of people whom they trust – this guarantees a fast and error-free start with no surprises.

6. Care in documenting, in a consistent manner, not only activities but also ideas, plans or opinions which have been rejected – the shortest pencil is better than the longest memory.

7. Development of a coordination and management system through its gradual simplification. At the beginning, assigning priority to the safety and efficiency of actions, and, only at the next stages, to their effectiveness.

8. Remembering that today’s perfection is tomorrow’s norm.

The initiation of the activities in the field of work coordination, leading to the achievement of Full Operational Capability of the LNG Terminal in Świnoujście, was very favourable to the Company’s business and considerably affected the manner of preparation of the Terminal and its business and legal environment for taking in the first start-up gas carrier, and then the also the shift to the next stage of operation.
The effectiveness of the Coordination System was largely dependent on the proper division of competences in the process of Programme coordination between all Partners. Only a clear division of roles guaranteed that no conflicts of powers would arise; these conflicts could contribute to a reduction in the effectiveness of the entire System.

In accordance with the Special Purpose Act, GAZ-SYSTEM was responsible for the fulfilment of coordination responsibilities, and Partners were required to provide it with the information necessary for the performance of these tasks, and to cooperate in the development of the Consolidated Programme Schedule.

The Supplementary Agreement, signed by Partners, clarified and expanded the role of GAZ-SYSTEM as Coordinator and its tasks, and also the role of Partners and their tasks.

The Supplementary Agreement listed the following responsibilities for GAZ-SYSTEM within the framework of the Coordination Process:

- the development of principles of the Coordination Process for the construction of the LNG Terminal;
- agreeing upon operational procedures with Partners; providing Partners with IT tools for handling the Coordination Process;
- supporting Partners in planning and ensuring the appropriate quality of documents related to the implementation of the Programme;
- evaluating, providing consultation, elaborating recommendations for actions to streamline the process of Programme implementation (including the resolution of critical issues and agreeing on changes to Projects – in so far as these issues may affect the Component Projects), and organising the processes of agreeing upon such recommendations;
- developing, updating and implementing the Communication Schedule for the Programme so as to ensure that all Stakeholders receive adequate information at the right level of aggregation at the scheduled intervals;
- performing continuous monitoring of risks, and developing strategies and methods for their management;
- ensuring the necessary number of appropriately qualified staff to carry out the coordination functions;
- reporting on the progress of the Programme involving the implementation of the LNG Terminal construction to the Minister of Treasury.

On the Partners’ side, as part of the Coordination Process, the Agreement determined that:

- Partners undertake to actively participate in all activities performed within the framework of the Supplementary Agreement, in particular in the work of the Executive Committee, and to implement the Executive Committee’s decisions;
- Partners’ Executive Bodies will assume the Component Project Sponsors’ responsibilities;
- Partners will provide the adequate substantive and technical resources necessary for the efficient and effective implementation of tasks, including, inter alia, the nomination and formal appointment of persons responsible for the implementation of Component Projects (this applies to e.g. Component Project Manager and the Project Team members);
- Partners will guarantee the participation of designated staff members in training courses and other activities necessary for the Coordination Process, and make maximum effort to smoothly introduce the Coordination System mechanisms during contact with Contractors, Contract Engineers, and the Inspector Supervision.

In accordance with the Special Purpose Act, GAZ-SYSTEM was responsible for the fulfilment of coordination responsibilities, and Partners were required to provide it with the information necessary for the performance of these tasks, and to cooperate in the development of the Consolidated Programme Schedule.

The Supplementary Agreement, signed by Partners, clarified and expanded the role of GAZ-SYSTEM as Coordinator and its tasks, and also the role of Partners and their tasks.

The Supplementary Agreement listed the following responsibilities for GAZ-SYSTEM within the framework of the Coordination Process:
The system that connects

COMPONENTS OF THE SYSTEM – TOOLS AND PROCESSES

An effective Coordination System must be based on standardised activities described by procedures; this will constitute a clear functional structure. The basis for the success of the Coordination System was an experienced team who had the knowledge and skills to implement and apply the regulations prepared for the System.

BASE METHODOLOGY

When commencing work as Coordinator, GAZ-SYSTEM decided to appoint the LNG Division and entrusted it with the selection of a tool, based on which the essential part of regulations for the Coordination System, namely procedures describing coordination processes, was to be prepared. Given that a strong emphasis was put on action pragmatism, it was decided that the base methodology would be the TenStep methodology based on the international PMI standard.

Due to the choice of the tool used by many managerial teams, it was possible to immediately start defining coordination procedures without the need to spend time on developing processes from the ground up. Ten processes of the methodology concerned which advantages including, inter alia, high flexibility, were adopted as the base ones. This allowed the functional structure of the System to be specified immediately after the selection of reference methodology, which Coordinator could apply to identify processes necessary for outlining the Coordination System.

THE FUNCTIONAL STRUCTURE

The Supplementary Agreement, which defined and formally introduced the principles included in the Coordination System, was signed. The Supplementary Agreement determined:

- the main business roles, their responsibilities, and the clearly defined obligations procedurally assigned to them;
- the modes of information exchange and decision-making.

The nature of coordination indicates that its characteristic feature is cooperation. The Special Purpose Act specified its participants. At the highest level of the Coordination System, this was the cooperation between Coordinator and the Minister of Treasury, who was responsible for the supervision of the preparation and implementation of the Programme i.e. the construction of the LNG Terminal. At that level, the scope was governed by the Special Purpose Act.

On the other hand, at the managerial and operational levels, the cooperation was between Coordinator and Partners. In order to ensure the efficiency of the process of developing key decisions governing the cooperation between the investment process Partners, and organising the processes of reaching decisions, Coordinator proposed that an Executive Committee consisting of persons responsible for Programme implementation should be appointed. Therefore, the cooperation between Coordinator and the Executive Committee needed to be regulated. The Supplementary Agreement served that regulatory role.

In view of the fact that the Committee, in accordance with the Supplementary Agreement, had a strictly defined scope whose main point was the development of key decisions, it was necessary to specify, within the structure of the Coordination System, the form of cooperation between Coordinator and Partners, as well as that between particular Partners and the participation of Coordinator at the operational level. Hence the emergence of a constant element – the Statutory Committee needed to be regulated. In this case, the principles of cooperation were governed by relevant procedures.

The cooperation between Partners and their Contractors was not embraced by the Coordination System. Due to the specific nature of the implementation of the Programme, which consisted of four Component Projects, and the implementation of which was the responsibility of Partners (i.e. independent economic and legal entities), and given Coordinator’s function, Coordinator had no tool for exerting a direct influence on Contractors as the executors of contracts concluded by Partners. Furthermore, since the commercial responsibility for the execution of Contracts belonged to Partners, Coordinator should have avoided exerting such an influence. Coordinator could perform the necessary activities in this regard only in agreement with Partners, and primarily through them.

At the second stage, which can be referred to as the mature Coordination System, another element emerged after the launch of the Programme that involved the monitoring of the achievement of Full Operational Capability – this was cooperation with the public administration bodies and the Programme Clients PGNiG. This, however, will be described further on in this Report (see item 3.5).

It should be noted here that the operational structure of the Coordination System was constructed based on the principle of subsidiarity. All issues which could be resolved at a lower level were to be resolved there. Therefore, from the perspec-
The report on the operation and efficiency of the Coordination System for the LNG Terminal in Świnoujście highlights the importance of cooperation between Partners and Contractors as part of Component Projects. The system that connects operational levels was that of cooperation between Partners and Coordinator, i.e., the Statutory Meeting level, and, at a later stage of the mature Coordination System, also the FOC Team Meeting.

**OPTIMISATION OF THE SYSTEM**

In view of the division of roles and responsibilities between the Programme participants explained above, the coordination scope designed for GAZSYSTEM and planned initially was limited to one which, in practice, could be implemented without prejudicing the powers of Partners. Thus, the scope of obligatory applicability of the Coordination System procedures by Partners was limited to the provisions governing a Partner’s contact with Coordinator.

A few of the initially planned areas of coordination were abandoned. One such area was the Monitoring System for the Master Project Budget, described in the Report of 2011. Coordinator, recognising Partners’ management responsibility for the planning and implementation of the Component Project budgets, limited, following Partner’s suggestions, the monitoring level for the financial side of projects. To this end, principles of reporting on the investments for each project were developed and standardised by reducing the scope of informing to two dimensions: on a narrow basis, for the investments in construction work; and on a global basis, for the total value of all investments (including the expenditure on the Inspector Supervision, environmental monitoring, design documentation, legal services, insurance, etc.). In addition, the financial area of coordination embraced the tasks related to supporting Partners in raising funds from EU grants, and also in relation to the reporting on their use and the identification of risks associated with the possibility of loss of funding from the EU. In this context, the performance of detailed financial analyses, e.g., evaluation of the cost-effectiveness of projects under implementation based on the Earned Value method (EV), was also abandoned.

Furthermore, the tasks previously designed for Coordinator and specific to the Project Manager, such as those covered by the role of Community Liaison Officer (CLO), or the tasks associated with the Integrated System for LNG Terminal Security and Continued Operation, were also dropped. The responsibility for their implementation was transferred to Polskie LNG— the owner of the largest project within the Programme.

**MATURE COORDINATION SYSTEM**

Due to the flexibility of the Coordination System, its structure could be efficiently improved during its use. The main reason for changes was the introduction of Full Operational Capability (FOC). In this case, the changes were significant. In addition to the element of the structure that was crucial at the operational level, namely the Statutory Meeting, another element, the FOC Team Meeting, was introduced. The attendees of this Meeting were the authorised, permanent representatives of Partners who, within their organisations, were responsible for the execution of tasks associated with FOC. At the same time, it was decided that use should be made of the experience of other design methodologies, and the recommendation for including representatives of Programme Clients in the course of its implementation (dressed e.g. in the PRINCE2® methodology) was followed. Coordinator, guided by this experience, invited PGNiG, as the main future Client of the regasification Terminal in Świnoujście,

**Structure of the Coordination System for LNG Terminal in Świnoujście**

- **Steering Committee**: MINISTRY OF TREASURY
- **Executive Committee**: Coordinator
- **Statutory Meeting**: Coordinator
- **Construction Council**: Coordinator

The attendees of this Meeting were the authorised, permanent representatives of Partners who, within their organisations, were responsible for the execution of tasks associated with FOC. The responsibility for their implementation was transferred to Polskie LNG—the owner of the largest project within the Programme.
to participate consistently in the work of both the Executive Committee and the Team for the Monitor-
ing of Full Operational Capability. In addition, repre-
sentatives of public administration bodies, as well as other stakeholders of the Programme involved in the process of achieving FOC, also participated in the meetings as standing members.

**PROCESSES**

Coordinator, having the selected methodology defining managerial processes related to proj-
et management, and taking into account the scope of coordination outlined in the Special Purpose Act, concluded that it was too narrow. Hence, there was the need to expand this scope. The clarified scope of the Coordination System included 6 areas of GAZ.SYSTEM’S responsibility:

- designing and updating the Consolidated Pro-
gramme Schedule,
- monitoring the performance of tasks as regards compliance with the Consolidated Programme Schedule,
- coordinating the document and information flow,
- monitoring the project risks, and determining the strategy of their management,
- drawing up reports, developing recommenda-
tions for activities to streamline the Programme implementation, and organising processes for agreeing upon such recommendations,
- informing Sponsor of the manner in which critical-
issues are solved, of the lack of possibilities for agreement on solutions, or of the refusal to implement solutions.

In the course of coordination work, another mod-
ification was carried out regarding the applied processes. The process of Programme Definition played a significant role in the first period of co-
operation between Partners. The preparation of a definition of the project by each Component Project Manager made it possible to share the most important information, such as the scope, the planned method of implementation of each project, the main risks, and mutual relationships between projects. At subsequent stages of im-
plementation, after signing contracts with Con-
tractors, it was concluded that this process was ancillary in nature – at the implementation stage, investment projects are defined by technical and executive projects as well as schedules. In this situation, the requirement for updating and ap-
proving the Programme Definition was waived. As a result, it appeared that the management (servicing) of six processes was sufficient for ef-
fective coordination. Procedures were prepared for them; these helped the activities of Coordi-
nator and interface activities between Partners and Coordinator become standardised, which ensured repeatability and reliability on the one hand, and the maximum simplicity on the other.

The procedures embraced two management levels. One level regulated Coordinator’s ac-
tivities, and in the period of “mature” coordina-
tion included 16 procedures. The second level included 9 procedures, embraced activities of Partners or, more specifically, Component Proj-
ect Managers, and regulated their cooperation with Coordinator. These regulations concerned, inter alia, the methods of preparing GP schedules and their updates, reports, the cooperation be-
tween a Project Manager and Coordinator in this regard, the modes of preparation of requests for the introduction of changes and the resolution of critical issues, and handling design risks, in par-
ticular when they were related to more than one Component Project.

**PROCESS 1**

**Coordination of Programme Scheduling**

While formulating the first duty of Coordinator, the Special Purpose Act provides that Coordina-
tor shall draw up the schedule after consultation with Partners. The schedule becomes binding on Partners only upon its approval by the Minister of Treasury.

An analysis of the Special Purpose Act, with re-
gard to the responsibility for and methods of pre-
paring the Schedule, allowed the identification of the tasks for which execution was a prerequisite for the proper development and implementation of the Schedule:

- Determining the scope of Projects, and decom-
posing it into key elements (Project Deliverables) in a manner ensuring full operability of the proj-
et under implementation. Then, establishing such implementation deadlines for the Project Deliverables that allows the timely achievement of full operability of the Świnoujście external port and regasification Terminal.
- Determining the interaction points between particular Component Projects and such imple-
mentation deadlines for the associated tasks that ensure the timely implementation of the Programme. At the same time, ensuring checks on changes introduced by other Partners, which could affect the course of particular CPs (Har-
monisation of Component Projects).
- Establishing a set of tasks, beyond the scope of Component Projects, necessary for the achieve-
ment of Full operability of the external port and Terminal. This task was executed through a proj-
et involving the monitoring of the achieve-
ment of the status defined as Full Operational Capability, described in a separate part of this Report.

The analysis resulted in a document referred to as the Consolidated Programme Schedule, which was one of the most important coordination tools used in the Coordination System.

The Consolidated Programme Schedule is a schedule embracing all activities connected to the investment programme. It always consisted of the following Component Project schedules: Breakwater, Jetty, Terminal and Gas Pipeline, and, depending on the update, the activities car-
rried out by Coordinator within the framework of the Coordination System; the tasks associated with Full Operational Capability; additional tasks and those excluded from the contract, executed by the Szczecin and Świnoujście Seaports Author-
ity; and additional tasks included in the Multian-
urnal Programme and executed by the Maritime Office in Szczecin. The Consolidated Programme Schedule consisted of several sections and as many as nine outline levels, and, depending on the revision, it included between over 4 thousand and all the way up to over 10 thousand tasks. Due to the introduction of the Coordination Milestones...
The system that connects the Consolidated Programme Schedule reforms – the Szczecin and Świnoujście Seaports way – the Maritime Office in Szczecin; the turn which these institutions, in accordance with time Office in Szczecin and the Szczecin and Świnoujście Seaports Authority. In both Component Projects, work had to be performed in a coordinated manner to ensure its completion within an appropriate time frame, and also the performance of batch metric tests on the entire basin in an appropriate time. The aim of the tests was to confirm that the basin had reached the depths appropriate for safely receiving an LNG ship. The performance of dredging work by one of the Partners within the basin excluded both the performance of tests on depths and the confirmation of the preparation of infrastructure for receiving a ship with a supply of LNG.

Responsibility for the effective cooperation between Partners in harmonising their tasks so as to minimise disruption lay with Coordinator. The entire harmonisation process was organised by Coordinator. The developed Schedule could not be a closed construct; and we provided for the possibility of its updating in response to the current needs of Partners caused by both internal factors, e.g. the need to change the order of work performance, and external ones, e.g. the identification of new requirements in the course of the Programme. In each case, all changes formally introduced to the Schedule required agreement between Partners. During the agreement process, it was checked whether the changes did not affect the Coordination Milestones or result in the emergence of new points of contact and the need to define new CMs. Where any of the above-mentioned circumstances occurred, a harmonisation procedure was launched.

PROCESS 2
Operational Coordination of Plan Implementation

This process included basic activities arising from the second duty of Coordinator, namely the duty to monitor the execution of tasks connected with compliance with the Schedule. In relation to Partners, the process involved monitoring the execution of tasks based on an analysis of the Schedule. In this regard, the result of the analysis was the determination of the degree of task execution, and the conclusion as to what impact the current events, including the ongoing difficulties, had on the implementation of a particular Component Project. Where this impact resulted in the need to update the operational items of CP schedules regarding changes to deadlines, they could only be carried out and approved by the CP Manager (CPM) when they did not affect the structure and deadlines of Coordination Milestones.

While analysing the schedule in accordance with the established rules, the CPM marked the status of task execution, updated the deadlines for task execution, and introduced new tasks. The CPM carried out these activities in consultation with a Project Contractor, or commissioned them to a Contractor. The updated Component Project Schedule was analysed by the CPM for:
- reasons for non-compliance with the Schedule,
- symptoms of potential problems,
- changes occurring in the critical path,
- changes in the area of risks, including the emergence of new risks and the disappearance of identified specific risks due to the achievement of a specific stage of Programme implementation.

Similarly to the project planning process, in the process of coordination of plan implementation, the CMs were constantly observed by Coordinator. In this case, the analysis concerned the impact of particular CPs on the entire Programme. It allowed one to conclude what impact the current events in particular Component Projects had on the entire Programme. The Process of the Coordination of Plan Implementation conducted in this way made it possible to not only inform Sponsors of the course of Component Projects and the Programme, but also to formulate recommendations as regards streamlining activities.

PROCESS 3
Critical Issue Management

Within the meaning adopted by the Coordination System, a critical issue was an issue whose resolution was beyond the limits of a single Component Project and the competence and decision-making powers of a CP Manager. Resolving a critical issue required the involvement of Sponsor and Project Manager, and even the Executive Committee.

This process covered activities from the identification of a potential critical issue within a CP to notifying Stakeholders of the adopted solution. As part of the process, a check was required on the impact on the schedule of an issue and alternative solutions, including on the CMs, budget and the Programme scope, and the consequences of the failure to take corrective action.

The process was described by relevant procedures which specified the manner and sequence of activities necessary for the consideration and possible implementation of a change using standard documents.

In the six-year period of coordination activities, no need for the launch and formal application of this process arose. The issues occurred at the time of Programme implementation, and the risks that materialised were successfully handled in most cases at the operational level, in agreement-making processes organised...
by Operations Coordinators with the CPM. In order to resolve more serious issues, the Executive Committee was sometimes involved. This took place on the basis of other processes: operational coordination of plan implementation, communication coordination, and risk management coordination.

**PROCESS 4**

**Change Management**

The Process of Change Management within the Coordination System included activities ranging from the identification of a possible need for change, in particular Project operations, to the execution of work within the Programme, to the notification of the relevant Stakeholders of the current status of a change to the Programme, and the adopted solutions. Furthermore, it took into account the performance of an analysis of the impact of the change on the Programme as regards the Schedule and budget and the development of alternative solutions, decision-making regarding the choice of a solution, and documentation of the adopted solutions.

The process was implemented in accordance with appropriate procedures, precisely determining the manner and the sequence of activities necessary for the consideration and possible implementation of a change using standard documents. As regards changes to the key dates of the Component Project Schedule, the process consisted in, for example, which brought about changes to the Consolidated Programme Schedule, for which Process 1 (the Process of the Coordination of Programme Scheduling) was applied.

**PROCESS 5**

**Communication Coordination**

Another process which embraced basic activities arising from the statutory duties of Coordinator was the Process of Communication Coordination. This process ensured the fulfilment of two statutory duties of Coordinator:

- coordinating the document and information flow, drawing up reports, developing recommendations for streamlining activities within the Programme implementation, and organising processes for agreeing upon such recommendations.

Moreover, it included the fulfilment of the duty to inform Sponsor of the manner in critical issues were solved, the lack of possibilities for agreeing upon solutions, or the refusal to implement the solutions.

A formal basis for the development of procedures and other documents governing the process in question was the Supplementary Agreement, including the key arrangements in this regard, such as the scope of the information and documents made available, the methods of their submission, the manner of keeping confidentiality, and copyright issues. An important document governing this process was the Communication Schedule. It was a detailed document streamlining the information needs of particular participants and the Coordination System, and specifying the scope, manner and frequency (deadlines) for the transferred information for each of them. The Communication Schedule was regularly updated, and the information on changes was transferred by the Executive Committee. In this way, in the event of a conflict over irregularities concerning the information about significant events had been communicated, there was always a possibility to refer to its provisions.

The essential operational documents governing the manner of implementation of the Communication Schedule were the procedures describing the method of conducting the process. The first of the communication procedures governed the manner of preparation of Component Project Status Reports, from the preparation of guidelines for a particular reporting period by Coordinator, through data collection, to the circulation of preliminary and final versions of reports. The reports had to be drawn up on forms attached to the procedures. The procedure governing the preparation of a Monthly Report for the Minister of Treasure by Coordinator operated in a similar manner.

Another procedure governed the process of preparing, convening, and holding the Statutory Meetings. It was also applicable to FOC Team Meetings. The meetings were held on predetermined dates recorded in the Consolidated Programme Schedule. The procedure involved the preparation and holding of the meeting, from agreeing upon the agenda and passing it to the participants, through a review of Sponsors’ guidelines and arrangements from previous meetings of the Executive Committee, to the regulations concerning the manner of preparing and submitting the minutes of the meeting to the interested parties.

**PROCESS 6**

**Risk Management Coordination**

In accordance with the Coordination System principles for handling risks, Component Project Managers applied the Procedures of Risk Management Coordination in a Component Project. The aim of the procedure was to ensure that the risks which had an impact on the scope, schedule and budget of the Programme would be identified, and their possible impact on the course of the Programme would be analysed. The proposals for streamlining activities, arising from this analysis, were to be provided to the decision-making locations. In the case of a risk affecting only one Project, depending on the significance of a decision and the cost of its implementation, they reached either a Component Project Manager or Sponsor. For a risk affecting more than one CP, the proposals were forwarded to either the Chief Coordinator of Operations or the Executive Committee.

The Process of Risk Management Coordination in the Component Project included the analysis of areas of risk identification, qualitative or quantitative assessment, the preparation of a plan for responding to a risk, an emergency plan, monitoring and verification or risks, and taking into account the activities related to risk management in the work schedule. A CPM analysed the impact of a risk on the Programme. For risks of a medium or high impact, a plan for handling them was required. This plan contained a proceeding strategy and a description of measures taken for risk minimisation/handling. In addition, the information on a risk was included in the List of Component Project Risks provided to Coordinator.

The List of Risks was divided into parts concerning construction risks and risks to Full Operational Capability (FOC). At the same time, it was divided into risks affecting more than one Component Project, for FOC Partners, and risks affecting particular CPs/Partners. The monthly Frequency of updating the List to full scope was another result of the adopted procedures. Where a risk remained unchanged, on every occasion the update concerned the description of the measures taken in order to handle it. The updated List was attached to the CP Status Report. Where a new risk of a medium and high impact on the Programme emerged, it was recorded in the List for a particular reporting period. On every occasion, Coordinator carried out an analysis of the received List for the impact of identified risks on both the other CPs and the entire investment Programme.
The Coordination System was essential for the course of the investment process. Thanks to effective methods for resolving problems, the risk of delay in the implementation of the Programme was successfully eliminated many times and the efficient moderation of communication between Partners helped settle disputes in a way satisfactory to the Parties.

This part of the Report presents the way in which the coordination processes for the construction of the LNG Terminal in Świnoujście were carried out. This comprised the Coordination System. In this context, examples of the effects of coordination activities are provided. Reference is also made here to the challenges of the business environment, which exert a strong impact on such complex infrastructural projects.
3.1 PLANNING OF THE PROGRAMME, IMPLEMENTATION OF THE PLAN, AND CHANGE MANAGEMENT

The effective implementation of the investment Programme connected with the LNG terminal required the ongoing updating of Component Project schedules and the Consolidated Programme Schedule. Where an update resulted in changes to the deadlines for task completion, they were performed in one of two modes of proceeding, which were adopted to increase the efficiency of processes.

The system that connects

Project planning and plan implementation are two complementary processes. The established plan for the performance of activities listed in the schedule was subject to continuous updating during their performance. This frequently resulted in the need to return to the planning process in order to adjust and update the schedule to the current conditions of its implementation. This return was to be made by a third process, namely the change management process.

In the practical application of the Coordination System, the first of these processes referred to the manner in which schedules were prepared, and the way in which changes were introduced to them. The second process concerned the reflection of the current, actual status of the Programme in relation to both the performance of tasks and any disturbances in this regard, and the third process concerned the manner in which changes were made to one or several CPs being implemented as part of the Programme.

During the operation of the Coordination System, both the Component Project (CP) schedules and the Consolidated Programme Schedule (CPS) were subject to updates – minor ones which only related to the update of progress stages of task performance, made at the operational level; medium ones, in which a change was made to the scope of, or only the deadlines for, implementation; and major ones forcing a change to the CPS, made with the participation of the Master Sponsor i.e. the Minister of Treasury (MT). The first round of CP schedules, which was followed by the CPS, was prepared and presented for approval at the beginning of 2010. After the approval of the MT, the Consolidated Programme Schedule became effective on 24 February 2010.

UPDATING AT THE OPERATIONAL LEVEL

The CP schedules were updated on a monthly basis, and the degree of update advancement was referenced to the adopted baseline, i.e. the CP schedule being part of the existing Consolidated Programme Schedule. The updating concerned the degree of task implementation, which was required by both the Process of the Operational Coordination of Plan Implementation and the Process of Communication Coordination, and in particular its part related to reporting. Deadlines could be modified as well, but only at the operational level, and exclusively to an extent that did not violate the deadlines for Project Deliverables and Coordination Milestones. Then, Coordinator only recorded the intensity of changes, and drew conclusions from this as regards the level of the risk of delay to a particular CP or its Project Deliverables.

Where the Component Project Manager (CPM) concluded that the situation within the Project required a change which could lead to changes to the deadlines for the main items of the Consolidated Programme Schedule (for Project Deliverables), he/she submitted a formal request to Coordinator. Having examined the request, Coordinator carried out the process of agreeing upon the deadlines for Coordination Milestones with Partners. Then it prepared an update of the Consolidated Programme Schedule and, in accordance with competences, forwarded a request for an opinion to the Executive Committee. During the coordination process, a principle was adopted that only the changes which violated the final deadline for Programme completion required approval of the Minister of Treasury. Where such an event took place, after a positive opinion was expressed by the Executive Committee, the Consolidated Programme Schedule was then submitted for approval to the Minister of Treasury.

It is worth noting that, depending on the stage of work, the Consolidated Programme Schedule included as many as 10 thousand items recorded at ten levels of its structure. Coordinator decided that the complexity of the Programme required the maintenance of the basic version of the Schedule approved by the Minister, while ensuring the possibility for the introduction of operational changes to it in response to the current requirements for the implementation of the Programme. Frequently the changes were aimed at the preparation of activities to ensure the maintenance of the established deadline.

Such changes were also introduced at the Consolidated Programme Schedule level, although in this case the nearly complete path, determined by the procedures dedicated to the change management process, was to be applied. The first such change was introduced in 2012. It enabled the completion of two Component Projects by the previously established deadlines. Given that the deadline for Programme completion did not change during that update, the Consolidated Programme Schedule, which was updated as a result, was not submitted for approval to the Minister of Treasury.
The Supreme Audit Office disagreed with the above principle during one of its audits, and claimed that each “substantial change” to the Schedule should have been approved by the Minister of Treasury. However, the Supreme Audit Office did not define the term “substantial change”. In Coordinator’s opinion, however, the principle formulated by the Coordination System was functional both to Partners and the Minister of Treasury.

UPDATING WITH THE APPROVAL OF THE MINISTER OF TREASURY

In addition to changes to CP schedules, approved at the CPM level, and to the Consolidated Programme Schedule, approved at the Coordination System level, there were updates during the implementation of the Programme which required the approval of the Minister of Treasury. At the time of the first such update, introduced in 2013, in connection with changes to the LNG Terminal CP and the Gas Pipeline CP, changes were made to the deadlines for task implementation under these projects. As a result of changes to the LNG Terminal CP, the deadline for programme completion was changed from 30 June 2014 to 30 December 2014.

In addition, during this update, a large set of additional tasks, related to the project involving the monitoring Full Operational Capability status, was introduced to the Consolidated Programme Schedule. The Breakwater Component Project and Jetty Component Project had already been completed at that time, yet both the Maritime Office in Szczecin and the Szczecin and Świnoujście Seaports Authority, which were aimed at allowing smaller gas carriers to be taken in (which was not originally planned), were also included in the Schedule. Therefore, the deadline for Programme completion was changed again, this time from 30 December 2014 to 30 May 2016. The Consolidated Programme Schedule was given a positive opinion by the Executive Committee on 12 August 2015, and on 18 August 2015 it was approved by the Minister of Treasury.

As provided in the part discussing the fundamental processes planned for the Coordination System, in the six-year period of coordination activities, no need for the launch and formal application of the critical change management process arose. If such a need had arisen and the process had been launched, then, as a consequence, in most cases the need would have arisen for the launch of the change management process, followed by the planning process, and finally the updating of the plan.

AN EXAMPLE OF THE EFFECT OF COORDINATION ACTIVITIES

THE USE OF COMMON AREAS

The aim – to work out an agreement as regards the provision of access to the construction site in the part of the breakwater and platforms from the onshore side to Contractors carrying out work under three Projects, namely the Breakwater CP, the Jetty CP, and the LNG Terminal CP, with the use of the only possible route common to them.

The issue – the access to the maritime part was possible by the temporary haul road, the parameters of which were limited due to environmental considerations. The road crossed an area protected under the Natura 2000 programme. The simultaneous use of the road by three Contractors transporting materials on a massive scale was a serious organisational and logistical challenge.

After the completion of the Breakwater CP, and after the settlement of accounts between the Maritime Office in Szczecin and the Jetty CP and the LNG Terminal CP, with the use of a new road on the breakwater required Contractors’ agreements to be negotiated.

Coordination activities Coordinator initiated and organised with Partners agreements aimed at solving the above-mentioned problems. In accordance with the Coordination System mode, a number of meetings were held with the participation of interested Contractors and Component Project Managers. Thanks to the arrangement of the meetings based on the Coordination System principles, the careful preparation of documentation and the recording of the subsequent arrangements each time, a solution which was acceptable to the Parties was elaborated. In accordance with the procedures, the solution was presented at the Executive Committee meeting (at the Sponsors’ level), during which the proposal for an agreement on the matter concerned was accepted, and it was recommended to Partners that the proposal should be adopted.

Results and effects Partners and, consequently, Contractors involved in Component Projects, accepted the solution worked out with the participation of Coordinators. Organisation of work was regulated with the signing of relevant agreements and agreeing upon work schedules. As a result, a procedure for making the road available was introduced; this specified the conditions as regards the permissible load, the permissible width of a lane occupied at the time of the performance of work using a crane, etc. Due to the introduction of this solution, there was no need to change the deadlines for the completion of Project stages or to modify the implementation costs.
COMMUNICATION AND COOPERATION BETWEEN PARTNERS

One of the key tasks of the Project Programme Coordinator, connected with the LNG Terminal in Świnoujście, was to organise an efficient system of standardised communication between Partners. This was not only about the standards of document preparation, the notification of, and solving of, significant issues during meetings at various organisational levels, and reporting and sharing information, but also the establishment of an open space for dialogue.

THE OBJECTIVES AND MODEL OF COMMUNICATION

While building a model of communication between Partners, Coordinator specified its main objective: Harmonisation of work within the Programme, increasing the efficiency, effectiveness and quality of the implementation of the Programme by minimising disturbances in the information and document flow and reducing the risks resulting from improper communication.

Considering the main objective and the volume of information to be transferred within the Coordination System, it was decided that, in order to simplify the system and, at the same time, ensure its transparency and consistency, it was necessary to specify the level of standardisations which were crucial to the processes of channels, tools and documents. The main communication channels and tools, namely reports, Statutory Meetings, FOC Team Meetings, Executive Committee Meetings, and minutes of the meetings are described in the part presenting the Coordination System processes. Communication tools and activities were standardised as intended, even though tendencies emerged in the first period of the operation of the Coordination System to not comply with the standardisation requirement. However, the operation of the standardised Coordination system was successfully maintained by the end of the duration of the Programme, with a substantial benefit to the quality of the entire Coordination process.

The clearest example of the standardisation of communication tools within the Coordination System is the Monthly Report for the Minister of Treasure (Monthly Report for the MT). This document maintained a uniform section layout, and a photograph was provided each time on the Report cover that presented the same area, which allowed the progress of work to be presented in a simple manner. The first section was the Managerial Summary, which synthetically presented the most important issues within the investment programme, and was additionally enriched with Coordinator’s comments. The Report then presented a list of identified Project risks, which, at a later time, due to the number of items, became an appendix to the document. The subsequent sections were dedicated to particular Components, presented the crucial tasks to be executed along with the progress over the last three months, and included a synthetic description of the most important points of contact with other CPs and Coordinator’s analysis and comments. The next section was dedicated to FOC and was followed by sections describing the cooperation between the Parties and public administration. The sections were arranged in a fixed order. The final part of the Report included extracts of the arrangements made in the Executive Committees and at Statutory Meetings and FOC Team Meetings.

For the effectiveness of common coordination activities, it was particularly important to introduce the principle of the recording and continuous monitoring of the progress in the implementation of Partners’ arrangements, and the progress in the carrying out of Sponsors’ and Coordinator’s recommendations. Therefore, Coordinator imposed and enforced the discipline of communication within its main channels. Consequently, at each stage of the conducted activities, one could easily return to the previous arrangements, and trace their progress and implementation status. It was not possible for the emerging challenges to not be properly addressed, and for no constructive solutions to be produced.

The course of the reporting process, established by the operational procedures, was of significance to the quality of reports prepared. The reporting cycle within the Coordination System began with the preparation of reporting guidelines by Coordinator, and included the preparation of working versions of reports by CPMs, comments being made to them by Coordinator; the preparation of final versions and a draft, and an opinion
being given on it by CPMs, and concluded with the preparation of the final version of the Monthly Report for the MT by Coordinator. The course of this process is described in more detail in the section dedicated to the 12 best practices developed within the Coordination System.

A SPACE FOR DIALOGUE

The formal organisation of the document and information flow was not the only task of Coordinator. At the very beginning of the operation of the Coordination System, the need was recognised to create an open space for dialogue to enable Partners’ discussion on all questions of significance to the course of the investment process and the achievement of FOC.

For this reason, the principle of devoting a specific amount of time to a meeting (which is recommended by certain project management methodologies, and is theoretically aimed at increasing a meeting’s effectiveness) was abandoned. This principle is certainly justified for closed teams working on a common project. For a project as complex as the investment Programme involving the construction of the LNG Terminal in Świnoujście, coordinated by GAZ-SYSTEM, it frequently appeared that a seemingly chaotic discussion produced more solutions, including in the area of interpersonal relationships between Partners’ representatives, than a meeting with a pre-planned duration. For this reason, each time the formal part of a meeting, concerning the review of arrangements and the current status of their implementation, was followed by an open part during which other important issues could be raised spontaneously. This system has proven to be extremely effective, and was highly praised by Partners.

AN EXAMPLE OF THE EFFECT OF COORDINATION ACTIVITIES

AGREEMENT AMONG PARTNERS ON PROGRAMME DOCUMENTATION

The aim
– to develop a solution to accelerate making arrangements as regards the Programme, and implement it through the LNG Terminal CP and Jetty CP.

The issue
Due to the ancillary nature of the port facilities implemented as part of the Jetty CP connected with the LNG Terminal CP which used them as a site for the construction and mounting of facilities for unloading methane carriers, there was a need to mutually agree upon the Programme documentation. At a certain stage of work, the Jetty CP Manager notified Coordinator of the problem that arrangements were taking too long to be made, and identified the LNG Terminal CP Manager as the party delaying the process. The notifier was afraid that further delays to the arrangement-making process could prevent the execution of work by the expected deadline.

Results and effects
As a result of the above activities, a common, documented position of the Parties of the Jetty CP and the LNG Terminal CP was adopted as regards the introduction of changes to the Programme documentation and their approval. In due time, it was confirmed in writing that the arrangements for the working design for the project “Construction of a jetty in the external port” had been finished. The risk of delay to construction and assembly work was thus excluded.

Coordination activities
Coordination meetings in compliance with the Coordination System requirements, i.e. with careful maintenance of documentation, in particular in terms of arrangements and agreements, were dedicated to solving this problem. After developing a preliminary proposal for a solution, following Coordinator’s recommendation, a plan was established for the quicker preparation of arrangements. The plan was approved by the LNG Terminal CPM and the Jetty CPM. The Parties established a one-stage mode of agreeing upon Programme documentation without the need to suspend work by the Jetty CP. The adopted mode also included additional information required by Partners, i.e. information on changes, their determination, reasons being given for their introduction and on the Party which has introduced them.

The implementation of this plan was subject to continuous monitoring during Statutory Meetings and, whenever necessary, additional coordination meetings dedicated to this issue were held. Summaries were systematically made of the implemented agreements on the documentation, and gaps in this regard were recorded. In terms of disruptions, additional recommendations were formulated and, consequently, streamlining activities were specified.

The system that connects

Communication and cooperation between Partners
### 3.3 RISK MONITORING AND COORDINATION

One of the crucial Programme Coordination processes connected with the LNG Terminal in Świnoujście was risk monitoring and management. A total of 114 construction risks and 57 risks associated with achieving Full Operational Capability were monitored. The risks common to more than one project required special attention.

The risk coordination process was normally carried out on a monthly basis, and its results, i.e., the updated ongoing List of Risks quickly stopped being a section in the Monthly Report for the MT, and became an appendix to that Report due to the number of handled risks. The List included the following elements describing a risk and the way it was to be handled: a risk’s status, its unique identification code in the Coordination System, a risk’s name, its description, a description of the risk’s impact on the Programme, a risk handling strategy, and a description of measures taken as part of that strategy.

Regardless of the normal, monthly frequency of risk handling, Coordinator, at particular stages of the Programme, additionally reviewed and verified the List. In consultation with Project Managers, the status of risks with regard to the current Programme stage was updated. For current risks, their description was clarified, and the strategy was adjusted to the conditions prevailing within the Programme. Outdated risks were transferred to the Risk Archive. These activities were performed in particular when a significant stage of one or more CP was coming to an end.

Of all 171 risks (100%), eighteen affected more than one Component Project, which accounted for 10.5%. Under the LNG Terminal Component Project, 95 risks (55.5% of all Project risks) were recorded, while under the Breakwater CP and the Jetty CP, 22 risks (26%) were recorded for each CP. 12 risks occurred under the Gas Pipeline CP (7%), while the Chief Coordinator of Operations, within the scope of its responsibilities, recorded two risks associated with coordination activities (1%).

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**Categories of risks in the Coordination System**

<table>
<thead>
<tr>
<th>Categories</th>
<th>Terminal CP</th>
<th>Breakwater CP</th>
<th>Jetty CP</th>
<th>Gas Pipeline CP</th>
<th>Coordination</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risks</td>
<td>18</td>
<td>22</td>
<td>22</td>
<td>12</td>
<td>2</td>
</tr>
</tbody>
</table>

**Categories of construction risks – Terminal CP**

<table>
<thead>
<tr>
<th>Categories</th>
<th>Terminal CP</th>
<th>Breakwater CP</th>
<th>Jetty CP</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design</td>
<td>9</td>
<td>3</td>
<td>12</td>
<td>1</td>
</tr>
<tr>
<td>Deliveries</td>
<td>22</td>
<td>22</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Execution</td>
<td>18</td>
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<tr>
<td>Contract</td>
<td>8</td>
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<tr>
<td>Commissioning</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Environment</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Categories of risks – Full Operational Capability**

<table>
<thead>
<tr>
<th>Categories</th>
<th>Terminal CP</th>
<th>Breakwater CP</th>
<th>Jetty CP</th>
<th>Gas Pipeline CP</th>
<th>Coordination</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risks</td>
<td>32</td>
<td>8</td>
<td>12</td>
<td>3</td>
<td>2</td>
</tr>
</tbody>
</table>
In order to streamline the process of achieving Full Operational Capability of the LNG Terminal, tasks leading to Full Operational Capability were included in the Consolidated Programme Schedule on the initiative of Coordinator acting in agreement with Partners. Thanks to the clear definition, Partners gained a simple tool for monitoring this very important stage of the investment Programme.

FULL OPERATIONAL CAPABILITY – THE ORIGIN AND DEFINITION

As early as in the “Report on the implementation and operation of the Coordination System for the LNG Terminal in Świnoujście” published in November 2011, Coordinator indicated that the analysis of the Special Purpose Act in view of the responsibility for, and methods of, project scheduling had allowed the identification of tasks, the inclusion of which in the Consolidated Programme Schedule, followed by their execution, was a prerequisite for the proper preparation of the project schedule, resulting in the introduction of the principle of gradual commissioning of facilities being part of the LNG Terminal CP. The negative impact on the implementation of the entire Programme was prevented.

INTRODUCTION AND AGREEMENT UPON PROJECT CHANGES ACCELERATING THE EXECUTION OF WORK FROM THE PLATFORMS

The aim – without extending the necessary duration of the performance of work under the Jetty CP, to introduce changes to the port platforms under construction, which will help simplify and reduce the duration of the performance of assembly work under the LNG Terminal CP through the mounting of heavy components directly from the constructed platforms.

The issue During the construction of port platforms, the LNG Terminal CP Manager informed Coordinator of the need to strengthen them with additional piling in order to enable the operation of heavy assembly equipment. This solution was aimed at streamlining the performance of work on the LNG Terminal CP. The first stage of work was to make cost arrangements between Contractors. Despite the declarations made at the stage of arrangements being made by Contractors, according to which the additional work would not affect the existing schedule, the Jetty CP Manager reported a risk to the timely completion of work under the Jetty CP, and a significant risk of delay to the LNG Terminal CP, resulting from disruptions due to the performance of additional work. Importantly, the commissioning of the port facilities between the Jetty CP and the LNG Terminal CP was one of the Coordination Milestones.

Coordination activities The urgent conclusion of agreements between Contractors as well as the approval of arrangements by Partners, and, consequently, the performance of additional work, required the involvement of Coordinator in the course of activities. Thanks to cooperation meetings attended by Contractors and CPMs, Coordinator established agreements and prepared a changed schedule, which was given a positive opinion by the Executive Committee. Partners implemented streamlining activities, and introduced new schedules to be met, which took into account the changes and adopted solutions. Contractors reached an agreement as regards the absence of claims against their Customers in relation to the introduction of a change, and issued relevant statements in this regard.

Results and effects The port platforms were strengthened as expected by the Terminal Contractor. Consequently, it was possible to organise the assembly work much better, and to abandon the use of floating equipment. The deadlines for the Jetty CP implementation were extended, and then further delayed, but due to the introduction of the principle of gradual commissioning of facilities being part of the LNG Terminal CP, the negative impact on the implementation of the entire Programme was prevented.
Creating proper conditions for the delivery and acceptance of LNG in Świnoujście required the development of a coherent management system based on the proven principles of safety, quality control, and planning. To this end, Coordinator initiated the appointment of the Working Group, whose main responsibility was the identification of activities to ensure safe entry and unloading of various types of LNG carriers. Another responsibility of the Working Group was to provide information and organisational support, and arrange a cooperation framework for the activities aimed at developing coherent principles of LNG delivery and acceptance in Świnoujście.

Coordinator’s activities were assessed positively by His Magnificence Rector of the Maritime University of Szczecin. On 29 May 2012, Professor Stanisław Gucma, while inaugurating a TTE (Table-Top-Exercise) workshop, stressed the significance of the systemic approach in the implementation of tasks necessary for the achievement of full operability of the LNG Terminal in Świnoujście. The Maritime University in Szczecin is a leader that develops and implements training programmes for the marine staff operating the Terminal, and verifies LNG ships entering the port.

A detailed specification of the safety parameters for maritime and port operations, and the safe stay of specific LNG ships, required by Operators of LNG units, the Terminal Operator and the User, was implemented by the Maritime University of Szczecin as part of the FMBS (Full Mission Bridge Simulation). Coordinator participated in this process. The scope of activities included the exchange and acquisition of information on port services, including towing, piloting and mooring, necessary for the clarification of conditions required for the handling of methane carriers in the external port in Świnoujście.

Due to the effectiveness of Coordinator’s communication activities, it was possible, among other things, to efficiently: (1) Develop a map of competences for the entities participating in LNG delivery to the Świnoujście Terminal; (2) Specify the tasks required for the achievement of full operability of the marine part of the LNG Terminal, and the acceptance of the first delivery of LNG; (3) Specify a time frame for the tasks required for the achievement of full operability of the maritime part of the LNG Terminal.

Coordinator’s best practice of “systemize cooperation” was confirmed by the well-executed maritime and port operations during the first LNG delivery to the Świnoujście port.

Coordinator recommended to the Executive Committee that the activities leading to the achievement of Full Operational Capability of the external port and the LNG Terminal in Świnoujście should be formalised through the provision of a precise definition of the term, and the inclusion in the Schedule of the tasks preparing the entities involved in the process of handling LNG loads to undertake and perform common activities. Coordinator pointed out that official documents have provided various terms specifying the final preparedness of entities to conduct commercial activities using the newly-constructed infrastructure and process installation. Therefore, Coordinator proposed that a standardised term of Full Operational Capability (FOC) should be introduced.

Even though the resolution of the Executive Committee, which accepted Coordinator’s concept of formalising the activities leading to the achievement of Full Operational Capability, was adopted on 22 January 2013, it can be assumed that the date of the commencement of the Project’s FOC was 5 December 2012. On that day, the FOC Team attended an initiation meeting. The Team’s work resulted in the preparation and approval of the definition of Full Operational Capability. An appendix to the definition of FOC was the Checklist covering the entire future operating activity connected to the LNG Terminal and the external port in Świnoujście. The tasks arising from the Checklist were introduced into the Consolidated Programme Schedule.

The Full Operational Capability (FOC) means a state of the organisational, procedural and legal environment of the Programme in which, after completing all the construction and assembly works, it is possible—in a safe manner, according to the effective law, standards, guidelines and good practice—to enter, moor, unload and exit the LNG carrier and to regasify the received LNG and to supply gas with desirable parameters and in the required amount to the national gas transmission system, and the loading of the LNG into truck cisterns. The Check List is the integral part of the definition of the Full Operational Capability (FOC).
A methodical approach in the area related to the achievement of Full Operational Capability, which was not limited only to technical issues but also embraced compliance with legal requirements, staff competence and the management system, allowed problems to be recognised and solved relatively early, and for awareness and competences to be built, unlike in the situation where operational needs were specified at the final stage of the implementation of the Programme.

The determination and then adoption of the uniform definition of Full Operational Capability by all involved entities set the common objective of the Programme. This was particularly important, as we manage tasks typical of the transitional period between two stages, namely Programme implementation and operation. Usually we deal with more than one entity on the side of both the Programme and the future user, i.e. an operator of facilities and installations.

Acquiring FOC in a methodical way allowed problems to be recognised and solved relatively early, and for awareness and competences to be built, unlike in the situation where operational needs were specified at the final stage of the implementation of the Programme. The effectiveness of the chosen methodology lay in the clearly specified responsibilities of entities and persons. Their specification often necessitated a further referral to the contract provisions, interpretation of legal requirements, or the verification of verbal arrangements in order to attribute responsibility in a binding and unambiguous way. This allowed the required modifications, including the addition of new tasks, to be introduced.

A Project means people, their cooperation, and their emotions. A pragmatic approach supported by the chosen methodology allowed problems to be solved more effectively. The methodology also necessitated focusing on the fulfilling of commitments with clearly specified responsibilities, while reducing the non-substantive aspects. Although the development and implementation of the new approach was associated with certain expenditures, it considerably affected the way of preparing the Terminal and its business and legal environment to taking in the first start-up gas carrier, and then the shift to the stage of operation.

Following the commencement of the FOC Team's work, not only did the Coordination System structure change, as described above, but also the reporting instructions and the format of both the Component Project Status Report and the Monthly Report for the MT. A FOC section and the instructions on how to complete it were added to these documents. The FOC Team operated on the basis of operational procedures existing within the Coordination System.

In view of the above, the FOC Team's mode of operation was similar to the proven mode of operation applied so far within the Coordination System. During the monthly meetings (similar to the Statutory Meetings), the Team focused on solving problems relevant to the definition of FOC, so that only the most difficult problems were moved to the Executive Committee level. During the operational work, the FOC Team monitored the status of tasks by accepting performance declarations submitted by Partners, and by regularly reviewing the implementation of arrangements.

While submitting the Checklist for the Executive Committee's approval for the first time, Coordinator declared it to be complete based on the current state of knowledge. In addition, it continuously monitored the Programme and its business environment for the identification of changes affecting the content of the Checklist. As a result, the number of tasks on the Checklist increased from 245 entered on the first Checklist to 264 as of the day this Report was drawn up. This change demonstrates that Coordinator and Partners properly identified tasks at the very beginning of the FOC Project.
3.5 THE EFFECTS OF ADDITIONAL ACTIVITIES OF COORDINATOR AND PARTNERS

While carrying out activities related to the monitoring and coordinating of the process of the achievement of Full Operational Capability, Coordinator highlighted the need for continuous cooperation with the representatives of public administration. The cooperation was related to the process of obtaining permits, environmental monitoring, and the development of georeferences. A Community Liaison Officer was appointed for communication with the local community and other Stakeholders.

COOPERATION WITH PUBLIC ADMINISTRATION BODIES

The high demand for information on both the progress of work and the planned deadlines and scopes of administrative tasks was primarily expressed by the Zachodniopomorskie Province Governor and subordinate services. In response, Coordinator established a system of continuous communication.

On the initiative of the Zachodniopomorskie Province Governor and Coordinator, meetings of Component Project Managers with the services responsible for the preparation and issuing of permits and administrative decisions required for the Project began to be organised. As a result, arrangements which enabled the streamlining of the process were repeatedly made ahead of the dates of the initiation of administrative proceedings. The first meeting was held in May 2013, and the subsequent ones were organised on average once every three months.

Irrespective of that, Coordinator provided the representatives of the provincial government administration in Szczecin with information on the progress of the execution of investment tasks connected to the LNG Terminal construction, including the tasks associated with the achievement of FOC. Ongoing consultation was held on FOC issues, and this was referred to by Coordi-
The effects of additional activities of Coordinator and Partners

AN EXAMPLE OF THE EFFECT OF COORDINATION ACTIVITIES

COOPERATION WITH THE ADMINISTRATION, AND MOBILISATION OF CONTRACTOR IN CONNECTION WITH THE CERTIFICATION OF THE PORT FACILITY

The aim
– to obtain, for the marine part of the Terminal, confirmation of the compliance of the port facility with the ISPS Code in time to allow the first LNG ship to enter the port in accordance with the Consolidated Programme Schedule.

The issue
The Consolidated Programme Schedule planned the obtaining of a confirmation of the compliance of the port facility with the ISPS Code, i.e. the International Ship and Port Facility Security Code, and the Act on the protection of shipping and seaports. This was to be agreed upon at the end of August 2015. The task has was not completed because the Terminal and the port facility security systems were executed by Contractor too late, and also due to gaps identified in documentation in this regard. In this situation, the receipt of the first LNG delivery on the planned date was in jeopardy.

Coordination activities
As part of the cooperation with the representatives of the combined administration, including the Maritime Office in Szczecin, the Province Office, and the Provincial Police Department, Coordinator organised a special mode of work in order to accelerate the work carried out to prepare the port facility for verification. Ongoing consultation was held, and a number of meetings with the representatives of the Zachodniopomorskie Province Office, the Maritime Office in Szczecin, and the Police were organised on the premises of the LNG Terminal; this helped mobilise the Terminal Contractor to act, and drew its attention towards the key issues which were a prerequisite for the carrying out of an assessment of port facility security, in accordance with applicable law and procedures.

Results and effects
The port facility security plan was agreed with the Province Office and the Border Guard, and then adopted. The verification of port facility compliance was performed with a positive result, which allowed the Maritime Office in Szczecin to certify, on 10 November 2015, the compliance of the port facility with the ISPS requirements before the first LNG ship entered the port on 11 December 2015.

ENVIRONMENTAL MONITORING

In accordance with environmental permit provisions, the LNG Terminal investors were required to carry out activities to minimise the environmental impact, as well as protective activities, and to submit environmental reports to the competent environmental protection authority on a regular basis. The activities carried out and the monitoring results presented in reports were to form a coherent whole. This required the appropriate division of tasks, and the application of one methodology and uniform standards in documenting the monitoring results.

Environmental activities were extremely important in view of the fact that the Programme was located on areas protected within the framework of the European Ecological Network “Natura 2000”. In this situation, Partners decided that the coordination model offered by GAZ-SYSTEM should be applied, and that the company should be incorporated, as Coordinator, as “streamlining cooperation”. This way of streamlining contacts with the administrative environment enhanced the quality and discipline of communication within the Programme.

Thanks to the Working Group meetings, Partners shared current information on the condition of the environment; moreover, corrective measures and activities minimizing the Programme’s impact on the environment were agreed upon. In addition, environmental supervision reports, prepared for particular Component Projects, were analysed. The manner in which the environmental monitoring and all activities protecting the environment were carried out was highly valued by supervising institutions. The environmental reports were submitted in a timely manner, and then approved by administrative authorities.
Coordination of four large construction sites was a considerable challenge. The projects, which were designed for marine and land environments, and implemented simultaneously by many Contractors, required precise technical and schedule-related agreements.

Precision and unambiguity of documentation describing the projects, drawn up for the purpose of coordination, was unquestionably the crucial element of communication within the project. The mode of receiving documents in paper and electronic formats, with a clear indication of their validity and interrelationships, guaranteed instant access to the data received.

The selected methodology and manner of documentation, taking account of the GPS location of tests and studies, allowed the results of work to be presented reliably and clearly. For the recording of data and visualisations of information, the widely known and easy to use PDF format was used. Electronic documents in original source formats were gathered in “PDF Portfolio” compilations, which enabled a quick and easy preview of the content, and the sharing of chosen files. The compilation “layered PDF with bookmarks”, included in the “PDF Portfolio” and updated on a monthly basis, was a database of maps, designs, and photographic documentation gathered in one file, which enabled analysis of their interrelationships. By using a set of bookmarks controlling the display of layers and the option of jumping to an object’s location, users were able to view the current state of the Programme.

Photographic documentation with GPS positioning also played an important role in the compilation of data. Thanks to the precise determination of time and object identifiers consistent with the Programme, i.e. object names, breakwater section numbers, turn points, and gas pipelinechainage, photographs enabled a clear assessment of the progress of work. Photographs included a description of the presented object, as well as metadata. The PDF format selected for the compilation of data enabled simultaneous, multi-disciplinary use of marine, land, technical and environmental data compilations. Maps and designs with their sources in various co-ordinate systems were presented in a manner that enabled the compilation of original scanned and signed paper documents as well as photographic documentation confirming the progress of work.

One of the key analyses carried out as part of the cooperation was a thorough examination of all Programme components for the cumulated impact on the natural environment, including the cross-border aspect. A study prepared by experts was based on the thorough examination of environmental reports, and clearly demonstrated the lack of significant interference with the natural environment in relation to the construction of the LNG Terminal in Świnoujście.

**GEOREFERENCES**

Coordinator’s experience, gained in the implementation of the Coordination System, indicated the need to collect materials precisely documenting the subsequent stages of the Programme implementation. Visualisations, prepared on a regular basis, were a very valuable supplement to reports, and helped substantiate the information provided with objective evidence. The process of Programme implementation was documented using geo-referenced visualisation and digital photography techniques. From today’s perspective, these materials have immense documentary value.

Due to the size and dispersion of the Programme, the number of collected studies was very large. It was therefore necessary to organise the collection along organisational and topographical lines, and to create standard databases for sorting and filtering the resources. As a result, cohesion was maintained between the photo files collected and the system of indexing the Programme documentation. This enabled the creation of systemic links between particular photographs and the components of technical designs of models or drawings.

Historical verification of the investment Programme was possible thanks to the applied technique of geo-referenced visualisations of the subsequent construction stages. The visualisations were supplemented with photographic documents, which significantly facilitated the analysis of the information contained therein. Programme Partners and Stakeholders actively used these materials. The visualisations developed on the basis of photographs were exhibited within the environment of the Programme participants, i.e. in factsheets, scientific publications, and presentations for the media. The evidence promoted in this way extended and made customers’ knowledge of the investment Programme more detailed.

Geo-referenced visualisation was useful in view of the very active area of the Programme’s logistics. Due to the visualisation of the construction site, it was possible to schedule the Programme’s logistics more efficiently, and to predict risks that might occur in the course of its implementation. The comprehensive geo-referenced studies were used in situations requiring immediate action aimed at eliminating the potentially adverse impact of the gas pipeline assembly work on the natural environment. An example is the following situation: a representative of the local community made a complaint to the Crisis Management Centre of the Zachodniopomorskie Province Office about meadows being flooded by the Gas Pipeline Contractor near the village of Krepsko. In their opinion, this posed a threat to birds protect-ed within that area during the breeding season.

If the work had actually been carried out in such a way, it should have been halted as such practices are inappropriate. Coordinator got involved in solving the problem; it provided the Crisis Management Centre with geo-referenced documentation that had been prepared as the performance of work progressed. The documentation confirmed the risk-minimising measures which had been taken by Contractor. What is more, Coordinator passed information to the Gas Pipeline CP, which helped identify the areas indicated in the complaint in order to check if environmental damage had actually been caused.

In May 2013, the environmental administration in Szczecin assessed the condition of the environment within the area where Contractor had drained excavations for gas pipelines, and which were at risk of flooding. A report drawn up on the basis of an analysis of environmental monitoring data (including the geo-referenced studies...
Co-financing of the LNG Terminal construction by the European Bank for Reconstruction and Development (EBRD) required a systemic approach to building relationships with local communities, and proactive communication with the actors involved. This is because financial institutions require proper management of environmental and social issues, and deep involvement in the implementation of information policy. Partners were required to report on the measures taken to inform the public about the Programme on a regular basis. Periodic reports submitted to the EBRD described the information policy for both the LNG Terminal and the Świnoujście-Szczecin Gas Pipeline connecting the Terminal with the national gas transmission system, one of the components of the entire Programme implemented by GAZ-SYSTEM.

Financing institutions’ guidelines on the information requirements for investment projects provided the company with inspiration for the implementation of such practices in other projects implemented by GAZ-SYSTEM. Integrated information and promotion policy, as well as the systemic implementation of schedules of communication with Stakeholders within the investment process, allowed the residents and owners of plots crossed by the newly-constructed gas pipelines to be reached directly, and enabled greater efficiency in the implementation of investment projects.

**COMMUNICATION WITH THE LOCAL COMMUNITY**

The implementation of the LNG Terminal, which was an extremely complex and large-scale project, required that activities related to holding dialogue with the local community and business environment be planned. At the very beginning of its operation, Coordinator established and defined the function of the Liaison Officer for communication with the local community and other Stakeholders. For the purposes of the execution of tasks associated with external communication, the Communication Schedule “Operational responsibilities of the Community Liaison Officer (CLO)™” was introduced by Coordinator. The document governed the ways of preparing responses, making decisions, and sharing information between the Liaison Officer, the Communication Manager within the Coordination System, and each of the four Programme Partners (Investors). A special electronic mail box (pytaniaterminal@gaz-system.pl) for third party communication was established.

This solution was aimed at organizing communication in a formalized, transparent and systematic manner. Decision-making based on information collected during meetings, conducted surveys, and direct talks with representatives of local administration and business helped produce solutions tailored to changing social expectations. As well as this, thanks to this type of communication, the local community had a better understanding of the Process, the LNG Terminal operation, and associated challenges.

**A CHANGE TO THE TRAFFIC ARRANGEMENT AT THE REQUEST OF THE PUBLIC**

The need:
The issue raised by the local community of the Warszów district in Świnoujście concerned the adverse impact of the transport of construction materials to the construction site. The route of heavy vehicles carrying concrete ran along streets with residential buildings. The inhabitants requested that the route be changed, and that the section of the street from the intersection with Barlickiego Street to the level crossing and the intersection with Ludzi Morza Street not be used. Due to the nuisance created by the noise and vibrations, and with the residents’ safety taken into account, the possibilities for changing the route were analysed.

The measure:
After the request was received, a meeting was organized with representatives of the Urban Engineering Department of Świnoujście City Council, Component Project representatives, and Contractors. An alternative transport route was set out, and later on approved and properly marked by Świnoujście City Council.

The impact on the Programme:
Measures taken in a very short period of time prevented social tension. Contractors were informed of the changes to the traffic arrangements in advance.
3.6

SIGNIFICANT DIFFICULTIES IN COORDINATOR’S WORK

As explained in Section 2.2 Coordination and Management, GAZ-SYSTEM, since it performed a coordination and not management function, had a clearly defined scope for affecting the course of the Project. Many times, Coordinator grappled with problems regarding the course of the very coordination process; the problems originated from different management standards and organisational cultures among Component Project Partners.

The Draft Coordination System was ready to be presented to Partners in March 2010. Meanwhile, the Consolidated Programme Schedule approved in February 2010 indicated that the contract with Contractor for the Breakwater Component Project and Jetty Component Project would be signed as early as in April, while for the LNG Terminal Component Project it would be signed in June 2010. As can be seen, the Component Projects were already in an advanced stage of implementation, as construction designs were completed, the required administrative decisions were obtained, and Contractors were selected.

Due to the status of work within CPs, provisions were included in the tender documents, which stated that within the framework of the Coordination System, the cooperation between Contractors and the Employers (i.e. Coordination System Partners) as well as between the Employers and Coordinator, would be subject to regulations to be established at a later time. The information on these regulations was only directional (general). As a result, the management procedures prepared by Coordinator, which governed the cooperation between the Employers and their Contractors, were not implemented in time in the Jetty CP, the Breakwater CP, and the LNG Terminal CP. In the first and second cases, such modes of project planning (based on the MS Project standard), plan execution, and reporting were successfully introduced to Contractors, so that they were compatible with the principles existing within the Coordination System (also based on the MS Project).

In the LNG Terminal CP, a completely different standard was applied, namely Oracle Primavera, and reports were delivered within the time limit which resulted in a one-month delay in the update of the LNG Terminal CP section in Coordinator’s reports. The functioning of another planning standard forced Coordinator to search for tools enabling the transfer of data from that standard to the one adopted within the Coordination System. The work was additionally hindered due to the fact that PLNG, which implemented the LNG Terminal CP, introduced, at a later stage of the Project, different forms of Status Reports for its Component Project, and prepared very large documents based on them. Later on, the LNG Terminal CPM attempted several times to shorten the length of these documents but, due to the adopted model, these attempts were unsuccessful.

The most significant undertaking that failed to be carried out was the plan to conduct checking exercises as part of the FOC Monitoring Project. Only the first part of the exercises was conducted, namely the planning workshop during which the scope and scenarios of the exercises were developed. The effect of the workshop was an independent assessment of the state of preparations for handling the process of the Terminal taking in an LNG ship. This indicated that the exercises could not be conducted at that moment (for more information on this subject, see the section describing the FOC Project).

The above examples confirm a conclusion that is very significant for projects of this type: where systemic principles of the coordination of projects, and principles of the management of these projects consistent with them, are established and introduced sufficiently early, i.e. at the programme preparation stage, the execution of both the coordination and management process will be more effective.
3.7 THE IMPACT OF THE ECONOMIC ENVIRONMENT ON THE PROGRAMME

A large investment programme, which is planned and implemented for at least several years, is enormously affected by the economic environment. The construction of the Terminal was commenced during the global financial crisis.

It is worth remembering that the LNG Terminal in Świnoujście was implemented in a period when the economic environment both in Poland and worldwide was very unstable. The global financial crisis that began in 2008, as well as the collapse of the Polish construction market in the second decade of the 21st century, are two critical factors which affected the progress of work under the Programme.

BANKRUPTCIES IN THE CONSTRUCTION INDUSTRY

The report of the Public Relations Office of the Ministry of Treasury of 15 June 2012 includes the following passage:

“The mood in the sector is sombre. A KPMG study, a survey from the Research Institute for Economic Development at the Warsaw School of Economics, and a Central Statistical Office study on the economic situation show that a high level of uncertainty remains in the Polish construction market. According to the Central Statistical Office study, in May, the overall economic climate in the construction sector is at a level similar to that in the previous month, i.e. 10 percentage points down. An upturn in the economy in April and May of this year was reported by 16% of enterprises, while a downturn was reported by 26%.” The Central Statistical Office states that such low levels in the assessment of the economic situation result, despite the improvement, from the still pessimistic assessment of current order portfolios, construction and assembly output, and the current financial situation.9

For the same reasons, problems with payments in the construction sector were accumulating. In 2011, despite the strong growth in the construction output reported by the Central Statistical Office, the number of bankruptcies increased by as much as 30% (from 114 in 2010 to 146 in 2011). This situation lasted for many months, and had an impact on the progress of the LNG Terminal construction work.

In June 2012, a consortium partner of the Contractor, PGB, and the main subcontractor carrying out work on LNG tanks, Hydrobudowa Polska, declared arrangement bankruptcy. This resulted in the slowing down of work at the construction site. In July 2012, the LNG Terminal Contractor proposed a new deadline for the completion of work, i.e. 12 December 2014. However, that deadline was not met either. Due to the situation in the construction market, there were considerable difficulties in finding subcontractors with the required potential and the economic position stable enough to manage the task.

Comparison of the programme to other projects with similar capital expenditures for the planned and actual completion times

The Programme involving the “Construction of the Liquefied Natural Gas Terminal in Świnoujście” was supposed to be completed in December 2014, i.e. when the contractual deadline for commercial LNG supplies passed. The Programme was therefore delayed by approx. 18 months vis-à-vis the original plans.

An analysis of delays in other projects with similar capital expenditures for the planned and actual completion times was performed. “The analysis focused on similar projects implemented around the world, as well as other Polish projects – these were selected because of their date of commissioning (2005–2013) and high capital expenditures (over 2 billion PLN).”

With regards to projects implemented around the world, regasification terminals were taken into account (30 projects). The results of the analysis indicate that delays in the construction of LNG terminals are common. Interestingly, they occur regardless of the location (i.e. in economic powers such as the USA, in the UK and Italy, as well as in India). Most frequently, the reasons for the occurrence of delays are technical issues. These are followed by protests by communities and environmental groups, and changes to legal matters. According to the results of the analysis, the average period of delay is 10 months, and the delays in projects under analysis ranged from 4 months to several years.

On the national level, the LNG Terminal construction is a unique project; therefore, for the comparative analysis, 4 recently constructed facilities with similar levels of capital expenditure were selected, namely:

- A-1 Motorway, the Kowal – Stryków section 10
- A-4 Motorway, the Rzeszów – Jarosław section 10
- Łódź Fabryczna railway station 11
- The National Stadium in Warszawa 11.

Delays occurring during the construction of Polish infrastructural projects with capital expenditures of over 2 billion PLN are also at a level ranging from several months to several years. Therefore, the length of the delay during the LNG Terminal construction is found somewhere near halfway in that range. Similarly to the delays occurring during the construction of LNG terminals, these were most frequently caused by technical issues, complex administrative procedures, and legislative changes. As regards short delays (of several months), these were mostly resulted from technical issues.

In summary, delays during the implementation of major investment projects with high capital expenditures, both in Poland and worldwide, are common. With such capital-intensive and long-term projects, the possibility of unexpected technical problems or other difficulties is highly probable.
The system that connects

Report on the operation and efficiency of the Coordination System for the LNG Terminal in Świnoujście

3.8

THE STATUS OF PROGRAMME IMPLEMENTATION

At the time of the typesetting of this Report, the Programme is in its closing stages both in its investment part and in relation to the achievement of Full Operational Capability. There are several tasks left, the execution of which is only possible after the start of the use of the LNG Terminal, i.e. beyond the Coordination process.

The port and the equipment are already operational. The Świnoujście-Szczecin Gas Pipeline transports regasified LNG – two process deliveries have already been completed. The first delivery reached the port on 11 December 2015 and was used for cooling, start-up and stabilisation of the system. The unloading process lasted until 18 December 2015, and the first gas send-out to the network was performed on 7 January 2016. The second gas delivery took place on 8 February 2016. The LNG supplied in the second delivery was intended for performance tests and the start-up of the LNG Terminal, including a 72-hour functionality test. At the time of the typesetting of this Report, final testing of the LNG Terminal has been completed. Procedures for the approval of the Terminal, as according to the applicable law, they may only be executed during the commissioning of the LNG Terminal.

The Breakwater Component Project (Breakwater CP) was implemented from 2007 to 2013 by the Maritime Office in Szczecin. Its implementation was completed on 29 April 2013 by obtaining a permit for the use of the protective breakwater for the external port in Świnoujście, along with access infrastructure. After that date, over and above work was carried out, involving the removal of potentially dangerous objects of military origin from certain basins of the external port in Świnoujście, as well as work aimed at increasing navigational safety on the approach Fairway to Świnoujście. The over and above work was completed in December 2014.

The Jetty Component Project (Jetty CP) was implemented from 2010 to 2013 by the Świnoujście Seaports Authority. Its implementation was completed on 29 April 2013 by obtaining a permit for the use of the LNG Terminal jetty. The Breakwater CP, in turn, had been later completed. The Jetty CP included work related to equipping the LNG Terminal with the navigation-pilot-docking system. Over and above work was identified, including the execution of the LNG Terminal vapouriser wastewater connection, and the reconfiguration of mooring hooks. This was carried out during the period from 2013 to 2015. At the time of the typesetting of this Report, all work, including that provided for in the contract and under implementation, had been later completed.

The Breakwater CP, on the other hand, was excluded from the contract with the main Contractor due to the lack of structures necessary for its performance on the LNG Terminal CP side. This included work related to the designation of LNG Terminal Operator. The Breakwater CP was implemented from 2007 to 2013 by the Maritime Office in Szczecin. Its implementation was completed on 7 January 2016. The second gas delivery took place on 8 February 2016. The LNG supplied in the second delivery was intended for performance tests and the start-up of the LNG Terminal, including a 72-hour functionality test. At the time of the typesetting of this Report, final testing of the LNG Terminal has been completed. Procedures for the approval of the Terminal, as according to the applicable law, they may only be executed during the commissioning of the LNG Terminal.

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The Gas Pipeline Component Project (Gas Pipeline CP) was implemented from 2010 to 2014 by GAZ-SYSTEM. All work that was part of the construction of the Świnoujście-Szczecin Gas Pipeline and the associated facilities was completed in 2014. On 21 May 2014, GAZ-SYSTEM obtained the operation permit for the connecting part of the gas pipeline, and on 12 June 2014, the operation permit for the remaining transmission part of the gas pipeline. Since 2014, Coordinator’s activities have primarily been focused on the project of monitoring FOC status. At the time of the typesetting of this Report, over 95% of tasks concerning FOC had already been executed. The complete execution of tasks in this regard goes beyond the deadline for the commissioning of the LNG Terminal, as according to the applicable law, they may only be executed during the operation.

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The LNG Terminal in Świnoujście is one of the most important investment projects to have been implemented in Poland in recent years, and the most important infrastructural project for the Polish gas industry after 1989. This part of the Report presents the significance of the LNG Terminal for Poland, the prospects of the Programme’s development, and the significance of LNG technology in the development of modern power industry.
4.1

THE SIGNIFICANCE OF THE LNG TERMINAL FOR POLAND

The LNG Terminal in Świnoujście in numbers

The LNG Terminal in Świnoujście enables the reception of natural gas transported by sea from practically any point in the world:
- opens the path to the real diversification of natural gas supplies,
- strengthens energy security,
- permanently changes the situation in the Polish natural gas market,
- contributes to an increase in competitiveness in the natural gas market.

In 2014, approx. 15 billion m³ of gas were consumed. Currently, one-third of the demand is met by domestic production, while two-thirds are imported, primarily from Russia. The possibility for the transmission of 5 billion m³ of gas per year from the LNG Terminal in Świnoujście to the Polish natural gas transmission network corresponds to one-third of the current annual national demand.

The choice of Świnoujście for the location of the LNG Terminal was an extremely important decision for the development of the port, as well as for the city and the region. Due to the result of the Programme, Świnoujście may become a Baltic leader in LNG reloading.

The Szczecin and Świnoujście Seaports Authority was actively involved in the development of this energy project that is of great significance to Poland. The company was responsible for one of its four Component Projects. Our task involved the construction of the LNG Jetty in the external port in Świnoujście. Expenditure associated with the Jetty construction has amounted to nearly 180 million PLN. The construction was a considerable challenge to the Szczecin and Świnoujście Seaports Authority in both technical and organisational terms as it was the first project in many years to be implemented in the open sea. Therefore, detailed coordination of all work was required, particularly in view of the fact that at the same time the Maritime Office was carrying out construction work related to the elevation of the protective breakwater. Numerous technical arrangements were necessary; these were implemented at each construction stage in cooperation with our Partners. It was also necessary to ensure the safety of navigation in the course of construction work.

The key task of the Programme was the construction, at a distance of 500 m from the shore, of a ship docking station and reloading platform equipped with pile moorings and bumper piles. It is here that moored ships with LNG delivery are unloaded. Next, the liquefied gas is transported to the mainland through gas pipelines installed on pipe bridges, the construction of which in the marine part was also carried out by the Szczecin and Świnoujście Seaports Authority. In our part of the Programme, we also constructed a process and fire protection water intake station as well as a supply system for the mooring system. PLNG installed the LNG Terminal process equipment on the structures we had previously constructed. Dredging work was also carried out within the area from the turning basin to the ship docking station to ensure a depth of 14.5 m in the port basin.

Thanks to the construction of the external port, the Szczecin and Świnoujście Seaports Authority has gained new development areas. Consequently, this will contribute to the further development of the entire Szczecin–Świnoujście port complex. We must not forget the people who have implemented the Programme. Thanks to their expertise and experience, it was completed within the prescribed period. Our staff have improved their qualifications whilst carrying out activities in which numerous beneficiaries participated. They have also acquired knowledge of technological solutions in the port infrastructure that had not been previously applied. The ability to continuously adapt to the rapid changes that occurred within the Programme, and the need to take decisions and measures rapidly were also highly valuable skills. I am convinced that these competences will be used for the execution of tasks aimed at the dynamic development of the Szczecin–Świnoujście port complex. The Świnoujście port has an excellent location. The direct access to the sea and favourable navigational conditions offer excellent opportunities for navigation. Currently, we are considering various concepts for making use of the port’s potential. Our objective is to make the ports in Szczecin and Świnoujście the leading ports in the south of the Baltic Sea.

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EMISSION REDUCTION WHEN USING LNG

The Baltic Sea is a SECA i.e. Sulphur Oxide Emission Control Area. Ships entering the Baltic Sea area are required to use a fuel which maintains the level of emission standards introduced by the IMO (Inter-national Maritime Organisation); these standards have recently been made more stringent. The new regulations apply as from 1 January 2015. LNG as a fuel fits well into with other measures aimed at respecting the natural environment.

Factors stimulating the LNG development in the Baltic Sea region:

- an increase in demand for natural gas,
- more stringent environmental standards,
- poorly developed gas pipeline network,
- flexibility of LNG (the possibility for the delivery of gas to areas with no gas pipeline infrastructure).

Currently, LNG is already used as an ecologically clean fuel for marine ships (for example in Norway); subsequent similar units have been or- dered in shipyards.

As part of the Programme, three stations for truck cistern loading were constructed, the use of which will be possible from the moment of the commercial operation of the LNG Terminal com- mences. In this context, it is worth noting the Fore- casts for the intensive development of the trans- port of LNG in cryogenic cisterns – this allows LNG to be delivered to places with insufficient or no access to the national transmission system, and then to be regasified at local facilities.

GAZ-SYSTEM and PLNG are analysing opportuni- ties for the provision of additional services by the LNG Terminal in Świnoujście. Interesting direc- tions for the business development of the LNG Terminal are associated with the use of LNG as a fuel to power the engines of sea vessels, as well as road and rail vehicles. Another aspect under analysis is the effectiveness of sea transport using small vessels, as well as that of inland waterway transport. Further market research and analyses will allow one to obtain information on, inter alia, the demand for increasing regasification capacity as compared with that currently designed. Deci- sions on the extension of the LNG Terminal and the development of its functionality will be taken after the commencement of commercial operation.

Further development of the LNG Terminal is under consideration. There is the possibility to expand the installation to receive up to 7.5 billion m³ of gas per year; this may account for approx. 50% of the current annual demand for gas in Poland.

Options considered for the development of the LNG Terminal’s functionality:

- reloading LNG on smaller liquid gas carriers (re-export within the Baltic Sea area);
- opportunities for the bunkering of (provi- ding fuel to) vessels powered by LNG;
- the use for propelling vessels/vehicles in waterborne, road and rail transport;
- integrated services – the reception of LNG deliveries ordered by customers in the summer (due to low prices) and their stora- ge until the winter (due to high prices);
- cogeneration – the heat generated within the LNG Terminal will, for the time being, be a by-product; in the future, however, it may be used in heating systems.

Emission reduction using LNG – based on DNV data

<table>
<thead>
<tr>
<th>Emission</th>
<th>Reduction</th>
<th>% of Reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>SO₂</td>
<td>-100%</td>
<td></td>
</tr>
<tr>
<td>NOₓ</td>
<td>-81%</td>
<td></td>
</tr>
<tr>
<td>CO₂</td>
<td>-20%</td>
<td></td>
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</tbody>
</table>
Thanks to the enormous commitment of all Partners, the Programme concerning the LNG Terminal has been successfully completed. This part of the Report presents Partners’ opinions on the Coordination System established by GAZ-SYSTEM, as well as the experience and competences acquired by Partners during the implementation of the Programme. The participation in the Coordination System has contributed to the development of all individuals involved, and consequently to the enhancement of social capital in the companies employing them.

While summing up the implementation of the Programme, Coordinator presented a set of best practices which have been developed during the coordination of the Project Programme, and which can be successfully applied in other programmes with similar or even greater complexity.
Report on the operation and efficiency of the Coordination System for the LNG Terminal in Świnoujście

The system that connects

THE TEAM AND ACQUIRED COMPETENCES

All Coordinator’s tasks were executed in cooperation with Partners, therefore, while drawing up this Report, Coordinator asked Partners to share their thoughts and experience on the operation of the Coordination System.

PARTNERS’ OPINIONS ON THE COORDINATION SYSTEM

During the meetings summarising the operation of the Coordination System, Partners primarily appreciated the role of Coordinator as the liaison between all entities implementing Component Projects. In their opinion, the Coordination System allowed cooperation to be agreed upon, its principles to be systematised, and any problems that emerged to be solved. According to Partners, the following were particularly important for successful coordination:

• The introduction of a coherent Communication Schedule:

Partners appreciated the space for information exchange and discussion that was created by the Coordination System. The Executive Committee Meetings, Statutory Meetings, and Working Group Meetings, during which the status of the implementation of the Programme and agreements was monitored, provided all involved with an opportunity to take a position on the proposed changes, or to propose possible solutions.

• The execution of the Consolidated Programme Schedule based on detailed work schedules for Component Projects:

The Coordination System comprised four Component Projects which were implemented by four entities, and were at various stages of progress. In Partners’ opinion, the benefit of the Coordination System that was crucial to the success of the Programme was the facilitation of agreement upon both the areas of mutual interaction of work executed in CPs and on appropriate deadlines for the execution of associated tasks. The activities within the Coordination System resulted in the harmonisation of the work of all entities so that no disruptions were caused for Partners.

• Risk monitoring:

The method of handling risk, common to all involved, enabled the minimisation of potential events contributing to the prolongation of work and the concomitant increase in construction work costs. All parties involved in the implementation of the Programme were given the opportunity to get to know the complete list of risks, including those not directly related to the projects implemented by them. Such a broad look at the issue would not have been possible if no system of risk registration and monitoring, common to all Partners, had been maintained within the Coordination System.

• Competences:

Partners recognised the benefits associated with the application of the Coordination System in order to upgrade the competences of the persons involved in the work of Project teams of particular Partners. These persons were trained in the project management methodology that provided a basis for the preparation of the Coordination System. Such a comprehensive approach to competence-building resulted in better communication within the Programme, in particular in the areas where tasks being executed by more than one Partner overlapped.

In addition to the obvious advantages resulting from the Coordination System, its participants also had to deal with challenges posed by the System. One of these was what they saw as excessive formalisation. At the same time, however, they shared the opinion that the System should be able to help synchronise the activities of all Partners implementing the Programme; with such a high level of complexity, this was not possible without establishing formal principles and strict compliance with them.

Another issue raised by Partners was the additional duties and responsibilities for Project Team members that arise from the Coordination System. Within the Coordination System, Coordinator provided Partners with support in terms of training and access to information systems; however, it had no effect on the personnel policy of the institutions implementing particular Component Projects.

5.1

People within the Coordination System in numbers

30
companies and institutions participating in the Coordination System

148
people participating in the Coordination System

110
people trained in project management methodology

4 Partners
+ 1 Coordinator

13
people – the team responsible for the operation of the Coordination System
The Coordination System’s participants – breakdown by gender

- 66% men (98 people)
- 34% women (50 people)

Gaz-System team responsible for the Coordination System – breakdown by gender

- 46% men (6 people)
- 54% women (7 people)

Gaz-System team responsible for the Coordination System – breakdown by age

The role of Coordinator involved the organising and ensuring of harmonious performance of the joint actions of the 4 Partners participating in the Programme. The coordination of the Programme required multi-layered activities as well as various skills and abilities on the part of the members of the team responsible for the implementation and operation of the Coordination System.

The choice and composition of the team were of great importance; the predominance of women, an appropriate age balance – i.e. more persons with a longer length of service, supported by people aged over 50 with the greatest professional experience, and the participation of younger persons – ensured diversity and comprehensiveness of competence, which helped the implementation of the Programme to be successfully completed.
SURVEY RESULTS
Coordinator invited members of Partners’ Proj- ect Teams to participate in a survey to assess the impact of the Coordination System on the develop- ment of persons operating within the System. Persons representing all Partners participated in the survey. Most respondents (90%) had been in- volved in the Coordination System for at least 2 years, which lent credence to the survey results as these persons had participated in the coordi- nations process long enough to acquire or develop new competences.

Analysis of the survey results demonstrates that thanks to their participation in the Coordination System, persons involved in the process developed both their professional and social skills.

The respondents rated their competences in proj- ect management prior to becoming involved in the Coordination System as lower than after be- come involved – i.e. prior to involvement this fig- ure scored an average 5.7 on a scale of 1–10 point scale, while after becoming involved in the coordina- tion process this figure increased to an average of 7.9. These results show the visible impact of the participation in the coordination process on the development of competences in project manage- ment among the participants. It is worth noting that none of the respondents rated their compe- tences in this regard after their participation in the Coordination System as “low” (a rating of 1–3), and nearly 90% of the respondents selected an- swers from the upper half of the scale (at least 6).

A vast majority of the respondents indicated that they had learned new project management tech- niques thanks to the Coordination System. These indications may be interpreted as the contribu- tion of the Coordination System to an upgrade in the competences of the persons involved in the process. As many as 70% of the respondents con- firmed that they make use of the competences acquired during the coordination process, which indicates the long-term value of these compe- tences and their real contribution to the enhance- ment of human capital in the units employing these persons.

Other competences that respondents developed due to their participation in the Coordination Sys- tem included: information management, open- ness to change, and conflict solving. Approx. 50% of the respondents indicated that they had devel- oped additional competences. Other frequently selected competences positively influenced by participation in the coordination process includ- ed: sharing knowledge and experience, delega- tion of tasks, planning, organisation of one’s own work, stress management, and time manage- ment.

As regards the development of social competenc- es, the great majority of respondents indicated that their participation in the coordination pro- cess had offered them a chance to establish new professional relationships. Respondents were also convinced that they had strengthened their ability to cooperate, both within their own organ- isation and with external entities. The ability to cooperate is one of the more important mani- festations of high social capital within organisa- tional units.

In additional comments, respondents indicated that the participation in the coordination process had taught them to identify and manage project- related risks, and had enhanced the negotiation skills. Respondents also stressed that participa- tion in the Coordination System had provided them with an opportunity to combine theoretical knowledge with practical experience.

In summary, many respondents assessed their in- volvement in the coordination process as a valu- able experience that had given them the oppor- tunity for comprehensive development.

Self assessment of the competence of those involved in the Coordination System.

Answers to questions
1. Please rate, on a scale of 1–10, your competence in project management prior to becoming involved in the coordination process for the construction of the LNG terminal.
2. Please rate, on a scale of 1–10, your competence in project management after becoming involved in the coordination process for the construction of the LNG terminal.

The impact of the Coordination System on particular competences of people involved

Thanks to participation in the coordination process...
I have acquired or developed competences in project management.
I have learnt new project management methodologies.
I have established new professional relationships.
I have improved my cooperation skills, both within my own organisation and with external entities.
I have developed competences in communication. I have learnt new communication techniques, and make better use of communication tools.
I am able to establish new professional relationships more efficiently.
I still use the competences I acquired during the coordination process.
I think that the competences I acquired during the coordination process will help me to develop my professional career.
I think that the relationships established as part of the coordination process will help me to develop my professional career.
Report on the operation and efficiency of the Coordination System for the LNG Terminal in Świnoujście

The system that connects

From the perspective of Poland’s energy security, the LNG Terminal is a necessary and crucial facility as it provides the possibility for the import of gas in the event of problems with deliveries of this raw material from Russia. It also offers the chance of a reduction in the price of natural gas in the future.

The full use of the LNG Terminal requires further action, given the fact that, except for the contract with the Qatari contractor, the contracts for LNG delivery and regasification have not so far been concluded.

The operation of the Coordination System has provided tangible benefits by helping to solve numerous problems that would have been difficult to solve in a multi-directional and multilateral mode of cooperation between Partners. The common platform of cooperation, in the form of the Coordination System, facilitated agreement, particularly over complicated matters in which more than two Partners were involved at the same time; for example, Coordinator provided Partners with valuable assistance in coordinating and unifying the manner of performing activities in the area of environmental protection in particular Component Projects. Thanks to their participation in the System, the employees of the Maritime Office gained specific skills in project management as well as experience in working with a typical business organisation during an investment process.

In standard individual projects carried out by the Maritime Office in Szczecin, the practices of the process of the coordination of the construction of the LNG Terminal are not directly applicable as they relate to a completely different organisational, formal and legal reality. On the other hand, if the Office were to carry out mutual projects with business partners in the future, for example within a public-private partnership, we could make use of the experience gained from the coordination process. Certainly, particular employees, if they take up a job outside the Office (e.g. in commercial law partnerships), will be able to make use of the acquired skills.

As soon as our part of the Programme was completed, the Maritime Office in Szczecin ceased functioning as an investor and, at the same time, as a Partner in the Programme. In the project concerning Full Operational Capability (FOC) we acted as a government administration authority. The main challenge was to make Partners aware of the nature of the formal, legal and competence difference between the Office acting as an investor and subject to the responsibilities arising from the Special Purpose Act, and the Director of the Maritime Office acting as an independent government administration authority and not subject to the coordination process.

In spite of this, and recognising that the FOC-related tasks were of significance to the success of the Programme, we stayed in close contact with Coordinator, and participated in further work while transferring the Liaison Officer to them.

Andrzej Borowiec
Director
Maritime Office in Szczecin

Other competences acquired

What other competences and skills have you acquired and developed due to your participation in the coordination process for the construction of the LNG terminal?

- analytical thinking
- organisation of my own work
- openness to change
- decision-making
- ability to handle stress
- time management
- sharing knowledge and experience
- delegation of tasks
- planning
- leadership competences
- conflict solving
- information management
- other – please specify

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5.2 AN OVERVIEW OF BEST PRACTICES ARISING FROM THE COORDINATION SYSTEM

During the design and operation of the Coordination System, Coordinator and Partners managed to develop a number of best practices which determined the success of the entire Programme. They should certainly become an inspiration or a model to other teams responsible for the implementation of projects with a similar scale and level of complexity.

12 BEST PRACTICES developed within the Coordination System connected to the implementation of large-scale and strategic investment projects such as the construction of the LNG Terminal:

1. Determination of the formula of coordination, and undertaking to comply with it, by signing an agreement on cooperation [COOPERATION]

Recognising the need to regulate the principles of coordination, Coordinator proposed that Partners conclude an appropriate agreement. The draft agreement was prepared by Coordinator at the LNG Division, and then forwarded to Partners for consultation. Having agreed upon the content of the agreement, Partners signed the document, which thus became the basic executive document governing the principles of the operation of the Coordination System. It is described in detail in Chapter 2 of this Report.

While writing my letter for the Report on implementation and operation of the Coordination System for the LNG Terminal in Świnoujście in 2011, I began with the following sentence: “One man alone cannot do everything, but when everybody does their part, everything will get done. However, it is important that these parts fit together and form the desired whole.”

Today, I can confirm the accuracy of this dictum. The key to success in the implementation of a Programme as complex as the construction of the LNG Terminal in Świnoujście may be described using three words: SYSTEM–COOPERATION–DETERMINATION. While preparing this Report, we thought about which elements of the system, established by Coordinator, could provide a model for those preparing similar systems – i.e. which of them were best practices that should be named and described. We have selected twelve practices which, in our opinion, were the crucial components of the system and had a fundamental impact on the effect of coordination activities.

We designed and operated a system due to which a problem encountered by Managers of particular projects did not result in the lack of functionality of the entire Programme. An important feature of the system was the focusing on partnership and cooperation among all participants of the coordination process, based on the adopted principles. The bond which held the whole together, in spite of the ongoing problems and natural tendencies towards departing from the established principles over time, was the determination in applying them.

One man alone cannot do everything, but when everybody does their part, everything will get done. However, it is important that these parts fit together and form the desired whole.

Wojciech Drop
Chief Coordinator of Operations
GAZ-SYSTEM S.A.
The continuous improvement of the system during the implementation and operation of the Programme/Project: [IMPROVEMENT]

While designing and implementing the Coordination System, Coordinator incorporated an improvement mechanism into it. The tool for the achievement of that aim was ISO 9001 standardisation. In accordance with that standard, supervision of documentation was introduced, managers were involved in establishing quality management, and continuous measurements of indicators for the assessment of the performance of the system were taken. During the operation of the system, which was based on the Deming cycle, necessary modifications and adjustments resulting from the observations of Coordinator and Partners were made.

The implementation of knowledge of the project between Programme Partners: [IMPROVEMENT]

As early as at the stage of the formation of the Coordination System, Coordinator noticed the difference between the levels of Partners’ mutual knowledge of Component Projects. Therefore, it was recommended that Partners prepare definitions of each CP based on a standardised model. The definitions were to include descriptions of the Project: the concept of Project implementation, Project Deliverables, and the main risks recognised at that stage. Coordinator’s intention was to carry out streamlining cooperation through a harmonisation cycle during which Partners had the opportunity to familiarise themselves with the details of Projects of other Partners. This activity helped to confirm and supplement the list of interaction points between Projects, and to develop a strategy for handling them. In addition, the first round of identification of mutual risks took place.

The division of the expected status within the environment of the Programme/Project into fundamental tasks, and recording them in the form of the Checklist: [DECOMPOSITION]

The introduction of the concept of Full Operational Capability allowed one to define these desired changes, which were to be the effect of the Programme, within the Programme’s environment. The next step was to break down these changes (Decomposition) into basic tasks which were to be executed in order for the Programme to achieve its objective. These tasks were broken down and recorded in the Checklist which comprised questions concerning the execution of particular activities. The existence of the Checklists allowed Partners to monitor the achievement of FOC in a simple manner. The tasks included in the Checklists embraced organisational, process, and formal and legal issues. A positive answer to a question, along with the submission of proof of execution, was considered declaration of task completion.

The introduction of the comfort of planning and execution of work by freezing the terms referring to the common points of projects included in the Programme: [COORDINATION]

For the harmonious and timely implementation of the entire investment Programme, it was necessary to minimise the disruptions resulting from the mutual impact of CPs. Component Projects were characterised by numerous dependencies which could bring about these disruptions. The solution was the introduction of Coordination Milestones (CM) by Coordinator. A CM established a deadline for the completion of a task that had a direct impact on a Project of another Partner. In order to improve the coordination of the Project, a principle was introduced according to which changes to deadlines for the completion of tasks that caused the shifting of a CM could only be made in agreement with Coordinator. Such an approach introduced a sense of security in the planning and execution of construction work.

Management of the Programme schedule with consideration for the interactions between Component Projects: [MONITORING]

Schedule monitoring was not limited to comparing the dates of commencement and completion, as well as the degree of task execution. Coordinator was provided with Component Project schedules updated on a monthly basis as appendices to Component Project Status Reports. After their analysis and possible adjustment by CPM, Coordinator merged the schedules. This activity indicated the impact that the changes introduced at the operational level of one Component Project had on other schedules for other CPs. Conclusions from this activity provided the basis for the formulation of recommendations. The Consolidated Programme Schedule updated in this mode was divided into schedules for particular Component Projects, which provided the basis for work in the next period.

Determination of the powers and competences of Coordinator and Component Project Managers as regards the ongoing updating of a schedule in relation to the schedule outline levels: [DECOMPOSITION]

In order to efficiently allocate roles and responsibilities in monitoring the execution of particular tasks of the Project, Coordinator introduced a hierarchical division of tasks in schedules for Component Projects. Depending on their position in the hierarchy, the competences related to handling were allocated between Component Project Managers and Coordinator.

While monitoring schedules for Component Projects, Coordinator focused on summary tasks at the outline level established by the Coordination System procedures, as well as on Milestones, in particular CMs. The fundamental tasks and overall tasks below that level were handled in full scope by CP Managers that had contract tools in relation to contractors. They could make final adjustments to tasks in an operational mode, while ensuring the lack of the impact of these changes on the level monitored by Coordinator.

At different times, the Consolidated Programme Schedule contained from 5 to over 10 thousand tasks. Coordinator did not interfere with the sequence of particular fundamental tasks as far as it did not have an impact on the tasks at the levels of its responsibility. At that level, it was a Component Project Manager that had the managerial power. Due to such allocation of competences, Coordinator was able to efficiently and rapidly send reports with the consolidated data to the Ministry of Treasury without interfering with the ongoing operational work.

Unification of Project Status Reports and the Summary Report for Sponsors: [STANDARDISATION]

During the work on the Coordination System, permanent model reports were introduced. They were in force in an unchanged form for the entire duration of the Project and the Programme. Such an arrangement facilitated the analysis of reports and the rapid understanding of changes and trends. Each report, including the Report for Sponsor, was composed of the same sections, arranged in a specific order.

On the title page of the Monthly Report for the MT, a photograph of the port and LNG Terminal was shown. Aerial photographs were always taken from the same perspective (geo-referenced positioning), which enabled the practical visualisation of the progress of the implementation of the Programme.

An overview of best practices arising from the Coordination System

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Report on the operation and efficiency of the Coordination System for the LNG Terminal in Świnoujście

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The system that connects

The first section, i.e. the managerial summary, was the place where the main problems, points of contact between Projects, and the status of their implementation were outlined, and Coordinator’s comments were provided. Further on, sections concerning particular Projects were placed. The arrangement of issues within each section was also constant. The Report also included sections with a description of cooperation between Partners, lists of Partners’ arrangements along with information on the status of their implementation, and sections on identified risks.

The reports addressed to Coordinator were primarily sets of synthetic data and information. The Monthly Report for the MT was a compilation of information prepared by Coordinator in a clear and documentary manner. In connection with the reported needs, the Report for a Programme Sponsor also included descriptions of the information provided, ready to be used in communications on the Programme to the media.

Preparation of Component Reports and the Summary Report for Sponsor in close cooperation between Coordinator and Partners responsible for the implementation of particular Component Projects [COOPERATION]

The reporting cycle within the Coordination System began with the issue of guidelines for the current reporting period by Coordinator. Taking the guidelines into account, CPMs prepared working versions of reports and forwarded them to Coordinator, who gave an opinion on them in comments. The comments only concerned the following: ambiguities, information gaps, information divergent from the information provided in Partners’ reports, and the implementation of mutual agreements and recommendations. Having received Coordinator’s comments, a Component Project Manager updated a working version of their Report and prepared the final version approved by Sponsor. An appendix to that version was a set of answers to Coordinator’s comments.

The Monthly Report for the MT was also prepared in cooperation between Coordinator and Partners. Coordinator sent a draft report to Partners who, after becoming familiar with its content, commented on it. The comments further clarified the ambiguity of records. Next, the information on the points of contact was supplemented. Coordinator, having received Partners’ comments, updated a working version of its Report. The final version of the Monthly Report for the Minister of Treasury was also submitted to Partners for whom it was an official source of information on the course of Component Projects and the entire Programme.

Tracking information on a problem from the moment of its emergence to the moment of its solution by the continuous monitoring of arrangements and recommendations [MONITORING]

In the Monthly Reports to the MT, Coordinator submitted the arrangements from the regular coordination meetings (Statutory Meetings, the Executive Committee meetings, and FOC) as well as notes, observations, and recommendations. Each raised issue that could have an impact on the timely implementation of a Component Project or the Programme was recorded in a register and monitored until the problem was solved. Each of the subsequent meetings began with a review of the register as regards the implementation of arrangements.

Specific monitoring of risks which have an impact on more than one Project [MONITORING]

A Component Project Manager updated the measures taken to handle risks on a monthly basis, and informed of these by attaching the List of Risks to the Component Project Status Report. Each new risk of medium and high impact on the Programme was immediately recorded in the List. An analysis of the received List of risks for their impact on the other Component Projects was carried out by Coordinator in cooperation with a CPM. Where such an impact was confirmed, Coordinator formulated appropriate recommendations, and the risk was recorded in the section of mutual risks.

Building a culture of cooperation by creating a space for open communication [COOPERATION]

From the very beginning of the operation of the Coordination System it was noticed that creating a space for persons involved in the implementation of the Programme that provided a place for free exchange of views and opinions on a Component Project under implementation or on the entire Programme was very important. For this reason, the principle of devoting a specific amount of time to a meeting (which is an element of most project management systems, and is aims theoretically at increasing a meeting’s effectiveness) was abandoned. Such a principle is certainly justified for closed teams working on a single project. For a project as complex as the Investment Programme involving the construction of the LNG Terminal in Świnoujście coordinated by GAZSYSTEM, it frequently appeared that a seemingly chaotic discussion produced more solutions, including in the area of interpersonal relationships between Partners’ representatives, than a meeting with a pre-planned duration.

BIRDS model – best practices for coordination

- Building trust & cooperation [COOPERATION]
- Improving in progress [IMPROVEMENT]
- Regular monitoring [MONITORING]
- Decomposition of problems [DECOMPOSITION]
- Standardisation [STANDARDISATION]

An overview of best practices arising from the Coordination System

12 May 2016
ABOUT THE REPORT

This study is a closure report summarising the operation and efficiency of the Coordination System for the construction of the LNG Terminal in Świnoujście. It covers the period from 2010 to 2016. It is a continuation of the Report on the implementation and operation of the Coordination System for the LNG Terminal in Świnoujście, which covered the period of 2010–2011. The Report has been independently verified based on the commonly recognised ISAE 3000 standard, and its compliance with the criteria has been confirmed.
ABOUT THE REPORT

GAZ-SYSTEM, acting as Coordinator of the Programme of strategic importance to the Polish economy, implemented in Świnoujście, prepared the report describing the operation of the Coordination System from the moment of its implementation to the moment of the preparedness of the LNG Terminal for operation. It contains a summary of the effects of coordination, information on modifications to the system during its operation, and best practices resulting from the coordination experience.

Another best practice is the independent verification of the report, carried out by a specialised and renowned company in order to assure its readers that it has been prepared in accordance with best practices, with due diligence, and based on reliably documented factual circumstances.

To this end, the Report has been independently verified based on the commonly recognised ISAE 3000 standard, in a form aimed at providing reasonable assurance. The reference point (criteria) in the verification process was the list of responsibilities imposed on the Company by Article 2 (3–7) and Article 3 of the Act of 24 April 2009 on investments in the liquefied natural gas regasification Terminal in Świnoujście (Dz.U. [Journal of Laws] 09.84.700, as amended).

The process of the preparation of the Report was based on the crucial principles of the international reporting standard (GRI – Global Reporting Initiative), in order to ensure the quality and reliability of its compilation. The process was carried out in three steps: identification, prioritisation, validation.

Methodology of work on the Report based on the GRI principles
the international reporting standard (Global Reporting Initiative)

TOPICS → ASPECTS → DISCLOSURES ON MANAGEMENT APPROACH → INDICATORS

This diagram was prepared on the basis of the international guidelines for reporting non-financial data, provided in the Sustainability Reporting Guidelines prepared by Global Reporting Initiative13.
Independent assurance report pertaining to the “Report on the operation and efficiency of the Coordination System for the LNG Terminal in Świnoujście 2010–2016” Gas Transmission Operator GAZ-SYSTEM S.A.

To the Management Board of GAZ-SYSTEM S.A.

We have reviewed the “Report on the operation and efficiency of the Coordination System for the LNG Terminal in Świnoujście 2010–2016” (“Report”), developed by GAZ-SYSTEM with the registered address in Warsaw, at 4 Mrozowska St. (“Company”, “Coordinator”), on relevant information in this document, including qualitative and quantitative data on the organizational solutions and the role of participants of the Coordination System for the LNG Terminal, the processes implemented under the Coordination System, including those related to planning and organizing cooperation between Coordination System participants, monitoring, risk management, as well as data relating to the investment for the construction LNG Terminal in Świnoujście itself and associated conditions. The assurance works covered the period from January 1st, 2010 to April 25th, 2016.

Our work was focused on providing an opinion in this regard and to draw up a summary of the work carried out and made as a result of their observations. The opinion was concluded herein, and a summary of the work and observations were included in the follow-up report to the independent assurance report, delivered to the Company.

The procedures implemented in the framework of the review of the Report included:

- Identification and evaluation of actions taken and adopted solutions aimed to gather and verify the accuracy of the Company's data and information collected for the development of the Report.
- Identification of relevant content, including solutions and processes implemented within the Coordination System presented in the Report, and verification of compliance with the provided source documentation, including formal documentation developed and accumulated by the Company in connection with the Coordination operation. In order to confirm the reliability of the provided source documentation, interviews were conducted with persons responsible for the tasks of the Company within the Coordination.
- Verification of the facts of actions taken as described in the Report, comprising of important tasks realized by the Company as the Coordinator, required under the Act of 24 April 2009 on investments in regards to the liquefaction terminal for liquefied natural gas in Świnoujście (Dz. U.09.84.700 with amendments) and the Cooperation Agreement of August 20th, 2009 concluded between GAZ-SYSTEM S.A. and the State Treasury - Maritime Office in Szczecin, Seaports Szczecin and Świnoujście Authority S.A., and Polskie LNG Sp. S.A. (And their subsequent annexes).

Our work has been done according to the standards of professional services, including the requirements of professional ethics, functioning in Deloitte and based on international standards and best practices in this field.

Based on our review we have been provided with sufficient assurance to confirm that the relevant data and information presented in the Report on the operation and efficiency of the Coordination System for the LNG Terminal in Świnoujście 2010–2016 and the adopted solutions and actions taken by the Company within the framework of Coordination are in compliance with the provided source documentation and also adopted in this respect, the statutory requirements and agreements concluded by the participants of the Coordination.
Report on the operation and efficiency of the Coordination System for the LNG Terminal in Świnoujście

The construction of the infrastructure to secure access to the external port, consisting of a breakwater, waterway, turning basin and the navigation marks related to the said infrastructure, the widening of the existing access waterway to the Świnoujście port, and the reconstruction of the breakwater in the Świnoujście port. Project implemented by Urząd Morski w Szczecinie (The Maritime Office in Szczecin).

Checklist
A set of tasks that form the decomposition of the definition of Full Operational Capability (FOC) for the activities leading to the achievement of the status described in the definition. The set of tasks also clarifies the intention of the definition of FOC.

Chief Coordinator of Operations (CCO)
An executive function within the Coordination System. The CCO is appointed by and reports to the Head of the LNG Division. S/he is personally responsible for the implementation of all coordination processes.

Communication Schedule
A document describing the types, modes, time schedule for and forms of information transfer between Partners and other participants of the Coordination System.

Community Liaison Officer
A person responsible in the Programme for communication with the local community and other stakeholders. The scope of a Community Liaison Officer’s activities is specified in the document “Operational responsibilities of the Community Liaison Officer (CLO).”

Component Project (CP)
Any of the four investment projects connected with the liquefied natural gas regasification terminal being implemented by the Partner.

Component Project Manager (CPM)
A person responsible for the management of a Component Project. A Component Project Manager is responsible for the implementation of all the main processes of Component Project management.

Consolidated Programme Schedule
A schedule comprising the component schedules for Component Projects and Supporting Projects, supplemented with additional items defining the mutual relationships between Component Projects i.e. Coordination Milestones. The Consolidated Programme Schedule includes within its scope the entire Programme under implementation.

Coordination Milestones (CM)
Consolidated Programme Schedule items in the form of Milestones specifying deadlines for the completion of work performed as part of a Component Project; these determine the conduct of work under another Component Project linked with a Milestone.

Coordination Process
Organised cooperation between Coordinator and Partners, carried out in relation to and within the framework of the Component Projects and Supporting Projects under implementation, and the harmonisation of these Projects aimed at attaining the objective i.e. the timely commissioning of the Świnoujście external port and LNG Terminal.

Coordination System
A set of methods, techniques, tools, design benchmarks, and operational procedures dedicated to the Programme. They are a tool for organising the cooperation between Coordinator and Partners, carried out in relation to and within the framework of the Component Projects and Supporting Projects under implementation, and the harmonisation of these Projects aimed at attaining the Programme objective, i.e. the timely commissioning of the Świnoujście external port and LNG Terminal.

Executive Committee
An element of the structure within the Coordination System, responsible for agreeing on the crucial common activities performed under Component Projects. The Executive Committee develops key directional (strategic) substantive recommendations associated with the Programme implementation for Partners.

FOC Team
The Project Team for the monitoring of tasks aimed at achieving Full Operational Capability of the Świnoujście external port and LNG Terminal. Supporting Project Team.

Full Operational Capability (FOC)
A state of the organisational, procedural and legal environment of the Programme in which, after completing all the construction and assembly works, it is possible – in a safe manner, according to the effective law, standards, guidelines and good practice – to enter, moor, unload and exit the LNG carrier and to regasify the received LNG and to supply gas with desirable parameters and in the required amount to the national gas transmission system, and the loading of the LNG into truck cisterns. The Check List is the integral part of the definition of the Full Operational Capability (FOC).

Gas Pipeline Component Project
The construction of the Świnoujście-Szczecin gas pipeline to connect the LNG Terminal to the national gas transmission system, together with the infrastructure necessary for its operation within the province of Zachodniopomorskie (West Pomerania). Project implemented by Gas Transmission Operator GAZ-SYSTEM S.A. with its registered office in Warsaw.
The system that connects the infrastructure necessary for mounting the seawater uptake and transport installations. Project implemented by Zarząd Mor- skich Portów Szczecin i Świnoujście S.A. in Szczecin (The Szczecin and Świnoujście Seaports Authority S.A.).

LNG Division
A division in the corporate structure of GAZ-SYSTEM that is responsible for the coordination process using the Coordination System.

LNG Terminal
The Liquefied natural gas regasification terminal in Świnoujście, together with the installations, equipment and facilities necessary for its start-up and operation.

LNG Terminal Component Project
The construction of the LNG Terminal Project implemented by Polskie LNG S.A. with its registered office in Świnoujście.

Monthly report for the Ministry of Treasury
A monthly report for the Ministry of Treasury on the implementation of the project involving the construction of the liquefied natural gas (LNG) terminal in Świnoujście, prepared by Coordinator and forwarded to the Minister of Treasury pursuant to the Special Purpose Act. From the date of publication of the Act of 11 February 2016 (Article 17) on the amendment to the Act on Government Administration activities and certain other laws, the term “Minister of Treasury” used in this report shall be understood as “Government Plenipotentiary for Strategic Energy Infrastructure”.

North-South Gas Corridor
A system of bilateral intersystemic gas connections and national gas pipelines which either already exist or are at various stages of implementation and will connect the LNG Terminal in Świnoujście and the Baltic Pipe, through southern Poland, the Czech Republic, Slovakia and Hungary, with the planned LNG terminal on the island of Krk in Croatia.

Operational Procedures
Documents describing the standardised method of implementing the processes comprising the Coordination System.

Project Definition in the Coordination System
A document in the Coordination System which describes the objectives, principles and conditions of Project implementation, Project scope and Project deliverables produced within the Project framework. As well as this, Project Definition describes the mutual relationships between projects, project risks, and the strategies for handling them.

Project Team
A group of individuals reporting to the Manager of a Component Project or Supporting Project. This team is dedicated for performing the tasks that are part of a Component Project or Supporting Project.

Special Purpose Act

Sponsor
A person responsible for supervision of the implementation of the Programme, Component Project or Supporting Project, and for providing the resources necessary for such implementation. Sponsor works in liaison with the Executive Committee on the development of, or in making directional (strategic) decisions related to, the Programme, Component Project or Supporting Project.

Stakeholder
Person who has an interest in the implementation of the Programme and/or Project, or a person who has an influence on the course of the Programme/Project; alternatively, a person affected by the Programme/Project (e.g. a member of the local community).

Statutory Meeting
A meeting of the Component Project Managers, organised by Coordinator on a monthly basis within the framework of the Communication Schedule. Its objectives include submission of comments to the Project Status Reports and presentation of operating plans for the following reporting period, discussion and agreement on issues affecting such operating plans for the following reporting period, discussion of any proposed modifications to Component Project operating plans, decision on the working mode for the harmonisation of Partners’ work, and discussion of major guidelines from Sponsors, including the decisions and guidelines from the Executive Committee.

Supporting Project
A Project combining the supporting activities that are necessary for attaining the objective, which is the commissioning of the Świnoujście external port and the LNG Terminal in a timely manner in accordance with the definition of FOC, other than the direct civil work performed on site.
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DATA SOURCES

1. GIIGNL The LNG Industry Report for 2014
2. GIIGNL The LNG Industry Report for 2014
3. GIIGNL The LNG Industry Report for 2004
5. Pursuant to the Act of 11 February 2016 (Article 17) on the amendment to the Act on Government Administration activities and certain other laws (published on 02 March 2016 in the Journal of Laws [Dz.U.] of 2016, Item 26), from that date, the term “Minister of Treasury” used in this Report shall be understood as “Government Plenipotentiary for Strategic Energy Infrastructure”
6. The LNG Division was established in 2009, and implemented the entire scope of coordination tasks. The current composition of the LNG Division team and the main responsibilities of particular persons are presented in the final part of this Report
8. Source: PLNG study based on the data concerning the length of delays at 30 onshore and floating LNG terminals (in the UK, France, Italy, Spain, Canada, the USA, China, India, Malaysia, Taiwan, Mexico, South Korea, Indonesia, and Brazil) as on 1 June 2014.
9. Source: www.rynekinfrastruktury.pl
10. Source: www.niezalezna.pl
11. Source: www.dzienniklodzki.pl
12. Source: www.pgenarodowy.pl

THE MAIN SOURCES OF INFORMATION THAT PROVIDED A BASIS FOR THE REPORT

1. The Coordination System procedures under the QUALIMAN system.
2. Monthly reports for the Ministry of Treasury on the implementation of the project involving the construction of the liquefied natural gas (LNG) terminal in Świnoujście.
3. Other Coordination System documentation (minutes of Executive Committee meetings, notes, thematic reports, etc.).
4. Photographs of the progress of the construction of the Projects under implementation, from the Coordination System resources (GAZ-SYSTEM archive).
5. The aerial photograph on the first page of the Report was taken on 19 December 2015.
LIST OF PHOTOGRAPHS USED IN THE REPORT

First LNG delivery – December 2015
‘AL NUAMAN’ Q-Flex

The Port of Świnoujście
The external port in Świnoujście
LNG Terminal – interior of an LNG tank
LNG Terminal – October 2009, advance work
Gas pipeline – preparation for pipe laying
LNG Terminal – October 2011, the onshore part of the Project
LNG Terminal – the marine part of the Project
Second LNG delivery – February 2016, preparations for sailing of ‘AL NUAMAN’
LNG tank – scaffolding work
Jetty CP – November 2012, reloading platform
Jetty CP – August 2011, reloading platform
LNG tank – concrete reinforcement and formworks
LNG tank – concrete placing work
Breakwater CP – eastern breakwater
LNG Terminal – September 2015, the onshore part of the Project
Breakwater CP – August 2012, eastern breakwater, reinforcement work
Breakwater CP – September 2010, eastern breakwater embankment
Jetty CP – June 2012, dredging work near the process platform
Jetty CP – January 2012, process platform
LNG tank – May 2012, welding work
LNG Terminal CP – the marine part, reloading platform
Jetty CP – June 2012, reloading platform
LNG delivery – ‘AL NUAMAN’ Q-Flex
Animation of port operations
Eastern breakwater – a flock of great cormorants (Phalacrocorax carbo)
Mooring gear testing – August 2015
LNG Terminal CP – March 2016, the marine part of the Project

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