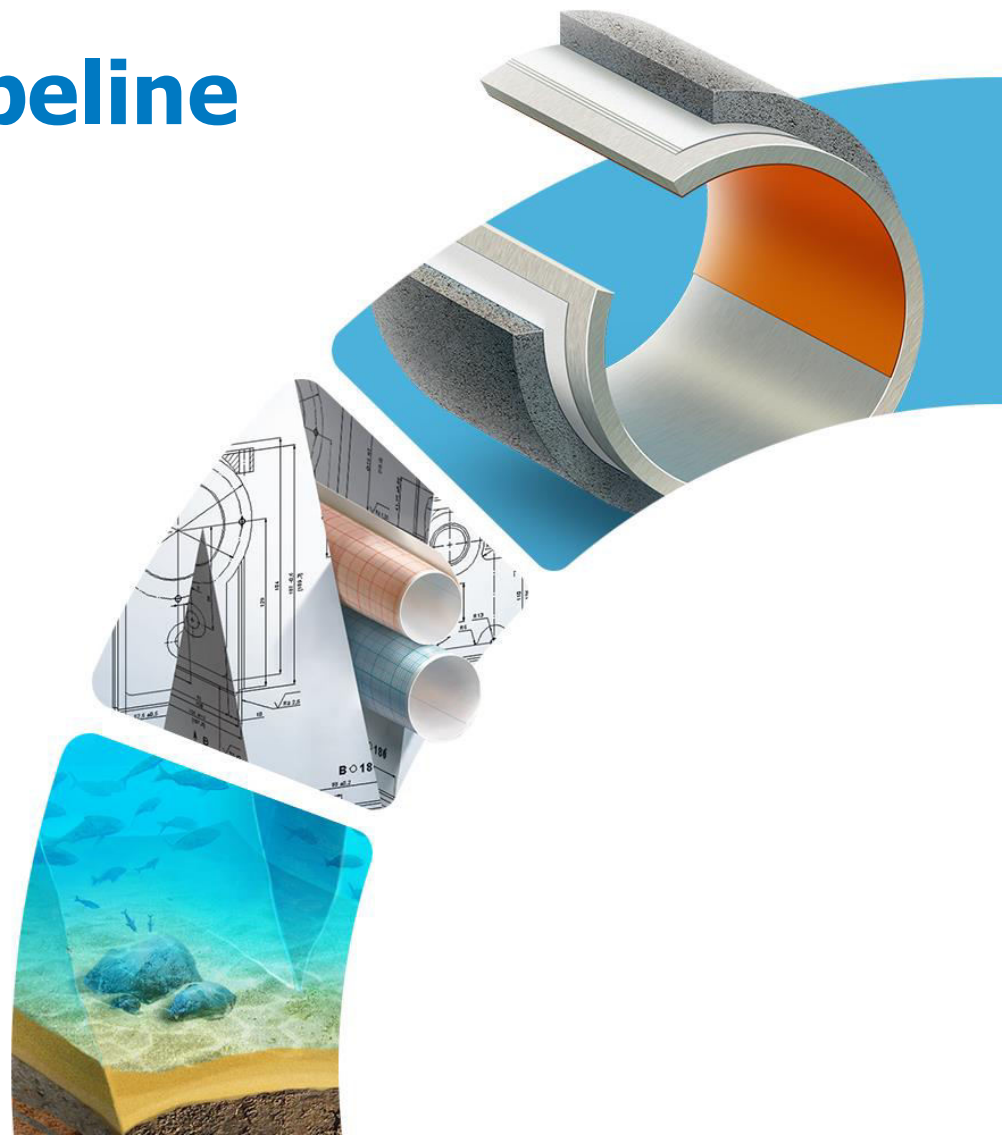


TurkStream Offshore Gas Pipeline

Project update

Black Sea Oil & Gas Conference
22 November 2019

Sander van Rootselaar
Deputy Head of Communications



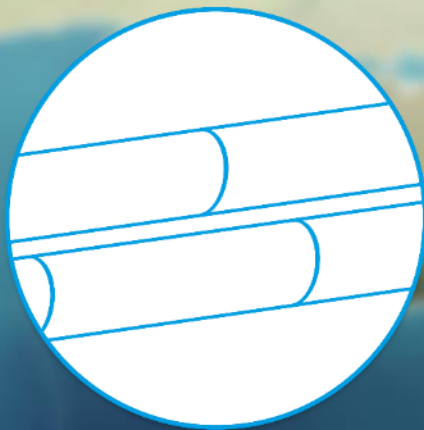
Project Route

TurkStream Offshore Pipeline will cross the Black Sea from Anapa to Kiyikoy

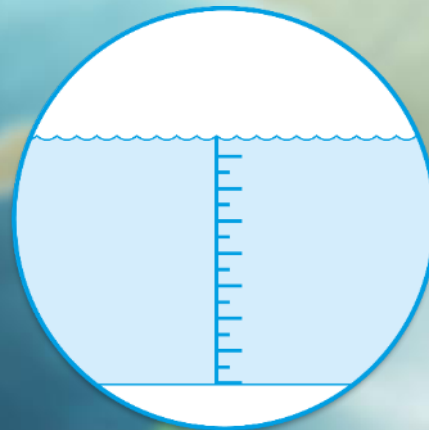


Project Specs

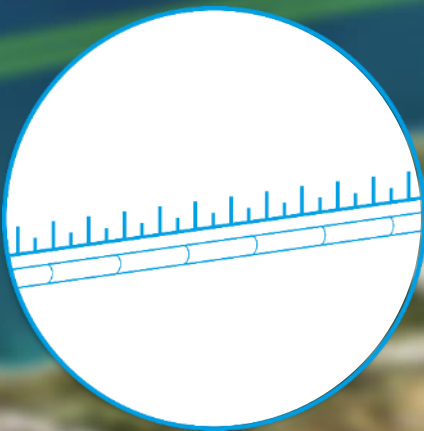
First large diameter pipeline
in deep waters of the Black
Sea



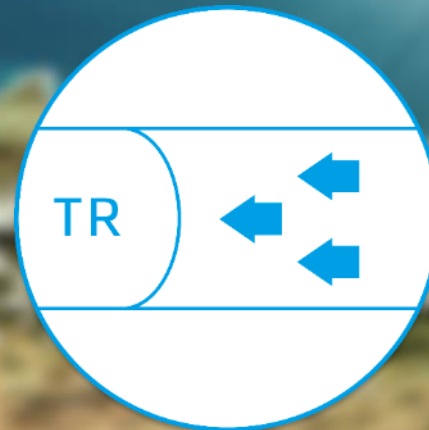
2 offshore pipelines



maximum depth
of 2,200 metres



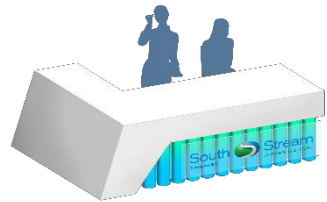
930 kilometres
per line



31.5 billion cubic meters of
transport capacity per year

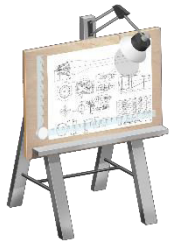
Project history

2011



South Stream Transport B.V.

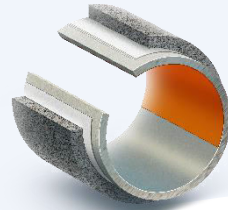
2012



Start of FEED
(Front End Engineering Design)

Start of ESIA
(Environmental and Social Impact Assessment)

2014



Start of Pipe Production



Start of Preparations on Russian Landfall

2016



IGA Signed TurkStream Re-start
October 2016

South Stream
Transport B.V.

South Stream Project Stopped:
Start of TurkStream Project

TurkStream

2017



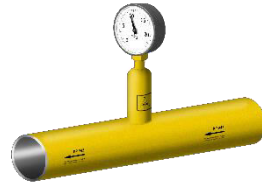
Start of offshore pipe-laying
May 2017
Completion of Turkish EIA
October 2017

2018



Start of onshore construction in Turkey
January 2018
Completion of offshore pipelay campaign
November 2019

End of 2019

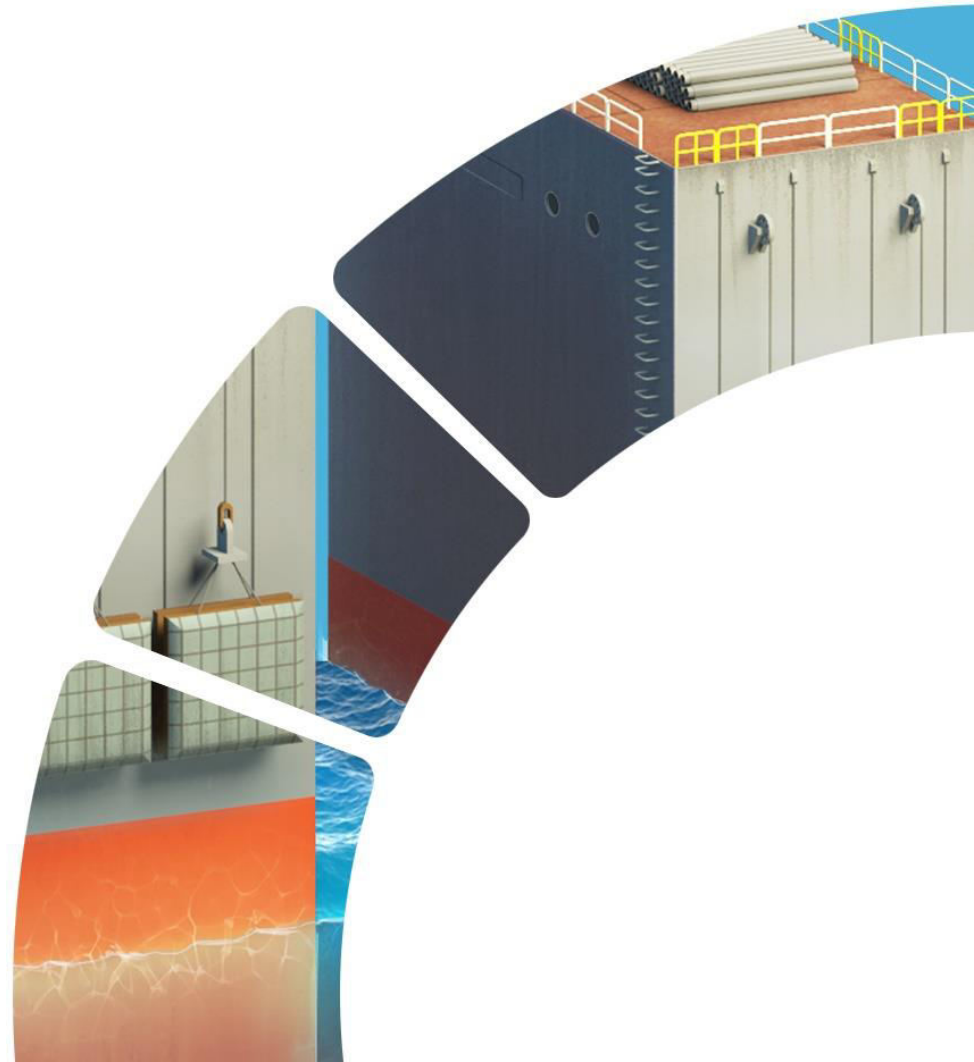


First Gas

Turkish Gas Market

TurkStream Offshore Pipeline will provide natural gas to the west of Turkey, securing access to the blue fuel critical for the economy of the country.

With its annual capacity of 31.5 bcm, TurkStream will further help Turkey boost its geostrategic importance. As a bridge between East and West, Turkey will become a key supply link for South and South-eastern Europe via TurkStream.



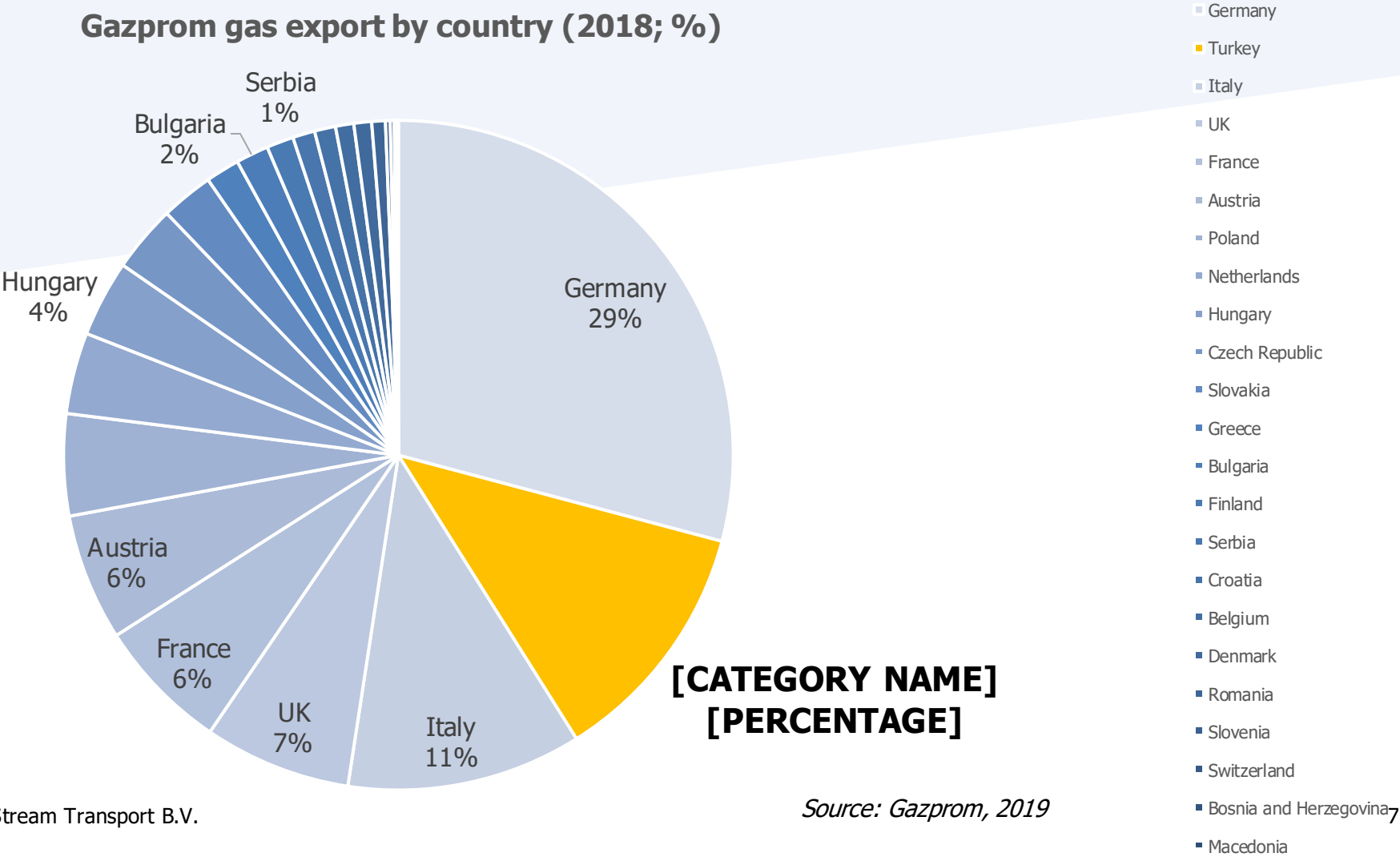
Turkey is a major gas consumer

Turkey's total natural gas imports (bcm)

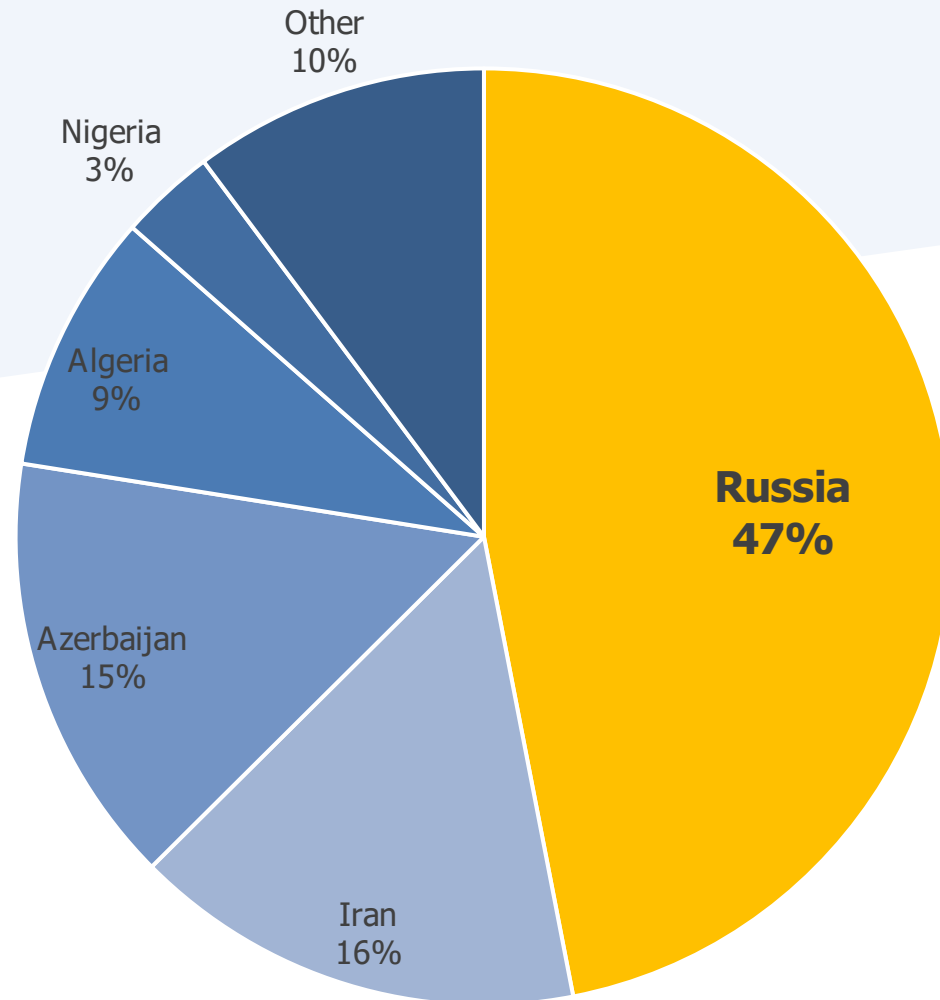


Turkey is the second largest customer of Gazprom

Gazprom gas export by country (2018; %)



Turkey's natural gas sources in 2018



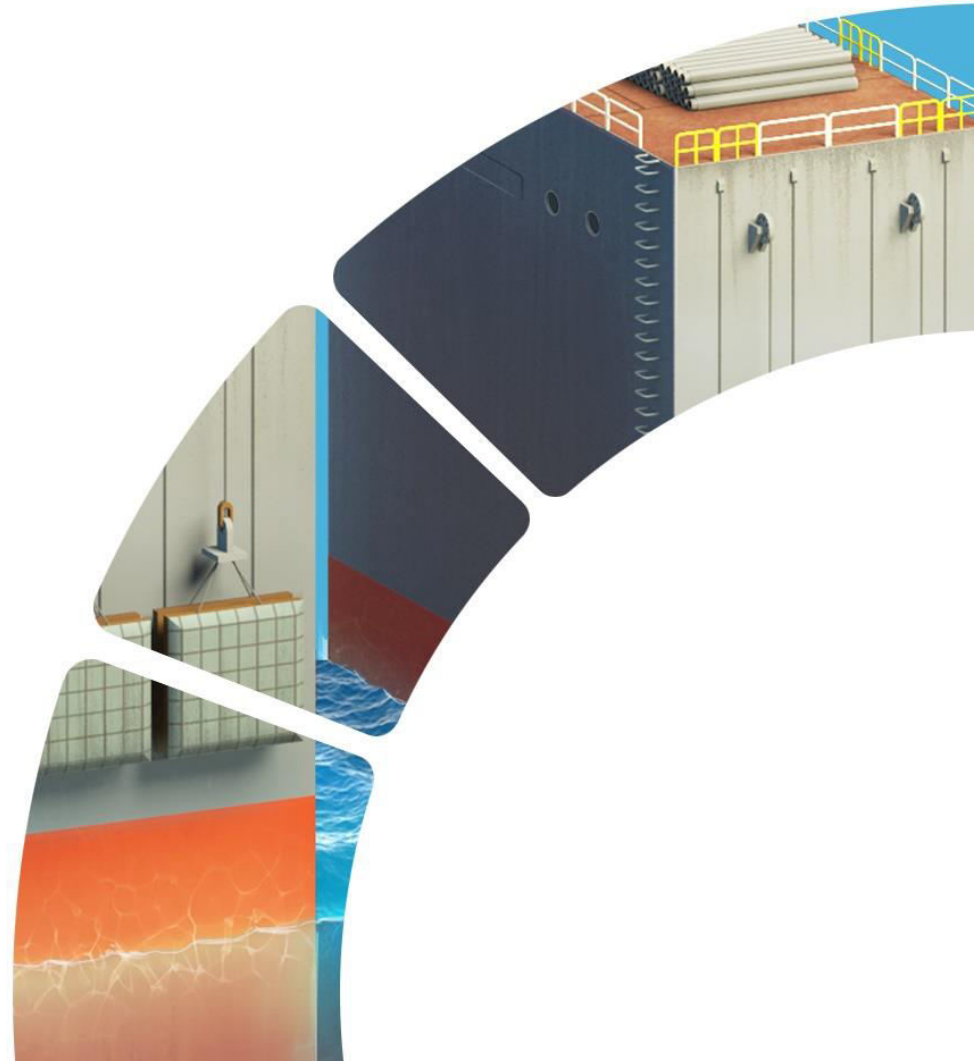
Gas transit to Turkey and the Balkans



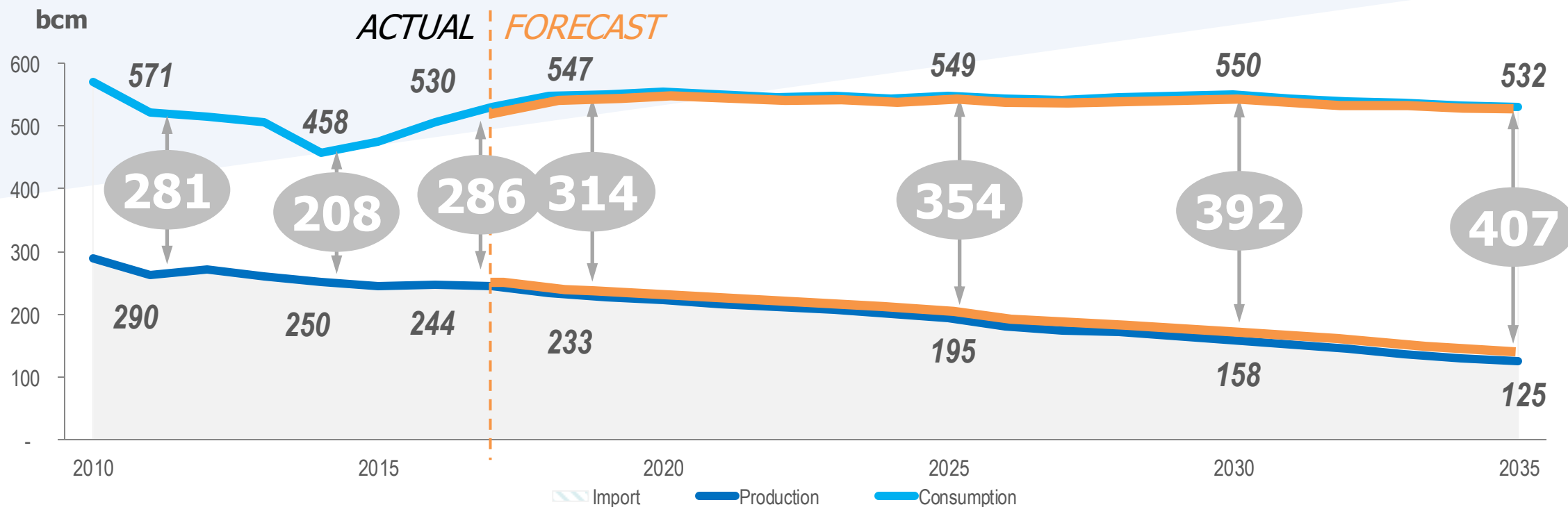
European Gas Market

As Europe's natural gas consumption rises and indigenous production drops, there will be greater need for imported gas to maintain an environmentally sustainable energy mix.

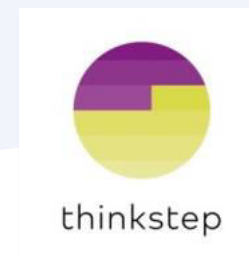
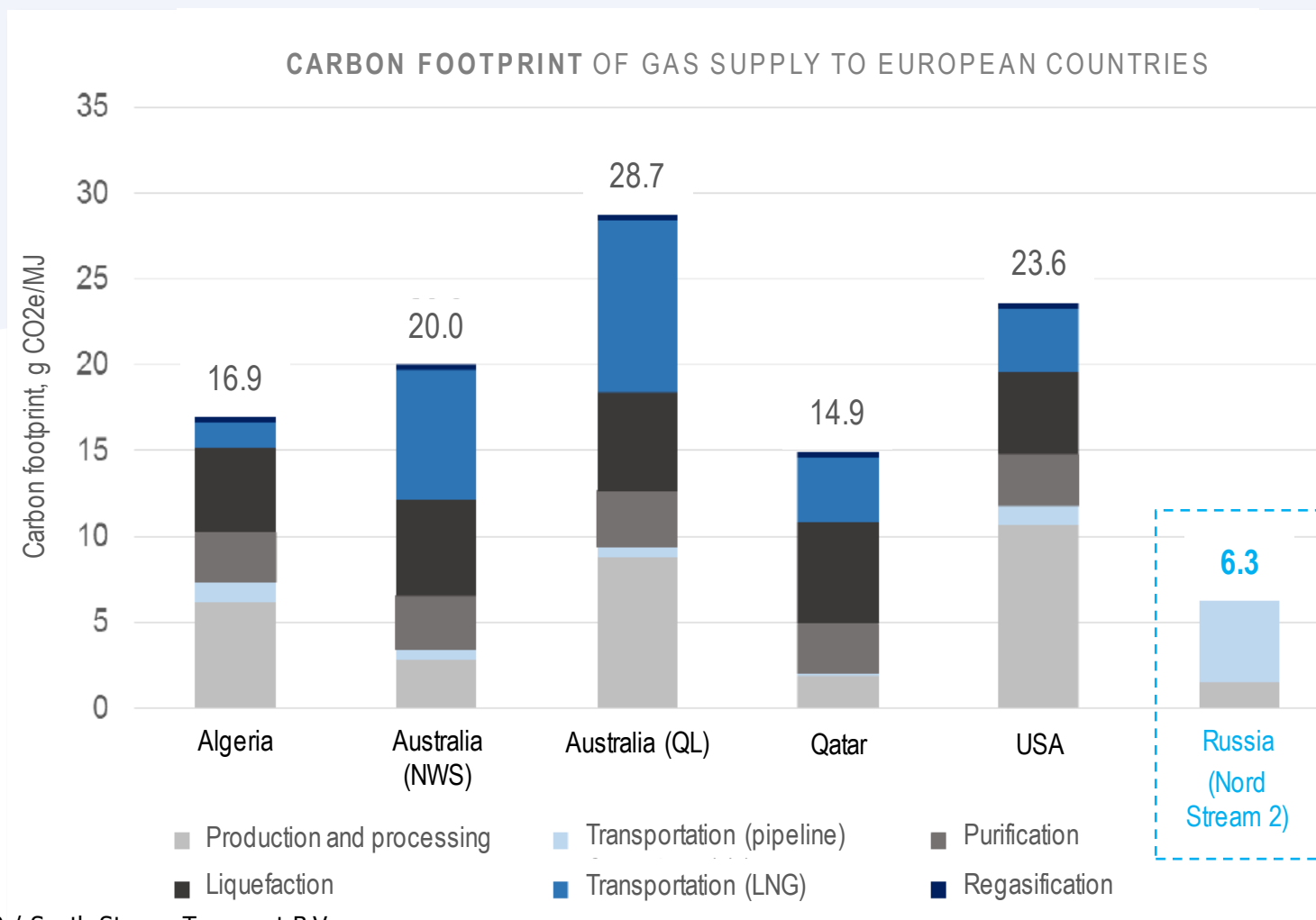
TurkStream will cater for South and Southeastern Europe, including the Balkans where the use of coal as the primary fuel jeopardizes the struggle against climate change.



Europe's need to import gas will increase further



Pipeline vs LNG



Regional energy mix

EU

Gas: 24%
Coal: 15%
Oil: 33%
Nuclear: 14%
Renewables: 15%

Bulgaria

Gas: 15%
Coal: 32%
Oil: 23%
Nuclear: 22%
Renewables: 8%

Serbia

Gas: 12%
Coal: 51%
Oil: 24%
Nuclear: 0%
Renewables: 13%

Turkey

Gas: 28%
Coal: 28%
Oil: 31%
Nuclear: 0%
Renewables: 13%

Greece

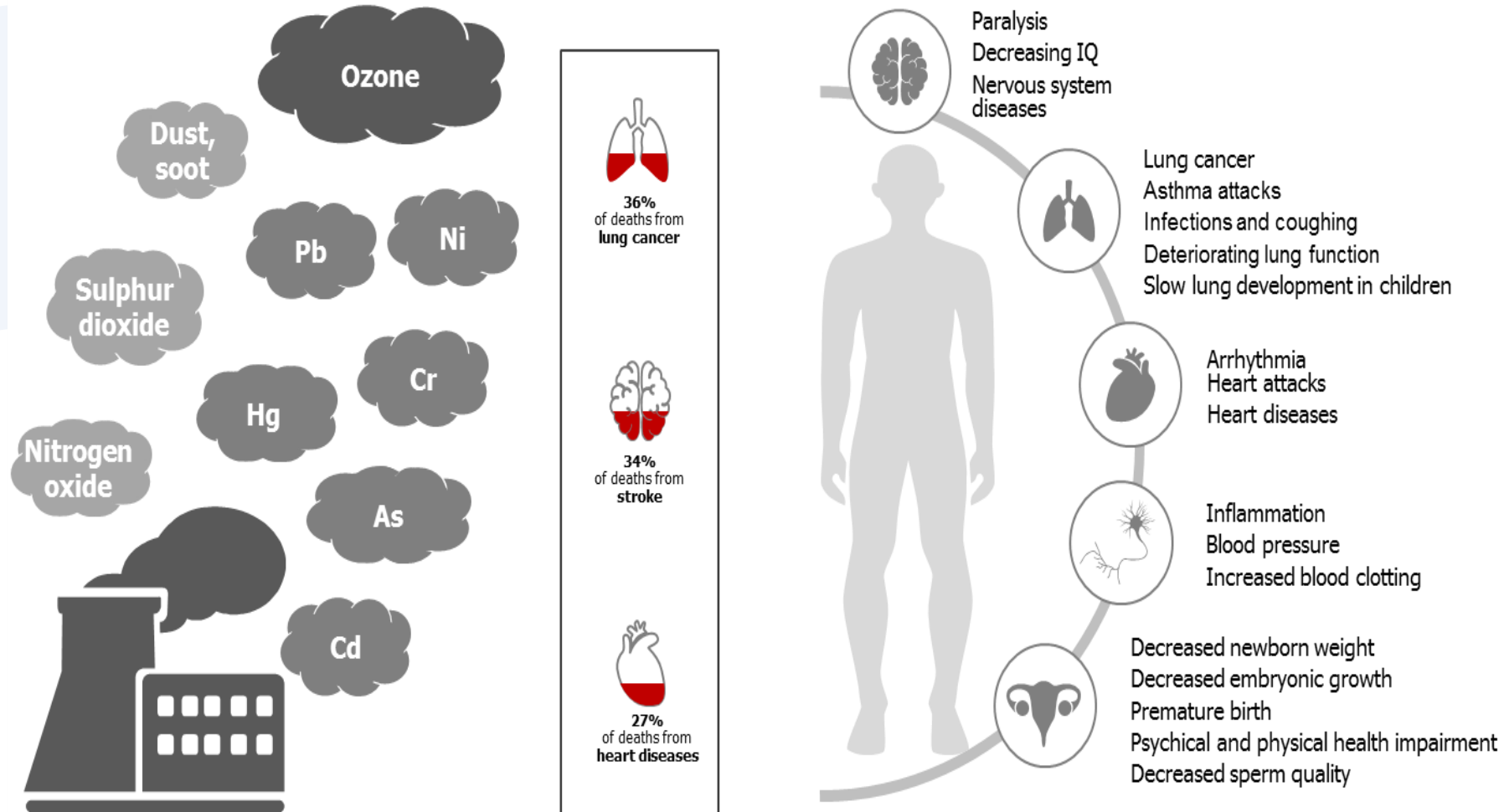
Gas: 16%
Coal: 20%
Oil: 52%
Nuclear: 0%
Renewables: 12%

Planned capacity for coal fired power generation

2/3 of new capacity in Europe planned in Turkey



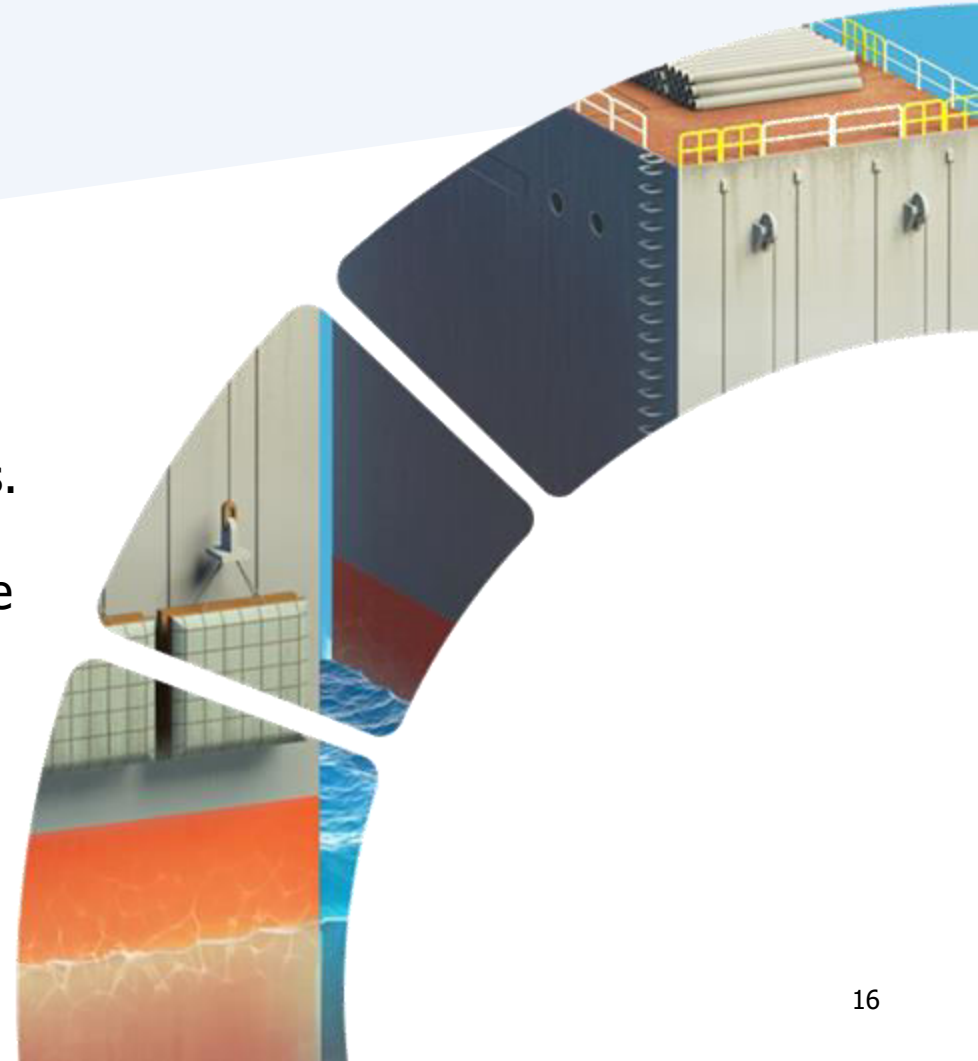
Is coal still an option?



Technology and Construction

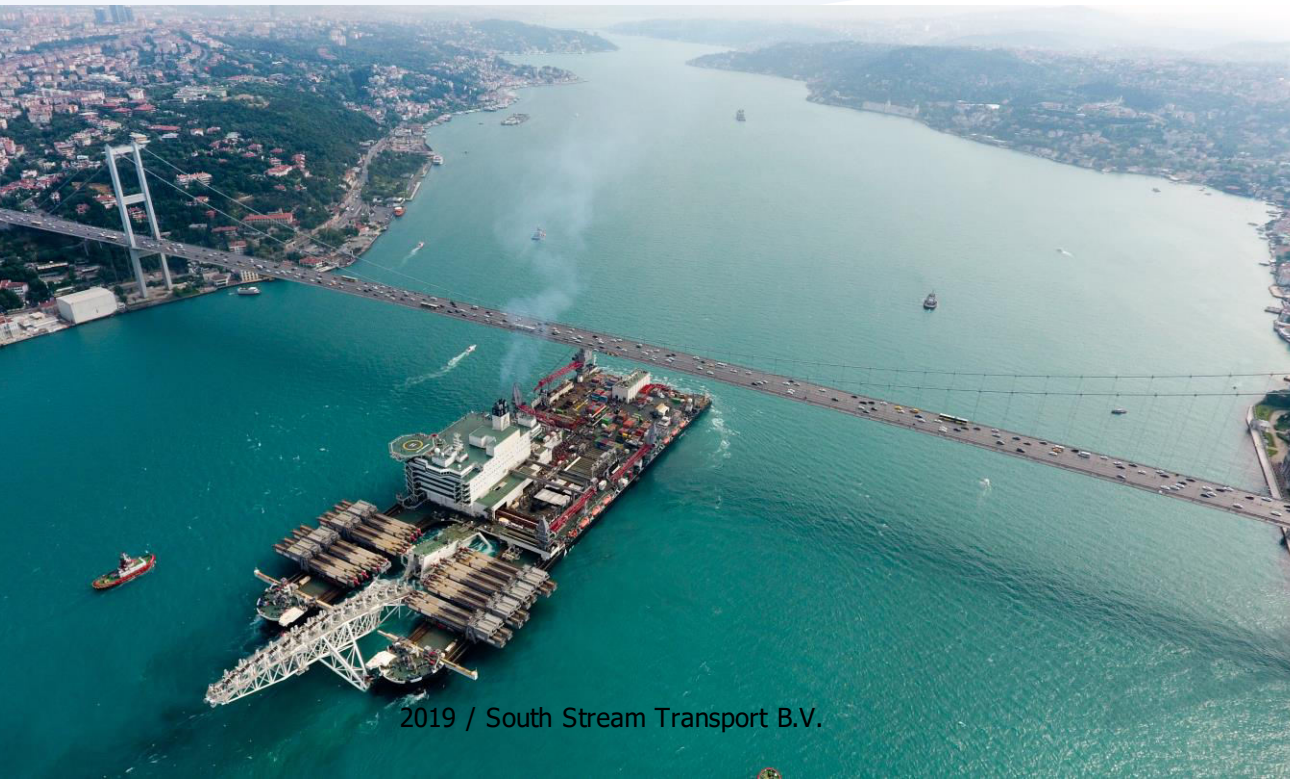
TurkStream is a project that pushes industry boundaries from a technical perspective: The project will be the first 32-inch sized system to be laid at depths of over 2 kilometers.

The construction process consists of pipe production, offshore and onshore pipelaying and the construction of the receiving terminal.

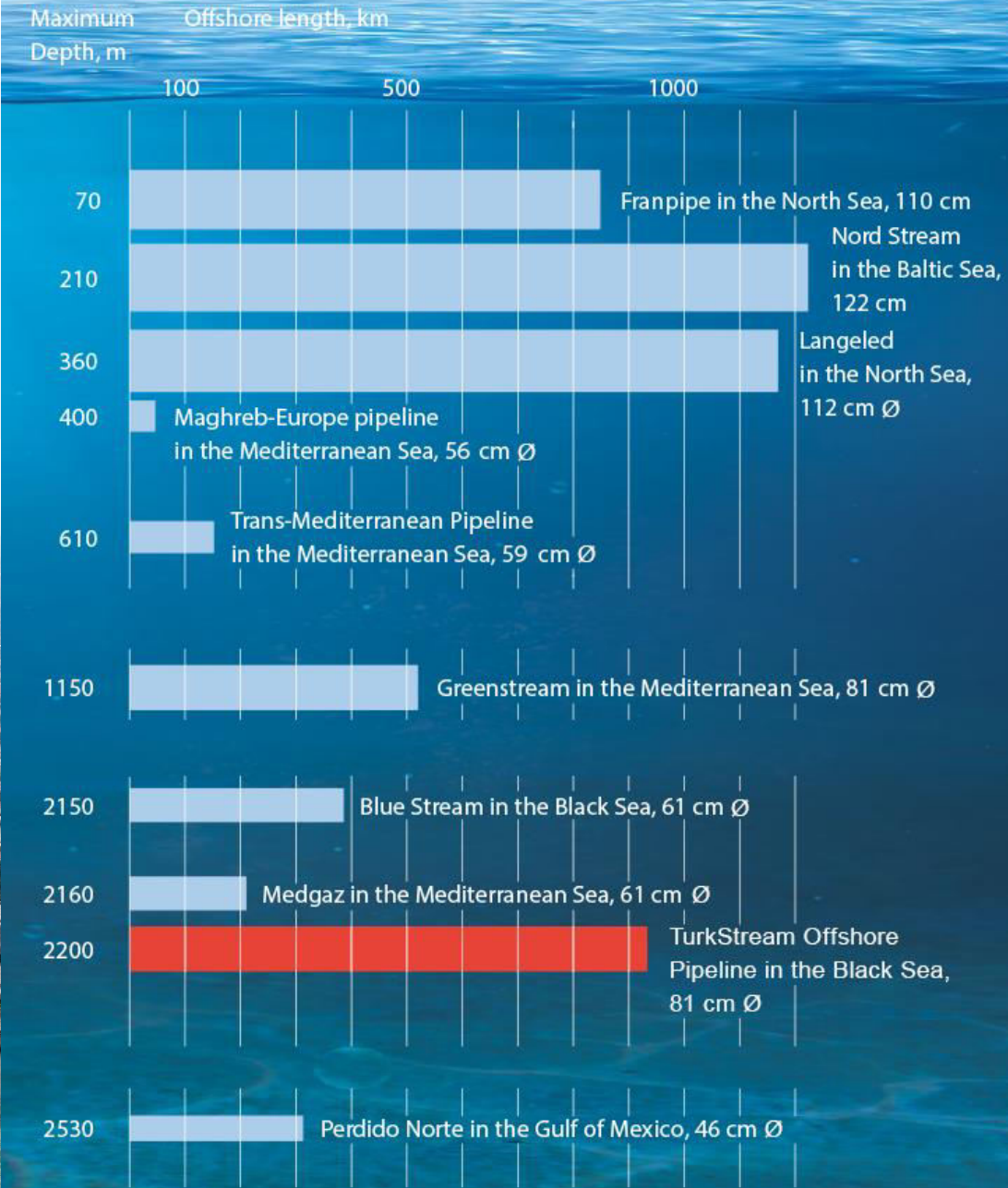


A Pioneering Project

- First 32-inch system laid at a depth of 2 km
- Max operating pressure of 284 bar



2019 / South Stream Transport B.V.



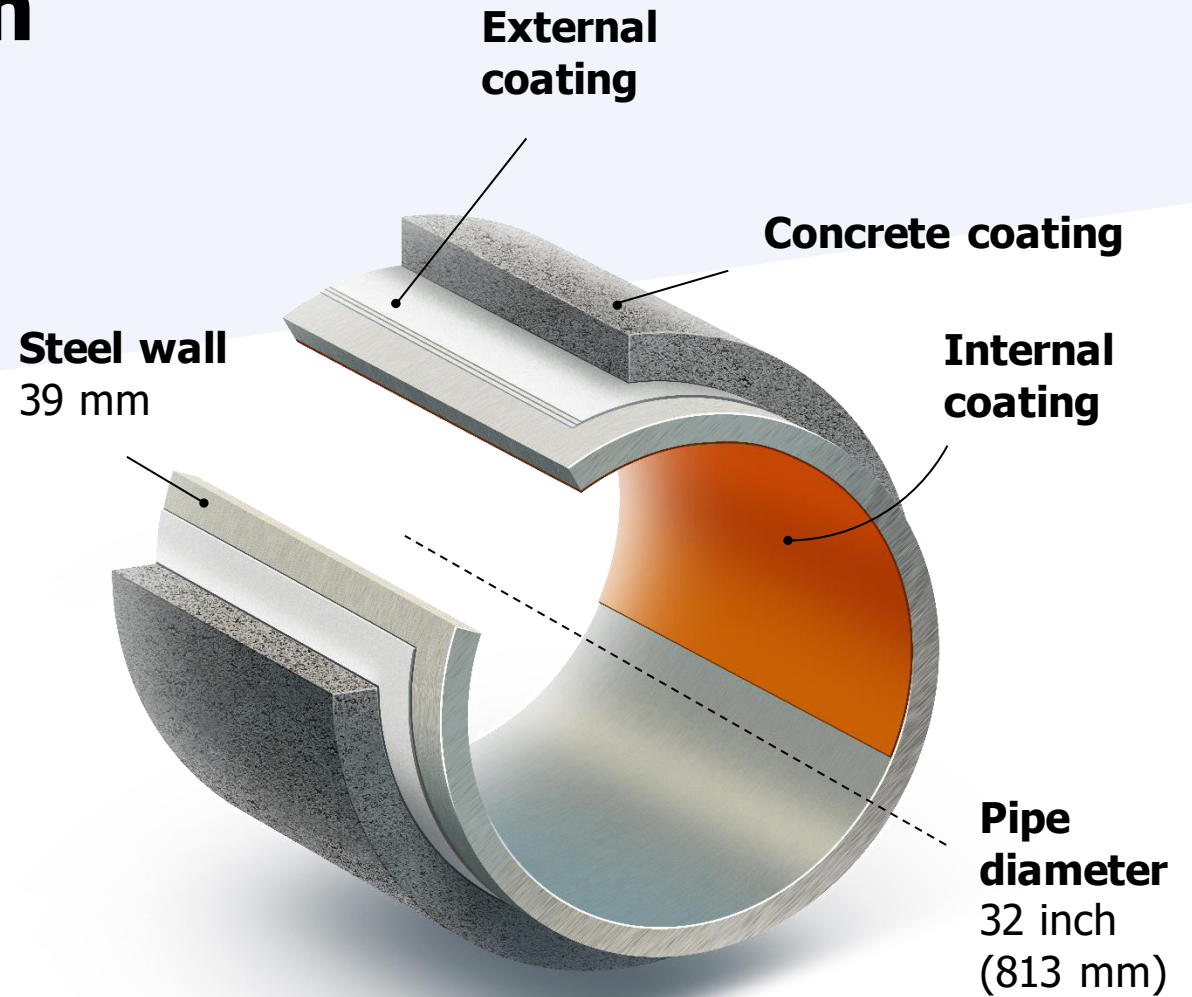
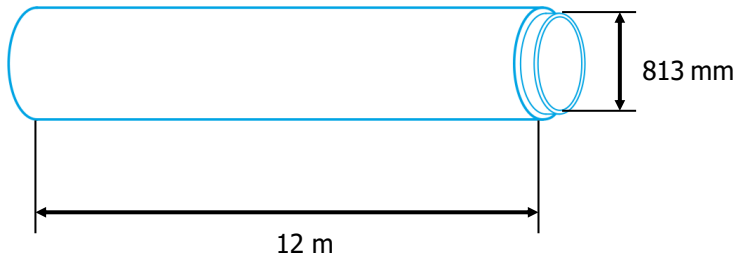


382 meters long (excluding stinger)

124 meters wide

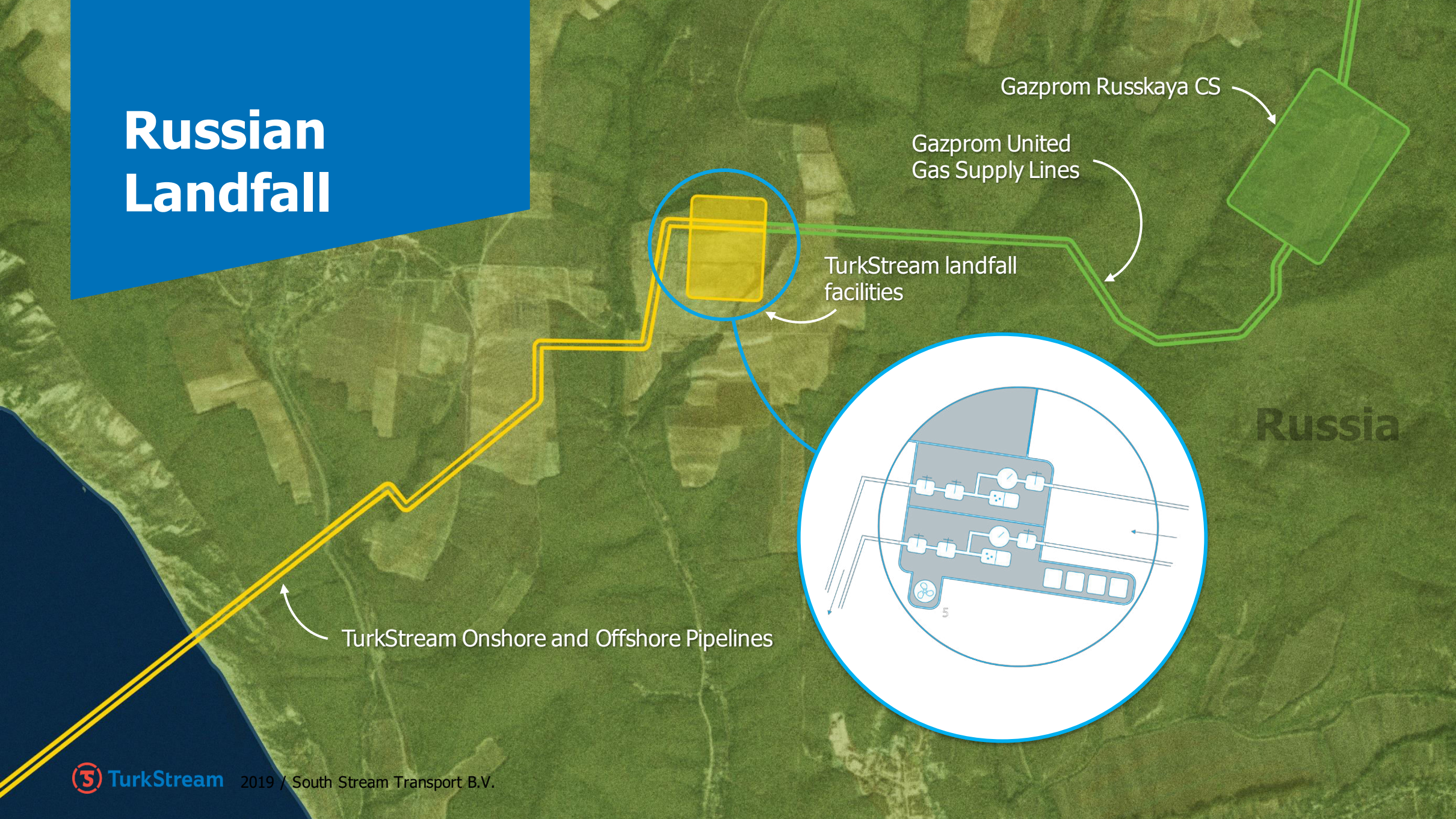
Designed for Maximum Safety

Each offshore pipeline will be made up of over 75,000 individual pipe joints which are designed specifically for high pressure gas transport.



Cross-section of a single pipe

Russian Landfall



Russian Landfall

2019 / South Stream Transport B.V.

Turkish Receiving Terminal

Receiving
terminal

1900 m

Kiyikoy

Turkish Receiving Terminal





— **Thank you.**

TurkStream Project

www.turkstream.info | contact@turkstream.info

South Stream Transport B.V. | Parnassusweg 809 | 1082 LZ Amsterdam | The Netherlands