“ Demolishing the Myths of European Gas Supply”

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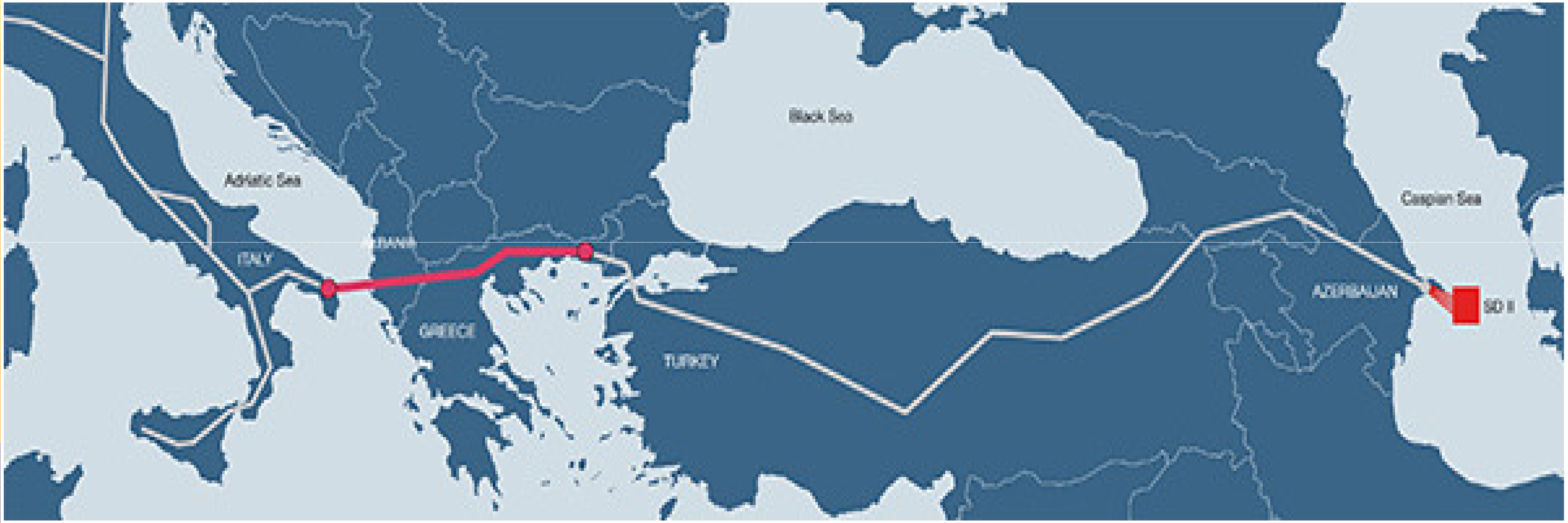
Traditional and New European Gas Suppliers

* LNG: Liquefied natural gas (Qatar, Algeria, Nigeria, etc.)

1st **Myth**: TAP is going to provide a sustainable, viable and effective alternative to European dependence on Russian gas supply

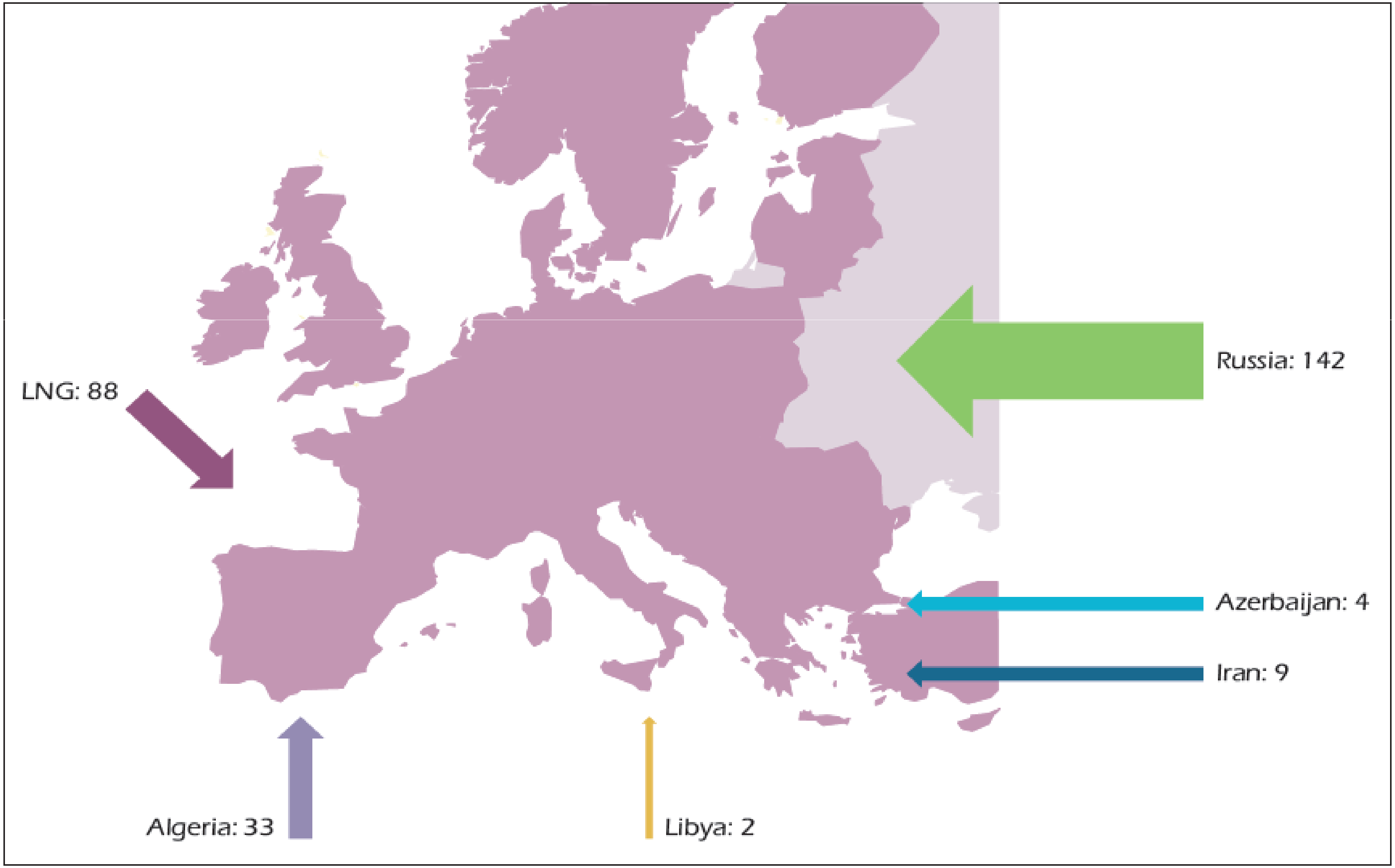


TAP cannot ensure Europe's independence from Russian gas

Some facts:

- In 2012, Europe (including Ukraine) consumed, 516.0 bcm. Half of this amount (246 bcm) was imported through pipelines and LNG cargos.
- In 2012 Russia supplied Europe with some 139.9 bcm. According to Gazprom forecasts Russian gas exports to Europe in 2013 will be 160.0 bcm
- TAP, after the development of SDII (after 2019) will transfer to European markets some 10 bcm/y, a very small amount compared to Russian gas exports to Europe.

Gas Imports to Europe, 2011 (bcm)



TAP will help the development of new gas markets in SE European region but will not have as much effect as South Stream

- One of the main advantages of TAP is that it can supply natural gas to both Southern Europe and the countries of Western Balkans including Albania, Montenegro, Croatia, Bosnia and Herzegovina.
- Nevertheless, the South Stream pipeline, with a 63.0 bcm capacity, whose construction has already commenced, when completed by 2016 will have a big impact on SE European gas markets and will bring tangible benefits to all transit states located along its route
- South Stream will reinforce Russia's status as Europe's key gas supplier
- The importance of TAP is secondary to that of the South Stream pipeline

Greece will not gain significant additional geostrategic advantage because of TAP

- TAP as a single solution will provide small economic and geostrategic benefits to Greece
- However, Turkey's role as key transit country is reinforced because of the TANAP pipeline that is going to be built together with TAP
- Turkey will play the role of the main transit country in the project.
- The TANAP bears some advantages for Turkey as it will receive 37.5% (6 bcm) of the gas passing through the pipeline.
- Turkey stands to receive in future more gas from Azerbaijan's Shah Deniz field

2nd Myth: The Caspian Region's gas resources can help decrease European dependence on Russian Gas

The Major Caspian Fields

- **ACG (AZ): 9 bn barrels of oil asserted in place.**
- **SHAH DENIZ (AZ): 1,2 tcm + 240 mn tons condensate asserted in place.**
- **KASHAGAN (KA): 38 bn barrels of oil (average estimate)**
- **SOUTH IOLOTAN- OSMAN (TUR):13,1 tcm (low estimate)- 21,2 tcm (high estimate)**
- **YASHLAR- MINARA (TUR): 1,45 tcm (.ow estimate)- 5,0 tcm (high estimate)**
- **BAGTYARLIK (TUR): 1,3 tcm asserted in place.**

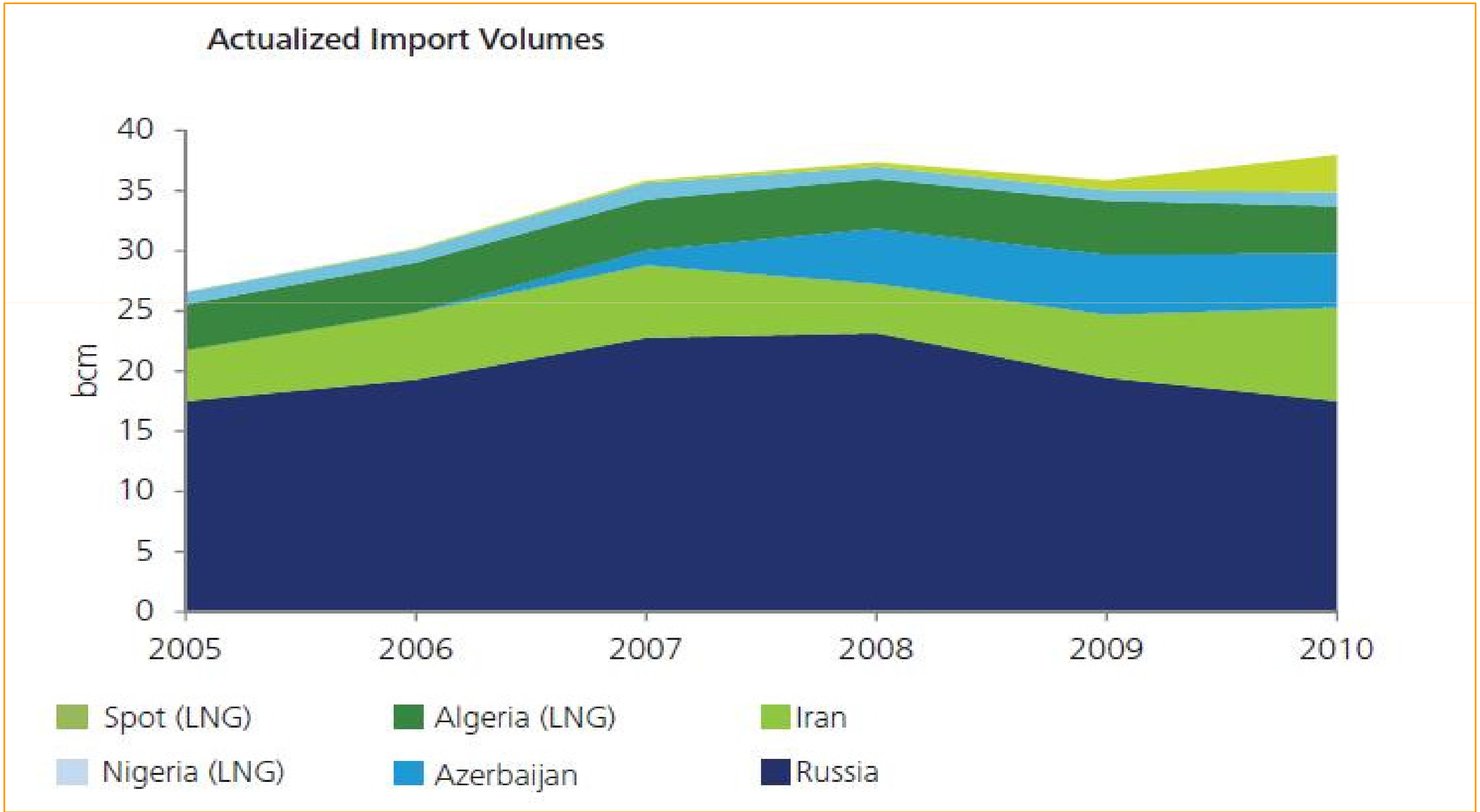
Caspian region: Rich in gas but hardly accessible

- Central Asia is estimated to hold more than 11% of world proven gas reserves, primarily in Turkmenistan, which is lagging behind Kazakhstan and Azerbaijan in attracting outside investments.

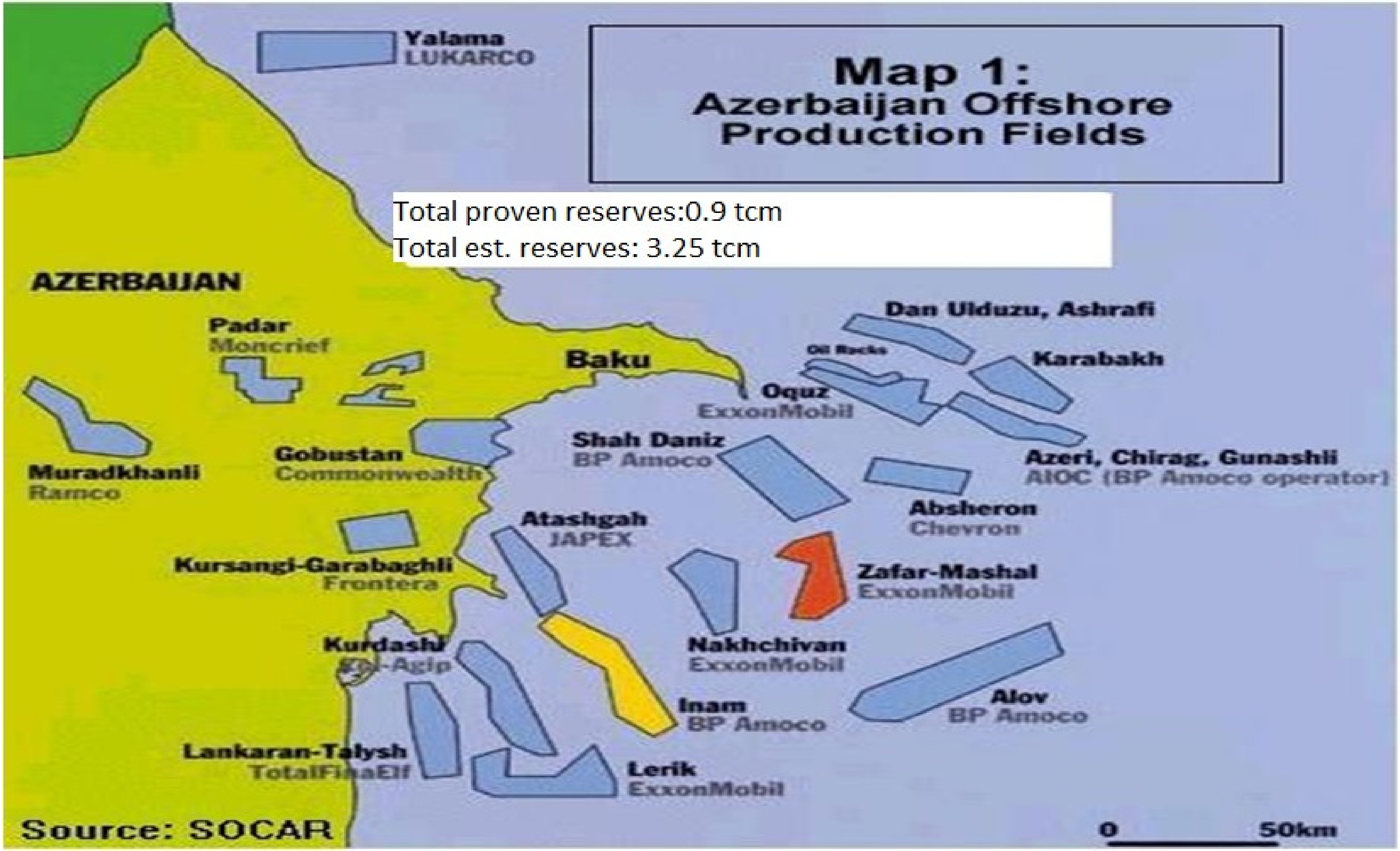
BUT

- Central Asian countries are mostly focusing on China and South Asia (e.a. TAPI project)
- China is moving swiftly to source supplies from Central Asian states of Turkmenistan, Kazakhstan and Azerbaijan
- Several political and diplomatic obstacles. Russia, Iran, Azerbaijan, Kazakhstan and Turkmenistan located clockwise around the Caspian Sea. All these actors and their behaviour made the scope of Caspian more complex and complicated.
- Russian influence - Caucasus has been an integral part of the Russian sphere for 160 years
- As more gas flows from Asia to Europe Turkey's role as a transit country is reinforced
- Because of Turkey's growing gas demand (10% growth) more gas from central Asia will flow to this country

Import Gas Volumes in Turkey



Azerbaijan's gas resources are not the only alternative to Russian gas



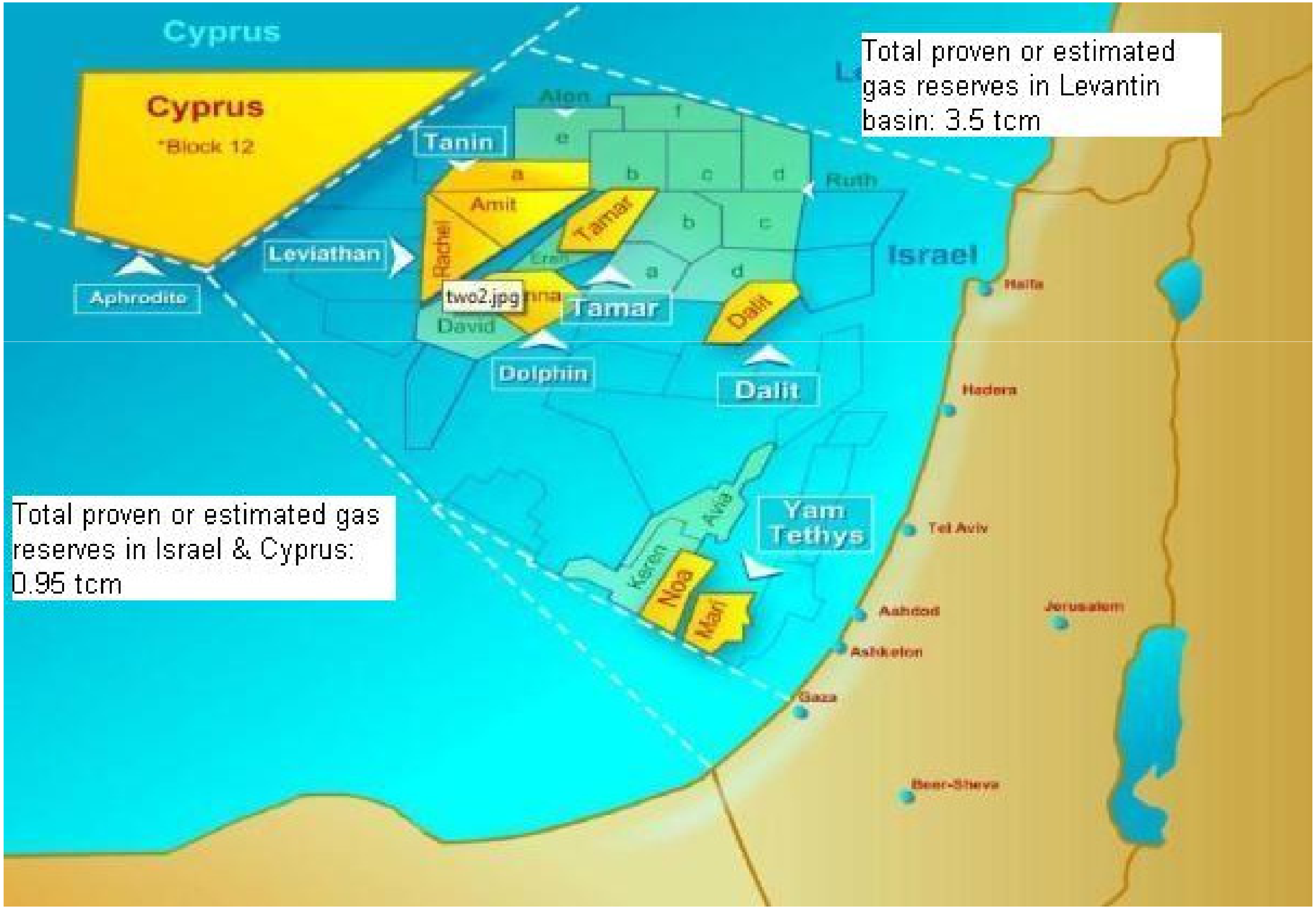
Factors that will hinder future gas flow from Azerbaijan to European markets

- Currently existing fields have limited capacity
- Azerbaijan’s Shah Deniz II (estimated reserves 1.2 tcm) will export 16 bcm of gas upon the development of the field. Turkey has secured 6 bcm and the rest will flow to European markets.
- Azerbaijan has the potential to produce and export more gas beyond SD II the earliest by 2025.
- Production could climb up to 39 bcm to 48 bcm by 2030, and exports could reach 27 bcm to 38 bcm by 2030; not very big numbers given European gas demand

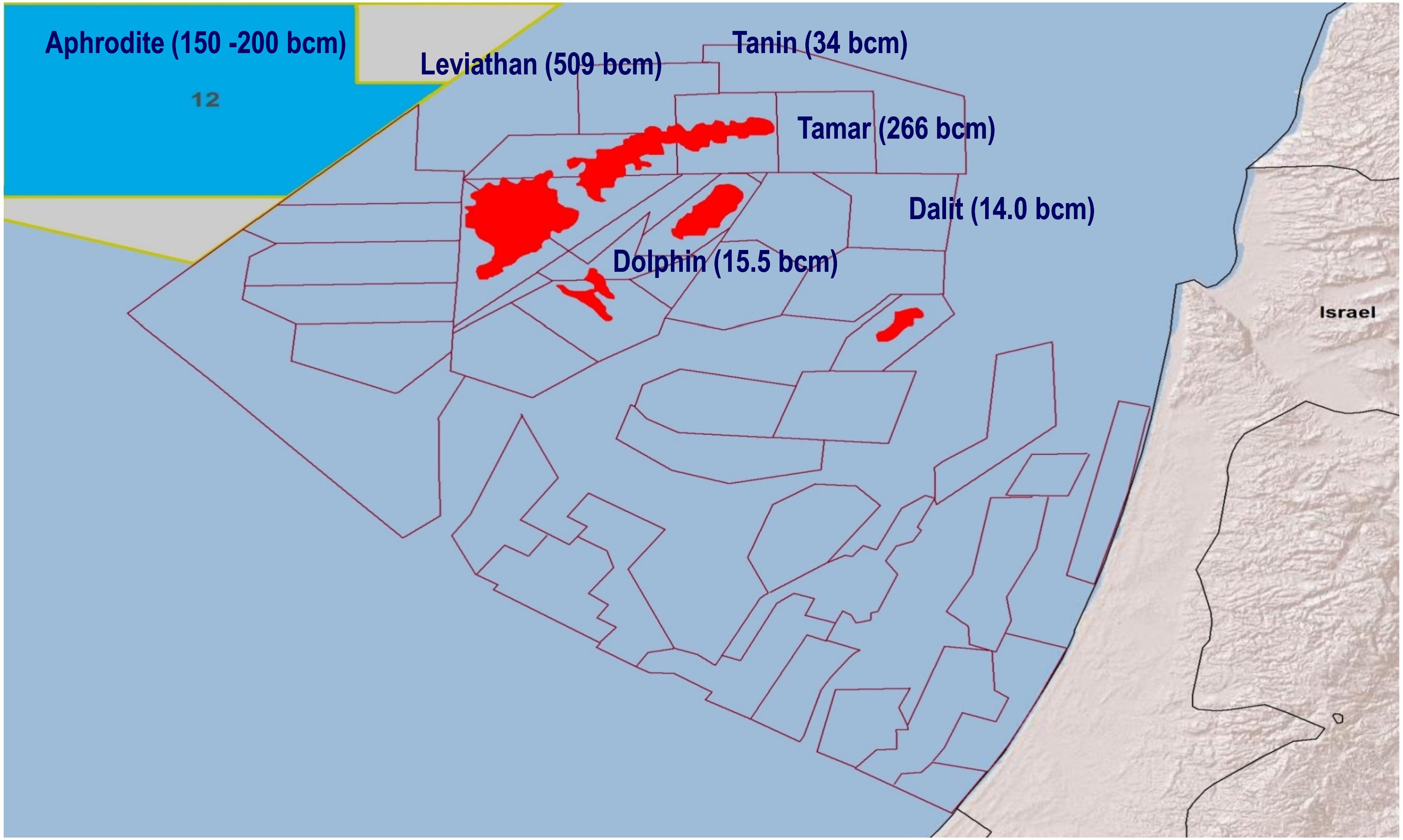
BUT

- The availability of deepwater drilling rigs, as many more wells need to be drilled, may delay the development of new fields for many years
- Availability of transportation capacity
- Growing gas demand in Azerbaijan
- Growing gas demand in Turkey

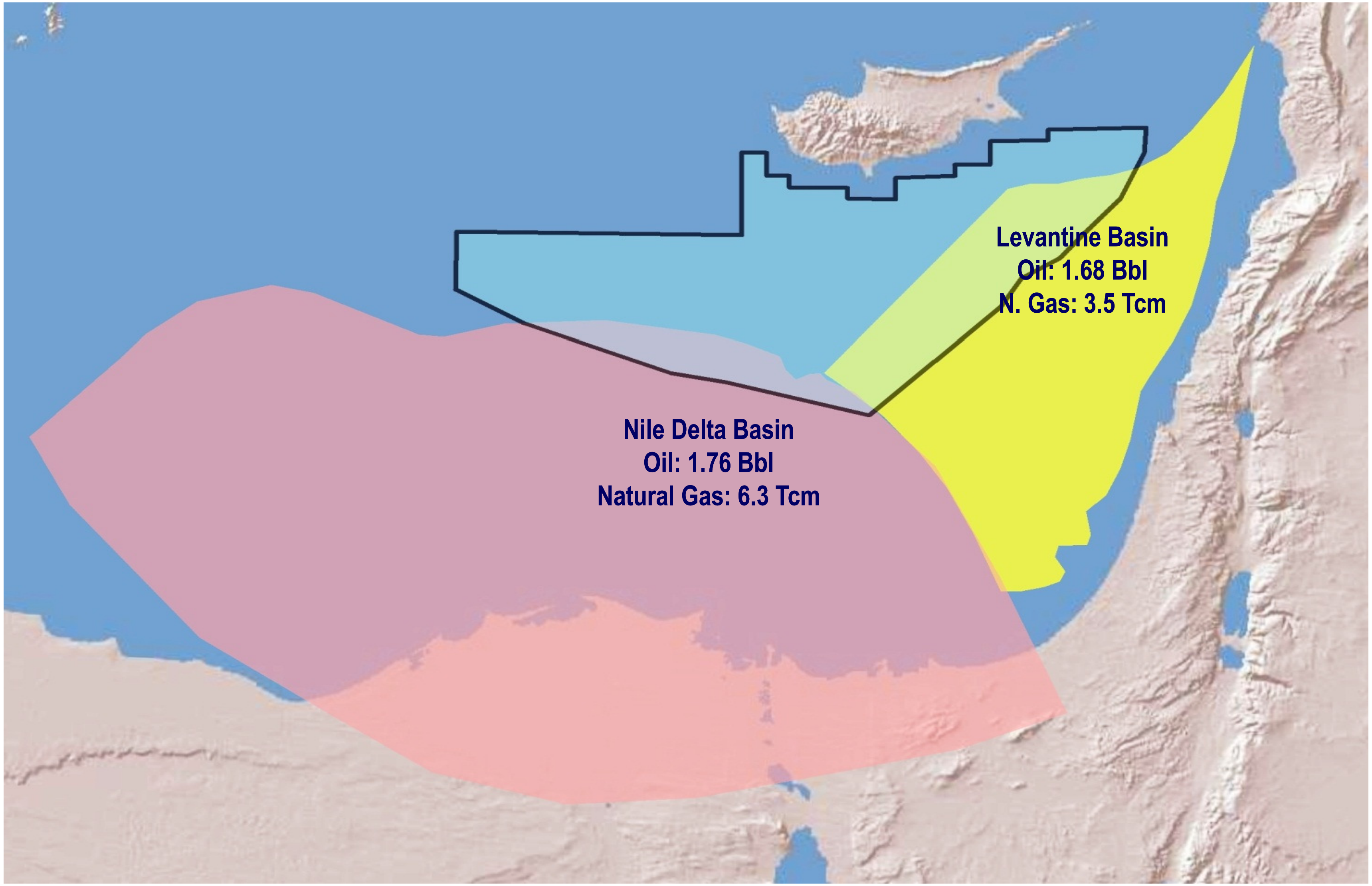
The Levantine basin – An alternative gas supplier



Total Gas Reserves in Israel (838.0 bcm) and Cyprus (150 – 200 bcm)



South East Mediterranean gas and oil reserves



Eastern Mediterranean gas Reserves

Tamar, Leviathan and Block 12 are three of the top five world's largest discoveries of the decade.

Tamar	2009	Israel	257bcm
Leviathan	2010	Israel	481bcm
Block 12	2011	Cyprus	198bcm

According to the USGS (United States Geological Survey) total reserves at the Levantine basin could be three times more than what has already been discovered.

And there may be even more gas in Greece south of Crete.

Estimates are that more than 16 bcma will be exported, which necessitates exports both in LNG form and through a pipeline.

3rd Myth: The East Med Corridor will make Cyprus and Greece an energy hub and enhance their geostrategic advantage

Turkey has emerged as the main energy hub of the region

An impressive number of existing and planned regional and interregional pipelines for oil and natural gas transcend Turkey

Oil pipelines

- **The Baku–Tbilisi–Ceyhan (BTC) Oil Pipeline**
- **The Iraq–Turkey (Kirkuk–Ceyhan) Oil Pipeline**
- **The Trans-Anatolian (Samsun–Ceyhan) Oil Pipeline Project**

Natural Gas pipelines and LNG Terminals

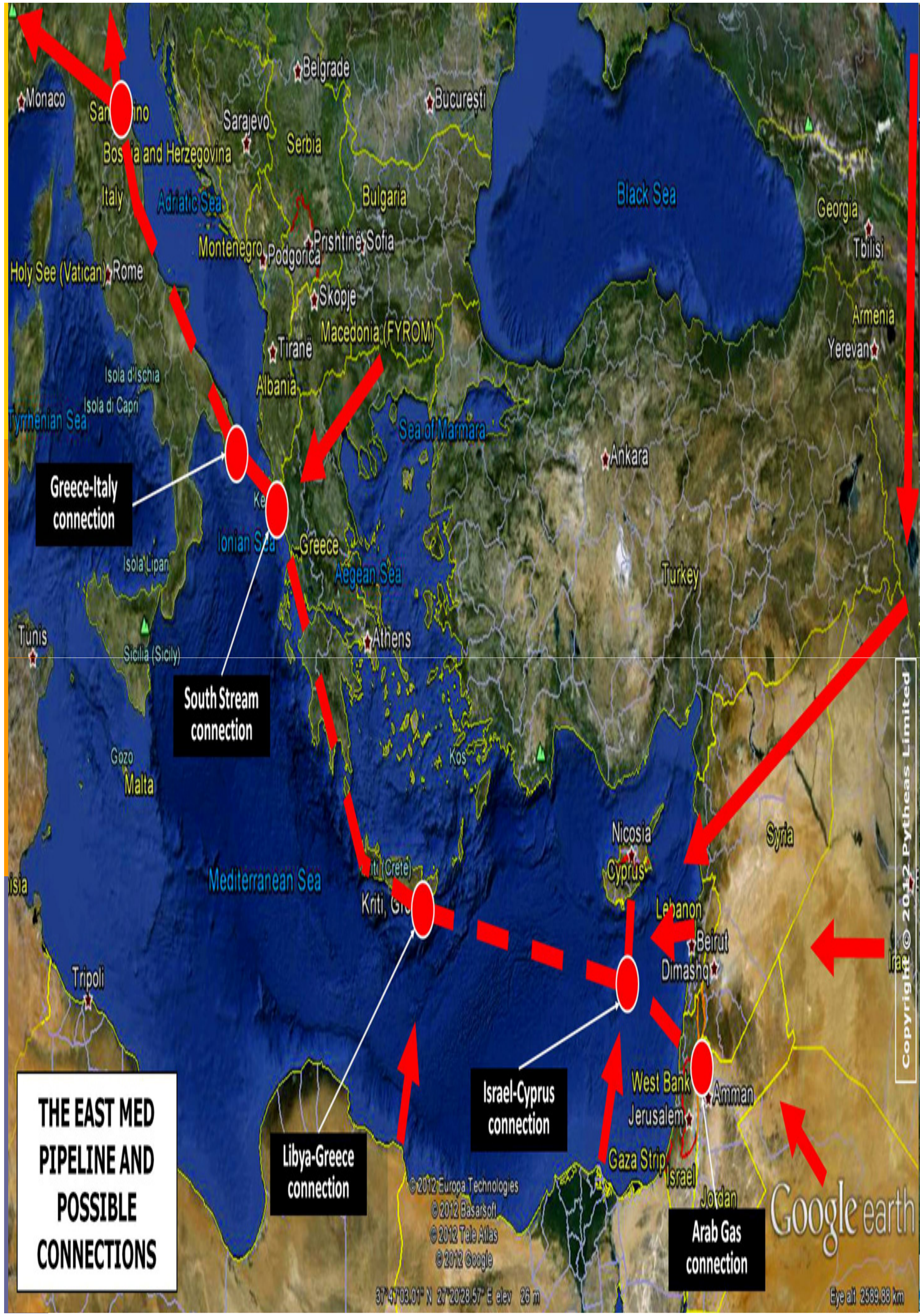
- **The Baku–Tbilisi–Erzurum (BTE) Gas Pipeline**
- **The Iran–Turkey Natural Gas Pipeline**
- **The Blue Stream Gas sub-sea Pipeline**
- **Two LNG Terminals**
- **The Anatolian Transit Gas Pipeline Project (TANAP)**
- **The Iraq–Turkey Natural Gas Pipeline Project**
- **The Persian Natural Gas Pipeline Project**
- **The Arab Natural Gas Pipeline**
- **The South Stream Natural Gas Pipeline Project**

Turkey’s role as a regional gas hub

- There are three important factors which make Turkey’s role pivotal in the establishment of a SE European gas hub:
  I. The substantial gas volumes that characterize its domestic market which is already well diversified in terms of suppliers
  II. Its transit infrastructure which will allow additional gas quantities to flow towards Europe through existing (i.e. Greek – Turkish Interconnector) and planned routes (read TAP, West Nabucco and ITB)
  III. Turkey’s geographical proximity to European gas markets

A combination of the above alternatives and other key projects in the region can provide a sustainable solution to European gas dependency

- The implementation of gas interconnectors between Greece - Bulgaria (IGB), Bulgaria – Romania, Romania - Hungary (IRH) and Serbia
- TAP & East Med Corridor
- The construction of at least one FSRU project in North Greece
- The construction of the Greek Italian interconnector (IGI) which will be able to transfer also Algerian gas to SE Europe through Italy and Greece
- All the above alternatives can form the so called South Corridor


THE EAST MED PIPELINE AND POSSIBLE CONNECTIONS
Greece-Italy connection
South Stream connection
Libya-Greece connection
Israel-Cyprus connection
Arab Gas connection
Belgrade
Bucuresti
Monaco
Sarajevo
Serbia
Bosnia and Herzegovina
Italy
Adriatic Sea
Bulgaria
Black Sea
Georgia
Tbilisi
Montenegro
Podgorica
Prishtine
Sofia
Holy See (Vatican)
Rome
Skopje
Armenia
Yerevan
Tirane
Macedonia (FYROM)
Albania
Tyrrhenian Sea
Sea of Marmara
Ankara
Ionian Sea
Greece
Aegean Sea
Turkey
Tunis
Athens
Malta
Kos
Nicosia
Cyprus
Syria
Mediterranean Sea
Lebanon
Beirut
Tripoli
West Bank
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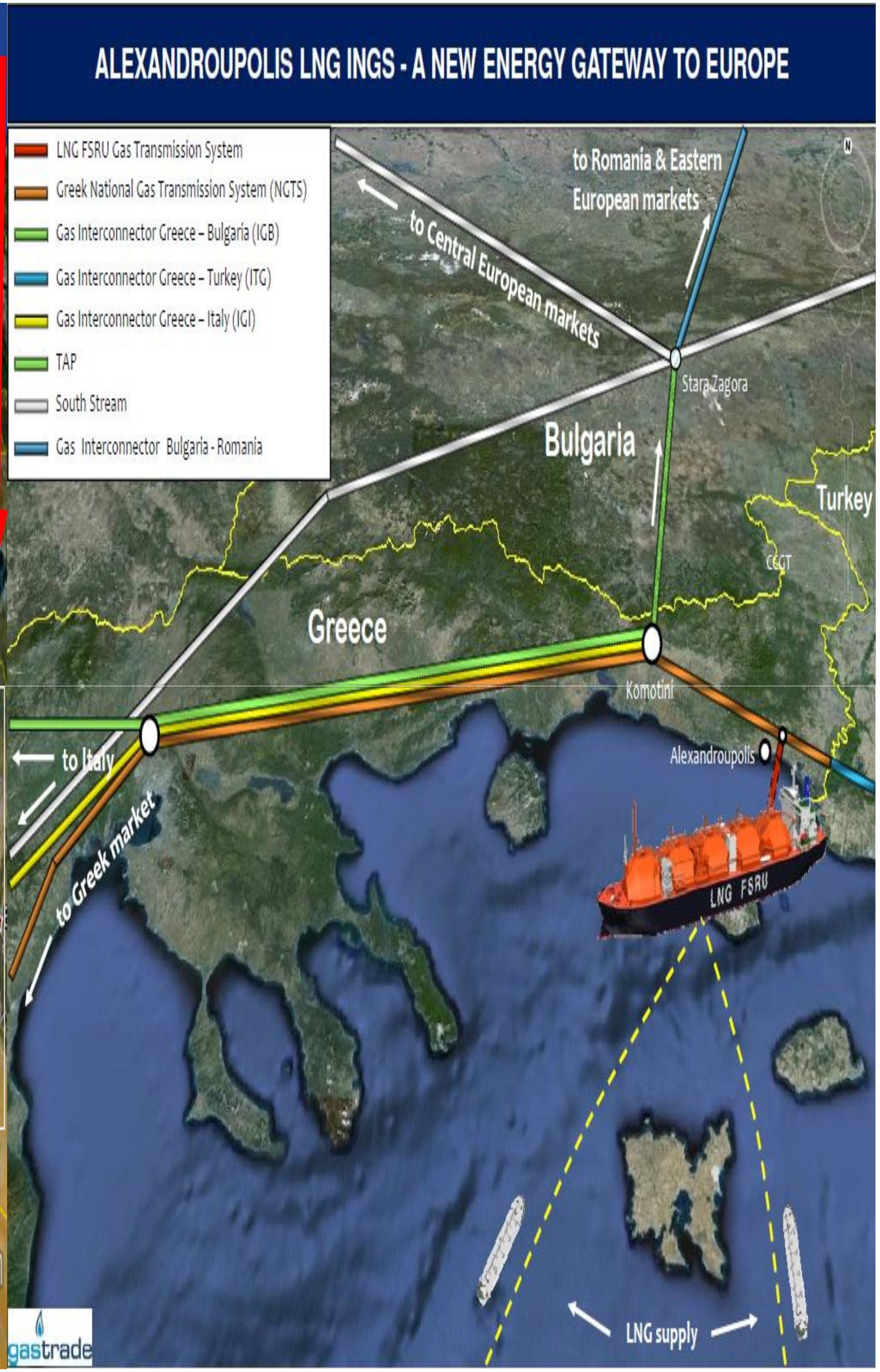
ALEXANDROUPOLIS LNG INGS - A NEW ENERGY GATEWAY TO EUROPE
LNG FSRU Gas Transmission System
Greek National Gas Transmission System (NGTS)
Gas Interconnector Greece – Bulgaria (IGB)
Gas Interconnector Greece – Turkey (ITG)
Gas Interconnector Greece – Italy (IGI)
TAP
South Stream
Gas Interconnector Bulgaria - Romania
to Romania & Eastern European markets
to Central European markets
Stara Zagora
Bulgaria
Turkey
Greece
Komotini
to Italy
Alexandroupolis
to Greek market
LNG FSRU
LNG supply
gastrade

Concluding remarks

- Global gas demand is projected to grow substantially fast over 2011 – 2017, at 2.7% per year
- Natural gas has emerged as a dynamic energy commodity on which almost all European countries are dependent. Nevertheless natural gas demand in Europe is set to grow more slowly until 2018.
- Russia is expected to keep its leading role as the main gas supplier to the European Union with South Stream expected to have a big impact on SE European gas markets
- Russia will continue to control and manipulate as much as possible gas flows, originating from Central Asian countries
- Asia will be by far the fastest growing region, driven primarily by China, which will emerge as the third-largest gas user by 2013. China and South Asia will try to ensure more gas quantities from the Caspian region
- The LNG market will continue to experience strong demand growth
- The shale gas boom in US could channel some gas export quantities to Europe
- Israel & Cyprus gas deposit latest developments present a new paradigm shift as far as large scale hydrocarbon production is concerned outside the Arab-Muslim domain
- Azerbaijan has key role to play as supplier and prospective regional hub for European gas supply
- TAP - TANAP pipelines, the East Med corridor, Floating LNG terminals (FSRU), Gas interconnectors (IGB, IGI), can contribute in strengthening Greece’s geopolitical role

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Thank you for your attention

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