Chapter 1: Introduction

Table of Contents

Tables

Figures

1 Introduction

1.1 South Stream Offshore Pipeline Overview

The South Stream Offshore Pipeline is the offshore component of the South Stream Pipeline System that will transport natural gas extracted in Russia to countries of Central and South-Eastern Europe (Figure 1.1).

Figure 1.1 South Stream Pipeline System

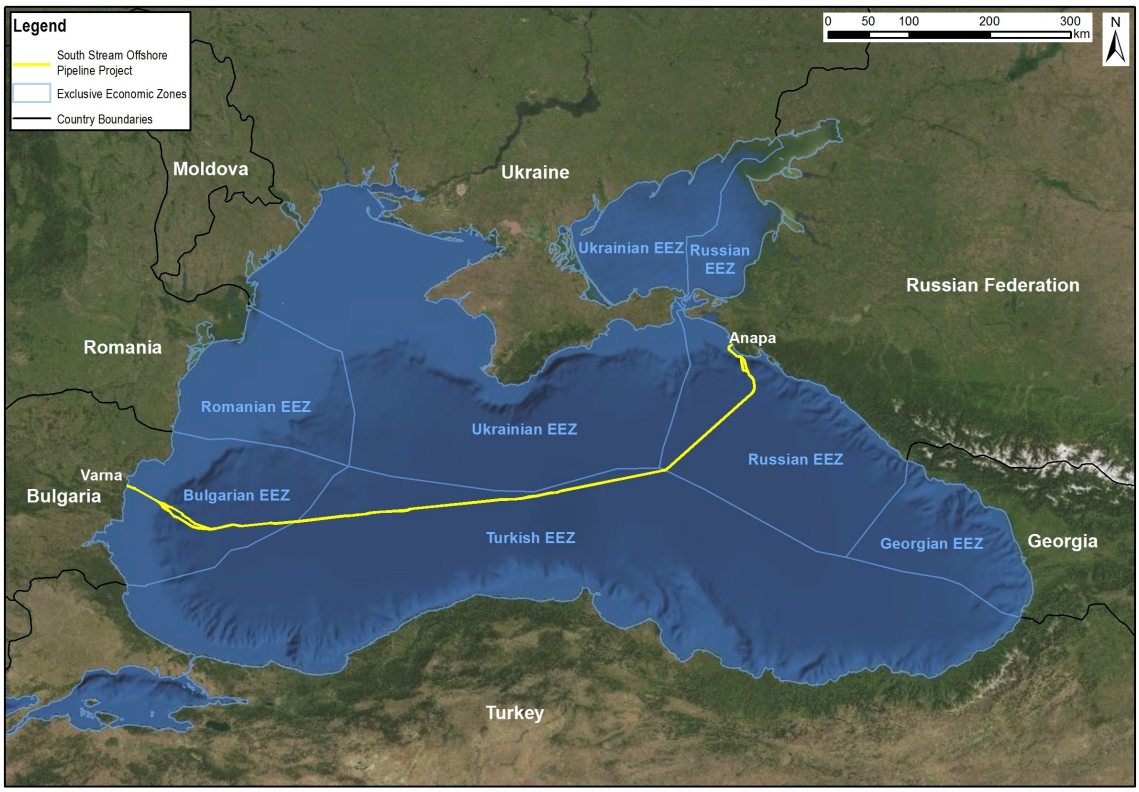
This Environmental and Social Impact Assessment (ESIA) Report has been prepared specifically for the Turkish Sector of the South Stream Offshore Pipeline, referred to as the 'South Stream Offshore Pipeline – Turkish Sector' or as 'the Project' throughout this ESIA Report[1].

Separate ESIAs Reports have been prepared by South Stream Transport B.V. (South Stream Transport) for the Russian and Bulgarian Sectors of the South Stream Offshore Pipeline. In addition, separate Environmental Impact Assessments (EIAs) have been undertaken by other companies for the other components of the South Stream Pipeline System.

[1] Where this report refers to the 'South Stream Offshore Pipeline', and not to 'the Project', the intent is to refer to the overall South Stream Offshore Pipeline covering all three countries (Russia, Turkey and Bulgaria).

The South Stream Offshore Pipeline will comprise four adjacent pipelines extending approximately 931 kilometres (km) across the Black Sea from the Russian coast near Anapa, through the Russian, Turkish, and Bulgarian Exclusive Economic Zones (EEZs), to the Bulgarian coast near Varna (Figure 1.2). In addition to the offshore pipelines, the South Stream Offshore Pipeline will consist of short onshore sections in Russia and Bulgaria, with facilities to meter the gas prior to and after transportation through the offshore system. When complete, the South Stream Offshore Pipeline will be able to transport 63 billion cubic metres (bcm) of natural gas annually. Each of the four pipelines will have a maximum flow rate of approximately 15.75 bcm per year, and a maximum design pressure of 300 bar.

Figure 1.2 South Stream Offshore Pipeline



Note: All geographic boundaries depicted in maps in this ESIA Report relate to February 2014.

This chapter provides an overview of the proposed development in Turkey, the impact assessment process, the scope of this ESIA Report, the anticipated schedule for development, and the structure and content of this ESIA Report.

1.1.1 Need for the South Stream Offshore Pipeline

1.1.1.1 Current European Union Gas Consumption, Demand, and Pipeline Capacity

Natural gas plays a significant role in Europe's energy mix: in 2011 approximately 24% (Ref. 1.1) of the European Union (EU) member states' (EU-28) primary energy consumption came from natural gas, with only around 41% of that demand being met by domestic EU-28 production (i.e. by gas fields within the EU).

In 2011, EU gross inland consumption (production plus net import) of dry natural gas was approximately 492 bcm (Ref. 1.2), production was approximately 185 bcm (Ref. 1.3), and net imports amounted to approximately 308 bcm (Ref. 1.4).

The EU secures imports from a variety of sources, including traditional suppliers such as Russia, Norway and Algeria (Ref. 1.5). Within the broader European region (e.g., not limited to the 28 EU member states), Russia supplied approximately 130 bcm in 2012 (Ref. 1.6).

1.1.1.2 European Union Production and Demand Forecasts

Future estimates of EU production and demand are inherently uncertain and require a number of assumptions regarding, for example, changes in gross domestic product (GDP), population, energy sector composition and prices, and government policy. Given these uncertainties, this section incorporates forecasts from two sources: International Energy Agency (IEA) (Ref. 1.1 to Ref. 1.5), which is an independent agency that produces yearly reports on World energy and production and consumption, and Wood Mackenzie (WM) (Ref. 1.7), an energy consulting company engaged by South Stream Transport B.V. as Lenders' Gas Market Consultant to carry out a market analysis with specific reference to the South Stream Offshore Pipeline. Each source analyses three scenarios designed to reflect future demand relative to supply. The following sections present the results from each of these reports.

The results from the IEA and WM reports are not directly comparable because they are based on different future demand scenarios and geographical scope. The IEA report bases its forecasts on a definition of Europe that is reflected by the 28 members of the EU, whereas the WM report defines Europe [2] as the 28 member states as well as Bosnia and Herzegovina, Norway, Serbia, Switzerland and Turkey. It should be noted that the inclusion of, particularly, Norway (production) and Turkey (demand) is a key source of the differences in the forecasts.

[2] The WM data presented in this report reflects the forecast conventional natural gas supply for the following countries: Austria, Bulgaria, Croatia, Czech Republic, Denmark, France, Germany, Hungary, Ireland, Italy, Norway, Netherlands, Poland, Romania, Serbia, Slovakia, Spain, Turkey, and United Kingdom. Forecast demand for conventional gas is presented for the following countries: Austria, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Macedonia, Netherlands, Norway, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, and United Kingdom.

International Energy Agency (IEA) Forecasts

Table 1.1 describes the IEA scenarios for future EU demand and the assumptions that underpin them.

Table 1.1 IEA Future Demand Scenarios for EU

	Scenario Assumptions
New Policies Scenario	The New Policies Scenario incorporates policies and measures that affect energy markets and that had been adopted as of mid-2013. It also takes account of other relevant commitments that have been announced, even when the precise implementation measures have yet to be fully defined. These commitments include programmes to support renewable energy and improve energy efficiency, initiatives to promote alternative fuels and vehicles, carbon pricing and policies related to the expansion or phase-out of nuclear energy, and initiatives taken by the G-20[3] and Asia-Pacific Economic Cooperation (APEC) economies to reform fossil-fuel subsidies. Under the New Policies Scenario, gas demand in the EU is forecast to reach 505 bcm per year by 2035.
Current Policies Scenario	The Current Policies Scenario takes into account only those policies and measures affecting energy markets that were formally enacted as of mid-2013. It describes a future in which governments do not implement any recent commitments that have yet to be backed-up by legislation or introduce other new policies bearing on the energy sector. The scenario is designed to provide a baseline picture of how global energy markets would evolve if established trends in energy demand and supply continue unabated. Under the Current Policies Scenario, gas demand in the EU is predicted to reach 566 bcm per year by 2035.
"450" Scenario	The "450" Scenario shows what is needed to set the global energy sector on a course comparable with a near 50% chance of limiting the long-term increase in the average global temperature to two degrees Celsius (2°C). This scenario leads to a peak in the concentration of greenhouse gases (GHGs) in the atmosphere around the middle of this century, at a level above 450 parts per million (ppm), but not so high as to be likely to precipitate changes that make the 2°C objective unattainable. For the period to 2020, policy action aiming at fully implementing the commitments under the Cancun Agreements is assumed to be undertaken. After 2020, Organisation for Economic Cooperation and Development (OECD) countries and other major economies are assumed to implement emissions reduction measures that, collectively, ensure a trajectory consistent with the target. From 2020, OECD countries are assumed to mobilise $100 billion in annual financing from a variety of sources for abatement measures in non-OECD countries. Under the "450" Scenario, gas demand in the EU is predicted to be 384 bcm per year by 2035.

[3] G-20 refers to the group of 20 finance ministers and central bank governors.

Table 1.2 contains estimated future demand for natural gas in the EU for all IEA scenarios to 2035. It also contains forecast EU production over the same period.

Table 1.2 IEA Predicted Gas Demand in EU (bcm)

	2020	2025	2030	2035
New Policy Scenario	452	477	491	505
Current Policy Scenario	467	n/a	533	566
450 Scenario	426	n/a	401	384
EU production (bcm)	135	122	114	104

Note: Converted from mtoe to bcm using conversion factor of 1.11

In contrast to increasing demand, EU natural gas production is forecast by IEA to fall from 185 bcm per year in 2011 to 104 bcm per year in 2035 (Ref. 1.1). Reduced domestic gas production means that under the New Policy Scenario approximately 79% of EU forecast demand in 2035, or 401 bcm per year in absolute terms, will have to be met by natural gas imports (Ref. 1.1). Table 1.3 shows the predicted net import requirements for all future scenarios, given forecast demand.

Table 1.3 IEA Gas Demand EU Minus Domestic Production: Net Import Requirements (bcm)

	2020	2025	2030	2035
New Policy Scenario	317	355	377	401
Current Policy Scenario	332	n/a	419	462
450 Scenario	291	n/a	287	280

Wood Mackenzie (WM) Forecasts

Table 1.4 describes the WM scenarios for future EU demand and the assumptions that underpin them.

Table 1.5 contains estimated future demand for natural gas in Europe for all WM scenarios to 2035. It also contains forecast European production over the same period. As with the IEA report, it shows demand for natural gas increasing at the same time that European production is declining.

Table 1.4 WM: Future Demand Scenarios for Europe

	Scenario Assumptions
Base case	Demand growth will be driven by increasing energy intensity in emerging European economies as well as recovery in the power sector. Gas demand in the power sector will recover somewhat gas utilisation from the current record low levels. This will be supported by a fundamental rebalancing of the EU Emission Trading Scheme taking effect towards the end of the forecast period, against a backdrop of coal retirements. In mature markets such as Italy, Germany and the UK gas demand will remain flat or decline slightly. Gas markets in Central and Eastern Europe, including Turkey, have greater long term scope for gas penetration driven by gas infrastructure developments and increasing energy demand per capita. Under the Base Case scenario, gas demand is estimated to be 623 bcm by 2035.
High case	This scenario assumes a faster economic recovery, lower efficiency gains and greater penetration of gas in the power sector. Total gas demand is forecast to reach 760 bcm by 2035.
Low case	This scenario assumes that gas demand declines in mature economies continue, however this is offset by increased energy intensity in emerging European economies, notably Turkey and new uses for gas such as Liquefied Natural Gas (LNG) bunkering. Total gas demand is forecast to grow, albeit at a slower rate. Gas demand grows from 502 bcm in 2013 to 544 bcm in 2035.

Table 1.5 WM: Predicted Gas Demand in Europe (bcm)

	2020	2025	2030	2035
Base case	568	590	600	623
High case	637	683	719	760
Low case	523	533	531	544
European production (base case)	261	224	201	185

Reduced domestic gas production means that, under the Base Case Scenario, approximately two thirds of European forecast demand in 2035, or 438 bcm per year in absolute terms, will have to be met by natural gas imports (Ref. 1.7).

Table 1.6 contains the predicted net import requirements for all future scenarios, given forecast demand.

Table 1.6 WM European Gas Demand Minus Domestic Production: Net Import Requirements (bcm)

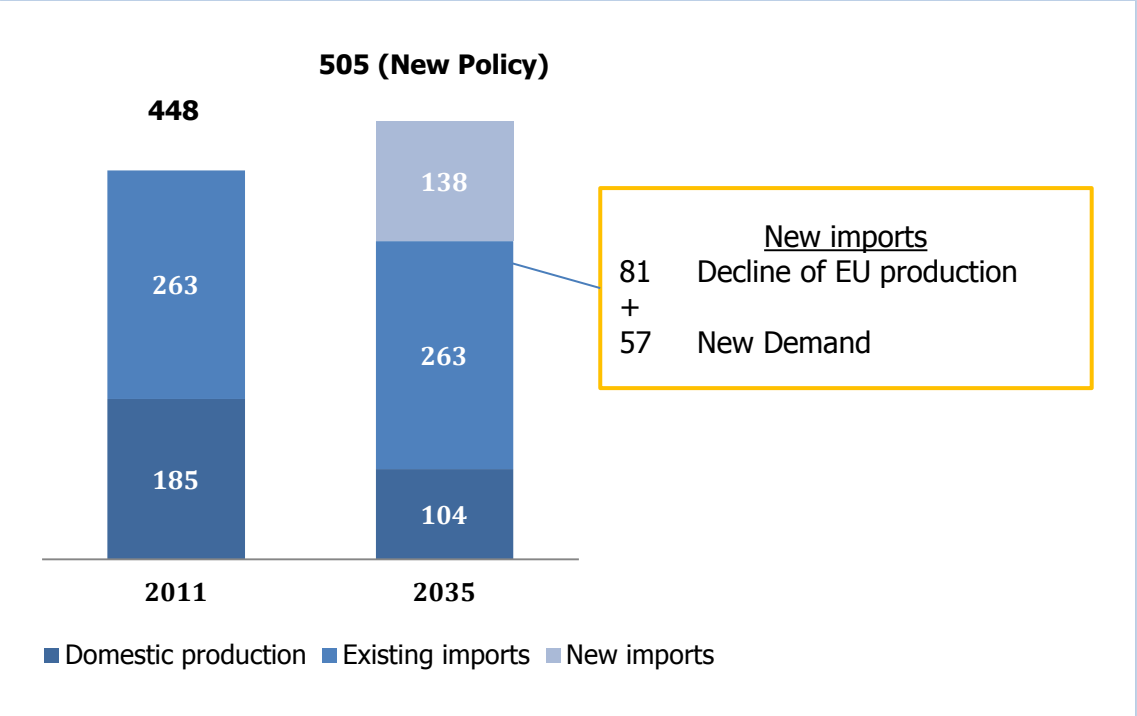
	2020	2025	2030	2035
Base case	307	366	399	438
High case	375	459	517	575
Low case	261	309	330	354

Summary

The South Stream Offshore Pipeline will respond to increased demand for foreign natural gas by providing a transport capacity of 63 bcm per year which, will be directed to the European supply network.

Results from the IEA report suggest that this capacity could contribute to the expected increased reliance on imported natural gas resulting from the combination of declining EU production and increased demand in 2035 under the New Policy Scenario (Figure 1.3).

Figure 1.3 EU Gas Demand and Import Forecast – New Polices Scenario 2010 to 2035 (bcm)



The results from the WM report suggest that the South Stream Offshore Pipeline will contribute to the expected increase in imported natural gas resulting from the combination of declining

European production and increased demand in 2030, under the Base Case Scenario (Figure 1.4).

Figure 1.4 Europe Gas Demand and Import Forecast – Base Case 2013-2035 (bcm)

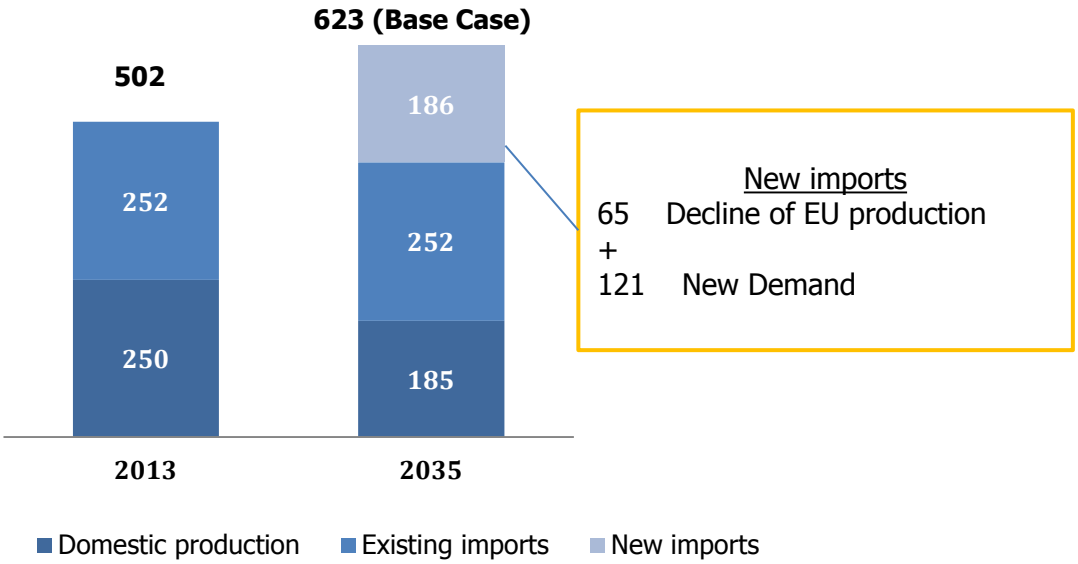


Table 1.7 contains the forecast contribution of the South Stream Offshore Pipeline to meeting future import demand for natural gas, for all IEA and WM scenarios. It shows that the contribution of the South Stream Offshore Pipeline is estimated to range from 11% to 22% under the future scenarios presented in the IEA and WM reports.

Although both the IEA 'New policy' and WM 'Base case' scenarios result in approximately the same estimated contribution being made to total import demand (i.e. 16% and 14%, respectively), this does not necessarily reflect agreement between the two estimates. As previously stated, the IEA and WM forecasts are not directly comparable because different future scenarios and geographical scopes have been used.

Table 1.7 South Stream Offshore Pipeline Forecast Maximum Contribution to Import Demand, 2035

	Potential Maximum Contribution to Total Import Demand
IEA Results	
New Policy scenario	16%
Current Policy scenario	14%
450 scenario	22%

Continued…

	Potential Maximum Contribution to Total Import Demand
WM Results	
Base case	14%
High case	11%
Low case	18%

It should be noted that these forecasts are based on the pipeline operating at full capacity. *Complete.*

1.1.2 South Stream Offshore Pipeline Proponent

The South Stream Offshore Pipeline is being developed by South Stream Transport B.V. (South Stream Transport) [4], an international joint venture established on 14 November 2012 in Amsterdam, the Netherlands, for the planning, construction, and subsequent operation of the offshore gas pipeline through the Black Sea. The Russian company Gazprom holds a 50% stake in South Stream Transport, the Italian company Eni has a 20% stake and the French energy company EDF Group and German company Wintershall each hold 15%.

1.1.2.1 Gazprom, Russia

Gazprom is the world's largest supplier of natural gas, accounting for approximately 15% of global gas production in 2012. It was established as a joint stock company in 1993, and is partly owned by the Russian state (50.002%). The company's core activities include the exploration, production, transportation, storage, processing and marketing of hydrocarbons, as well as the generation and marketing of heat and electric power.

Gazprom controls 72% of Russian gas reserves producing 74% of all Russian natural gas output. A leading company in the construction and operation of gas pipelines, it controls the world's largest gas transmission network, the United Gas Supply System of Russia, with a total length of over 168 thousand kilometres.

1.1.2.2 Eni, Italy

Headquartered in Italy, Eni is one of the world's major integrated energy companies, operating in the sectors of oil and gas exploration and production, international gas transportation and marketing, power generation, refining and marketing, chemicals and oilfield services.

[4] Previously, the Project was developed by Gazprom during 2009-2011, and then by South Stream Transport AG during 2011-2012. South Stream Transport then moved head office from Switzerland to the Netherlands and established South Stream Transport B.V. in November 2012.

1.1.2.3 EDF Group, France

The EDF Group, one of the leaders in the European energy market, is an integrated energy company active in all areas of the business: generation, transmission, distribution, energy supply and trading, including provision of natural gas supplies. The EDF Group is the leading electricity producer in Europe.

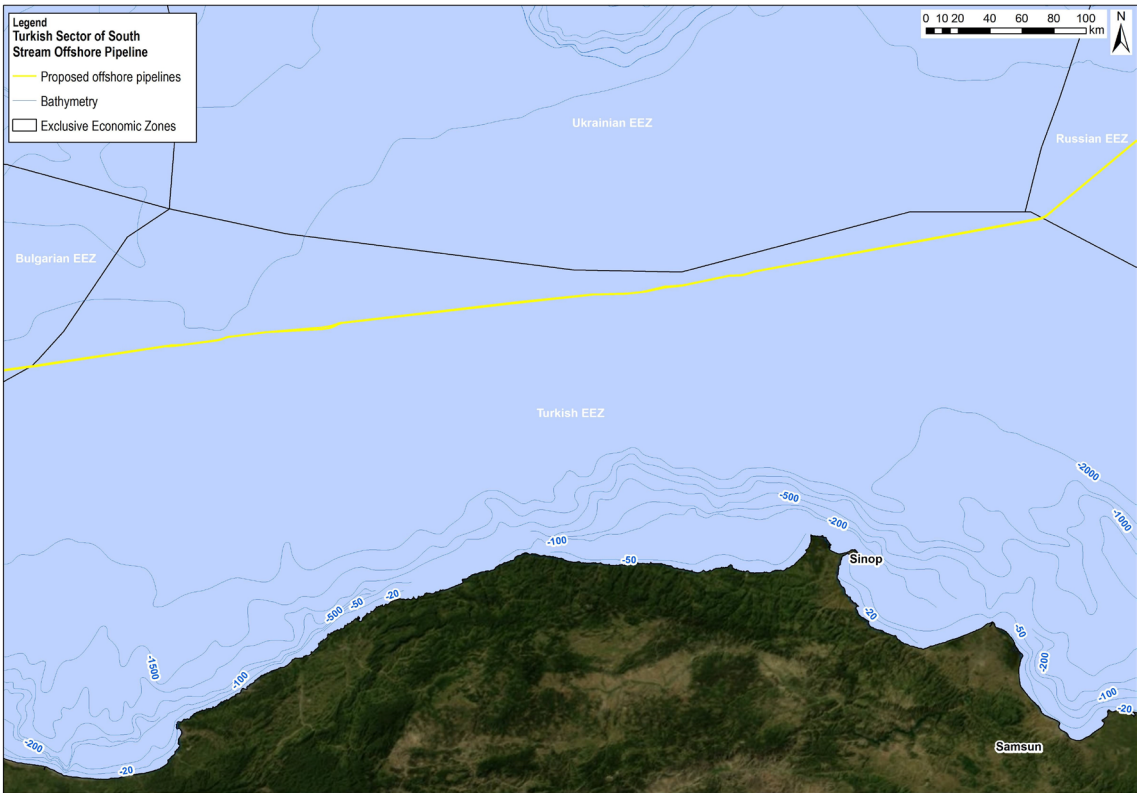
1.1.2.4 Wintershall, Germany

Wintershall, based in Kassel, Germany, is a wholly-owned subsidiary of BASF. The company has been active in the exploration and production of crude oil and natural gas for over 80 years and is now Germany's largest crude oil and natural gas producer.

1.2 Project Overview

The Turkish Sector extends approximately 470 km in length and runs through the Black Sea from the border between the Russian and Turkish EEZs in the east to the border between the Turkish and Bulgarian EEZs in the west (Figure 1.5).

Figure 1.5 South Stream Offshore Pipeline – Turkish Sector



The pipelines will be laid directly on the seabed at a depth ranging between approximately 2,000 metres (m) and 2,200 m. The water depth and the physical characteristics of the Black

Sea present a challenge for the Project and have influenced a number of key technical decisions, including the routing of the pipelines and the siting of the landfall facilities.

Further details on the Project and the proposed activities that will be carried out can be found in **Chapter 5 Project Description**.

The Russian and Bulgarian sectors of the South Stream Offshore Pipeline are the subject of separate ESIAs and, therefore, they are not considered in detail within this ESIA report with the exception of potential cumulative impacts (**Chapter 14 Cumulative Impact Assessment**).

1.2.1 Project Area

The Project Area is some 470 km in length and 2 km in width, extending along an east west orientation across the north of the Turkish EEZ. Its length is defined by the distance between the points where the four pipelines cross from the Russia and Turkey EEZ and Turkey and Bulgaria EEZ boundaries. Its width is defined by the width of the initial proposed corridor in which the pipelines would be laid, which was informed by the Front End Engineering and Design (FEED).

Since FEED, South Stream Transport has discussed the dimensions of the Project footprint with the relevant Turkish authorities. The Project footprint is defined as the area on the seabed encompassing the four pipelines and a safety zone either side of the outermost pipelines, which precludes any third party seabed activities within this zone. As a result of these consultations, it is proposed that the pipelines will be laid within a 420 m width corridor, in agreement with the relevant Turkish authorities. The corridor accommodates the four pipelines and Operational Safety Zone either side of the outermost pipelines, which will serve as the permanent Project footprint.

The pipelines will be laid in parallel, and in general, the distance between the pipelines will be 100 m, although this may vary locally in response to specific sea bed conditions.

Construction activities associated with the installation of the offshore pipelines will also require a number of vessels and support from ports in Russia and/or Bulgaria that will service the South Stream Offshore Pipeline as a whole.

During construction, a navigational Safety Exclusion Zone is proposed of 2 km radius centered on the pipe-lay vessel. This will be agreed with the relevant maritime authorities which will, in turn, ensure that it is communicated to vessels in passage in the vicinity of the pipe lay vessel. There are no plans for more than one pipe lay vessel to be operating within the Turkish EEZ at any one time.

There are no onshore facilities in Turkey. Furthermore, no temporary facilities associated with the Project will be constructed in Turkey and no Turkish ports will be used during the Project. At its closest point, the Project Area is approximately 110 km from the Turkish mainland.

1.2.2 Associated Facilities

Associated Facilities are defined by the OECD Common Approaches[5] (Ref. 1.8) as follows:

"…facilities that are not a component of the project but that would not be constructed or expanded if the project did not exist and on whose existence the viability of the project depends; such facilities may be funded, owned, managed, constructed and operated by the buyer and/or project sponsor or separately from the project."

The Equator Principles (Ref. 1.9) reference Associated Facilities indirectly through the International Finance Corporation (IFC) Performance Standards (PSs)[6] (Ref. 1.10).

Based on the above definitions, the Project (Turkish Sector) has no Associated Facilities.

1.2.3 South Stream Pipeline System

The South Stream Pipeline System consists of one offshore and four onshore components as summarised in Table 1.8.

Table 1.8 South Stream Pipeline System

Component/Developer	Key Data	EIA Status (as of 1 April 2014)
South Stream Offshore Pipeline being developed by South Stream Transport B.V.	Length: 931 km (Russia 230 km, Turkey 470 km, Bulgaria 230 km)	**Russia**: EIA was approved by State Expert Review in March 2014. **Turkey**: EIA report approval by Ministry of Environment and Urbanisation expected in May 2014. **Bulgaria**: EIA approved by the Ministry of Environment and Water in January 2014.
South Stream Pipeline Bulgaria being developed by South Stream Bulgaria AD	Length: 538 km Compressor Stations: 3 (Varna, Lozen and Rasovo) 300 MegaWatt (MW) aggregate capacity	EIA approved by the Ministry of Environment and Water in August 2013.

Continued…

[5] OECD Common Approaches are the environmental and social standards applicable to the Project. Further details are provided in **Chapter 2 Policy, Regulatory and Administrative Framework**.

[6] IFC PS1 paragraph 8: Associated Facilities are defined as *facilities that are not funded as part of the project and that would not have been constructed or expanded if the project did not exist and without which the project would not be viable*.

Component/Developer	Key Data	EIA Status (as of 1 April 2014)
South Stream Pipeline Serbia being developed by South Stream Serbia AG	Length: 422 km Compressor Stations: 1 (with 225 MW aggregate capacity)	EIA approved by the Ministry of Energy Development and Environmental Protection in December 2013
South Stream Pipeline Hungary being developed by South Stream Hungary Zrt	Length: 299 km Compressor Stations: 1 (100 MW capacity)	EIA to be submitted to authorities in January 2015
South Stream Pipeline Slovenia being developed by South Stream Slovenia d.o.o	**Length**: 266 km **Compressor Stations**: 2 (128 MW aggregate capacity)	EIA to be submitted to authorities in 2014/2015
TOTAL	**Length**: 2,456 km **Compressors Stations**: 8	

Complete.

The components of the South Stream Pipeline System on the territory of Bulgaria, Serbia, Hungary, and Slovenia are separate projects and are subject to separate EIAs in compliance with national legislations.

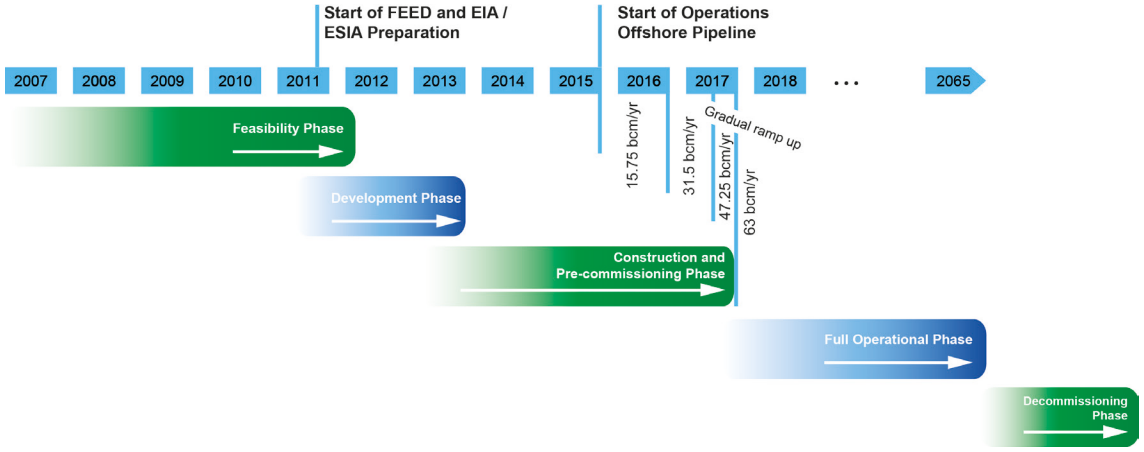
1.2.4 South Stream Offshore Pipeline Phases and Timeline

South Stream Offshore Pipeline development includes five key phases:

- **Feasibility Phase** (2007 to early 2012) initiated by Gazprom. This Phase involved the development of Feasibility Studies in which a number of gas pipeline routes and landfall options were assessed and a preliminary engineering (conceptual) design was developed;
- **Development (or Design) Phase** (late 2011 to late 2013) undertaken by South Stream Transport. This Phase involves development of the FEED together with the national EIA Application File, Scoping Report and Turkish national EIA. This Phase also includes development of the ESIAs and Environmental and Social Management Plans (ESMPs) to meet the international standards and guidelines for financing;
- **Construction and Pre-Commissioning Phase** (2014 to end 2017). This Phase will involve construction activities and a number of activities, known as pre-commissioning activities, which will be undertaken after each pipeline has been installed to ensure that the pipelines meet operational requirements;
- **Operational Phase (consisting of Commissioning and Full Operational Phase)** (2017 to 2065). The Project will have an operational design life of 50 years; and
- **Decommissioning Phase** (2065 onwards).

An indicative timeline for the South Stream Offshore Pipeline is provided in Figure 1.6.

Figure 1.6 South Stream Offshore Pipeline Timeline



1.3 EIA and ESIA Requirements for the Project

The Project is subject to impact assessments for national regulatory and international financing requirements.

As the Project is located within the EEZ of Turkey, the Project has submitted an EIA Report in accordance with Turkish regulatory requirements.

As the Project will be subject to project financing, this ESIA is aligned with the environmental and social performance standards and guidelines set by International Financial Institutions.

The environmental and social standards and guidelines of the Project are as follows:

- The OECD Common Approaches on the Environment and Officially Supported Export Credits, dated 2012 (Ref. 1.8);
- The Equator Principles III (2013) (Ref. 1.9);
- Japan Bank for International Cooperation ("JBIC") Guidelines for Confirmation of Environmental and Social Consideration, dated 2012 (Ref. 1.11); and
- The IFC Performance Standards (2012) (Ref. 1.10) and World Bank Group Environmental Health and Safety (EHS) Guidelines, which underpin the OECD Common Approaches and Equator Principles III.[7]

This ESIA Report has been prepared by URS Infrastructure & Environment UK Limited (URS) in accordance with the international standards and guidelines described above. A Turkish

[7] As per IFC PS, South Stream Transport is committed to implementing Good International Industry Practice (GIIP) in relation to environmental and social performance in all phases of the South Stream Offshore Pipeline. Further details on the standards and guidelines relevant to this ESIA Report are included in **Chapter 2 Policy, Regulatory and Administrative Framework**.

consultancy, ELC Group, prepared the EIA documentation in compliance with national requirements.

Information from the national EIA process preceded and therefore informed this ESIA Report. URS further addressed a number of issues that were necessary to meet requirements and standards for international financing. URS and ELC Group coordinated the technical development of the ESIA and EIA chapters to ensure consistency of methodology, approach and content as far as practicable.

Nevertheless, there are differences between the two documents in relation to their format, content and in the assessment of some impacts. These variances are due mainly to the difference between the Turkish EIA regulatory requirements and conventional ESIA practice as set out in the standards and guidelines for international financing.

1.4 Objectives of this ESIA

In accordance with the Equator Principles and the OECD Common Approaches, the objectives of this ESIA Report are based on those of IFC PS1: Assessment and Management of Environmental and Social Risks (Ref. 1.12), which are:

- *"To identify and evaluate environmental and social risks and impacts of the project;*
- *To adopt a mitigation hierarchy to anticipate and avoid, or where avoidance is not possible, minimize, and, where residual impacts remain, compensate/offset for risks and impacts to workers, affected communities, and the environment;*
- *To promote improved environmental and social performance of clients through the effective use of management systems;*
- *To ensure that grievances from affected communities and external communications from other stakeholders are responded to and managed appropriately; and*
- *To promote and provide means for adequate engagement with affected communities throughout the project cycle on issues that could potentially affect them and to ensure that relevant environmental and social information is disclosed and disseminated."*

1.4.1 Area of Influence of the Project

This ESIA Report has been prepared taking into consideration the definition of Project Area of Influence provided by IFC PS1 (Ref. 1.12) which states:

"Where the project involves specifically identified physical elements, aspects, and facilities that are likely to generate impacts, environmental and social risks and impacts will be identified in the context of the project's area of influence. This area of influence encompasses, as appropriate:

- *The area likely to be affected by:*
    - *The project and the client's activities and facilities that are directly owned, operated or managed (including by contractors) and that are a component of the project;*

- *Impacts from unplanned but predictable developments caused by the project that may occur later or at a different location; or*
- *Indirect project impacts on biodiversity or on ecosystem services upon which Affected Communities' livelihoods are dependent.*

- *Cumulative impacts that result from the incremental impact, on areas or resources used or directly impacted by the project, from other existing, planned or reasonably defined developments at the time the risks and impacts identification process is conducted."*

Consistent with the definition provided above, the Project Area of Influence includes those areas likely to be impacted by the main Project Facilities, and in the case of cumulative impacts, incremental impacts from other developments, unrelated to the Project, that will take place within the vicinity of the Project Area.

1.4.2 Cumulative and Transboundary Impacts

While the activities associated with a single project may or may not result in significant impacts, the "cumulative" effects of simultaneous projects, may be more significant and should be considered within an ESIA. This ESIA Report adopts the IFC PS (Ref. 1.10) definition of cumulative impacts which are defined as:

"*Cumulative impacts are those that result from the incremental impact of the Project when added to other existing, planned and reasonably predictable future projects and developments."*

Cumulative impacts may occur as a result of interactions between any residual (i.e. post-mitigation) Project impacts, and the impacts of other activities or developments in the vicinity of the Project Area.

Further details of the schemes considered within the cumulative impact assessment are provided in **Chapter 14 Cumulative Impact Assessment**.

Where specific impacts are anticipated to extend across Project Area boundaries (Section 1.2.1), the ESIA Report provides a description of the potential geographical extent associated with the impact. In particular, the potential for transboundary impacts (i.e. the potential for the Project Area of Influence to extend across Turkish national boundaries) is discussed in **Chapter 15 Transboundary Impact Assessment.**

As a supplement to the ESIA Report, an **ESIA non-technical summary (NTS)** has been prepared. The NTS describes the findings of the ESIA Report, including the potential environmental and social impacts, and actions that will avoid, reduce, or mitigate those impacts.

1.4.3 Structure of the ESIA Report

The ESIA chapter titles and a summary of the approach and content are provided in Table 1.9.

Table 1.9 ESIA Report Structure

ESIA Report Structure	
1. Introduction	Presents an overview of the South Stream Offshore Pipeline – Turkish Sector and the objectives of the ESIA Report. This chapter also details the purpose and scope of the ESIA Report.
2. Policy, Regulatory and Administrative Framework	The chapter includes: • Description of the Turkish regulatory process to be followed for all Project Activities; • Identification of Turkish environmental and social legislation of relevance to the Project; • Identification of international treaties and conventions to be adhered to; and • Identification of international standards and guidelines of relevance to the Project.
3. Impact Assessment Methodology	The chapter includes: • A description of the ESIA process; and • A description of the impact assessment methodology and of the adopted impact significance criteria.
4. Analysis of Alternatives	A comparison of the developmental options considered in the Project design phase including the 'zero' alternative, alternative gas transportation options and routing options.
5. Project Description	A detailed description of: • Project infrastructure; • Construction methodologies and staging; • Operational conditions and maintenance requirements; and • Decommissioning process.
6. Stakeholder Engagement	A summary of all Project consultation undertaken, the issues raised, and where these issues have been addressed within the ESIA documentation. The chapter also describes future consultation activities.

Continued…

ESIA Report Structure	
7. Physical and Geophysical Environment *8. Biological Environment* *9. Socio-Economic* *10. Cultural Heritage*	These chapters include: • Description of the methods used and results from surveys and secondary data review to define baseline conditions relevant to the technical discipline; • Assessment of potential impacts arising from all phases of the Project and related activities; • Identification of design controls and practicable mitigation measures to be applied; and • Assessment of residual impacts associated with the Project following mitigation and the need for monitoring of residual impacts.
11. Ecosystem Services	The chapter includes: • Description of the methods used and results from surveys and secondary data review to define the scope of the ecosystem services assessment and the baseline conditions for the ecosystems present in the Project Area and their associated services and benefits; • Nature and significance of the potential impacts on ecosystem services and their beneficiaries arising from all phases of the Project and related activities; • Priority ecosystem services; • Practicable mitigation measures to be applied; and • Nature and significance of residual impacts associated with the Project following mitigation and the need for monitoring of residual impacts.
12. Waste Management	The chapter includes: • Description of the legal and regulatory framework applicable to the Project based on wastes anticipated to be generated by Project activities; • Identification of available waste facilities for the Project; • Assessment of potential impacts arising from the management of wastes; • Identification of practicable mitigation measures to be applied; and • Assessing the significance of the residual impacts post mitigation.
13. Unplanned Events	The chapter includes: • Description of the potential unplanned events and impacts that may arise as a result of the Project; • Identification of design control and mitigation measures able to be undertaken; and • Discussion of the residual risk posed by the identified unplanned events and relevant monitoring requirements.

Continued…

ESIA Report Structure	
14. Cumulative Impact Assessment	A description of the potential cumulative impacts as a result of Project development and other existing and proposed developments in the vicinity of the Project Area.
15. Transboundary Impact Assessment	A description of the potential for transboundary impact that may arise as part of the Project.
16. Environmental and Social Management	An outline of the key management measures, processes and monitoring requirements to be undertaken, based on the outcomes of the impact assessment.
17. Conclusions	A summary of the residual impacts arising as a result of the Project and provision of overall conclusions as to the overall environmental and social significance of impacts arising from the Project.

Complete.

1.5 Related South Stream Offshore Pipeline Impact Assessment Documents

In addition to this ESIA Report and the Turkish EIA Report that have been prepared specifically for the Turkish sector, additional impact assessment documentation has been prepared for the other host countries of the South Stream Offshore Pipeline, specifically:

- A Russian EIA Report to meet Russian regulatory requirements;
- A Russian ESIA Report to address international financing standards and guidelines for the Russian Sector;
- A Bulgarian EIA Report to meet Bulgarian regulatory requirements; and
- A Bulgarian ESIA Report to address international financing standards and guidelines for the Bulgarian Sector.

References

Number	Reference
Ref. 1.1	International Energy Agency, World Energy Outlook 2013, Annex A.
Ref. 1.2	International Energy Agency, World Energy Outlook 2013, Table 3.2.
Ref. 1.3	International Energy Agency, World Energy Outlook 2013, Table 3.4
Ref. 1.4	International Energy Agency, World Energy Outlook 2013 Table 3.6
Ref. 1.5	International Energy Agency, World Energy Outlook 2013
Ref. 1.6	BP, Statistical Review of World Energy 2013.
Ref. 1.7	Wood Mackenzie 2013 South Stream Offshore Pipeline Lenders' Gas Market Consultant: Final Draft Gas Market Report.
Ref. 1.8	Organisation for Economic Co-operation and Development (OECD) Revised Council Recommendation on Common Approaches for officially supported export credits and environmental and social due diligence (June 2012). http://search.oecd.org/officialdocuments/. Accessed 24 September 2013.
Ref. 1.9	Equator Principles (June 2013). http://www.equator-principles.com. Accessed 24 September 2013.
Ref. 1.10	International Finance Corporation (IFC) Performance Standards on Environment and Social Sustainability (January 2012). http://www1.ifc.org. Accessed 24 September 2013.
Ref. 1.11	Japanese Bank for International Cooperation (August 2012), http://www.jbic.go.jp/en. Accessed 31 October 2013.
Ref. 1.12	International Finance Corporation (IFC) 2012. Performance Standard 1: Assessment and Management of Environmental and Social Risks and Impacts. http://www1.ifc.org. Accessed 21 January 2013.