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State Competition for Regional Energy Hub Status in the Mediterranean

Identifying the criteria for the establishment of an efficient regional energy hub

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Abstract

The devastating military conflicts emerging both to the north and the south of the EU's wider neighbourhood region, have been generating concerns regarding EU's energy security and hopes that alternative energy channels can deliver the energy volumes necessary for Europe to meet its needs. As a result, the EU's raised needs for new or enhanced energy connections to Africa, the Middle East, and Asia, have sparked the ambitions of several state actors that find themselves in the middle of such potential energy corridors, to become energy hubs for the volumes of energy that will be flowing towards Europe in the future. The multitude of energy-hub-suitors, combined with the uncertainty surrounding the energy sector and alongside the complexity of the regional geopolitical environment, make it difficult to identify or predict which of the countries on, or around the EU's borders carry the potential to become a reliable energy hub for the EU. This policy paper attempts to address the issue of energy hubs through an initial scientific framework to identify the criteria and conditions that need to be met for a state actor to become an efficient energy hub. To achieve this, the paper initially discusses the fundamental elements of national security that can be linked to the energy sector and the control over energy flows and proceeds with examining the various aspects related to the concentration of energy flows in relation to market conditions, infrastructure, traded volumes, regulatory regime, political environment and others. As a result of this process, this policy paper produces 4+1 criteria under which any country aspiring to become an energy hub can be examined and tested against. These *Criteria for Energy Hub Status* are then used to deliver a "diagnostics test" for the primary energy hub candidates in the Mediterranean region.

1. Introduction

The aftermath of the 2021-2022 energy crisis left Europe with a sore feeling of vulnerability regarding its security in terms of energy supply, energy flow continuity, and the cost of available energy. For the EU, energy security seemed to have been a lower-level priority since the Von der Leyen Commission took over in late 2019, but by the end of this Commission's mandate in 2024, it has rapidly been reinstated as the top-level priority it should always have been.

The EU's renewed interest in enhanced energy security inevitably led to the reviving of the Juncker Commission's "Energy Union" diversification policies that had become idle or had fallen on the sidelines since 2019.[1] The current Commission's refurbished diversification aspirations advanced, in the past two years, EU efforts for energy-based regional alliances with state actors from Africa, the Middle East, and Asia. This, in turn, lead numerous states strategically located along these emerging energy corridors, striving to position themselves as pivotal energy hubs, which could facilitate essential energy flows to Europe.

For the EU, however, it is essential to prioritise energy relationships with countries that can deliver the most reliable result in covering its energy security needs. This bears the question of who, amongst the various countries advertising their capacity to be a significant regional hub for energy flowing to Europe, actually has a real potential to become one.

The argument could be made that, under the wider scope of diversification, the EU does not actually have to choose between potential energy hubs but can rather let all possible energy channels evolve and offer their energy flows to Europe. However, the danger in such a "neutral" approach would lie in the very structural elements that shape the Mediterranean sub-system. The region consists of state actors that often have highly conflicting strategic interests and find themselves under intense power competition regarding their position in the international system. Such a framework suggests that cooperation regarding multilateral energy projects is not always a given, regardless of the potential economic benefits it might carry. Being in the position to be the country that is the hub, the connecting point, through which Europe is receiving critical volumes of the energy it needs, is a spot that carries the potential to significantly elevate this country's power in the Mediterranean sub-system and overall in the international system.

In a power competition framework like this, any change in the balance of power in favour of one state actor can generate security dilemmas for the other state actors in the region. This means that, rather than prioritising cooperation, countries in the Mediterranean might be focusing on themselves becoming an energy hub, rather than simply participating in one. Such a situation can lead to a diffusion of energy infrastructure and dispersion of the critical energy volumes needed to attract the investment necessary to build new infrastructure. Furthermore, if countries in the Mediterranean perceive the energy hub status as a zero-sum game, then parallel to their efforts to become an energy hub, motives could be generated to prevent others from becoming energy hubs, too.

For the European Union, the development of energy hubs is directly related not only to its energy security efforts, but also to its overall energy transition agenda. The energy hubs that aspire to bring energy from diversified exporters through diversified energy routes to Europe need to also carry the proper *kind* of energy; energy that supports, or at least does not undermine, the EU's decarbonisation and sustainability goals. The regional energy hubs that could emerge in the Mediterranean should therefore hold the ability or potential to involve clean, or at least low emitting, energy sources and fulfil a number of criteria that support the EU's overall energy policies regarding energy security, decarbonisation, and the internal energy market.

[1] European Commission. *Energy Union*. Accessed [December 03, 2023]. https://energy.ec.europa.eu/topics/energy-strategy/energy-union_en

2. Competition on Energy-Hub-Status Among State Actors

Energy plays a crucial part in shaping a state actor's ability to utilise all its other resources as power factors able to support the country's position and movement in the international system. Furthermore, control over energy flows – almost always – generates results in countries other than the state actor that controls it. Under this perspective, control over energy flows emerges as a unique and vital element capable of inducing shifts in the power equilibrium in the international system on a regional level. Such shifts create both threats and opportunities for a nation's position within this system.

Alternative channels of energy transportation can therefore directly impact the power dynamics of a regional system. This ability to generate shifts in a country's overall levels of political power is the element that primarily leads to the *securitisation* of energy, i.e. its upgrading to an issue of national security, or an issue critical for a country's survival in the international system. Securitisation theorists argue that the bottom line of security is the pursuit of freedom from threat, and the ability of states actors to preserve their independent identity and operating integrity.[2] Taking into consideration the highly competitive framework of the Mediterranean sub-system, the securitisation of energy elevates it to one of the most critical elements in the political agenda for most state actors in the region.

The link between control over the flow of energy and political power is the element that attributes security concerns arising from the creation of energy hubs. The countries' *pursuit of freedom from threat* does not require the manifestation of any specific threat from another country; if the conditions are met, the threat is present. Simply put, anyone that can gain control over significant flows of energy could potentially use its position to gain influence, or generate results, in either the destination or the source of these flows. This realisation has been the primary concern of energy security policies ever since the oil crises of the 70's but has been traditionally focused on the *producers* of energy and the control they held over the flow of energy. The threat associated with control over energy flows is still present even if it does not result in a full-blown event like the 70's or the 2021-22 energy crises.

Weaponisation of Energy

In the case of Russia for example, the weaponisation of energy flows has been a common practice for the Kremlin long before the 2021-22 events. A 2018 report from the Directorate-General for External Policies of the Union to the European Parliament's Committee on Foreign Affairs identifies 20 cases between 2003 and 2019 where it is "probable" that Russia used its energy leverage, in and outside of Europe, for political purposes.[3] Similarly, a 2017 brief by the Baker Institute for Public Policy of Rice University (US), identified 28 events between 1990 and 2015 where "Russia used price and physical volume manipulation of crude oil or natural gas supplies – often amid political tensions – to pressure consumers located in Central and Eastern Europe and the former Soviet countries".[4]

But even when energy simply flows in transit through a country, the possibility of a threat can be generated both towards the destination (importer) and even the origin (exporter) of energy. In 2017, Turkey's President Recep Tayyip Erdogan announced that Turkey was considering shutting down the Kirkuk–Ceyhan Oil Pipeline, used to export oil from the Kurdistan's Regional Government (KRG) to the Mediterranean, threating to thus hurt the autonomous region's oil sector and revenue over KRG's plans

[2] Barry Buzan, "New Patterns of Global Security in the Twenty-first Century", *International Affairs,* 67.3 (1991): 432-433.

[3] European Parliament. *Energy as a tool of foreign policy of authoritarian states, in particular Russia*, April 2018. https://www.europarl.europa.eu/RegData/etudes/STUD/2018/603868/EXPO_STU(2018)603868_EN.pdf

[4] Gabriel Collins, "Russia's Use of the 'Energy Weapon' in Europe". *Issue brief* no. 07.18.17. Rice University's Baker Institute for Public Policy, Houston, Texas, USA (2017), https://www.bakerinstitute.org/media/files/files/ac785a2b/BI-Brief-071817-CES_Russia1.pdf

to conduct a referendum for the region's independence.[5] Similarly, in 2020 and 2021, Belarusian authoritarian leader Alexander Lukashenko threatened to cut off supplies of Russian oil and gas passing in transit through Belarus to the EU as a response to EU sanctions (in 2020 over the human rights violations in the country after the highly disputed election, and in 2021 over the migrant crisis at the country's western borders).[6]

Besides established infrastructure, even planned energy transportation infrastructure can be threatened by transit countries through the energy route. In mid-2023, the Trans Saharan gas pipeline, a 13bn euro project of a gas pipeline connecting Nigeria's gas fields to Algeria and then Europe, has been halted by the coup d'état in Niger, a transit country for the Nigerian gas. Aligned with Russia, General Abdourahmane Tchiani, Niger's leader that came in power with the July 2023 coup, cut off relations with France and Europe, leading, among others, to serious doubts regarding its materialisation prospects.[7] The pipeline could have otherwise provided the EU with one more diversification option for its gas supplies.

It has to be noted that the variety of examples of threats, manifested or implied, related to the control a country holds over the flow of energy, does not necessarily establish a link between the control of energy flows and the weaponisation of energy. Just because a country controls the flow of significant volumes of energy it does not mean that it will use it to threaten or influence others.

In the case of aspiring regional energy hubs, a variety of factors need to be identified and assessed for their capacity to attribute the characterisation of "energy hub" to a state actor. Furthermore, the qualitative characteristics of these elements could offer valuable insight regarding the possibility of weaponisation of energy by a state actor with energy hub status.

[5] Reuters, "Turkey's Erdogan threatens to close oil taps over Kurdish referendum", September 25, 2017 https://www.reuters.com/article/idUSKCN1C018H/

[6] BBC, "Belarus threatens to cut off gas to EU in border row", November 11th, 2021 https://www.bbc.com/news/world-europe-59246899

[7] S&P Global, "Niger coup, financing woes rock Nigeria's plan to supply gas to Europe", September 8, 2023 https://www.spglobal.com/commodityinsights/en/market-insights/latest-news/natural-gas/090823-niger-coup-financing-woes-rock-nigerias-plan-to-supply-gas-to-europe

3. The Framework for Regional Energy Hub Status (FREHS)

The vast majority of published work regarding energy hubs usually focuses on the concept of a single point where different flows of energy sources are concentrated, processed, combined and redistributed, where the focal point of analysis revolves around operational efficiency and system optimisation.[8] In such cases, energy hubs can be categorised as residential, commercial, agricultural or industrial hubs according to the energy systems and stakeholders they involve but they always refer to *domestic* points where energy is gathered and re-distributed. When it comes to regional energy hubs, however, a more international-relations-oriented approach is necessary in order to identify the critical elements that carry the capacity to transform a state actor into a regional energy hub. A regional energy hub represents more than just a common trading point, like for example the UK's National Balancing Point (NBP) or the Netherlands' Title Transfer Facility (TTF), functioning under an integrated energy platform.[9] Under the same perspective, a regional energy hub is also more than just a physical point where big volumes of energy originate from or are being transported through.

In order to properly describe the full spectrum of what a regional energy hub would entail, the paper at hand utilises elements from the EU's Energy Union strategy,[10] with fundamental aspects of energy security theory.[11] The European Union's Energy Union strategy, developed under the Juncker's Commission in 2015, has already adeptly identified the five pillars necessary for the proper development of energy policies, namely energy security, decarbonisation, the internal energy market, energy efficiency, and energy research.[12] At the same time, fundamental energy security elements stipulate the importance of issues like the diversification of sources and routes, the country's position in the global energy market, how well the energy markets are functioning, the relations with exporting and other importing countries, the quality of information regarding the state's energy options, the level of robustness of the domestic industry, and the regulatory and organisational preparedness in planning for disruptions.[13]

Combining the underlying concerns addressed in both the above approaches, we can distil 4+1 fundamental criterion that need to be met in order for a country to carry the ability to become an efficient, reliable, and truly functional regional energy hub. These criteria refer to the volumes of energy processed by the hub, the infrastructure necessary for the adequate and uninterrupted flow of energy, the market through which these energy volumes will be traded, the regulatory and institutional framework under which all the above processes will take place, and, more importantly, the existence of common strategic interests between the state actors involved in, or affected by, the existence of the regional energy hub.

[8] Abdelfattah A. Eladl, Magda I. El-Afifi, Magdi M. El-Saadawi, and Bishoy E. Sedhom, "A Review on Energy Hubs: Models, Methods, Classification, Applications, and Future Trends," *Alexandria Engineering Journal* 68 (2023): 315-342.

[9] Intercontinental Exchange (ICE), Accessed [December 04, 2023]. https://www.ice.com/index

[10] Gregor Erbach, "Energy Union - New impetus for coordination and integration of energy policies in the EU" , European Parliamentary Research Service, European Parliament Briefing, 5 March 2015. Accessed [December 04, 2023]. https://www.europarl.europa.eu/RegData/etudes/BRIE/2015/551310/EPRS_BRI(2015)551310_EN.pdf

[11] Daniel Yergin, The Quest: Energy, Security, and the Remaking of the Modern World (New York: Penguin Books, 2012).

[12] European Council for an Energy Efficient Economy (ECEEE), *Energy Union*. Accessed [December 04, 2023] https://www.eceee.org/policy-areas/energy-union/

[13] Daniel Yergin, "Energy Security and Markets" in Energy and Security: Strategies for a World in Transition, eds. J.H. Kalicki and D.L. Goldwyn (Washington D.C.: Woodrow Wilson Center Press, 2013), 74-80.

3.1 FREHS Criteria

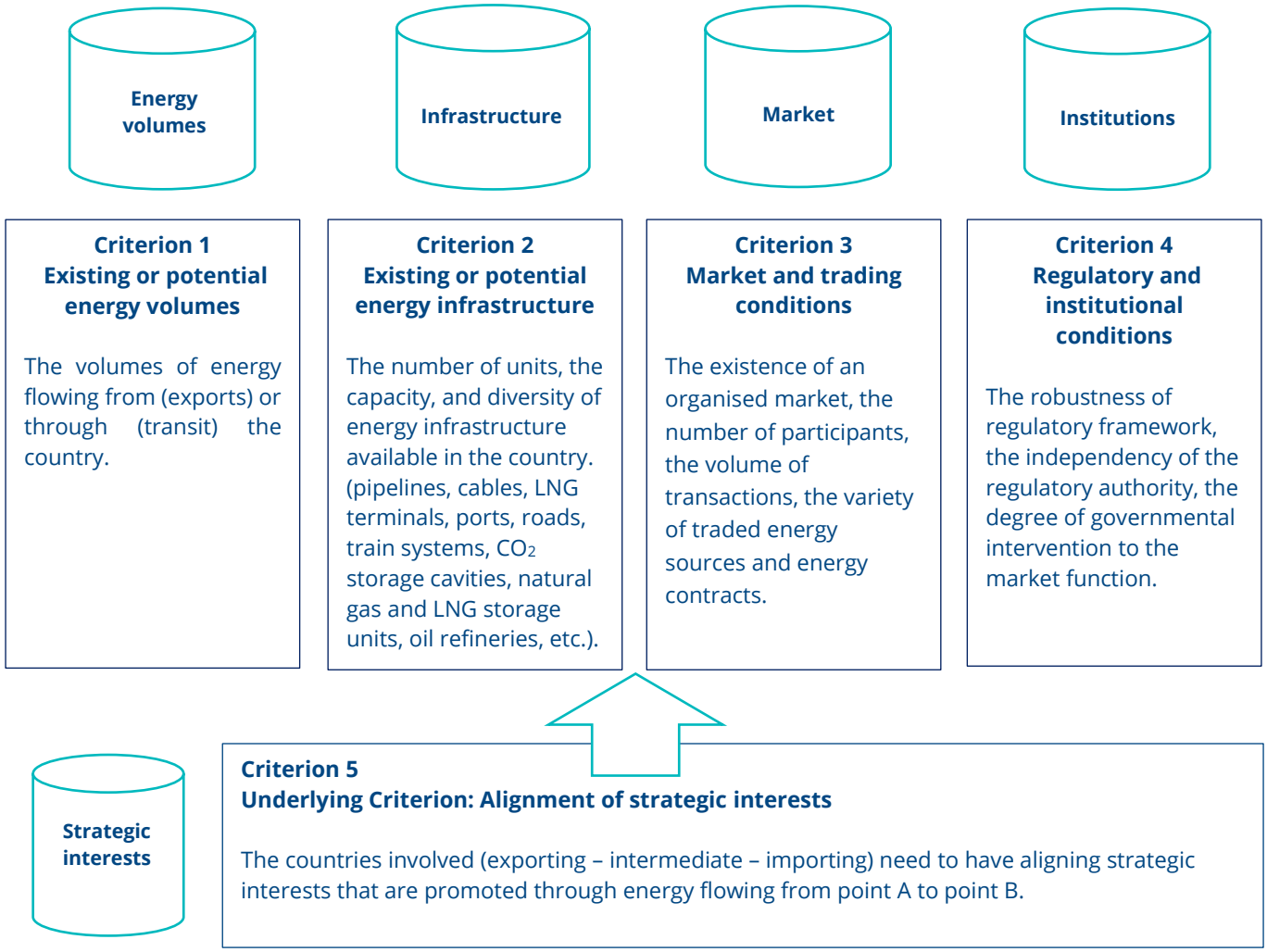

Figure 1: Regional energy hub structural elements

3.2 Structural elements of the 4+1 FREHS criteria

Criterion 1: Existing or potential energy volumes
The volume of energy that passes through a Regional Energy Hub (REH) is a quantitative element. If the energy volumes managed by an aspiring REH are not significant in relation to the total imports of the destination countries, they lack the potential to exert any significant influence on them. Similarly, if the energy volumes managed by an aspiring REH are not significant in relation to the total energy exports of the origin countries they lack the potential to generate any significant influence or result to them.

Criterion 2: Existing or potential energy infrastructure
The volume and diversity of existing or prospective energy infrastructure entails both a quantitative and qualitative element. An aspiring REH needs to have adequate infrastructure to support the receiving, storage, processing, transportation or transit flow of the energy volumes described by the first Criterion. While the number of units and their capacity is the primary element examined by Criterion 2, equally important is the diversity of such energy infrastructure available in the country. To

acquire REH status, a country needs to carry the capacity to manage more than one source of energy. In addition, taking into consideration the trend of transitioning towards green energy forms, the diversification of infrastructure needs to include green electricity and green gases. Examples of infrastructure examined by Criterion 2 include pipelines, transmission cables, LNG terminals, ports, roads and train systems, CO_2 storage cavities, natural gas and LNG storage units, oil refineries, electricity, hydrogen, biogas and ammonia storage units, etc.).

Criterion 3: Market and trading conditions

The market and trading conditions also constitute both a quantitative and qualitative element. Any state actor aspiring to reach REH status needs to have established a well-functioning market with the necessary depth in number of participants, trading volumes, frequency of trades, and variety of contracts, to facilitate the flow of energy described by the first criterion through the infrastructure described by the second criterion. If the energy passing through the state actor aspiring to reach REH status is traded at another state actor's market, then the decision-making process is detached from the aspiring REH, thus it is not offering any actual political power to it.

Criterion 4: Regulatory and institutional conditions

The robustness of the aspiring REH's regulatory framework, the independency of the regulatory authority, the degree of governmental intervention to the market's function, and the overall political and free-market-conditions framework, constitute a purely qualitative and rather crucial element of the REHS assessment process. This criterion refers to the frequency, depth, timing, and extend in applicability of governmental decisions in changing laws, and the established rules of the market, as well as influencing or respecting rulings from independent Authorities and domestic and international courts. For the 3rd criterion to actually materialise, the 4th criterion needs to be in place and be convincing. Criterion 4 offers conditions for transparency, visibility and security for all involved stakeholders (exporters, importers, traders, investors, financial institutions, intermediates etc.). Without visibility and assurance for stability of terms and rules, the destination and origin countries that should be providing the REH with its primary activities should be expected to be reluctant to direct their volumes and business interest to aspiring REH. Cases where one of the parties (e.g. the exporter) will not be discouraged by the lack of transparency and visibility, would most likely insinuate an overwhelming power differential between the two parties. In such a case, the aspiring REH, cannot retrieve any political power or influence from the system so the very essence of an energy hub status would be inexistent.

Criterion 5: Underlying criterion – alignment of strategic interests

The alignment of strategic interest between all the national or supranational actors associated with the REH is a fundamental qualitative element for the successful establishment of any REH. Energy's crucial part in shaping a state actor's ability to utilise all its other resources as power factors able to support the country's national security and position in the international system, is the component that forms the structural foundation under which any energy-based cooperation between two international actors is formed. Feeding, receiving, or transporting energy through an REH offers no value to a country if it doesn't promote its own strategic interests. Therefore, assessing the existence, or the potential for the formulation of, common, aligned, or at the very least not conflicting, national strategic interests is a crucial step in identifying any state actor's prospects of becoming a Regional Energy Hub.

The 4+1 Criteria can be used as an evaluation instrument, aiming to assess a country's potential in becoming a regional energy hub, but it can also be used as a tool to examine the validity of any country's claims of functioning as an energy hub. It should be understood that such an assessment remains a highly subjective process since the interpretation of the quantitative and qualitative elements entailed in each criterion remain at the discretion of the evaluator. Below follows an evaluation of the countries in the Mediterranean aspiring or declaring their will to become a regional energy hub.

4. Assessing Candidates for Regional Energy Hub Status in the Mediterranean

4.1 Greece under the FREHS

Greece shows promising prospects in becoming a Regional Energy Hub with great prospects for renewable electricity production, existing gas transit pipelines and LNG terminals, as well as a transparent regulatory and institutional framework that is guaranteed by its EU membership. Challenges on its way to achieve REH status pose the small size and depth of the energy market and the high cost of potential new infrastructure through the depths of the eastern Mediterranean Sea. One of the country's strongest points is the alignment of energy-related strategic interests to an extended with the EU, the US, and Cyprus, and to an adequate degree with Israel and Egypt.

Criterion 1: Energy Volumes

Available & Potential Export volumes

Green Energy : Potentially yes
Natural Gas : Potentially yes

Available & Potential Transit volumes

Electricity : Potentially yes
Natural Gas : Potentially yes

Criterion 2: Energy Infrastructure

Available & Potential Export infrastructure

Electricity : Currently limited - difficultly expandable
Natural Gas : Currently available - easily expandable

Available & Potential Transit infrastructure

Electricity : Currently unavailable – difficultly expandable
Natural Gas : Currently available – realistically expandable

Criterion 3: Market and trading conditions

Electricity

Organised Market : Yes
Market depth – volume : Low
Market depth – participants : Low
Market depth – contracts : Adequate

Natural Gas

Organised Market : Yes
Market depth – volume : Low
Market depth – participants : Low
Market depth – contracts : Low

Criterion 4: Regulatory and institutional conditions

Regulatory framework : Robust
Independency of NRA : Robust
Governmental intervention : Existent but limited

Criterion 5 - Alignment of strategic interests

- Alignment with primary EU, US and Cyprus' interests in the region
- Partly but adequate alignment with Israel and Egypt
- Partly but adequate alignment with Bulgaria and Romania
- Collision of strategic interest with Turkey and Russia

4.2 Egypt under the FREHS

Egypt shows significant potential in becoming a Regional Energy Hub when considering the effects of the first and second criteria since it possesses great volumes of natural gas and big potential for the production of electricity from renewable sources, while it has sufficient operating gas infrastructure and shows good prospects for the deployment of new regional interconnections. The challenges, however, related to Egypt's aspirations of gaining REH status should be focused on the week regulatory and institutional framework where direct intervention from the government and manipulation of market conditions cannot be excluded and can cause investment uncertainty. Likewise, the non-existence of a functioning energy market and the determination of prices solely by governmental decisions could cause difficulties in the country's goals in becoming a significant regional energy hub. On the critical issue of strategic interests, Egypt shows a mixture of partly alignments with some global and regional actors like the US, Saudi Arabia and Greece, and weak alignment with others the EU and Israel.

Criterion 1: Energy Volumes

Available & Potential Export volumes

Green Energy : Potentially yes
Natural Gas : Yes

Available & Potential Transit volumes

Electricity : Potentially yes
Natural Gas : Yes

Criterion 2: Energy Infrastructure

Available & Potential Export infrastructure

Electricity : Potentially yes
Natural Gas : Yes

Available & Potential Transit infrastructure

Electricity : Potentially yes
Natural Gas : Potentially yes

Criterion 3: Market and trading conditions

Electricity

Organised Market : No
Market depth – volume : No
Market depth – participants : No
Market depth – contracts : No

Natural Gas

Organised Market : No
Market depth – volume : No
Market depth – participants : No
Market depth – contracts : No

Criterion 4: Regulatory and institutional conditions

Regulatory framework : Weak
Independency of NRA : No
Governmental intervention : High

Criterion 5 - Alignment of strategic interests

- Partly but adequate alignment with Cyprus, Greece
- Partly alignment with Saudi Arabia
- Partly alignment with the US
- Week alignment with the EU
- Weak alignment with Israel
- Collision of strategic interests with Turkey

4.3 Turkey under the FREHS

Turkey's potential to become a Regional Energy Hub is lacking behind on multiple criteria. The positive elements in Turkey's potential are linked to its notable potential for renewable energy production and the existence of significant gas transit corridors passing through the country, although half of it is connected to Russia. The potential of non-Russian new electricity or gas interconnections to other countries is rather limited while the existence or potential of domestic production of natural gas and electricity is limited to cover a fraction of the country's domestic needs and could not support net exports of energy. The Market and Trading conditions criterion poses a potentially positive element for Turkey, since the domestic market can entail big volumes of electricity trading, while the Regulatory and institutional conditions is one of the country's weak points since the President's interventions on market conditions has been demonstrated even in more critical sectors like the freedom of the country's Central Bank and the deployment of interest rates. The most severe element against Turkey's prospects to gain REH status relates however to the almost complete collision of strategic interests with most of the countries in the region as well as most of the major global actors with the exception of Russia.

Criterion 1: Energy Volumes

Available & Potential Export volumes

Green Energy : Potentially yes
Natural Gas : No (limited domestic production – cannot cover domestic demand)

Available & Potential Transit volumes

Electricity : No
Natural Gas : Yes

Criterion 2: Energy Infrastructure

Available & Potential Export infrastructure

Electricity : No
Natural Gas : No

Available & Potential Transit infrastructure

Electricity : No
Natural Gas : Yes

Criterion 3: Market and trading conditions

Electricity

Organised Market : Yes
Market depth - volume : Lagging
Market depth – participants : Yes
Market depth – contracts : Lagging

Natural Gas

Organised Market : Yes
Market depth - volume : Low
Market depth – participants : Low
Market depth – contracts : Low

Criterion 4: Regulatory and institutional conditions

Regulatory framework : Weak
Independency of NRA : No
Governmental intervention : High

Criterion 5 - Alignment of strategic interests

- Alignment with Russia's interest in the region
- Partly alignment with Bulgaria
- Collision of strategic interests with Greece
- Collision of strategic interests with Cyprus
- Collision of strategic interests with Israel
- Collision of strategic interests with Egypt
- Collision of strategic interests with EU and US interests

4.4 Italy under the FREHS

Italy currently holds the best potential of becoming, if non already being, a regional energy hub. Like most Mediterranean countries, Italy has a big potential for electricity production from renewable sources and while it has no prospects for natural gas production, it holds significant transit infrastructure both for electricity and natural gas flows from Africa and Asia to Europe. As an EU member state it offers guaranties for a transparent regulatory and institutional framework, while it benefits form a strong and independent regulatory authority for energy. Italy demonstrates also significant positive status in regards to the market and trading conditions criterion, with an operating and very well organised market that entails depth in volumes, participants and contracts. Finally, Italy's strategic interests align with EU's overall strategic energy-related interests while they do not necessarily collide with most of the countries in the region, thus offering clear ground for multiple energy-related strategies for Italy in the region.

Criterion 1: Energy Volumes

Available & Potential Export volumes

Green Energy : Yes

Natural Gas : No (no local production prospects)

Available & Potential Transit volumes

Electricity : Yes

Natural Gas : Yes, but limited

Criterion 2: Energy Infrastructure

Available & Potential Export infrastructure

Electricity : Yes

Natural Gas : No

Available & Potential Transit infrastructure

Electricity : Yes

Natural Gas : Yes

Criterion 3: Market and trading conditions

Electricity

Organised Market : Yes

Market depth - volume : Yes

Market depth – participants : Yes

Market depth – contracts : Yes

Natural Gas

Organised Market : Yes

Market depth - volume : Yes

Market depth – participants : Yes

Market depth – contracts : Yes

Criterion 4: Regulatory and institutional conditions

Regulatory framework : Robust

Independency of NRA : Yes

Governmental intervention : No

Criterion 5 - Alignment of strategic interests

- Alignment with primary EU interests in the region
- Partly but weak alignment with Greece, Cyprus

4.5 Spain under the FREHS

Spain currently holds a promising potential of becoming a regional energy hub with only some elements regarding the fifth criterion clouding its prospects. Spain carries a very strong position and further potential for electricity production from renewable sources and while it has limited prospects for natural gas production, it holds significant transit infrastructure both for electricity and natural gas flows from multiple sources to Europe. As an EU member state it offers guaranties for a transparent regulatory and institutional framework, while it also demonstrates significant positive status in regard to the market and trading conditions criterion, with an operating and very well-Organised market that entails depth in volumes, participants and contracts. Finally, Spain's strategic interests align with EU's and the US's overall strategic energy-related interests. An issue that needs to be carefully examined would be Spain's potential alignment or collision of strategic interests to its African neighbouring countries since this represents a critical issue of Spain's ability to utilise its non-transatlantic potential as a transit country for energy sources heading to Europe.

Criterion 1: Energy Volumes

Available & Potential Export volumes

Green Energy : Yes

Natural Gas : No (no local production prospects)

Available & Potential Transit volumes

Electricity : Yes

Natural Gas : Yes

Criterion 2: Energy Infrastructure

Available & Potential Export infrastructure

Electricity : Yes

Natural Gas : No

Available & Potential Transit infrastructure

Electricity : Yes

Natural Gas : Yes

Criterion 3: Market and trading conditions

Electricity

Organised Market : Yes

Market depth - volume : Yes

Market depth – participants : Yes

Market depth – contracts : Yes

Natural Gas

Organised Market : Yes

Market depth - volume : Yes

Market depth – participants : Yes

Market depth – contracts : Yes

Criterion 4: Regulatory and institutional conditions

Regulatory framework : Robust

Independency of NRA : Yes

Governmental intervention : No

Criterion 5 - Alignment of strategic interests

- Alignment with primary EU and US strategic interests
- Alignment with Portugal's strategic interests under the overall European framework
- Unstable status of strategic interests with Morocco
- Unstable status of strategic interests with Algeria

Concluding remarks

Besides the aforementioned countries, there are others in the Mediterranean that aspire to becoming regional energy hubs, as well as countries in the Balkan or Sub-Saharan Africa who seek to position themselves as a hub covering the flow of energy to, primarily, Europe. The analysis presented in the current paper aims to provide the base for a set of parameters that can be used to evaluate the conditions that could attract the necessary amount of energy flows through a country, to levels substantial enough to make it function and, more importantly, to be *perceived* by all interested parties, as being a regional energy hub.

The primary rationale in this effort has been the realisation that geography alone is not an adequate factor for a country to become an energy hub. Simply being placed in between a potential buyer and seller of energy does not suffices for regional energy hub status. Furthermore, the political power that can be retrieved from the control over energy flows makes potential exporters, importers and other intermediates very careful before committing their energy demand or supply through any specific route. Under this conceptual context, the current analysis has built the framework of the 4+1 Criteria that can be used as a means to evaluate a country's ability to become a regional energy hub. It is important to underline that although such an evaluation is inherently subjective, as the analysis of both quantitative and qualitative aspects within each criterion is left to the evaluator's judgment, it can, however, provide a concrete framework for the argumentation that can be developed when assessing any regional hub potential.

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