



## Introducing TurkStream

Thank you for taking the time to read the information in this folder. It is important to us that residents of Kiyikoy and neighboring towns are well informed about the TurkStream gas pipeline project.

A major project like TurkStream has certain impacts, which we are fully aware of that. We cannot take that away completely. We do recognize our responsibility to minimize our environmental and social footprint and we are committed to developing the TurkStream offshore pipeline in line with good international industry practice.

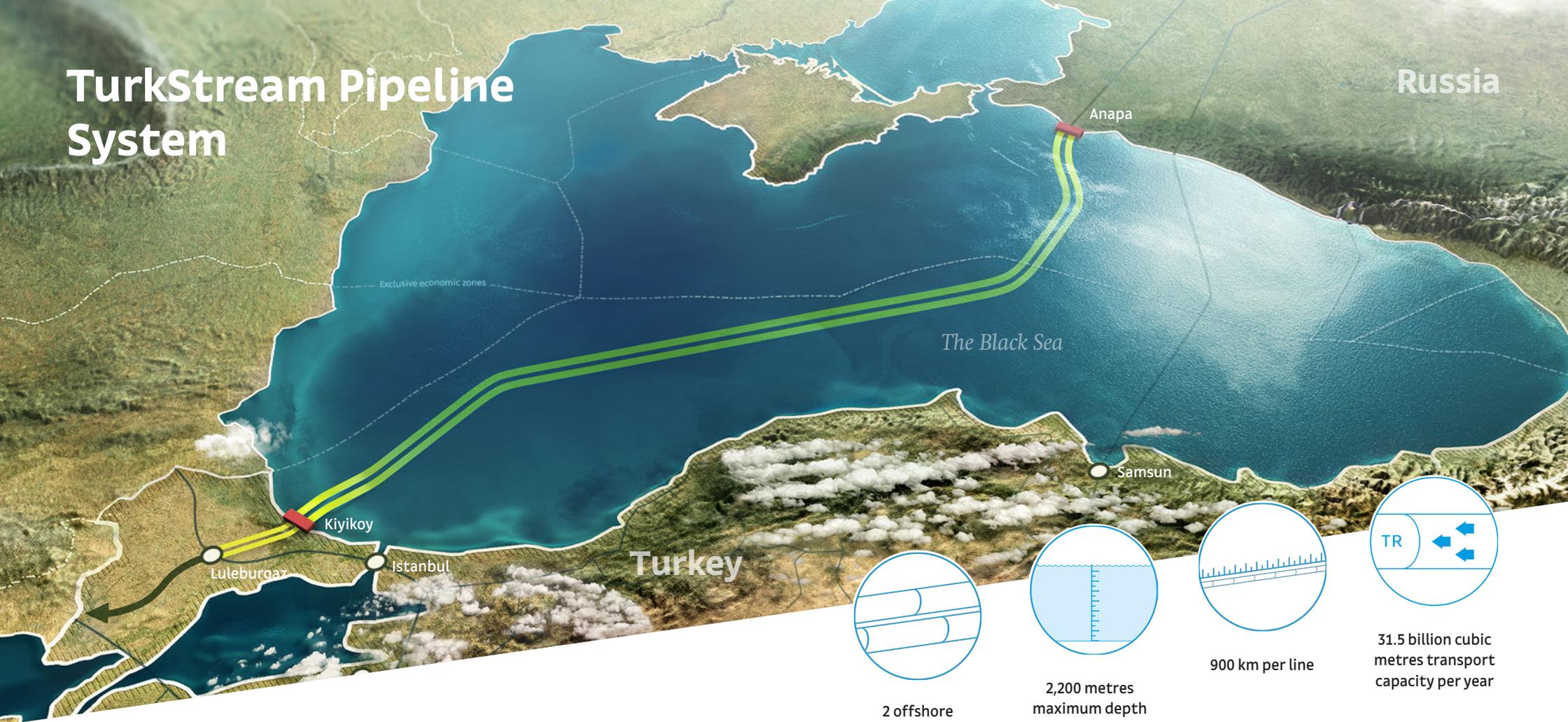
We have identified how our project might affect Kiyikoy and the region and have designed measures to address this. This folder will inform you about measures to protect significant economic livelihood areas in the region like fisheries, forestry, tourism, animal husbandry, as well as the environment and the cultural heritage. We acknowledge that these subjects are important for the residents of the region.

In addition to such measures, we are also keen to be a good neighbor for Kiyikoy. Therefore, we have established a Community Investment Program to support socio-economic development and environmental initiatives in and around Kiyikoy.

If you have questions, suggestions or comments, please feel free to contact us. Our Community Liaison Officer is in town frequently and can meet you in person.

Kind regards,  
Erol Yazici  
Construction lead onshore Turkey

# TurkStream Pipeline System



## The TurkStream Project

The TurkStream Gas Pipeline System will directly connect the large gas reserves in Russia to the Turkish gas transportation network, to provide reliable energy supplies for Turkey and Europe. The Pipeline will carry a total of 31.5 billion cubic meters of natural gas, half of which will be used in the Turkish market and the other half to be delivered further into Europe.

The pipeline system will consist of offshore and onshore sections. The TurkStream Gas Pipeline – Offshore Section comprises two parallel pipelines running for approximately 930 km across the Black Sea. Both offshore pipelines will start near Anapa on the Russian coast, and land on the Turkish coast near Kiyikoy where they will connect to a receiving terminal. The offshore section, including the receiving terminal, will be designed and constructed by South Stream Transport B.V., a

subsidiary of Russian gas company Gazprom. The onshore sections will bring the gas from the receiving terminal further inland. Of the two onshore pipelines, BOTAS will develop the first line in Turkey, which will connect to the Turkish network at Luleburgaz. The second onshore line, which will run towards the Turkish – European border, will be constructed jointly by Gazprom and BOTAS.

More than 200 experts from 25 countries including Turkish, Russian and European professionals, will make sure that both Turkish and international standards are followed in the design and construction of the Turkstream Gas Pipeline – Offshore Section. We are committed to ensuring that the offshore section of the project is carried out in a safe, healthy, environmentally friendly and socially responsible manner.

## Offshore Pipelines

The two offshore pipelines will be buried under the seabed for approximately the first 2 km from the shore at the Turkish landfall location. After that, the pipelines will be laid directly on the seabed for the rest of the route through the Black Sea.

## Receiving Terminal

The incoming gas from the offshore pipeline is received at the receiving terminal. Here the volume of the gas is measured and the gas is pressure controlled and heated before it moves further into the onshore pipeline. There will be no gas storage in the receiving terminal.

The receiving terminal will take up an area of land approximately 450 m x 600 m in size, and will be designed and built in accordance with internationally recognised health, safety, security and environmental standards. There will be no restrictions to access the area around the receiving terminal after construction.

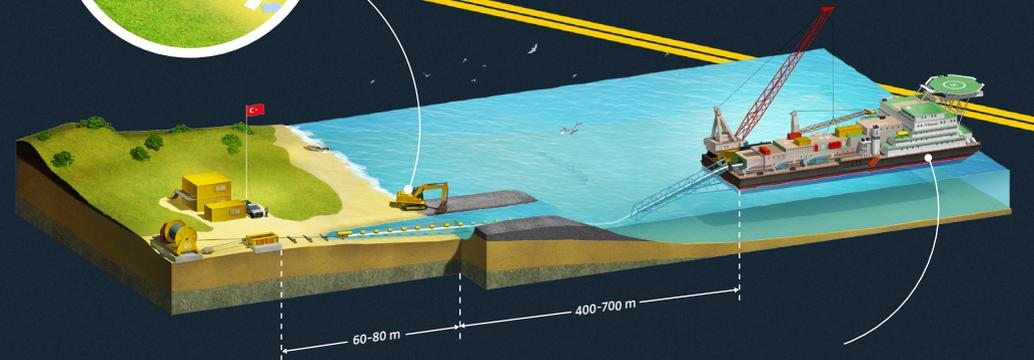
We aim to develop the receiving terminal with the least possible visual impact. Based on visual assessments we have undertaken, the receiving terminal will not be visible from the beach, although parts of the terminal may be seen from some high vantage points in Kiyikoy. We are continuing to investigate measures to further reduce any visual impacts through screening.

## Shore-Crossing

The pipelines will then cross the shore at the very northern end of Selves beach using an open-cut technique. This will involve digging a trench directly on the beach to then lay and bury the pipeline. The seashore and the beach will be fully restored to its original condition once construction is complete.



We will bury the pipelines and restore the beach after construction.



Vessel for pipe laying near the shore

The port of Kiyikoy will remain open during construction and when the pipeline is in operation

Kiyikoy

1900 m

## Respect for the environment and the community

We aim to build the pipeline with as little impact on the environment and people as possible, following Turkish and international health and safety, environmental and social standards.

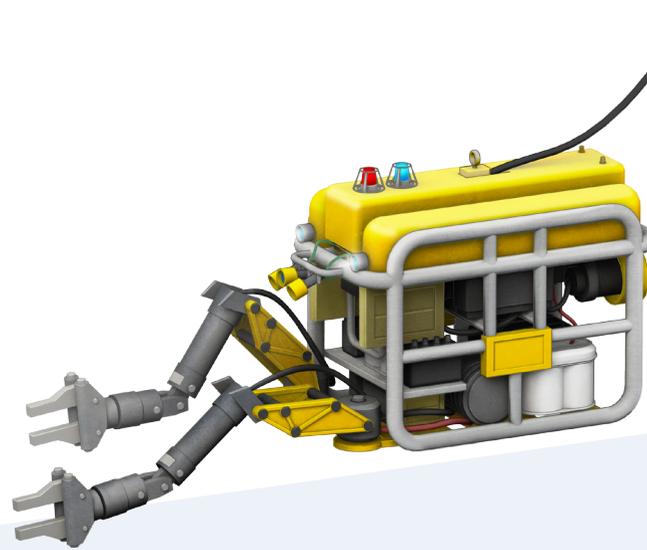
We are conducting environmental and social studies, to understand the impacts of the Project and develop measures to protect the social and economic assets of the community from any effects.

Our primary objectives are to:

- Avoid or minimise negative Project impacts on the environment and communities, including any economic impacts on livelihoods and disruption caused by construction;
- Where negative impacts cannot be avoided or minimized, compensate impacts;
- Restore land to previous conditions as far as possible after construction;
- Maximize the potential economic benefits from the project's construction and operational activities in and near Kiyikoy.
- Identify and undertake activities to support the economic and social development of Kiyikoy through community investments.



We have undertaken extensive ecological, social, economic and cultural heritage assessments to understand the effects of the pipeline, develop measures to avoid and minimise any impacts and provide a baseline to monitor changes.

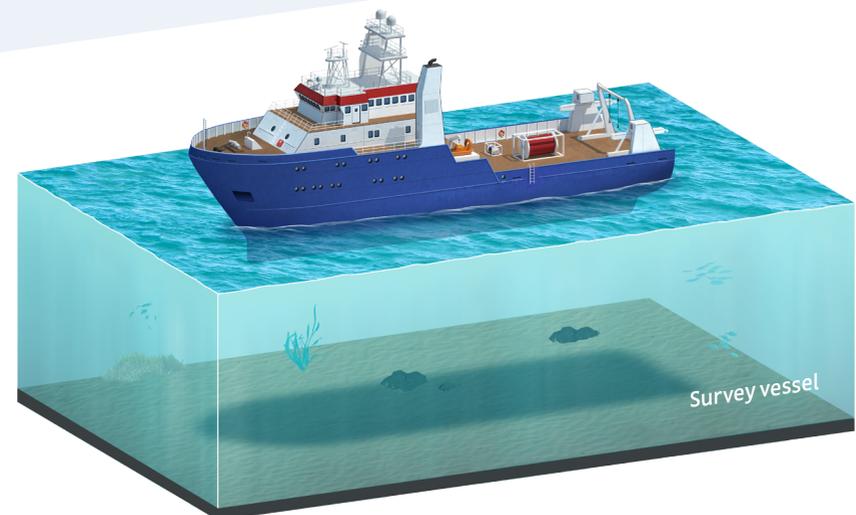


Using a remotely operated vehicle (ROV) is one of the methods we use to investigate the seabed in detail. The ROV makes it possible to film in the deep seas. It can also carry other instruments such as sonar and a magnetometer. We make sure that all relevant objects are identified.

## Surveying

We have already completed more than 16,500 km of offshore surveys to learn more about the Black Sea as well as extensive onshore surveys, to develop measures to preserve and protect the environment and ecology of the sea. We have also completed an environmental impact assessment (EIA), prepared by the independent company ELC Group Consulting & Engineering. These surveys and studies will feed into environmental and social management and monitoring processes which will be implemented during both construction and operation of the offshore section of the pipeline.

We will carry out meetings in Kiyikoy and present our findings, so that you may give your feedback.



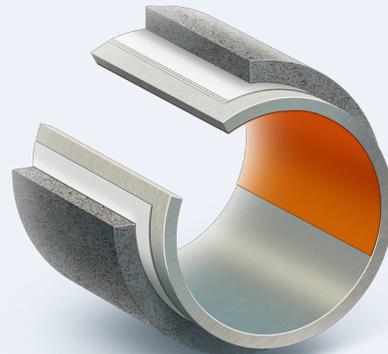
## Pipeline Construction

The TurkStream Gas Pipeline – Offshore Section is a major project that will be built with the most advanced technology available. Construction onshore and in the sea is already underway in Russia. Construction in Turkey near Kiyikoy is expected to start by early 2018, and last approximately 24 months in total. Construction activities will cover three main areas: the shore-crossing, the onshore pipeline and the receiving terminal and these activities will all take place simultaneously.

The shore-crossing construction process is anticipated to take place over an 18 month period, although construction activities are only expected to last for 8 months with periods of inactivity in between. There will be temporary safety restrictions on the beach and in the shore around the area where construction is taking place, but most of the Selves beach and the shore can continue to be used for recreation and by vessels.

The onshore pipeline from the beach to the receiving terminal will take approximately 12 months to complete. Construction of the receiving terminal will take approximately 24 months, including site preparation, civil works and installation of equipment.

The pipes are made of exceptionally strong steel, with a thickness of almost 4 cm, and are built to withstand deep water and the Black Sea environment.



## Safety and Security

An underwater gas pipeline is statistically one of the safest means of transporting energy resources. Underwater gas pipelines have been operating safely around the world since the 1950s. Moreover, there are numerous examples across the world of pipelines buried under beaches that are still in use for tourism and recreation. A recent example is the Blue Stream pipeline that carries gas from Russia to Turkey across the Black Sea and has been operating since 2002 with no harm to the environment or people. The Turkstream Gas Pipeline – Offshore Section is designed in accordance with high international industry standards with regard to health, safety, security and emergency planning to ensure that the facilities, residents and visitors to the area are protected in every way possible.



Onboard *Pioneering Spirit*, the pipe joints are welded together.

## Construction at Sea

At sea, the pipeline will be laid by a special construction vessel. The pipelines will be laid directly on the seabed for the majority of the route through the Black Sea. In the nearshore area in Turkey, the two offshore pipelines will be buried under the seabed for approximately the first 2 km from the shore.

The pipe-laying vessel used near the shore will be about 150 metres in length and will operate near Kiyikoy for several weeks in total. Before pipe laying, there will also be some smaller vessels preparing the area near the shore where the pipes are to be buried. Dredging activities near the shore should take no more than 4 months in total. During construction activities, a safety zone will be in place around these vessels.

We are committed to minimising any disruption for the community and marine activities during construction, and the fishing port will remain open during this time. We will discuss any safety measures regarding construction activities with the community in advance, and we will always be available for questions throughout the construction process.



## Onshore Construction Works

From Kiyikoy, an underground pipeline will be developed connecting TurkStream to the existing network at Luleburgaz. The route will continue from there to its end point at the European border. For this onshore section, a separate Environmental Impact Assessment is conducted to evaluate the impact and to design effective mitigation measures.



We will use safe and proven technology, as well as state-of-the-art materials and equipment, to guarantee safe operation for several decades.

Some temporary effects such as disruption or nuisance to the local environment and communities may result from construction works. We aim to minimise these impacts as far as possible by implementing the following measures:

- Traffic management measures prioritising the safety of people and livestock, and minimizing disruption to residents and communities;
- Design measures to avoid impacts on local water resources;
- Measures to control dust emissions and noise levels;
- Land and habitat restored to its former condition after construction activities are completed;
- A programme of environmental and social monitoring to confirm that mitigation measures are effective and to ensure that any unforeseen impacts are quickly identified and addressed;
- A dedicated Community Liaison Officer to provide project information, updates and manage community relations;
- A grievance (complaints) process so that any issues are reported and investigated during construction;
- A compensation process for impacts that cannot be avoided or mitigated;
- Suitable employment positions advertised in the community.

A strip of land a maximum of 150 metres wide will be temporarily cleared to serve as a construction corridor

The top-soil will be stored so that it can be put back in place after construction

Individual pipes are laid out and bent into shape if needed

The pipe is lowered into the trench

The pipe is buried at a depth of at least 1.5 metres

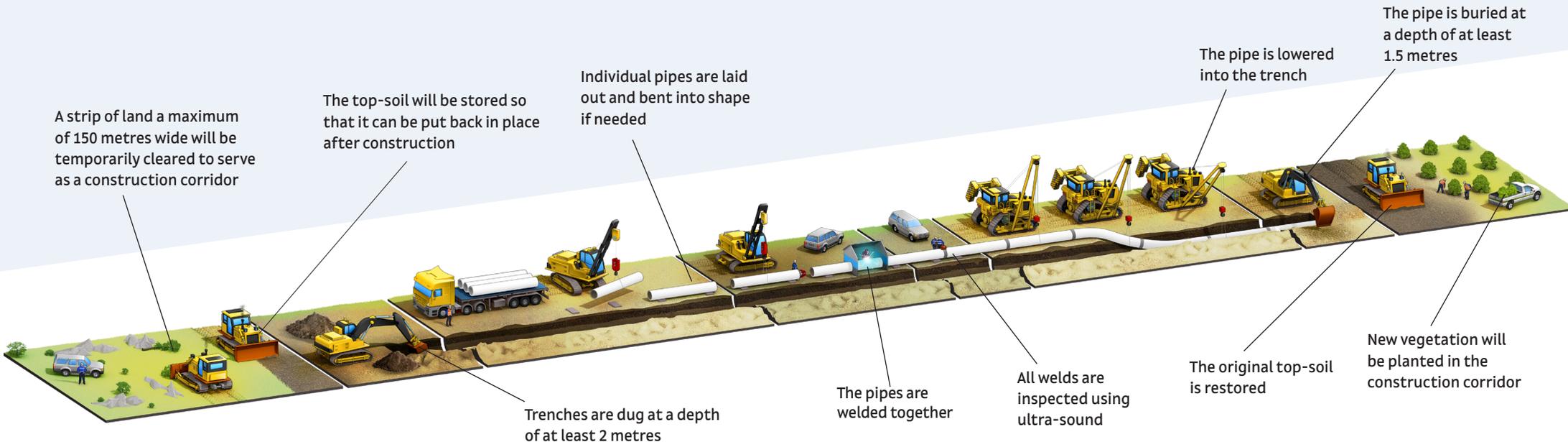
Trenches are dug at a depth of at least 2 metres

The pipes are welded together

All welds are inspected using ultra-sound

The original top-soil is restored

New vegetation will be planted in the construction corridor



## Tourism

We understand that tourism is a key contributor to the economy of Kiyikoy. We have designed the project to minimise or avoid any negative impacts on tourism in Kiyikoy. To preserve Selves beach, we have located the shore-crossing at the very north end of the beach in an enclosed area separate from the main Selves beach.

We will ensure the preservation of the beach and its surroundings, and we will take great care before, during, and after construction to minimise the impact on the environment and the disruption to local residents and visitors.

As a precautionary measure, there will be some temporary restrictions to public access and swimming in the area immediately surrounding our construction activities on the beach and in the shore to ensure the health and safety of the public. Any temporary restrictions will be notified to beach users. However, our activities will not shut off or restrict access to the main part of Selves beach during construction.

After construction, the beach will be restored to its previous condition and the Project will not cause any temporary or permanent restrictions on the use of Selves beach. As the pipelines will be buried underground, they will not be visible to any visitors to the beach.

According to current plans, the receiving terminal and the pipelines will not be visible from the beach or the nearshore area, although some parts of the receiving terminal may be seen from some high vantage points in Kiyikoy. We will undertake some extra measures to reduce the visual impact even further.

Under our Community Investment Programme, we intend to invest in projects that will support the development of the tourism industry in Kiyikoy. We have already approved projects to improve facilities on the Municipal beach, including safety measures. In the long-term, we will explore additional investments in collaboration with the local community.





## Forestry

One of our main considerations in designing the project is the environment and the forests in the region. The pipeline route was carefully chosen to limit the effect on local forests. While a number of trees will be lost during construction on land, the entire area used by the project will affect less than 0.1% of the total forest land in Kiyikoy.

As well as paying the legal compensation fees to use forest land, we will restore land and habitats affected by our construction to their previous conditions and undertake additional measures to address the loss of forest. As deep rooted vegetation cannot be planted directly over the pipeline route, these strips of land will be replanted with shrubs and grass.

It will be necessary to cut trees to be able to lay the onshore section of the pipeline and to build the receiving terminal. Therefore, we will initiate a replantation program after construction to restore the land to its previous conditions.



We recognise that forestry activities are an important source of income and fuel within Kiyikoy. We intend to work closely with the local forestry directorate and local forestry industry to identify measures to enhance the local benefits of the tree-cutting that is required, minimise the impact of the project on forestry activities and to identify programs that can support economic activities surrounding forestry.



We will ensure that livestock in the area are protected at every stage of construction and can continue to safely graze. To this effect we will fence construction sites, manage traffic movements in areas where livestock are present, and design measures to ensure safe passage for livestock where necessary.

## Animal Husbandry

We are aware of the importance of animal husbandry in Kiyikoy and that Selves is widely used for this purpose. During construction and operation, we will take all necessary measures to ensure the safety of people and livestock involved in husbandry. There will be no permanent impact on livestock while the Project is in operation, although there may be some temporary disturbance during construction, which we will seek to minimize as far as possible.

Before and during construction we will work with the Animal Husbandry Cooperative, enterprises involved in animal husbandry and the relevant authorities to minimize disruption and provide safe access to existing grazing areas or identify alternative routes that people engaged in animal husbandry and livestock can continue to use. We will also aim to identify measures to provide alternative areas for grazing or husbandry if these are affected during construction.

After construction, the land will be restored and animals can freely move and graze above the pipeline.



## Fisheries

We recognise the importance of fishing to the Kiyikoy community. Approximately one quarter of Kiyikoy residents work in the fishing industry and it is one of the main sources of income in the community. As such, we intend to design the Project to avoid impacts on fish and fishing.

The construction activities in the nearshore include dredging and pipe laying. During this period, there will be navigational safety zones around construction vessels to avoid other vessel interactions. These safety zones will be temporary and short-term in duration. The largest safety zone will be 2 kilometers in radius and will only be applied for a few days while the largest pipe-laying vessel is operating near Kiyikoy. It is not expected that these safety zones will restrict access to other local fishing grounds, and fishing activities can continue as normal outside these safety zones.

We will continue dialogue with local authorities and the Fishing Cooperative to share information about ongoing construction activities to minimise any disturbance to fishing activities. The Kiyikoy port will remain open during this time. During nearshore construction, we will implement environmental management plans to minimise disturbance to marine environment and biodiversity, and monitor any effects on fishing activities in liaison with the Fishing Cooperative.

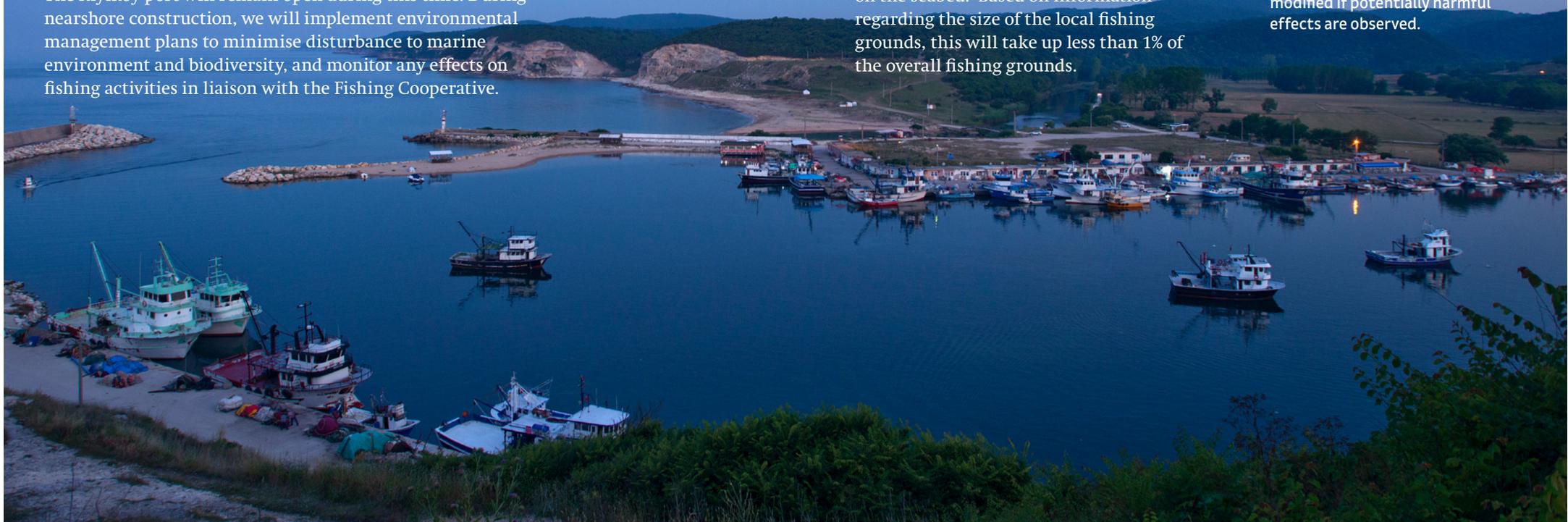
Research has been conducted on the effects of pipelines on fish for similar offshore pipelines indicating no temporary or permanent negative effects on fish migrations or populations, and fish will continue to remain in the area after pipelines are laid.

Nearshore excavations will be limited in width and length along the pipeline route to bury the pipelines. Whilst there may be an increase in sedimentation during dredging, we expect that any impacts would be temporary and localized and will not have any lasting effects on fish populations in the area.

There will be a 420 m width safety zone around the pipelines when the project is in operation, which will limit other activities on the seabed. Based on information regarding the size of the local fishing grounds, this will take up less than 1% of the overall fishing grounds.



The choice of dredging vessel will be made to minimise sediment re-suspension. A chute, to deposit sediment close to the seabed to minimise turbidity will be used. Water quality will be monitored so that dredging activities can be modified if potentially harmful effects are observed.



## Cultural Heritage

Turkey is home to some of the world's most scientifically valuable and well known cultural heritage sites, structures, and objects, and Kiyikoy itself is rich in history and archaeology. We recognize the importance of cultural heritage and are committed to its protection during the implementation of the project, both on land and at sea.



We are one of the first companies ever to survey the Black Sea bed in a 500-metre corridor from east to west. These surveys have helped find a number of sites and objects of potential cultural importance, including shipwrecks that may date as far back as the late Byzantine period (11–14th century).

Experts have studied our project area to make sure it is free from known protected sites. On land, we have identified 15 protected archaeological sites near, but not on, the project area. Offshore underwater surveys have identified over 100 potential sunken ships of unknown date, all of which will be avoided by the pipelines as they may represent important cultural heritage.



Due to low levels of oxygen, artifacts found at the bottom of the Black Sea are often well preserved. For example, an ancient amphora was discovered in Russia and carefully recovered for further study and preservation. Apart from a crack, the amphora remains well preserved, even though it is over 1300 years old. The pipeline route has been adjusted to avoid such sites, allowing continued preservation.



All known and potential cultural heritage sites are mapped, so that we know where they are and can ensure they are avoided. Any sites at risk of accidental damage will be physically protected by warning signs, fencing, or barricades as needed.

It is also known that construction activities can result in the identification of new archaeological sites. There will be a Chance Find Procedure that includes stopping work in the case of discovery of possible cultural heritage objects. In the case of a chance find, we will notify the local museum so that measures can be taken to protect the site.



Our Community Liaison Officer, Emre Kapusuz, is available to inform you about our Project and can be contacted via telephone or e-mail. Please do not hesitate to consult Emre if you have any comments, concerns or questions.

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e-mail: [emre.kapusuz@turkstream.info](mailto:emre.kapusuz@turkstream.info)

## Stakeholder Engagement

We are committed to having open and respectful dialogue with all stakeholders throughout the lifetime of the Project, and we welcome feedback from community members, NGOs, businesses, governmental bodies, industry groups and other stakeholders.

Feedback from the community is valuable to us so that we can ensure that relevant and important issues are appropriately considered and addressed, and strengthen the basis of our future environmental and social management.

We will continue to work closely with the local community during construction to provide information about our activities and to ensure that any issues can be promptly addressed. We will implement a Grievance Procedure prior to the start of construction activities, which will allow local residents to send us complaints, issues or concerns so that we can address them in an appropriate and timely way, following a standard procedure of investigation, analysis, and resolution.