

Turning on TAP: a shift in the European gas landscape

Natural gas special report

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FOREWORD

Barring any new, unexpected delays, the Trans Adriatic Pipeline is slated to come online in the fourth quarter of 2020 after a troubled journey. Its launch will represent the completion of Europe's largest project for diversification of gas supplies, the \$40 billion Southern Gas Corridor, which allows gas from the Shah Deniz gas field in Azerbaijan's sector of the Caspian Sea to flow into Turkey, Bulgaria, Greece and finally Italy. In our special report entitled "Turning on TAP: a shift in the European gas landscape" we look at the consequences that the opening of this new gas supply route will have on Italy and the wider region's gas markets.

Importance of TAP

In its current form, TAP is set to deliver 8 Bcm/year of gas into Italy, 1 Bcm/year to Greece and 1 Bcm/year to Bulgaria, via the Interconnector Greece-Bulgaria (IGB). The current official start-up date is Q4 2020, although Bulgaria will need to wait until completion of the IGB – expected in Q2 2021 at the earliest – to receive its long-term Azeri volumes. TAP gas will help to reduce Italian, Greek and Bulgarian dependence on Russian gas. There are seven long-term buyers of TAP gas destined for Italy, for a total of 8 Bcm/year: Shell, Engie, Uniper, Naturgy, Hera Trading, Enel and Axpo. In addition, DEPA has contracted for 1 Bcm/year of gas for Greece and Bulgargaz for 1 Bcm/year for Bulgaria.

Italian pricing

TAP gas destined for Italy is believed to be indexed to the PSV or TTF gas hubs, with a "hub minus" formula, with volumes to be delivered at the PSV hub. This is meant to

allow buyers under long-term contracts to break even when reselling TAP gas downstream at the PSV. TAP volumes are expected to add further bearishness to Italy's gas market during the 11 months the pipeline is expected to ramp up, when on average only 50% of volumes (11 million cu m/d) will flow, according to S&P Global Platts Analytics. Over this period, Italy is expected to be also well supplied through LNG and Algerian imports, with TAP volumes set to contribute to a further reduction in the PSV-TTF spread. TAP will continue to keep the Italian market balanced and Passo Gries and Tarvisio flows in check in the medium term as it doubles its flows to the maximum capacity level of 22 million cu m/gas day from Gas Year-21.

Regional markets

Europe's gas markets in the east and southeast have long been called the Achilles Heel of Europe's gas infrastructure, with the area lagging behind northwest Europe in terms of price discovery and infrastructure development. Lack of supply diversity, limited interconnection, little in the way of price discovery mechanisms, and political issues have all contributed to CEE's reliance on Russian supply, as well as to the region's dependence on coal for electricity generation. However, long-held ideologies are beginning to weaken, as climate change issues and a united front against Russia continue to gain momentum. The TAP project will no doubt contribute and accelerate this change.

Phase 2, dream or reality?

The TAP pipeline has been designed to be built in two phases of 10 Bcm/year each. Only the first phase is now being completed and prospects for expansion remain uncertain.

TAP AND THE SOUTHERN GAS CORRIDOR



Sources: TAP AG, Snam, Desfa, ICGB, Gastrade, IENE, S&P Global Platts

After running a successful non-binding market test in its development phase 2 in the summer of 2019, the developer of TAP cancelled a binding phase expected for Q2 2020 and postponed it until July 2021 due to “changed market conditions”. The move has cast some doubt on the developer’s intention of expanding TAP capacity according to the original plan. Without a further expansion, the originally envisaged impact of TAP volumes on Europe’s gas market will be lessened.

— *Silvia Favasuli, Gary Hornby*

TAP IMPORTANCE – A BRIEF HISTORY OF THE PROJECT

The Trans Adriatic Pipeline is the final part of the Southern Gas Corridor, the largest and most complex project for diversification of energy supplies ever attempted by the EU.

The \$40 billion Southern Gas Corridor project – set to be finally completed in 2020 after 17 years of work – aims to bring gas from Azerbaijan’s Shah Deniz 2 gas field to Europe via a network of pipelines crossing seven countries, of which TAP represents the last leg.

With its 878 km due to be completed soon, TAP aims to take 10 Bcm/year of Azeri gas into Europe and reduce the share of gas from Russia – Europe’s largest supplier – in the continent’s energy mix.

The pipeline can also be expanded by a further 10 Bcm/year, and a leg running from Greece to Bulgaria, called the Interconnector Greece-Bulgaria (IGB), will allow Azeri gas to flow into Bulgaria.

Shareholders of the TAP pipeline are some of Europe’s biggest energy companies: BP (20%), Snam (20%), Fluxys (19%), Enagas (16%) and Axpo (5%).

Azerbaijan’s state-owned Socar, one of the developers of the Shah Deniz 2 gas field, holds the final 20%.

While coming online last, the origins of TAP could be considered as having kick-started the whole Southern Gas Corridor project.

It was at the turn of the new Millennium when Swiss company EGL, now Axpo, started considering the opening of a southern corridor to Europe.

In 2003, the company carried out pre-feasibility studies on a link running from the Greek-Turkish border to southern Italy, sourcing gas from the Middle East or Caspian areas.

But Axpo was not alone. Another – arguably higher-profile – project was also on the drawing board, the planned Nabucco pipeline project, originally conceived to run from

Turkey all the way to Austria, linking up to gas resources across the Middle East and Caspian.

TAP and a watered-down version of Nabucco – Nabucco West – ultimately competed against each other in a battle to be chosen as the onward supplier of Azeri gas via Turkey after Ankara decided to build its own TANAP line to link to Azeri gas supplies.

Finally, in 2013, the Shah Deniz consortium – comprising operator BP, Socar, France’s Total and Norway’s Equinor – selected TAP as the preferred export route to Europe, banishing Nabucco to the history books.

As well as an element of political influence in favor of TAP, an even stronger influence likely came from gas prices at the proposed end market: Italian prices at the time were much higher than prices in Austria, meaning TAP would grant the Shah Deniz consortium larger profits.

With the 2013 victory, BP, Socar, Total and Fluxys entered the TAP project as shareholders, the Shah Deniz consortium signed supply contracts with buyers, and the EU added TAP to its list of Projects of Common interest. A Final Investment Decision closed the year in December.

NIMBY effect

Italy, though, is not an easy country in which to build a major infrastructure project. In March 2011, a “No TAP” protest movement made its first appearance in Melendugno, Puglia, at the designated end point of the pipeline.

Starting as a small association named Tramontana, a year later it became a well-known organization, involving the mayors of many towns in the Salento area. They tagged the pipeline as “not useful” given Europe’s declining gas demand, dangerous for the environment and “not safe”.

Opposition grew and led to a significant protest in September 2014. At this point, a clear line was set: local municipalities and the Puglia region were against the project, while Italy’s central government – at the time led by the Democratic Party – defended the strategic relevance of the pipeline. In 2015, Italy’s Snam purchased a 20% stake in the project from Equinor.

When construction works began in Italy in May 2016, protests on the ground turned violent. Construction trucks were obstructed, stones were thrown at workers and the site had to be shut many times, bringing fresh uncertainty surrounding the project’s timeline. Two legal proceedings were also opened against the developer, TAP AG.

Tensions increased further in March 2018 when Italy’s Five Star Movement (M5S), a long-time opponent of the project, won Italy’s parliamentary elections. The movement immediately opened a third round of legal proceedings against TAP AG and ground protests intensified.

But suddenly, a few months later, everything changed. M5S realized that halting the project, with 75% of the gas link completed, would result in expensive penalty fees for Italy. Industry sources estimated these to be around Eur15-30 billion, a bill that Italy could not afford.

Adding further pressure to M5S was the Lega party, which the movement had to ally with to have enough support in parliament. While opposing the project in 2015, Lega's leader Matteo Salvini in 2018 gave his backing to TAP and pushed for its completion.

Protestors on the ground – abandoned by Rome – began to gradually disappear.

But just as the horizon for TAP seemed clear and the project moved toward completion on time for first gas in October 2020, a final unexpected challenge arrived: the worldwide COVID-19 pandemic, which pushed European and Italian gas prices to as low as they have ever been.

At the time of writing in early August 2020, TAP AG remains committed to delivering first Azeri gas into Italy by the end of the year.

However, in June the developer requested and obtained from Italy's regulator ARERA a one-year prolongation of the deadline for first delivery until December 2021. COVID-19 and its potential unexpected consequences were mentioned by TAP AG as the main reason behind the request.

— [Silvia Favasuli](#)

WILL TAP DISRUPT ITALY'S GAS ECOSYSTEM?

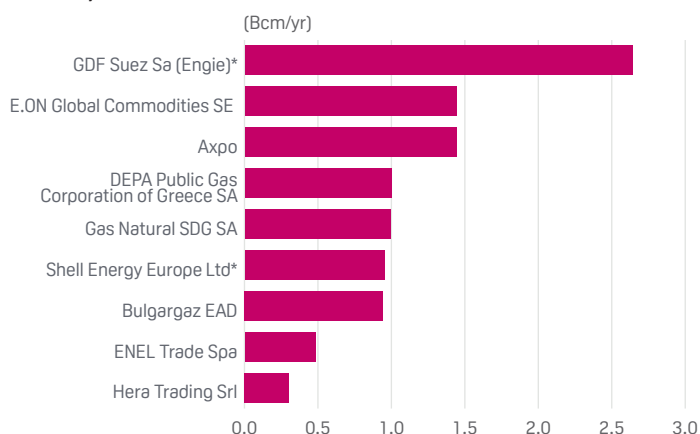
Despite having access to three LNG regasification terminals and four major pipeline supply routes, Italy has one of the highest prices for spot gas in Europe.

With just a handful of big players controlling Italy's major supply routes and the volumes imported through them, it is hard to say if the start-up of the country's sixth gas pipeline supply route at the end of 2020 will change the status quo and reduce the spread between PSV spot contracts and their Dutch TTF equivalent contracts.

TAP, currently expected to bring first Azeri gas into Italy in Q4 2020, will be able to deliver 8 Bcm/year of gas into the Italian market, or about 22 million cu m/d once the ramp up is completed.

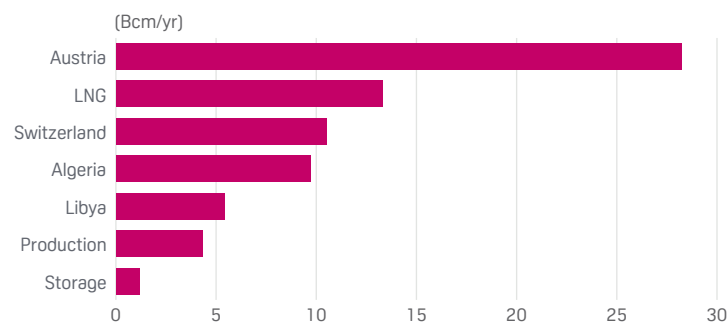
There are almost as many price formulas as "Italian" buyers of TAP gas, but all of them are meant to make TAP deliveries into Italy competitive on the PSV day-ahead market, market sources have said.

SHAH DENIZ II GAS BUYERS - VOLUMES DESTINED TO ITALY, GREECE, BULGARIA



*In 2019 Shell bought part of GDF's volumes. The major didn't reveal the percentage purchased. Source: S&P Global Platts Analytics

ITALIAN SOURCES OF GAS SUPPLY IN 2019



Source: S&P Global Platts Analytics

Formulas are believed to have a "hub minus" structure, with some of them indexed to the PSV day-ahead price, while others are indexed to the TTF day-ahead and month-ahead contracts, sources have said.

Gas destined to Italy is delivered at the PSV gas hub, meaning that the Italian buyers have no entry fees to pay, while the Shah Deniz consortium takes care of all the transport costs.

With their particular formulas, TAP volumes differ from Italian gas sourced from both Russia and especially Algeria, which have oil-indexation included in them, typically with a six-to-nine month lag, and which are reviewed on either a monthly or a quarterly basis. This affords buyers less flexibility and means a slower response to changes in market fundamentals compared with a pure hub index.

But while TAP formulas are supposed to make Azerbaijani volumes resold at the PSV cheaper than other sources of supply, there is no guarantee that TAP's 8 Bcm/year will be enough to disrupt the Italian gas market and impact the use of the country's price-making import route.

TAP ON TRACK TO BE ITALY'S SIXTH GAS PIPELINE SOURCE OF SUPPLY



Sources: Snam, TAP AG, OLT, TAG, Transmed, Swissgas, Adriatic LNG, S&P Global Platts

Passo Gries

Like other gas hubs, Italy also has an import route that effectively sets the day-ahead price at the PSV. This is the Transitgas pipeline, which brings gas from northwest Europe into Italy via Switzerland at the Passo Gries entry point.

The lack of liberalization of Switzerland’s gas transportation market is what makes this route so

expensive, allowing one single player, Italy’s Eni, to own more than 50% of the pipeline’s capacity under an over-the-counter contract without any “Use it or Lose it” obligations.

Importing even small volumes via this pipeline can trigger an increase in the premium of Italian spot prices to the reference Dutch TTF gas hub.

So what changes will TAP bring?

Let's take a scenario replicating Italy's gas balance on one of the coldest days in any given winter.

Total gas consumption of 340 million cu m/d would be met as follows: withdrawals from stocks (110 million cu m/d), pipeline imports excluding the Swiss route (152 million cu m/d), LNG imports (44 million cu m/d) and domestic production 13 million cu m/d.

This would leave Italy's gas system 21 million cu m/d short when supply is totalled and set against consumption.

This means that TAP's 22 million cu m daily imports could be enough to halt imports via Transitgas in all but the most extreme cases.

But this would only happen if the other importing routes are fully utilized.

For example, it would be enough for Russian long-term volumes imported by Eni via Tarvisio on the Austrian-Italian border or Algerian volumes imported by Eni via Mazara del Vallo, Sicily, to be turned down slightly for Transitgas to be back in the game.

And with few players in control of the largest volumes imported from all of Italy's main supply routes, there will still be the possibility of creating a small shortage of gas necessary to trigger spot imports from Switzerland, and let this route again set the PSV hub price.

PSV liquidity

The Swiss route has been hampered in the past by a lack of liquidity between the TTF hub and the PSV hub. But TTF volumes have ballooned in recent years and trading interest on the PSV has also increased, although not to the same extent.

Additional gas from TAP could see more players become active on the PSV hub as well as increasing competition within the country in terms of gas supply, making hub trading more important as the number of sources increases.

An opportunity for further competition could materialize in 2023, when Gazprom's long-term contract on the TAG pipeline – which crosses Austria from the Slovakian border to the Italian border – expires. At this point, the roughly 80% share of capacity in the hands of the Russian major will be sold via regular auctions on the PRISMA platform, with all interested market players able to purchase it.

A similar scenario could occur in Switzerland in 2024, when Eni's long-term capacity contract expires. Should Switzerland introduce European rules for the allocation

of transport capacity, shippers may be able to buy the Transitgas capacity via regular auctions.

— *Silvia Favasuli, Gary Hornby*

TAPPING INTO ITALY'S RISING GAS-FOR-POWER DEMAND

Italy's use of gas for electricity generation is expected to rise until at least the summer of 2021, opening up the possibility for extra volumes of gas entering Italy via the new TAP pipeline to be absorbed by the power sector in the short term.

Gas is a key component of the Italian power generation mix, accounting for about 46% of all output, based on S&P Global Platts Analytics data. No other component comes close, with hydroelectric output – the second-largest source of production – accounting for just 17%.

The third-biggest element is coal, which Italy is in the process of gradually phasing out.

Gas-for-power demand has been fairly stable since 2010, reaching a recent peak of 2.6 Bcm in January 2017.

Lockdown measures implemented by the Italian government in March in a bid to stop the spread of COVID-19 had a harsh impact on power demand.

Gas consumption for electricity generation slumped by more than 21% on the year in April – the first full month of the lockdown – to less than 1.43 Bcm. As the lockdown has been gradually eased, demand has almost recovered to pre-COVID-19 levels, reaching nearly 2.28 Bcm in July, tracking levels seen in 2019.

"Italy relies a lot on gas, it's our main source of generation," an Italian power trader said.

"It is really strong now and should remain strong later on, considering that it is quite cheap. If demand crashes again due to COVID, on one hand I expect gas prices to crash again, but on the other – there will be less need for power. Coal is much more expensive and the switch rate is quite strong," the trader said.

According to the trader, gas-for-power demand in Q4 will depend a lot on the situation with COVID-19.

"If nothing happens, I would expect a really strong recovery that will go on in 2021," the trader said. "Otherwise, there will be a general collapse and gas generation will be affected too despite cheap prices."

To the end of the year, Platts Analytics sees three main factors creating downside pressure on Italian gas-fired power generation: demand, French nuclear and hydro output.

“In our assumption, we have already seen the highest level of demand in July, similar to the past five years of history. Demand is then assumed to decrease by around 7 GW in August, and then to average 34 GW in September and 35 GW in Q4 – for which we still assume COVID-related demand losses,” Platts Analytics’ analyst Anita Porta said.

Price is key

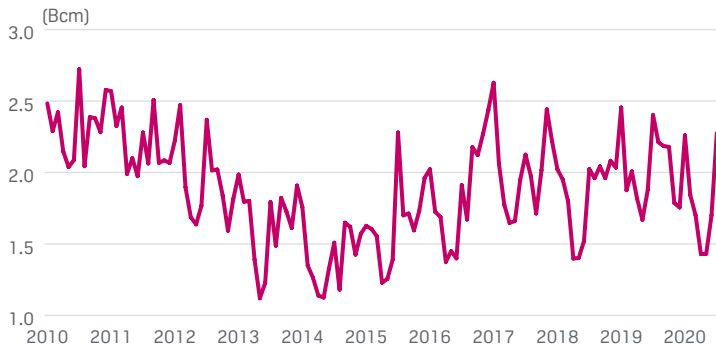
The commissioning of the new Savoy-Piedmont 1.2 GW power interconnector between France and Italy – previously expected to come online in January 2021 after a number of delays – has now been postponed to the second half of next year. According to Porta, this will support Italian gas-for-power demand at least until Summer 2021.

This gives the market an opportunity to absorb additional gas volumes brought by the new TAP pipeline.

However, it is difficult to predict whether the additional gas demand will come from TAP or another source, such as LNG or gas imports from Russia, northwest Europe and North Africa. The key criteria for choosing the most suitable source for power generation will be the gas price, according to multiple market sources. “I would say yes. If needed, power producers will take it from where they can,” the Italian power trader said, when asked if additional gas volumes could come from TAP.

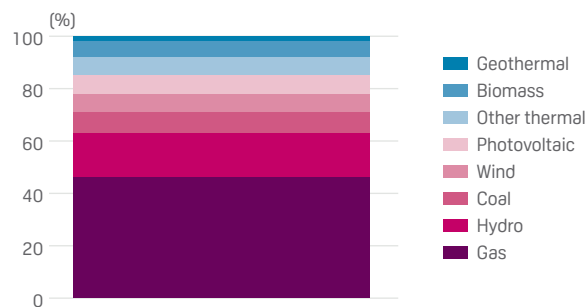
“Of course, [the main factor] is price, but it depends on other things, because in power you have a portion of the

ITALIAN GAS-FOR-POWER DEMAND



Source: S&P Global Platts

ITALIAN POWER GENERATION MIX



Source: S&P Global Platts Analytics, based on data from Jan 2016 - July 2020

supply which is fixed and renewables. So then you have the difference between demand and renewable supply that needs to be covered by other sources. So there are different interactions between prices of other sources, eg. coal – which is then also linked to emissions – and gas,” an Italian gas trader said.

“The problem with figuring out TAP is who knows what [players] with the long-term contracts will do with the other transports,” the gas trader added.

The biggest players on the Italian market, including Eni and Enel, declined to comment on the potential TAP impact. Another key energy company, Edison, did not respond to a request for a comment.

The TAP developers themselves mentioned in a report that “the realization of TAP will also directly impact the Italian electricity market, which depends to a large extent on gas for energy production.” However, they declined to provide any further details.

Long-term outlook

Looking beyond Summer 2021, Platts Analytics assumes almost 3 GW of new gas-fired power capacity will come online by 2023, commissioned for the 2022/2023 capacity markets.

Platts Analytics’ Porta said the tighter Italian thermal stack triggered by higher imports from the new Savoy-Piedmont interconnector with France and slow but steady renewable growth would limit gas-fired generation from Summer 2021 to 2023.

But beyond 2023, a rebound in Italian gas-for-power demand is expected, supported by mandated coal closures, with a complete coal phase-out currently planned for 2025 – at least on the mainland.

Another key factor could be the potential for the coal phase-out in Sardinia to be postponed due to delays on the construction of the Tyrrhenian link, which will allow Sardinia to displace coal generation with imports from Sicily, Porta said.

— *Kira Savcenko*

RESHUFFLING THE BALANCE – THE PLATTS ANALYTICS VIEW

About one quarter of all energy used in the EU is provided by gas and the need is expected to grow. Europe meets this demand by a combination of pipeline imports, LNG deliveries and indigenous production.

Italy produced 4.2 Bcm of gas in 2019, covering 6% of domestic demand. Production peaked in 1994 and has been falling ever since, as resources deplete.

Italy imports gas at four main pipeline entry points (Tarvisio, Passo Gries, Mazara del Vallo and Gela) as well as at the smaller Gorizia point, and three LNG regasification terminals (Panigaglia GNL in Liguria, Adriatic LNG off the coast of Veneto, and Offshore LNG Toscana off the coast of Tuscany).

TAP is part of the Southern Gas Corridor project, which will deliver 16 Bcm/year of Caspian and Central Asian gas directly to Europe (6 Bcm/year to Turkey, 2 Bcm/year to Greece and Bulgaria, and 8 Bcm/year to Italy). The corridor passes through Georgia, Turkey, Greece, Albania, and into Italy and comprises of two other major projects – the South Caucasus Pipeline (SCPX) through Azerbaijan and Georgia and the Trans-Anatolian Pipeline (TANAP) through Turkey.

TAP ramp-up

Platts Analytics expects TAP to become operational in November 2020, with the capacity to carry 8 Bcm/year (22 million cu m/d) of gas to Italy from Azerbaijan. While seven international energy companies have already signed long-term contracts to purchase the 8 Bcm/year for 25 years, we assume a ramp-up period for the first 11 months, with only 50% of volumes (11 million cu m/d) flowing on average. It is not uncommon for new pipelines to have a ramp-up period (TANAP flows to Turkey for example are only now reaching full capacity, in the third year of operation), or for long-term contracts to account for an initial period with lower volumes.

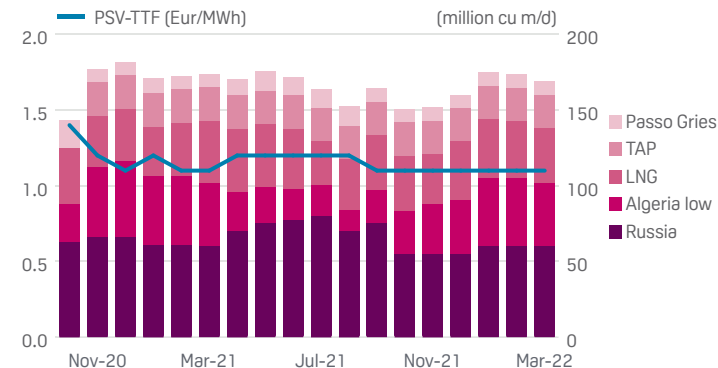
The first TAP gas into Italy will add to the general bearishness of the market as we also expect both LNG sendouts and Algerian imports to average higher year-on-year in Winter- 2020, suppressing PSV prompt contracts.

While Italy has strongly reduced its imports from Algeria over the last year, we expect Algerian deliveries to average significantly higher (up 15 million cu m/d at 40 million cu m/d) this winter, as the PSV is forecast to cross above the oil-indexation level from November 2020 to March 2021, providing additional supply-side pressure to the market. LNG sendouts will see a year-on-year increase as southern European markets will continue to be the premium markets in Europe.

With TAP flows adding an extra supply point to Italy, the PSV-TTF spread will narrow further and Passo Gries flows will average significantly lower year-on-year. Russian imports will also suffer from loose market fundamentals, with Tarvisio imports averaging 6 million cu m/d lower on a yearly basis. While upside risk could come from stronger CCGT demand, this is not enough to reverse the bearish sentiment, as storage withdrawals will mitigate any upside pressure.

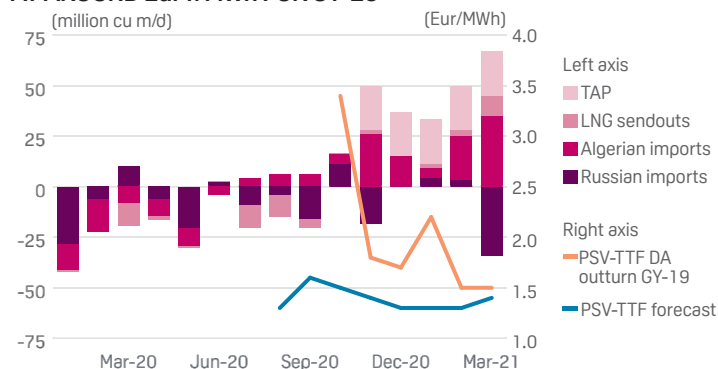
Looking ahead, into 2022-2025, we expect TAP to double its flows to maximize capacity from Gas Year 21 (22 million cu

TAP FULL CAPACITY FLOWS FROM NOV-20 WILL PUSH PSV-TTF AT AROUND Eur1/MWh FOR GY-20



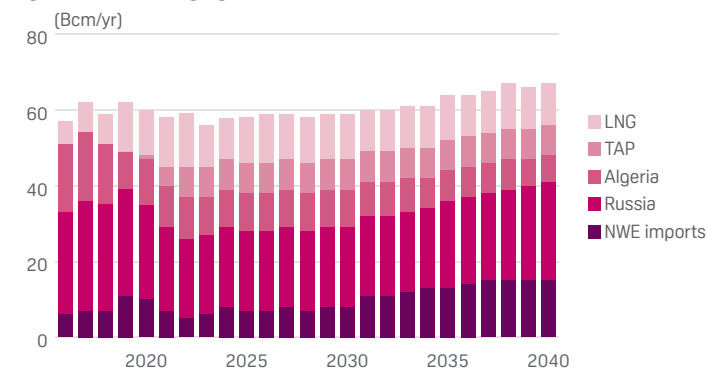
Source: S&P Global Platts

TAP FULL CAPACITY FLOWS FROM NOV-20 WILL PUSH PSV-TTF AT AROUND Eur1/MWh FOR GY-20



Source: S&P Global Platts

TAP WILL ADD FURTHER SUPPLY-SIDE PRESSURE TO THE ITALIAN SYSTEM



Source: S&P Global Platts

m/d) and continue at this rate, keeping the Italian market well supplied and Passo Gries and Tarvisio flows in check.

High coal switching utilization rates support CCGT demand in 2021, with demand falling in 2022-2024 as the PSV rises relative to coal/carbon. Italy's coal fleet will be closed by the end of 2025, with overall CCGT demand increasing by 2 Bcm/year between 2023 and 2025.

In the same period, we expect Russian flows to average 4 Bcm/year lower relative to 2020 and northwest European

imports to decline to around 6 Bcm/year (4 Bcm/year lower vs 2020).

Costs and flexibility

Another important factor to forecast the impact of TAP on the Italian balance is to determine whether gas through the pipeline will flow at a flat rate or will be more price-responsive, and if so according to which signals.

TAP has set aside approximately 5% of the initial capacity for firm forward short-term booking. With the rest of the pipeline capacity reserved for gas deliveries to Italy contracted through long-term agreements with seven buyers, there is very little flexibility coming from spot volumes traded in response to short-term price signals. Flexibility would therefore depend on the contractual terms agreed between the parties under the long-term agreements.

Price

While price formulas under long-term contracts are generally confidential, some details on the Shah Deniz 2 contracts (which would reach Italy through TAP) have emerged since contracts were signed in 2013, perhaps because of the numerous buyers and relatively low contractual volumes.

Publicly available articles report that contracts are priced in line (and indexed to) European hub prices. In particular, the original contract with France's Engie (the largest one, for 2.6 Bcm/year) is believed to be indexed to TTF, while the others are indexed to PSV. Shell in September 2019 bought a portion of Engie's contract, though the volumes were not disclosed.

There are also rumors of a "liquidity clause" in the PSV-indexed contracts, requiring the hub index to reach a certain level of liquidity to remain in the formula, being otherwise substituted by a mix of TTF (80%) and oil (20%). While we are not aware of the details in the clause, the liquidity of the PSV has increased since contracts were signed in 2013, indicating that it will probably be the relevant index once flows through TAP start.

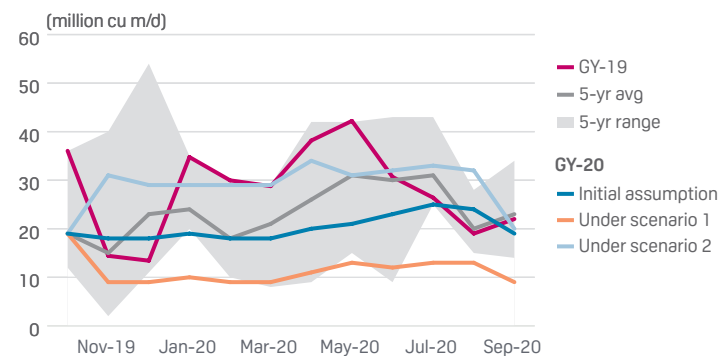
In terms of product selected as index, our assumption is on day-ahead or month-ahead products, as the lower liquidity of products with longer maturity makes them generally less preferable for indexing a contract.

Volume

While the contracted volumes for each buyer are common knowledge, there is no public information on the annual take-or-pay levels or the daily flexibility allowed in the contracts. We believe that, while generally not very common, a 100% take-or-pay obligation with no flexibility makes sense for these contracts.

Firstly, a take-or-pay obligation for less than 100% makes sense to reduce the "volume risk" for the buyer, and is

TAP WILL BE A KEY DRIVER FOR PASSO GRIES FLOWS NEXT GY



Source: S&P Global Platts Analytics

generally considered crucial when the price under the contract becomes uncompetitive.

However, with 100% hub indexation and a price level that allows buyers to break even versus the PSV, the buyers' volume risk is significantly reduced. In other words, unusually profitable prices for the buyers might compensate unusually high take-or-pay volume requirements.

Secondly, a 100% take-or-pay obligation is much less of a burden for contracts with annual volumes of 1 or 2 Bcm/year compared with historical long-term contracts with volumes reaching 10 Bcm/year and more.

Furthermore, any contractual volume flexibility implies the buyer can nominate lower volumes in a certain period and make up by nominating more at some other time. However, since the contracted volumes cover almost the full TAP capacity, it is difficult to imagine how sellers could provide buyers with any volume flexibility while ensuring the availability of sufficient capacity for the other buyers. For this reason, we believe the long-term contracts cannot include significant within-year flexibility.

All these considerations on the contractual terms suggest that once the pipeline ramp-up period (that we assume until October 2021) is over, gas through the TAP will flow steadily at full capacity irrespective of market prices, which justifies the assumption in our base case.

Scenario analysis

In our base case we assume 50% of the capacity to become available in November 2020 and the rest from Gas Year 2021. However many uncertainties remain regarding the ramp-up period as shareholders have not provided details about the initial schedule. First volumes might be linked to contractual clauses in the long-term gas supply agreement, which are confidential.

Other scenarios are possible for the rate of ramp-up of TAP.

Scenario 1: TAP ramps up at full capacity from November 2020 keeping annual Passo Gries flows at record low levels

In an extreme case, we could see gas flowing at maximum capacity already from November 2020 onwards.

Russian imports have always been one of the main supply points in Italy, with maximum capacity of 110 million cu m/d (TAG pipeline). Given that under this scenario TAP is flowing at 22 million cu m/d from November 2020, we expect Russian flows to decline year-on-year, but not below the take-or-pay levels.

We assume contractual volumes sitting at around 30 Bcm/year (83 million cu m/d on average). Other than in two instances, we have never seen a level below 80% of total contractual volumes so we assume 24 Bcm/year as the annual take-or-pay level (66 million cu m/d on average).

In this case LNG deliveries will still continue to arrive in southern Europe as the PSV is expected to remain a premium hub, making Italy an attractive destination in Europe going forward. The increasing role of LNG in the Italian gas market was a decisive factor in prompting grid operator Snam to invest in the refurbishment of terminals, with the Panigaglia LNG terminal set to double in capacity by the end of 2021.

In Winter 2020 we assume LNG sendouts to average 3 million cu m/d higher than Winter 2019 at 36 million cu m/d, providing strong support to the Italian balance. LNG storages are expected to be quite full by that time (>50% on average with days peaking above 70%) so there is not much downside potential for sendouts.

As we discussed in our base case, loose fundamentals will prevail from Winter 2020 as Algerian contracts are back in the money for the first time since Gas Year 2018, with imports averaging 15 million cu m/d higher year-on-year at 40 million cu m/d as PSV is forecast to cross above the 100% oil-indexation level from November 2020 until March 2021, providing extra supply-side pressure to the market. Algerian flows will remain in the money also under this scenario in Winter 2021, so these are not considered to be a bullish factor for the Italian balance.

Under these very bearish conditions, the PSV day-ahead price will decline and the PSV-TTF day-ahead spread would remain very tight from Winter 2020 until the end of Winter 2021, averaging around Eur1/MWh and suppressing Passo Gries flows significantly in Winter 2020 and Summer 2021 at around 10 million cu m/d and 12 million cu m/d respectively (overall 17 million cu m/d lower year-on-year). From Winter 2021, Passo Gries flow would drop further averaging 9 million cu m/d (1 million cu m/d lower year-on-year) for the first time since Gas Year 2012.

Scenario 2: TAP begins only with 25% capacity in November 2020 and ramps up to 50% in Gas Year 2021 with Algerian contracts being out of the money

In our base case and scenario 1, we forecast Passo Gries flows under bearish pressure and the risk being mostly to the down side. In order to examine a situation which could see northwest European imports picking up significantly, we need to assume a more “extreme” case, namely even lower TAP flows and out of the money Algerian flows.

The bearish conditions developed so far in the market are expected to continue for the remainder of summer and Winter 2020. Given how loose the fundamentals are, buyers from the TAP-linked contracts could try to minimize the additional supply by beginning operations only at a 25% flow rate (5.5 million cu m/d) of the total capacity – against general market expectations.

This scenario would provide a significant boost to PSV prices, with the PSV-TTF day-ahead spread widening above our base case (jumping toward Eur2/MWh in Summer 2021) and Passo Gries flows breaking above Gas Year 2019 and Gas Year 2018 levels.

Another bullish risk would be if the recent oil recovery continues as oil demand accelerates further in H2 2020 and Brent crude oil prices increase at or above \$50/b, pushing Winter 2020 oil indexation levels higher than our base case keeping Algerian flows subdued.

As Russian and northwest European imports are two of the main supply sources, in this scenario we expect Passo Gries to react first and spike above Gas Year 2019 levels, averaging 4 million cu m/d higher at 30 million cu m/d. The increase will begin in Q4 2020 with October 2020 settling at 33 million cu m/d /d. From Q1 2021, flows will decline slightly, broadly in line with Q1 2020, as Russian flows will start picking up to contribute to the balancing process, however averaging lower than Q1 2020.

The bullish trend in NWE imports will continue in Summer 2021, settling 2 million cu m/d above Summer 2020 at 30 million cu m/d. In Winter 2021, TAP flows will increase towards 50% of total capacity averaging 11 million cu m/d. This will provide some downside pressure to PSV with Passo Gries flows averaging around 25 million cu m/d (5 million cu m/d lower year-on-year but 9 million cu m/d higher than our base case).

Both of the above scenarios are unlikely to occur with the Italian system remaining robust and ready to adjust to any changes in TAP flows from Winter 2020 onwards.

— *Konstantinos Pantazopoulos, Valentina Bonetti*

TAP AND THE BROADER REGIONAL MARKET

Before reaching Italy, the TAP pipeline will run directly through Greece and will also connect from 2021 to the

Bulgarian gas market via the Interconnector Greece-Bulgaria (IGB).

Greece's gas supply company, DEPA, and its Bulgarian counterpart, Bulgargaz, both signed long-term supply contracts for 1 Bcm/year with the Shah Deniz consortium for gas via the Southern Gas Corridor. Whether more volumes than those contracted will go to Greece and Bulgaria remains to be seen.

Greece currently has a solid LNG supply base as well as access to Russian gas flows through the TurkStream pipeline, which largely replaced its Russian imports from the north at the start of 2020.

LNG supply into Greece historically has mostly been sourced from Algeria, Qatar and Norway. But imports from the US have ballooned over the past few years and, despite the recent cancellation of US LNG cargoes, more will no doubt end up in Greece given the price competitiveness of US LNG and the closer geographic location compared with Asian markets.

And with Greece's own gas demand limited, the country itself looks set to play a small part overall in the evolution of the Southern Gas Corridor despite Greece being key to the TAP project itself.

The IGB will enable gas from Azerbaijan to be moved northward to Bulgaria, and potentially further on to other markets in the region.

The project – expected to come online in the second quarter of 2021 – could potentially have a capacity of some 5 Bcm/year, meaning that if interest from market participants is sufficient in the area, this could play into the development of additional TAP capacity going forward.

Bulgaria has historically been fully reliant on Russian gas flows and its long-term contract with Gazprom was based on an oil-indexed price mechanism until the parties agreed to switch to hub-based pricing in March 2020 after pressure on Gazprom from the European Commission.

Once Bulgaria begins imports of gas from Azerbaijan with a hub-indexed link, Bulgaria could potentially use this opportunity to push Gazprom to allow an even larger discount than the one currently achieved.

The flow of gas from TAP into Bulgaria also opens up an opportunity for other countries to source Azeri gas to reduce dependence on Russia.

Hungary, for example, is also interested in buying 1-2 Bcm/year of gas from Azerbaijan.

And with Romania having failed to fully exploit its gas reserves in the Black Sea – Romania still imports about 10% of its gas from Russia despite relatively high levels



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of production – it too could benefit from gas imports from Azerbaijan via Bulgaria.

These new volumes could boost infrastructure spending in and around the region in order to allow for the gas to move south to north, with several projects either already under way or in the proposal phase.

The infrastructure boost will allow larger volumes of gas to be moved from one country to another, and while they are not in the same league as gas movements elsewhere in Europe, arbitrage opportunities will come more into play, and by default, trader interest and price discovery will naturally improve.

Once hubs are readily traded and price transparency enhanced, further interest will likely evolve.

It could be the case that the TAP pipeline, and by extension the IGB project, might be the spark that ignites the region and allows countries in southeast Europe to catch up to those in northwest Europe, with many suppliers having already expressed interest in delivering into the region.

US LNG pioneer Cheniere has already said it could be interested in supplying LNG to Croatia's LNG project, and Qatari LNG trader PowerGlobe has bought long-term capacity at the facility.

For the region, the mechanisms that have not been in place should now become more readily available. Access to capacity in the region will be key for gas to be moved from one place to another.

There is the opportunity now for the region to make some headway in catching up with northwest Europe, and with the infrastructure beginning to come together, regional gas demand also could be set for a boost, especially in the power generation sector.

— Gary Hornby

TAP: A DASH FOR GAS IN THE BALKANS?

The creation of a new gas link crossing southern Europe from east to west represents a long-awaited opportunity for countries in the Balkans interested in diversifying their energy mix.

Albania, Kosovo and Montenegro currently rely mostly on renewables and oil for their energy and heating needs.

Albania, the biggest of the three, saw 63% of its 2017 energy mix represented by oil, and about 20% from hydropower. Some 12% came from biofuels, 4.3% from coal and only 1.8% from gas, the most recent data from the International Energy Agency show.

The country is crossed by a mostly obsolete 400 km low pressure gas network, linking small gas fields, and a fraction of this network is used to send domestic gas production to oil companies for their processing operations.

But over the past few years, the new Albanian transmission system operator Albgaz – which was unbundled from

Albpetrol in January 2017 – has laid out plans for a five-fold expansion of the country’s gas system.

Albgaž’s ambitious plan forms part of a wider Gas Master Plan designed by the Albanian government in 2014, which involves also the construction of new CCGT plants, an underground gas storage facility at Dumrea, and an Albania-Kosovo gas interconnector (ALKOGAP) that would help open up the Kosovan gas market.

Albania’s government expects the country’s gas demand to reach about 2 Bcm/year by 2040, 770 million cu m/year of which would be used for gas-fired power generation.

Fier exit point needed

TAP’s first 10 Bcm/year phase is designed only to pass through Albania, without delivering any gas into the country itself.

Furthermore, Albania’s master plan will materialize only if Tirana realizes an exit point along the TAP pipeline as part of the second 10 Bcm/year phase of TAP, currently under consideration.

TAP AND THE DEVELOPMENT OF GAS MARKETS IN CEE



Sources: TAP AG, Snam, Desfa, Gastrade, ICGB, IENE, S&P Global Platts

In 2019, the developer of TAP ran a non-binding test to gauge market interest in an expansion of TAP by a further 10 Bcm/year.

Shippers expressed interest in creating a new exit point at Fier in Albania that could carry some 1 Bcm/year of gas in the 2025-26 to 2049-50 period. Shippers also asked for the opening of a second exit point at Korca, with 0.6 Bcm/year of forward firm capacity for the same period.

A binding phase of the test for TAP phase 2 is expected in July 2021.

Should Albania win access to TAP gas, a further project could take off: the Ionian Adriatic Pipeline (IAP) – a proposed 5 Bcm/year bidirectional pipeline planned to stretch from Fier to Croatia, crossing Bosnia and Herzegovina, and Montenegro. The pipeline has the backing of Azerbaijan's state-owned Socar.

Albgaz, meanwhile, is making plans. In 2018, the company opened a tender to select an international qualified partner to support the company in the operation and maintenance of Albania's existing pipelines. The partnership, Albgaz said, would also facilitate potential future collaboration for the development of the country's gas market. Italian grid operator Snam was the selected partner and in June 2018 a deal was signed by the two TSOs.

— *Silvia Favasuli*

TAP PHASE 2: DREAM OR REALITY?

The Trans Adriatic Pipeline has been planned to be built in two phases of 10 Bcm/year each, the first one of which is set to come online in the fourth quarter of 2020. But the developer's decision in June to postpone the binding stage of a market test meant to kick-start TAP Phase 2 has cast some doubt over the expansion project.

TAP AG was meant to collect binding bids to book additional TAP transport capacity from shippers in Q2 2020. But on June 4, it decided to push the test back to July 2021, pointing to changed market conditions as the reason behind the decision.

"Given the recent market conditions, the transmission system operators Trans Adriatic Pipeline (TAP) AG, Snam Rete Gas (SRG) and DESFA decided to allow more time for energy markets to recover," TAP Head of Commercial Marija Savova said, when asked about the move by Platts in late July.

The postponement came despite a first non-binding test run in the summer of 2019 that achieved positive results – published by TAP AG in October 2019 – in some cases even exceeding the maximum of 10 Bcm/year of extra capacity on offer.

TTF GAS PRICES DROPPED BY 83% BETWEEN DECEMBER 2013 AND JULY 2020



Source: S&P Global Platts

NON-BINDING DEMAND INDICATIONS FOR FORWARD FIRM LONG-TERM CAPACITY AT IP MELENDUGNO, IP NEA MISIMVRIA AND IP KOMOTINI

From	To	Gas year(s)	Amount (kWh/d)
Melendugno Exit, TAP Entry			
Snam	TAP	2020-21 to 2021-22	91,370,000
Snam	TAP	2022-23 to 2029-30	116,340,411
Snam	TAP	2030-31 to 2031-32	26,340,411
Snam	TAP	2032-33	5,790,411
Snam	TAP	2033-34 to 2041-42	5,500,000
Nea Misimvria TAP Exit, DESFA Entry			
TAP	DESFA	2020-21 to 2021-22	87,470,000
TAP	DESFA	2022-23 to 2029-30	98,450,000
TAP	DESFA	2030-31 to 2031-32	12,350,000
TAP	DESFA	2032-33 to 2041-42	5,500,000
Komotini TAP Exit, Interconnector Greece Bulgaria (ICGB) Entry			
TAP	ICGB	2020-21 to 2021-22	3,900,000
TAP	ICGB	2022-23	17,600,000
TAP	ICGB	2023-24 to 2029-30	17,890,000
TAP	ICGB	2030-31 to 2031-32	13,990,000
TAP	ICGB	2032-33	290,411

Source: TAP AG, SNAM, DESFA

Most interestingly, shippers expressed interest in a maximum of 12 Bcm/year of additional forward firm long-term capacity at the Kipoi TAP entry point in Greece – in the direction Greece to Italy – for the 2025-26 to 2029-30 period.

Interest in incremental capacity at the Melendugno exit point in Italy for forward firm long-term capacity reached a maximum of 8.4 Bcm/year for the same period.

The market also expressed an interest in having additional capacity at Greece's Nea Mesimvria exit point for supplies destined for the Greek market of about 2.5 Bcm/year over 2023-24 to 2031-32, and some players requested the opening of two exit points in Albania, in Fier and Korca.

Based on these non-binding bookings, TAP AG and the TSOs involved (Snam and DESFA) concluded that there was sufficient indicative demand to initiate an Incremental Capacity Project and in January 2020 TAP AG published a draft project proposal for TAP phase 2.

Two alternative expansion plans

TAP AG, Snam and DESFA have also proposed two other alternative incremental projects: a partial expansion of the pipeline transport capacity by a further 7.8 Bcm/year (for a total of 17.8 Bcm/year), or the expansion of a further 11.7 Bcm/year (for a total TAP transport capacity of 21.7 Bcm/year).

In both scenarios, phase 2 would entail the installation of additional compressor units in Kipoi (Greece) and Fier (Albania), and the construction of new compressor stations in Serres (Greece) and Bilisht (Albania), the developer said.

The cost of the partial expansion is estimated to be Eur965 million (\$1.14 billion), while the full expansion would cost about Eur1.382 billion.

“According to the current schedules and estimates, TAP could begin to transport additional capacity approximately five years after the end of the binding phase,” Savova said.

A new price scenario

To allow further Shah Deniz 2 volumes to transit along TAP as part of the expansion phase, the whole Southern Gas Corridor will need to be expanded, with the TANAP pipeline also expanding.

But the bearish winds currently blowing over Europe’s gas markets pose a big challenge.

Between December 2013 – the year of the final investment decision on TAP phase 1 – and July 2020, spot gas prices at the reference TTF Dutch hub have dropped by 83% to a daily average of Eur4.80/MWh in July 2020 from Eur27.68/MWh in December 2013, according to Platts pricing data.

The price level at which European gas markets will settle after the storm brought by the COVID-19 pandemic will be fundamental to understanding whether Azerbaijan would rather divert its additional gas volumes toward more profitable markets such as Turkey, which would also entail cheaper transportation.

That could put paid to the expansion of the TAP pipeline.

Reverse flow immediately available

While delaying the expansion plan, TAP AG decided however to immediately satisfy a request for interruptible reverse flow capacity in the direction Italy-to-Greece, which emerged from the non-binding phase of the market test.

“Commercial reverse flow capacity will be made available on the PRISMA platform as of the TAP start of commercial operations,” Savova said.

She said that the amount of commercial reverse flow capacity offered will be published in time for the start of

the auctions on PRISMA. Capacity will be offered in daily, monthly, quarterly and yearly products.

During the non-binding market test, the maximum level of reverse flow capacity required by market players at the Melendugno TAP entry point was about 4 Bcm/year for the 2022-23 to 2029-30 period.

The maximum level of reverse flow capacity requested at Greece’s Nea Mesimvria exit point was about 3.5 Bcm/year for the 2022-23 to 2029-30 period.

However, according to an industry source, the cost of transporting TAP volumes delivered at the Italian PSV to Greece would be around Eur5/MWh, including exit and entry fees at Melendugno, the cost of TAP reverse flow capacity, and exit and entry fees in Greece.

Given this high cost, it would be difficult to see any of the Italian buyers looking to resell TAP volumes into Greece or Bulgaria, with the two countries forced to make do with the 1 Bcm/year of long-term volumes each already contracted.

— [Silvia Favasuli](#)

LAST WORD

Welcome to the European gas market, TAP. The long-awaited final piece of the Southern Gas Corridor jigsaw is almost complete.

Ever since June 28, 2013, when TAP officially emerged victorious over the much-heralded Nabucco project — TAP’s erstwhile rival to bring Azeri gas to Europe — progress on the pipeline has been closely watched.

From grassroots opposition in Italy to the lengthy business of moving olive trees from the area near TAP’s landing point, the project has been embroiled in controversy ever since it was selected by the Shah Deniz 2 consortium as the preferred, final route.

While TAP has always enjoyed the full support of the EU as a tool to diversify gas supplies away from Russia, grumblings out of Rome in 2018 almost put paid to TAP with then environment minister Sergio Costa dismissing the pipeline as “pointless.”

In the end, though, the political desire — from Washington as well as from Brussels — to complete the Southern Gas Corridor network proved overwhelming, at the same time giving Azerbaijan a key outlet for its vast gas resources.

But how will TAP ultimately change the European gas landscape?

The 10 Bcm/year that the corridor brings to southern Europe is a drop in the ocean compared with, say, Russian deliveries to Europe, which topped 200 Bcm in 2018.

Moscow has kept a keen eye on developments and even made an ambitious offer to Baku in the late 2000s to buy all of Azerbaijan's present and future gas output, seemingly in a bid to deter Caspian competition in Europe.

Russia has now had plenty of time to digest the fact that it will lose some market share to TAP in Italy, Greece and — via the Greek interconnector — Bulgaria.

It is Italy in particular where Gazprom may feel some grief — it was the gas giant's second-biggest market in 2019 after Germany, with sales of 22.1 Bcm.

Other gas suppliers, though, may be pushed out first by TAP, which is likely to offer a baseload-type of supply, with Russia able to retain some share given its low cost of production.

Overall, it may not be a huge shift for Gazprom, which is, in any case, increasingly looking to China to expand its sales in the coming decade and which is developing its own LNG export capabilities in the Russian northwest.

'Game-changer'

Joseph Murphy, president of BP in Turkey, told Platts in an interview in late 2018 that, while the volumes in the first phase of TAP were relatively modest, it was the strategic importance of the pipeline that was the key.



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"The 10 Bcm/year into Europe is not a game-changer from a volume point of view, but it is a game-changer from a new source of product into mainland Europe perspective and it can be expanded," Murphy said.

For Italy, it gives it yet another import route to add to those bringing gas from Russia, Algeria, northwest Europe and Libya. And that's not to mention its three LNG import terminals.

There are also plans for a 10 Bcm/year pipeline linking gas fields offshore Israel and Cyprus to Greece and ultimately to Italy — the EastMed pipeline — giving the Italians yet another source of supply.

But the landscape for European gas is changing, with increasing calls for it to be grouped together with oil and coal as a dirty fossil fuel that would have to be decarbonized to have a future in Europe.

This could rule out the EastMed project before it even starts.

In fact, it seems increasingly unlikely that any new mega gas projects in Europe — such as major new pipelines — will see the light of day, and big gas resources in regions such as the East Mediterranean or Black Sea may struggle to win financing.

Certainly it's hard to imagine anything being developed on the scale of the \$40 billion Southern Gas Corridor, which would almost certainly be dismissed as uneconomic if it were to be floated as an idea now.

It is a long way to transport gas, it travels through many countries — including Turkey which some consider something of a risky transit country — and at current European prices looks very expensive.

In addition, Azerbaijan and neighboring Armenia have this summer been involved in clashes that have seen dozens of soldiers killed, with Baku warning that an escalation of the conflict could spill over into the energy sector, with its oil and gas exports under potential threat.

But it's important to remember that the Southern Gas Corridor is a long-term initiative.

So while it looks like the startup of TAP is falling at an inopportune time for the upstream gas suppliers, with European gas prices having fallen to record lows, prices won't be this low forever.

And all gas suppliers are feeling the same pain right now, in any case.

The Southern Gas Corridor, with its effectively fixed tariff transportation cost, will no doubt come into its own in the coming years as prices recover. And nothing should take away from the achievement of having created a brand new gas corridor to Europe.

Given the challenges it has faced, reaching the finishing post is still something TAP and its backers will be proud of.

— *Stuart Elliott*

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