Istituto Affari Internazionali

From Interconnection to Integration: German-Italian Energy Relations and the SoutH$_2$ Corridor

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Auswärtiges Amt

Supported by
the German Federal Foreign Office

On 22 November 2023, the German Chancellor, Olaf Scholz, and the Italian Prime Minister, Giorgia Meloni, signed a German-Italian Action Plan.[1] The Plan promises greater collaboration between the two countries on the biggest challenges currently facing Europe. Among these priorities is environmentally sustainable economic growth and the acceleration of climate protection. While the Action Plan is relatively terse, focusing on the establishment of fora for greater cooperation rather than providing a detailed roadmap, its energy and climate section does highlight a specific project as an example of closer cooperation: the acceleration of the completion of the so-called South-Central Corridor for the transport of hydrogen throughout Europe. This Corridor has the primary function of enabling the import of hydrogen produced in North Africa into the very core of Europe and thus to the high-demand areas of Germany and Northern Italy. One especially important part is the so-called SouthH$_2$ Corridor, which includes a pipeline running the entire length of the

[1] Germany and Italy, *Piano di Azione italo-tedesco per la cooperazione strategica bilaterale e nell'Unione europea* [Action Plan to strengthen cooperation at both bilateral and European level], 22 November 2023, https://www.governo.it/en/node/24362; *Deutsch-italienischer Aktionsplan für strategische Zusammenarbeit auf bilateraler und EU-Ebene*, https://www.bundesregierung.de/resource/blob/975228/2244468/dc5441c1b7497c5855a723c87ffbf3a8/2023-11-22-dtitaktionsplan-data.pdf.

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ISSN 2532-6570

Italian peninsula before connecting to Southern Germany via Austria.

There are strong political and strategic arguments for a deeper energy cooperation between Italy and Germany, despite some differences.[2] Hydrogen and gas infrastructure is a key area where intensified cooperation is crucial.[3] Through the SouthH$_2$ Corridor, the two countries have indeed expressed their willingness to collaborate precisely on hydrogen infrastructure, notably the SouthH$_2$ Corridor. However, such cooperation cannot be limited to the infrastructural part; it must extend to a series of related issues in which both countries should seek to align their political and legal initiatives, starting from overcoming uncertainties regarding the development of hydrogen demand and the use of other net-zero technologies in both countries. In short, cooperation on infrastructure can be used as a jumping off point for a deeper collaboration on and exchange of information about their broader transition strategies. Such bilateral coordination would also contribute to the achievement of EU Green Deal objectives more broadly.

The hydrogen pipelines: The SouthH$_2$ Corridor and the rest

The construction of a hydrogen pipeline connecting the Mediterranean to the German industrial heartland is motivated by economic and political reasons. Economically, the EU would be able to import cheap, clean molecules; politically, it would contribute to building a new energy and sustainable partnership between the EU and the North African countries. Within this scheme, Italy can (and has the ambition to) be the joining link between North African exporters and European importers.

As pointed out by the Action Plan, the SouthH$_2$ Corridor is the flagship infrastructure project embodying the new wave of energy cooperation between Italy and Germany. It consists of a 3,300 km pipeline that would transport 4 million tons of (green) hydrogen from North Africa to Germany via Italy and Austria. Behind the project are the major gas grid owners and operators in Italy, Austria and Bavaria and it is composed of four different sections.[4] Besides the Action Plan, the SouthH$_2$ Corridor was included in the most recent list of EU projects of Common and Mutual Interest that, for the first time, included hydrogen projects as a result of the revision of the TEN-E Regulation.

However, the growing cooperation on hydrogen-ready infrastructure is not limited to the SouthH$_2$ Corridor. Indeed, there are two other hydrogen pipelines under consideration. The first is through Switzerland, which is also

[2] Max Münchmeyer and Pier Paolo Raimondi, "Between Security and Transition: Prospects for German-Italian Energy Cooperation", in *IAI Commentaries*, No. 23|66 (December 2023), https://www.iai.it/en/node/17912.

[3] Ibid.

[4] These are the "Italian H2 Backbone" promoted by Italy's TSO, Snam; "H2 Readiness of the TAG pipeline system" promoted by Trans Austria Gasleitung; "H2 Backbone WAG + Penta-West" promoted by Gas Connect Austria; and "HyPipe Bavaria – The Hydrogen Hub" promoted by bayernets. See SouthH$_2$ Corridor website: *The Initative*, https://www.south2corridor.net/south2.

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part of the SoutH$_2$, while the second is the SunsHyne Project crossing Austria, the Czech Republic and Slovakia.[5] The latter project can transport hydrogen via unused natural gas pipelines in the Czech Republic and Slovakia replacing Russian gas.

All these three projects benefit from the same route from North Africa to Northern Italy, then splitting towards either Switzerland or Austria, with an additional split near Vienna towards Munich (SouthH$_2$) or via Slovakia and the Czech Republic to Bavaria (SunsHyne). Italy and Germany would therefore need to cooperate on all these three projects, which will contribute to reaching the hydrogen import targets set by the REPowerEU Plan.

The challenges of creating an integrated hydrogen market

Despite the positive infrastructural developments, German-Italian hydrogen cooperation must overcome several barriers. First, it needs to address the almost absence of a market. The conundrum is to build up quickly a solid market (in terms of both supply and demand) while ensuring the respect of competition and fairness of the market. Hydrogen is frequently compared to natural gas; however, natural gas markets were built at the time of vertically integrated (and often state-owned) companies. In the 1980s and 1990s, EU legislation started to focus on liberalisation through the directives. To fully build a liberalised, sustainable and well-functioning market takes time. Achieving the desired outcome will require a substantial effort and cooperation between policymakers, regulators and the industry.[6]

Additionally, hydrogen has been seen as a holy grail for decarbonisation because of its potential versatility. However, in reality, there is still much uncertainty about the future sectors supplied by clean hydrogen. Despite its multiple potential uses, policymakers should promote efficiently the use of hydrogen in those sectors where other more competitive and advanced technologies are not an option. In this sense, policymakers need to address demand uncertainty along the transition to encourage investment decisions. Indeed, the energy transition entails the need to transform not only the supply, but also the demand side. Therefore, Italian and German policymakers should work together to promote the ramp-up of hydrogen demand, thus reducing market uncertainty which can undermine investment decisions and slow the pace of the energy transition. While Germany has released (and updated) its hydrogen strategy, Italy has only issued preliminary guidelines. As of today, hydrogen consumption corresponds to 55 TWh in Germany[7] and 16 TWh in Italy.[8] The new Italian National Energy

[5] A project based in collaboration between SNAM, TAG, EUstream, Net4Gas and OGE.

[6] Alexander Scheibe and Rahmatallah Poudineh, "Regulating the Future European Hydrogen Supply Industry: A Balancing Act between Liberalization, Sustainability, and Security of Supply?", in *OIES Papers*, No. ET26 (October 2023), https://www.oxfordenergy.org/?p=46606.

[7] Hydrogen Europe, *Germany Updates National Strategy*, 27 July 2023, https://hydrogeneurope.eu/germany-updates-national-strategy.

[8] Confindustria, *Piano d'azione per l'idrogeno*, September 2020, p. 16, https://www.

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and Climate Plan foresees around 0.25 million tonnes (around 8.3 TWh) of hydrogen by 2030 to meet RED III targets, while Germany's updated hydrogen strategy foresees 95–130 TWh by 2030.

Hydrogen vis-à-vis other key technologies

Connected to the question of future demand for hydrogen are also national plans and projections for the deployment of other net-zero technologies. This is especially true for the development and deployment of carbon capture and storage (CCS) technologies. Through CCS, the CO2 emissions of an industrial process or power generation can be collected and redirected to underground storage facilities, thus preventing their release into the atmosphere and their contribution to the greenhouse effect. CCS is intimately connected to the future of the hydrogen market, since it is a part of the production of so-called "blue" hydrogen, which refers to the production of hydrogen from natural gas with subsequent capture and storage of the resulting carbon emissions. CCS is also included as a strategic net-zero technology in the proposed Net-Zero Industry Act, making projects associated with it eligible for accelerated planning permission and priority status for investment.

Italy and Germany have both engaged with the question of CCS, with Germany expected to publish a Carbon Management Strategy in the near future, which will detail the sectors in which it expects to leverage the technology.[9] Germany, and particularly the Green Party, have also recently pushed for a European Carbon Management Plan to increase EU cooperation on this issue.[10] In early 2023, Germany and Norway pledged closer cooperation on CCS and blue hydrogen value chains.[11] In Italy, meanwhile, Eni and Snam are working on developing a CCS project in Ravenna, which has recently been recognised as one of the EU's Projects of Common Interest (PCIs)[12] and would become one of the world's largest CCS facilities, with an estimated storage capacity of over 500 million tonnes.[13] The EU, for its part, is expected to publish a Communication on an industrial carbon management strategy in the first quarter of 2024.[14] Governments will also need to decide whether to use clean hydrogen or CCS to decarbonise the industry sector depending on geographical and geological features,

confindustria.it/home/policy/position-paper/dettaglio/piano-azione-idrogeno.

[9] Julian Wettengel, "Green Parliamentary Group Calls for Carbon Capture for Germany's Unavoidable Industry Emissions", in *Clean Energy Wire*, 22 December 2023, https://www.cleanenergywire.org/node/12898.

[10] Nikolaus J. Kurmayer, "German Greens Make Way for European Carbon Management Plan", in *Euractiv*, 27 November 2023, https://www.euractiv.com/?p=2019904.

[11] Norway's Government, *Closer Cooperation between Norway and Germany to Develop Green Industry*, 5 January 2023, https://www.regjeringen.no/en/aktuelt/id2958102.

[12] Eni, *Eni: Ravenna CCS Project Joins European List of Projects of Common Interest*, 28 November 2023, https://www.eni.com/en-IT/media/press-release/2023/11/eni-ravenna-ccs-project.html.

[13] Ibid.

[14] Website of the European Commission DG Energy: *Carbon Capture, Storage and Utilisation*, https://energy.ec.europa.eu/node/5094_en.

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existing and future infrastructure and technological availability.

Whether or how this will affect the South$_2$ Corridor is still unclear. According to the European Hydrogen Backbone initiative, a group of European infrastructure operators seeking to sketch out and advocate a common position on the future of Europe's hydrogen infrastructure, virtually the entirety of the capacity of the South-Central Corridor will be used for the transport of green hydrogen.[15] However, there exists uncertainties as to whether and when all the hydrogen imported from North Africa via the Corridor can really be green, which will depend on the development of electrolysis capacity in this region. As mentioned above, there is also uncertainty associated with how the CCS and related blue hydrogen capacities in Italy and Germany[16] will interact with the project: that is, how will blue hydrogen produced in either country affect demand, and how will such hydrogen be transported and distributed if not through the Corridor. Coordination on hydrogen must therefore also go hand-in-hand with closer examination of where and how CCS will be used in the two countries and in North Africa.

Looking ahead

The Italian-German Action Plan's emphasis on the South$_2$ Corridor is a welcome development as it puts forward a tangible, infrastructural flagship project, which in addition to enhancing interconnection, also has symbolic value for the partnership between the two countries. It is clear, however, that cooperation cannot end at the construction of pipelines or other interconnectors, nor does it suffice as an initial step in isolation. Rather, the completion of the South$_2$ Corridor must go hand-in-hand with an intensification of dialogue between German and Italian policymakers and regulators, which must be based on common, realistic assumptions for the role of, and thus the demand for, hydrogen in the decarbonisation of industry as well as a common vision for the deployment of CCS in hydrogen production. By leveraging infrastructural connection to achieve greater policy and regulatory coordination, Italy and Germany should then make their common vision heard in Brussels to integrate their bilateral efforts into the broader challenge of creating a European hydrogen market.

19 January 2024

[15] European Hydrogen Backbone (EHB), *Five Hydrogen Supply Corridors for Europe in 2030*, May 2022, p. 25, https://ehb.eu/files/downloads/EHB-Supply-corridor-presentation-Full-version.pdf.

[16] EHB website: *Country Narratives: Italy (Snam)*, https://ehb.eu/page/country-specific-developments#italy-snam; and *Germany (OTRAS, OGE and GASCADE)*, https://ehb.eu/page/country-specific-developments#germany-ontras-oge-and-gascade.

ISSN 2532-6570

ISSN 2532-6570

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