Energy and The Atlantic Basin:
State of Play and Prospects for Pan-Atlantic Cooperation

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Key Takeaways

- **Renewed geostrategic competition** has reshaped the global energy scenario, but it has also generated even more incentives among Atlantic Basin states to engage in pan-Atlantic energy cooperation.
- Nevertheless, the new **post-2021 'business as usual' scenario is already complicating the decarbonization transition**, as the global climate consensus begins to loosen and impetus for serious cooperation fades.
- Still, **the key trends in Atlantic Basin energy** that were clearly discernible or visibly emerging in 2015 – and which stimulated the first early movements toward pan-Atlantic energy cooperation -- **all continue to deepen**. The case for an Atlantic Energy Forum is stronger than ever.
- **The historic directional shift in global net energy flows has not ceased**, as Atlantic Basin oil and gas production continues to increase in absolute terms AND in relative share of the global total.
- **The Atlantic Energy Renaissance continues strong**, as it enters a new and critical phase.
- **Atlantic Basin oil now accounts for 47% of global production** and could move beyond the 49% once projected for 2035.
- **Atlantic Basin gas – deep in the throes of an Atlantic revolution in LNG – remains set to supply an ever greater share** into the future of the 'Asian call' on global energy.
- **The shale revolution in the U.S. has deepened**, and it has been essential in finally breaking the structural dependence of Europe on Russian gas. **New Atlantic Basin energy is now moving east to Europe in ever greater quantities**.
- **Sanctions against Russia have further reinforced this reversal of net energy flows**. The Russian energy that once flowed freely in the dominate East-to-West pattern of the past, now are increasingly directed East to China, India and other parts of Eurasia and Asia.
- **The offshore boom, after a brief pause following the 2015 price collapse, has revived in the years since**. After significant improvements in costs, efficiency and emissions intensity, the Atlantic offshore hydrocarbons sector is set to provide a growing share (already 25%) of global production, no matter how much or how little, oil and gas will be called upon, or allowed, to contribute to the energy mix moving forward.
- The early picture of an Atlantic Basin lead in the global energy transition has faded. Asia has overwhelming overtaken the West in renewables investment, manufacturing, installed capacity and generation. **While the Atlantic Basin clearly now dominates the fossil world, it has lost ground to Asia within the new interdependence networks of the decarbonization economy** in which China has developed into the key hub.
- This situation presents vulnerabilities for Atlantic Basin states, but it also points to **a clear imperative to renew cooperative efforts with China** and its BRICS partners on energy and climate challenges. **Pan-Atlantic energy cooperation could play an important role.**

- **The Atlantic Basin remains the most energy interdependent region in the world**. Between two-thirds to three-fourths of the energy trade of Atlantic Basin states is 'intra-Atlantic'. **Even more than it did in 2015, the increased density of this energy system suggests high potential for pan-Atlantic energy cooperation** – whether from the cost and efficiency standpoint of industry or from the strategic perspective of energy and foreign policy makers.
- However, there are **many new energy and climate trends and possibilities that were not clearly visible in 2015**, but which today provide for additional points of focus in any new agenda for discussion regarding pan-Atlantic energy cooperation.
    - **Energy access in the Southern Atlantic**, particularly in Africa
    - **Atlantic Ocean energy** and ocean-based emissions mitigation and adaptation potential
    - **Access to critical minerals** for decarbonization, particularly in the Southern Atlantic
- Finally, there is **a growing conflict between short-term energy and long-term climate interests**, as the discourses of 'Energy Security' vs 'Climate Security' reemerge.

Amid the rising global tensions and the continued mounting of temperatures and the physical and economic damage they are provoking, **the imperative for pan-Atlantic energy cooperation is clear and its potential is ripe**.

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- Conclusions -- Key Takeaways

Preface

What follows in this paper is a summary of the key takeaways from the first-generation analysis of the principal features of and trends in Atlantic Basin energy and what they revealed ten years ago for the prospects of pan-Atlantic energy cooperation[1].

We then link this first generation to the newly emerging pan-Atlanticism by fast-forwarding to update (where possible, or to modify where necessary) the picture of Atlantic Basin energy today.

By exploring possible scenarios for the future of energy in the Atlantic Basin and the prospects for new pan-Atlantic energy cooperation, we hope to help stimulate reflection in this new AEF. We conclude with some key policy implications and recommendations.

Part I: Context and Synthesis: Atlantic Basin Energy in 2015

Pan-Atlantic Cooperation: From 'First' to 'Second Generation' Pan-Atlanticism

From the original Skhirat Plea[2] in 2009 (in which Morocco launched the first authentically 'pan-Atlantic' movement) up until the lifting of restrictions on the exportation of US oil and gas (and the shift in US energy, trade and foreign policy that followed the 2016 US presidential elections), an initial 'flowering' of pan-Atlantic cooperation spread across the broad Atlantic Basin[3].

One of the unique contributions of this 'first generation' of 'pan-Atlanticism'[4] was to frame a new unit of analysis with significant strategic and policy implications: an analytical focus on the Atlantic Basin in its entirety – not just the 'North' or 'Northern Atlantic'; nor even a dual focus on the Northern and Southern Atlantic basins as separate spaces.[5]

This first generation of pan-Atlanticism was primarily a transnational movement consisting of many research and policy initiatives sponsored by think tanks, international/supranational organizations, regional development banks, civil society groups, former national and international political and corporate leaders, and university and research institute consortia. Some were exploring the implications of a changing Atlantic world for the foreign policies of different states and regional groupings[6]. Others focused their research explorations and policy reconnaissance on the Atlantic Basin 'region' as a distinct strategic space – at once the site of potential international conflict AND pan-Atlantic cooperation.

These budding pan-Atlantic efforts identified those policy areas revolving around specific challenges, threats and opportunities with uniquely 'Atlantic' features and which affected all or most Atlantic Basin societies[7]. The case was made that such Atlantic Basin challenges and opportunities could only be met or embraced with 'pan-Atlantic' cooperation and perhaps even Atlantic Basin regionalism. These policy areas defined as distinctly Atlantic Basin challenges included[8]:

- Economic and commercial connections, and sustainable development
- Energy, resources and climate change
- Human security: illicit flows and 'dark networks' (along with broader maritime security)
- The Atlantic Ocean itself (and other related aspects of the wider maritime realm)
- Atlantic Basin Values: rule of law, democracy, human rights (Western values?)

Perhaps the climax of these earlier pan-Atlantic efforts was the creation and development of the first Atlantic Energy Forum[9] (2013-2016) dedicated to promoting pan-Atlantic energy cooperation and calling for an Atlantic Basin Charter for Sustainable Energy[10].

A few key factors brought this first generation of nascent transnational pan-Atlanticism to a close – or at least led it to a temporary pause. Chief among them was the transatlantic rift that the Trump

Administration's energy, trade and security policies opened up between the US and Europe. This rift laid across a still lingering North-South divide, contributing to the renewed and intensified dynamics of geostrategic competition that US actions under Trump injected into the international system in a broader sense, all which – together with the COVID shock -- undermined any focused efforts at cooperation.

Yet, despite the interregnum during the Trump presidency and the pandemic, the impulse for pan-Atlantic cooperation and the usefulness of an Atlantic Basin framing has returned less than a decade later. A nascent 'second generation' pan-Atlanticism is now being driven not only by the mounting imperatives for cooperation on decarbonization and the physical protection of the Atlantic Ocean (besieged by its own environmental crisis). Pan-Atlanticism is also, paradoxically, now being revived by these very same intensifying competitive geostrategic dynamics, which have reached a feverish pitch in the wake of the many shocks to the liberal international order and its global and regional institutions in recent years.

First, the Atlantic Centre (AC) was established in 2018 (under the auspices of the Portuguese Ministry of Defence) as a regional multilateral initiative – the first of its kind – to promote pan-Atlantic cooperation on maritime security in the Atlantic. Now in its fourth year of action (which includes research and analysis, capacity building, and political dialogue), the AC has expanded to nearly 30 signatory states[11].

Then, on September 20, 2022, during the first year of the Russia-Ukraine war, the U.S. Department of State released the Joint Statement on Atlantic Cooperation[12]. Only a year later, as the war dragged on, this statement was deepened by the Declaration on Atlantic Cooperation
and operationalized by Declaration's Action Plan for the creation and development of the Partnership for Atlantic Cooperation (PAC)[13]. More than 40 Atlantic Basis states have now signed onto the PAC.

The Declaration "identifies the Atlantic Ocean as the focal point of pan-Atlantic cooperation and designates scientific and technological cooperation on climate change, marine environment and other maritime challenges as the first areas of collaboration (Articles 2, 5, 6, 8 and 13). Furthermore, the Declaration makes it clear, at least at this early stage, that the Partnership for Atlantic Cooperation, the platform established by the Declaration's Plan of Action for facilitating a new form of open, inclusive pan-Atlantic multilateralism, "will not deal with matters related to defense, security, and governance" (Article 13)"[14].

This 'second generation' of pan-Atlanticism and pan-Atlantic cooperation is different from the early forms in that it is:

- state-initiated and directed (although it is and will be supported by the ongoing transnational civil society pan-Atlantic movement of the first generation)
- driven by technology into new spheres of pan-Atlantic cooperation (e.g., the 'Digital Atlantic')
- accompanied by the development of sub-basin multilateral organizations which could directly contribute to the pan-Atlantic cooperative processes of the AC and the PAC – these include the Atlantic African States Process (AASP)[15] and the revived ZOPACAS[16] (as South Atlantic Peace and Cooperation Zone is commonly known by its Spanish initials standing for *Zona de Paz y Cooperación del Atlántico Sur*).

Although the AC and PAC both initially focus on the Atlantic maritime world and its marine environment, both are likely to address energy issues in the future. The renewed Atlantic Basin Initiative's recently launched 'Atlantic Digital Forum' and its proposed new Atlantic Energy Forum, will attempt to lay the groundwork for, and help to stimulate, the likely subsequent actions by states on pan-Atlantic cooperation. And -- as it was during the first generation of pan-Atlanticism -- energy, climate change and related ocean challenges will likely be, eventually, at the center of any future pan-Atlantic cooperation and any regionalization of the wider Atlantic Basin space.

Key Characteristics of Atlantic Basin Energy in 2015

A New Focus Reveals Previously Unanticipated Energy Dynamics

By the end of 2015, when the first generation of pan-Atlanticism reached its culmination, a broad but granulated picture of the nascent Atlantic Basin energy system had taken shape[17]. This analytical picture was based on research undertaken and facilitated by the ABI, but it also drew upon the contributions of others working with an Atlantic Basin focus.

As with other areas of potential regional collaboration, there had never been a tradition of viewing energy within an Atlantic Basin regional framing (let alone through an 'ocean basin' lens).

- *Energy stocks* (resources, reserves and other 'capacities'), *flows* (production levels, transportation and transmission volumes, refining and distribution patterns) and other relevant *energy system components or dynamics* were typically -- and by and large remain -- framed, tracked and analyzed at either the *national or global levels*.

- *Energy dialogue and diplomacy* most often brought together (as with the International Energy Forum) a *geographically disparate group* of net consuming/importing countries (cooperating among themselves in the International Energy Agency of the OECD), with another disparate group of net producer/exporting countries (many cooperating in OPEC, or later OPEC+).

- *Energy cooperation* and even *integration*, when considered from a regional perspective, were, and continue to be, framed in continental (or sub-continental) and largely terrestrial terms (as with the now defunct Energy Charter process in Eurasia), and almost always only within long-established regional organizations or agreements that are at least indirectly linked to the global institutions (like the many long-standing regional integration projects in Latin America and the Caribbean, particularly in Central America and the Southern Cone, or within the EU).

While some minor progress had been made on energy cooperation in some of the world's 'sea regions' (in the Baltic, the Caspian or the Caribbean), no analytical or policy projection had previously considered the prospects for -- or advantages to be expected from -- 'pan-Atlantic energy cooperation' (let alone any other potential ocean basin-based energy regionalism).

But starting from the foundation of the first generation's unique contribution – focusing the central unit of analysis around the wider Atlantic Basin – some of us reconceived the global energy map and generated new 'cartographic projections' -- an 'Atlantic Basin projection' and an 'Ocean Basin projection' -- of global strategic and energy system maps[18] (see below for more).

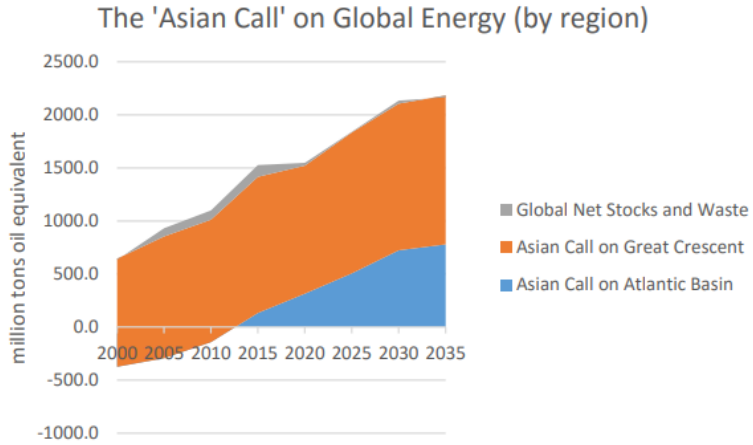
Reversal in Direction of Global Energy Flows

First, at the global level, what had become historically long-standing net flows of energy (particularly hydrocarbons) moving from East to West had reversed direction; by 2015 they flowed increasingly from West to East. Behind this directional reversal was an ongoing shift in the global center of gravity of both world energy demand and global supply (with the two essentially swapping 'hemispheres').

Asian energy demand (primarily in China, but not exclusively) and import dependence was already high and rising rapidly[19]. Northern Atlantic energy demand was beginning to level off as progress was made in energy efficiency. Furthermore, the traditional post-World War II net energy exporters in the Middle East, Russia and the states of the former Soviet Union (clustered around the Caucuses and the Caspian in Central Asia) were also beginning to consume more energy at a noticeable pace. At the time, Atlantic Basin energy demand was projected to fall from 45% of the global total in 2010 to 39% in 2050, while Asia-Pacific's share was on course to rise from 55% to 61%[20].

Indeed, for the first time since the early decades of the age of oil, by 2015 there was a rising Asian energy demand/import 'call' *not only* upon those traditional sources in what we call the 'Great Crescent' (the Middle East and former Soviet Union), *but also increasingly upon the broad Atlantic Basin* (all four Atlantic continents taken together). This rising Asian energy dependence on the Atlantic Basin region was also projected to increase to significant levels by 2035 (see Figure 1).

Figure 1. The Asian Call on Global Energy, Atlantic Basin vs Great Crescent, 2000-2035



Source: BP Energy Outlook 2035, and own elaboration. Cited from its original publication in English[21].

The demand side trends contributing to the historic directional shift of energy flows had been evident for years: principally, the global economic convergence brought on by decades of globalization, with emerging Asian economies becoming more energy intensive as they industrialized, and with Western/Northern Atlantic states maturing into post-industrial, services-based economies with structurally lower energy intensities. But the relatively sudden explosion on the supply side – an 'Atlantic Basin Energy Renaissance' which had not been widely anticipated -- was the crucial factor behind this tectonic shift.

The Atlantic Energy Renaissance

This Atlantic Energy Renaissance was driven by three main sources:

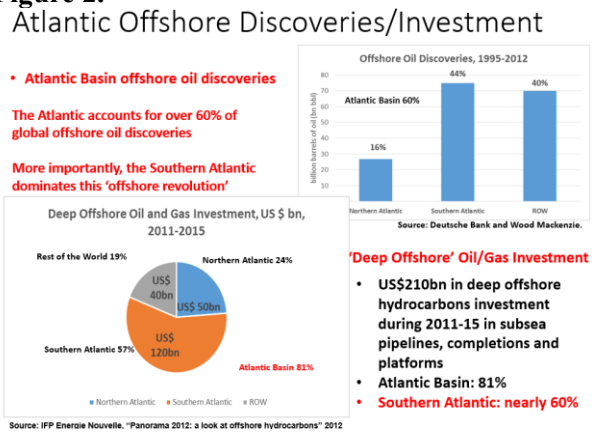
<u>The 'Shale Revolution' in the United States</u>.
The development of hydraulic fracturing and horizonal drilling in the US produced a dramatic reversal of the long-standing trends of declining domestic production and rising imports – first in gas, but then also in oil. Resource surveys at the time showed that most shale resources (70%) – and 50% of *all recoverable gas resources* – were to be found within the Atlantic Basin. Given the distribution of resources in the basin and the political economy of its states, Argentina emerged as the most likely candidate to follow the US, sooner or later, into active exploitation of these 'unconventional' hydrocarbons[22].

<u>The deep offshore revolution in the Southern Atlantic</u>.
The development of deep offshore drilling technology opened up the sub-salt offshore fields of South America (Brazil and Guyana) along with their geological twins in Atlantic Africa (the West Africa Transform Margin, the Gulf of Guinea, Angola and Namibia)[23]. By 2015, the Atlantic Basin produced over 60% of the world's (nearly 30mbd of) offshore oil, and nearly all (95%) of the world's deep offshore oil. The Southern Atlantic on its own produced 36% and 70% of daily oil production in the offshore and deep offshore, respectively, even as offshore oil continued its decades long trend of enjoying a growing share of overall output (nearly a third by then).

Offshore gas, which accounted for 27% of all global gas production, was also dominated by the Atlantic Basin (54% of the global total). The same was true of deep offshore gas, where the Atlantic Basin accounted for 97% of the global total. In the case of offshore gas, however, the Northern Atlantic was somewhat more dominate (particularly in the deep offshore) than the Southern Atlantic[24].

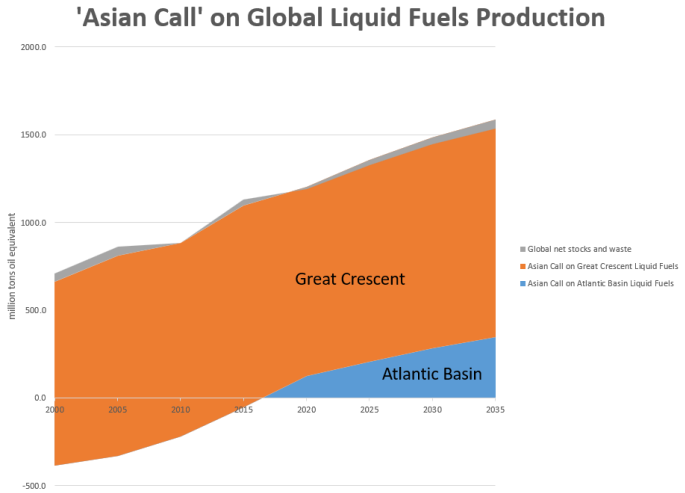
The growing dominance of the Atlantic Basin (and particularly the Southern Atlantic) in the offshore hydrocarbons sectors was also set to continue well into the future. Between 1995 and 2012, more than 60% of offshore oil discoveries occurred in the Atlantic Basin (and over two-thirds were in the Southern Atlantic). Moreover, the Atlantic Basin accounted for over 80% of all deep offshore oil and gas investment in the half decade up to the end of 2015, and the overwhelming majority took place in the Southern Atlantic (see Figure 2).

Figure 2.



The result of these two revolutions in unconventional or difficult hydrocarbons was a rising Atlantic Basin share of global hydrocarbon reserves and production. The Atlantic Basin held more than 41% of global proven oil reserves in 2015, up from less than 25% at the end of the Cold War. In 1989, 45% of global oil production occurred in the Atlantic Basin. After peaking at 50% in 1996 (reflecting the collapse in Russian oil production during the unruly transition), however, it fell to as low as 41% by 2011 (given Russia's subsequent recovery). But by 2015 total Atlantic Basin production was back up to 43% of the global total, reflecting the early surge in US shale and deep offshore oil in the Southern Atlantic. At the time, BP projected that between two-thirds and three-quarters of growth in oil production up to 2035 would take place in the broad Atlantic Basin[25] (a trend which would bring its global share to 49%[26]).

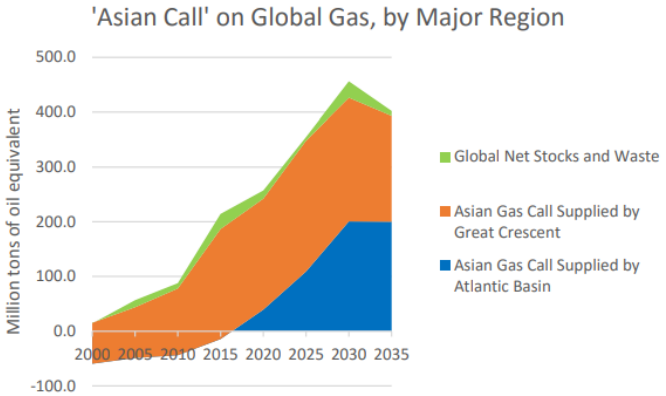
Figure 3.



Source: BP Energy Outlook 2015, and own elaboration.

The picture of Atlantic Basin dominance was even more dramatic in 2015 in terms of the future global gas balance, in which nearly half of all Asian gas demand by 2035 was projected (based on BP data) to be necessarily met from Atlantic Basin sources (see Figure 4).

Figure 4. The Asian Call on Global Gas, Atlantic Basin vs Great Crescent, 2000-2035



Source: BP Energy Outlook 2035, and own elaboration. Cited from its original publication in English (see Footnote 5).

Atlantic Basin dominance during the first generation of decarbonization transition.
The largest rollout thus far in renewable energy, particularly in the power sector in the Northern Atlantic, had occurred from the turn of the century until the Paris Agreement at the end of 2015. By then, 60% of all global renewable energy (RE) capacity was in the Atlantic Basin and two-thirds of all renewable energies were generated or produced across the Atlantic space.

Yet, it was already clear that -- in contrast with fossil fuel trends -- the world's center of gravity for renewable energies was beginning to shift from the Atlantic to Asia. In 2010, of the nearly US$240 billion of global investment in 'modern renewable energy'[27], 72% took place in the Atlantic Basin, compared with only 28% in Asia-Pacific. However, Asia shot passed the Atlantic by 2015: 56% of US$286 billion in total global modern RE investment versus only 44% in the Atlantic Basin[28].

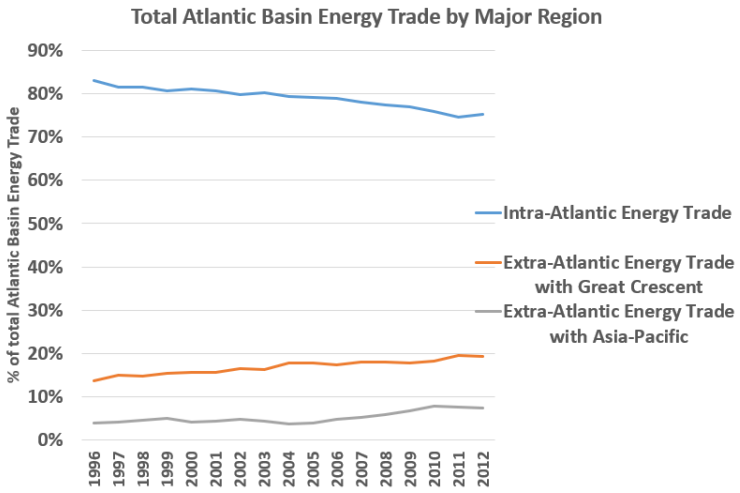
This relative shift was also beginning to play itself out in terms of installed capacity. Of the nearly 60GW of installed capacity globally in modern REs in 2000, 45.75GW (76%) were installed in the Atlantic Basin, 146GW (2.3%) in the Great Crescent, and 12.5GW (21%) in Asia-Pacific. By 2015, the picture had shifted noticeably: global installed capacity in modern REs had reached 757GW – more than a six-fold increase over 2005 levels and more than 12-fold since 2000. Asia-Pacific gained significant ground on the Atlantic, with 39% of global installed modern RE capacity in 2015, compared with 59% in the Atlantic Basin[29].

Atlantic Basin energy interdependence and nascent pan-Atlantic energy cooperation

One of the most striking characteristics of the Atlantic energy reality in 2015 were the very high levels of interdependence among Atlantic Basin countries in all forms of energy trade.

When focusing on the 'broad' Atlantic Basin – all four continents taken together in their entirety (i.e., our 'Atlantic Basin Projection' of the data map) – more than 75% of the trade in energy goods (of all types) of the countries of the Atlantic Basin was 'intra-Atlantic' (i.e., with other partners within the broad Atlantic Basin). Barely 20% of such Atlantic Basin energy trade was 'extra-Atlantic' trade with the Great Crescent, and less than 10% was with Asia-Pacific (see Figure 5).

Figure 5.



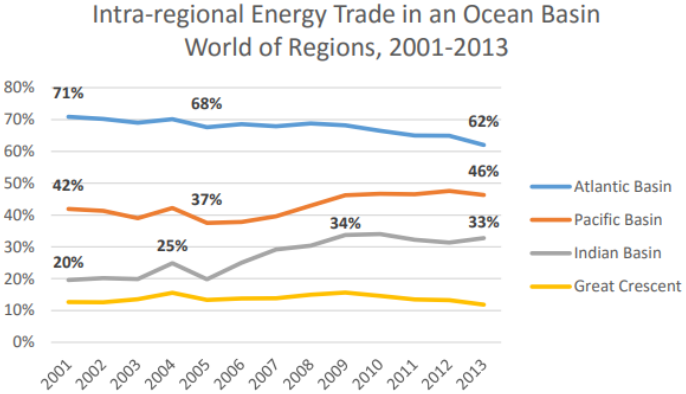
Source: UNCOMTRADE 2015, and own elaboration.
Note: This is an 'Atlantic Basin projection: it is focuses on the 'broad' Atlantic Basin -- all countries of the four Atlantic continents (Africa, LAC (w/o Mexico), North America (w/Mexico), and Europe) – in their entirety, and in relation to the 'extra-Atlantic World', comprised of the Great Crescent (Middle East and ex-USSR) and Asia-Pacific.

This high level in intra-Atlantic energy interdependence was evident on all continents and in the most emblematic regions and countries of the basin. For the:

- US, 75%
- Europe, 75%
- Mexico, 93%
- Brazil, 70%
- Morocco, 53%
- Nigeria, 78%

We also engaged in the more complicated task of tracking intra-Atlantic energy trade through the framing lens of the world's major ocean basin regions (i.e. our 'ocean basin' projection of the data map). If we consider a narrower delineation of the Atlantic Basin which includes only the Atlantic coastal countries (and the landlocked states linked more closely with the Atlantic than with the Pacific or Indian Ocean Basins), the picture of intra-Atlantic energy interdependence is similar, if nuanced (see Figure 6).

Figure 6.



Source: UNCOMTRADE 2015, and own elaboration. Note: This is an 'ocean basin projection which include the 'narrow-intermediate' Atlantic Basin: Atlantic coastal states and related landlocked countries, but in relation to the Pacific and Indian Ocean Basins as well.

In this ocean basin view of the same international energy trade, intra-Atlantic interdependence is also very high (over 60%), especially when compared to the energy trade interdependence of the other major ocean basin regions – the Pacific Basin (46%) and the Indian Ocean Basin (33%).

On the surface, this narrower, more authentically 'Atlantic' version of the basin might appear to be *less energy trade interdependent* than the larger, 'broad' Atlantic Basin. However, this is only because large parts of the four Atlantic continents fall within the other (strictly defined) ocean basins. The Atlantic Basin in this ocean basin framing does not include the Pacific coastal countries of South America and those of the East African coast (or a pro-rated portion of the energy trade of the 'dual basin' countries in Central and North America that is undertaken with other Pacific partners). Their energy trade with the Atlantic Basin in this ocean basin analysis is 'extra-Atlantic' (from the point of view of the Atlantic Basin) and extra-Pacific or extra-Indian from the perspective of the other basins. In any case, the intra-Pacific energy trade of the Pacific American countries tends to cluster around the average for the aggregate Pacific Basin (around 45%), and the picture of the East African countries with respect to the Indian Ocean Basin follows the same pattern[30].

What is clear is that the Atlantic Basin *is highly energy interdependent according to any metric of 'intra-regional' trade* – and at either of these two distinct scales of projection. It is as high or higher than the historically very high levels of intra-EU/European trade in general goods and services – the highest of any continental region by far. Moreover, the Atlantic Basin is also the most highly energy trade interdependent region in the world: whether we are considering ocean basin or continental 'regions'.

Very high intra-regional energy trade and interdependence is therefore a distinctive feature of the Atlantic Basin. As a result, by 2015 there was rising interest around the Atlantic world in the nascent formation of an Atlantic Basin energy system, and in exploring and fomenting pan-Atlantic cooperation in energy.

Emerging Geostrategic Implications?

The directional reversal in global net energy flows driven by the Atlantic Energy Renaissance made the Atlantic Basin self-sufficient in energy (in an aggregate regional sense). Three of the four Atlantic Basin continents (North America, Central and South America, and Africa) were each energy self-sufficient (and, increasingly, net exporters). The US was rapidly reducing its import dependence (already increasingly concentrated geographically within the Atlantic Basin) and pushing toward self-sufficiency. Only Europe – still highly dependent on Russia and the Middle East for both oil and gas -- remained a very large net importer along the old East-to-West energy flow circuits.

There were certainly potential geostrategic implications stemming from the increased oil and gas production stimulated by the Atlantic Energy Renaissance – depending, of course, on the future evolution of the international structure of power and any geostrategic alignment taking shape beyond unipolarity and the rules-based liberal international order. However, at the time, such systemic changes were only beginning to intimate themselves. Moreover, no Atlantic Basin regional cooperation mechanisms yet existed (beyond the nascent transnational efforts mentioned earlier) and there was still scant awareness – beyond those working on the first-generation of pan-Atlanticism -- of the potential geostrategic weight of Atlantic Basin hydrocarbons (if the entire basin were considered as a whole) or of its potential as a strategic region of pan-Atlantic cooperation.

<u>The Luanda Declaration and the Call for Pan-Atlantic Energy Cooperation</u>

Nevertheless, as early as 2013, there was a growing recognition of these distinctive features of the Atlantic Basin as both (1) an emerging major regional reserve and supplier of global energy at the margin to Asia (particularly in the fossil realm), and (2) the most highly interdependent region in the world in terms of energy trade. This led the Eminent Persons' Group (EPG) of the Atlantic Basin

Initiative (ABI) – at their summit meeting in Angola in June of that year -- to issue the "Luanda Declaration: Towards an Atlantic Charter for Sustainable Energy"[31].

The Declaration recognized the above findings of first generation pan-Atlantic energy analysis and – inspired by the earlier successes of the European Energy Charter and the Energy Charter Treaty process in Eurasia -- called for the creation of an Atlantic Energy Forum (AEF) to pursue strategic pan-Atlantic cooperation in public and private energy policy, planning, and regulatory frameworks in an effort to reestablish the bases of international energy law and cooperation through a regional energy charter in the Atlantic Basin.

Chief among the numerous goals of the AEF was to (1) pursue appropriate formulas for pan-Atlantic cooperation that could provide sufficient investor security to stimulate sustained rollout of investment in both fossil fuels and renewable energies; and (2) provide an adequate level of cooperative support to facilitate a successful energy transition that would be also be compatible with sustainable forms of development across the basin (but particularly in the Southern Atlantic).

Significantly, the Declaration also identified widespread energy poverty, especially in Africa but also in parts of Latin America, as an important 'Atlantic specific' barrier to both decarbonization and sustainable economic development. As a result, the AEF made progress in making the provision of universal access to modern energy services a central objective of pan-Atlantic energy cooperation. At the Angola meeting that launched the Declaration, the EPG of the ABI also endorsed the pursuit of an 'Atlantic Action Alliance for Renewables and Low Carbon Technology Deployment in the Southern Atlantic and the Reduction of Energy Poverty' as an important pan-Atlantic project for the AEF to develop.

The AEF continued to work through 2014 and 2015. Then came a series of shocks to the international system beginning with the abrupt policy shift of the US under the Trump Administration

<u>Conclusions – Takeaways from the 2015 picture</u>

- The center of gravity of global energy supply was shifting into the Atlantic Basin as a result of the Atlantic Basin energy renaissance (the shale revolution, the Atlantic offshore boom and the early rollout of renewable energies across the basin, particularly in the Northern Atlantic power sectors).

- As a result, the Atlantic Basin's share of global energy supply was increasing (in relation to all other regions, however conceived).

- The center of gravity of global energy demand was shifting from the Atlantic to Asia (and to some extent the Middle East and ex-Soviet sphere in Eurasia) as emerging economies industrialized and as advanced economies become less energy intensive.

- As a result, the historical global net flow of energy reversed: by 2015, what for over a generation at least had been overall net East to West energy flows (primarily from the Great Crescent countries in Eurasia and Southwest Asia) had reversed their overall direction and now flowed increasingly from 'West' (from the Atlantic Basin and the Great Crescent) to 'East' (Asia-Pacific).

- Given projections at the time, the Atlantic Basin as a region was set to become an increasing net exporter to Asia and, at the margin, to potentially gain more sectoral and geostrategic influence in the decades to come – should the Atlantic Basin countries begin to cooperate on an array of energy issues within this newly conceived regional space.

- The Atlantic Basin region – according to both the broad and narrower definitional framing – was also revealed to be the most highly energy trade interdependent of any other region (continental or ocean basin) in the world, and by a significant margin.

- Growing recognition of these distinctive features of the Atlantic Basin as both (1) an emerging major regional reserve and supplier of global energy (particularly in the fossil realm) and (2) the most highly interdependent region in the world in terms of energy trade, led the Eminent Persons' Group (EPG) of the Atlantic Basin Initiative (ABI), in June of 2013, to issue the 'Luanda Declaration: Towards an Atlantic Charter for Sustainable Energy' and to create an Atlantic Energy Forum to pursue pan-Atlantic energy cooperation in service of the energy transition, energy access and sustainable development.

Part II: Reflections on the Emerging Atlantic Basin Energy Scenario Today: Continuity and Ruptures

When we fast forward to view the global energy scenario today, along with its Atlantic Basin dynamics, we find that much has changed. However, we also see much continuity and further development of the trends identified a decade ago. Finally, some new energy phenomena have also emerged to affect the Atlantic Basin energy scenario. But everything – whether it has changed, remained the same or emerged as new -- all generates overlapping incentives to engage pan-Atlantic energy cooperation.

<u>What has changed?</u>

Geopolitical Developments

Trends in geopolitics that were only nascent or barely discernible during the first 15 years of the century, have gathered force and deepened during the last decade, complicating the decarbonization transition, destabilizing global energy prices and trade flows, and threatening a new version of a 'cold war'.

The confrontation with Russia over Ukraine, breaking into the open in 2014, created a strategic imperative in the Northern Atlantic to shift Europe's import dependence away from the Middle East and Russia and into the Atlantic Basin. US restrictions on oil and gas exports came to an end in 2015-16, as 'American Energy Dominance' became a central plank in the Trump administration's foreign policy. As the shale revolution proceeded in the US, a large network of re-gasification plants along the Eastern seaboard and the Gulf coast – built over the years in anticipation rising demand for gas imports into the future -- were re-tooled into liquefaction plants to export LNG to Europe.

Strategic investment was also made in new LNG import plants in Europe, supplementing Iberian infrastructure (long the dominant LNG force in Europe, but also hampered in its potential as a transit corridor by the multi-faceted barrier of the Pyrenees and the Spanish-French stand-off over gas and electricity interconnections). This effort was notable in the Baltics and the Balkans, where the Three Seas Initiative was born to link the Baltic, Adriatic and Black Seas with a new North-South corridor of energy, transport and connectivity infrastructure in a strategic bid to cut European (and, above all, Central and Eastern European) dependence on East-West infrastructural links and energy (and other trade) flows with Russia.

Then came the Russian invasion of Ukraine in early 2022, and the US, EU and G7 sanctions on Russia that have followed – above all, in finance, technology and energy. The full-scale geoeconomic assault the Northern Atlantic launched on Russia was intended to bring the dissident state to its knees and to force it out of Ukraine and back into its corner at the edge of the liberal international order. What it actually achieved has been to provoke a re-scrambling of global oil and gas flows, open a deepening strategic moat between Europe and Russia, and to drive a shift toward European dependence on Atlantic Basin energy in general and on the US in particular (more below).

But the growing rift with Russia also intertwined with the heightening US rivalry with China. That country's continued, unprecedentedly rapid economic growth – and the potential military power that it seemed bound to at least make possible, if not guarantee -- provoked a 'pivot to Asia' in US foreign policy. This strategic competition was made nearly permanent by the trade wars that were unleashed by the US (justified or not) under the Trump administration. Yet, at the same time, China became the global center of manufacturing and the geographical pivot of the world's deepening web of decarbonization-related supply chains (especially in electric vehicles, battery technology and essential related critical minerals and rare earth elements).

When China declined to join Western sanctions against Russia, so too did most of the world. China and India, along with other countries, provided Russia with alternative sources for essential technological components (some with dual civilian-military applications) and markets for energy exports, and an inflection point was passed. What was only a nascent geopolitical scenario in 2014 of initial emerging multipolarity has become a fully developed transformation. Until 2022, the BRICS – the association between Brazil, Russia, India, China and South Africa – was considered by most in the 'collective West' (that is the Northern Atlantic plus allies and partners in Asia) to be nothing more than a Wall Street marketing ploy for channelling investment into high growth 'emerging' markets. However, the sanctions on Russia (and subsequently on China) catalyzed further consolidation of the BRICS association – which proposes a reform or alternative to current global governance structures – and sped up its expansion, creating a growing demand among countries in the Global South to become 'partners' (if not outright members).

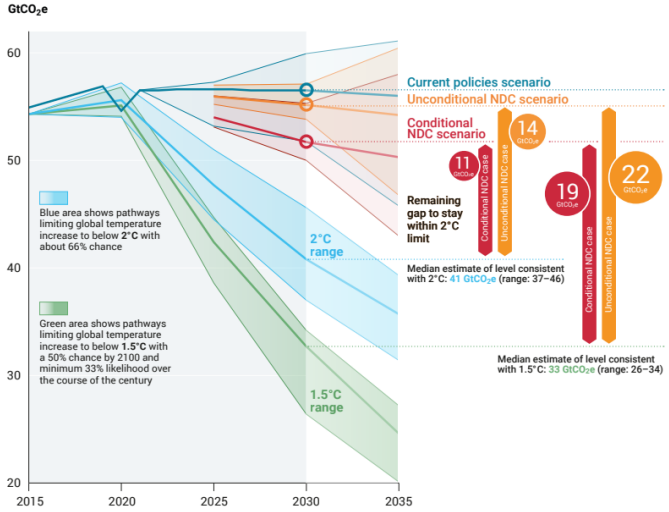
The stage has therefore been set for intensified strategic competition, ongoing geoeconomic warfare, the 'derisking' of Northern Atlantic supply chains, progressive regional economic segmentation and nascent strategic 'decoupling', above all with China and Russia. US Pentagon officials now openly speak of the coming war with China, to begin as early 2027. The metaphorical Doomsday Clock of the Bulletin of Atomic Scientists was set at 3 minutes to midnight ten years ago; a year and a half ago, it had reached 17 seconds to midnight – the most dangerous moment since the index was created and tracked. Ironically, clock was set at 17 minutes from midnight at the end of the Cold War – its safest moment since WWII; yet it has swiftly moved toward midnight ever since, throughout the high period of globalization, from the beginning to the end of the unipolar moment.

Global energy and climate change outlooks

It cannot be denied that significant progress has been made on the renewable energy transition and the decarbonization of the global economy. However, it is equally apparent that progress remains too slow to defend the global community's 2-degree guardrail (let alone the more ambitious and prudent 1.5-degree target set by the Paris Agreement). Indeed, both GHGs (57GtCO2e in 2022) and global temperatures (1.5-degree average above preindustrial levels during a quarter of the days last year) continue to set new record highs. Perhaps the most synthetic metric of the insufficient pace of the transition is the still wide 'emissions gap'.

According to the UNEP, the gap between the trend indicated by all current 'national determined commitments' (that still must be fulfilled with action on the ground) and the required level of GHGs in 2030 -- in order to remain on track to sustainably defend the 2-degree guardrail to 2050 and beyond -- remains over 14 GtCO2e (and more than 22 GtCO2e with respect to the 1.5-degree target). But to reach net-zero by 2050 well over 50GtCO2e must still be cut by then (see Figure 7).

Figure 7. Global Emissions Gap, 2023



Source: Figure ES.4 Global GHG emissions under different scenarios and the emissions gap in 2030 and 2035 (median estimate and tenth to ninetieth percentile range), in UNEP, "Emissions Gap Report 2023: Broken Record" p. XXI (https://wedocs.unep.org/bitstream/handle/20.500.11822/43922/EGR2023.pdf?sequence=3&isAllowed=y).

Complicating this task is the fact that despite the remarkable consensus that developed between the disappointing Copenhagen Summit in 2009 and the successful conclusion of the Paris Agreement in 2015 (coinciding with the development of first-generation pan-Atlanticism), it has subsequently -- beginning with the pandemic and then the crisis in Ukraine -- begun to unravel. Not only has the global discourse polarized into increasingly strident calls to 'end fossil fuels now' facing off against a renewed scepticism among a growing number of oil and gas industry leaders (along with many of the leaders of the traditional net exporting countries) with respect to how fast the transition can realistically be expected to take place. There is also a growing gap between how different key energy bodies view the short and long-term future of energy demand.

One example of this is the increasing difference between IEA and OPEC+ projections for oil demand in both the short and long run. There is now an unprecedented gap of 1 million barrels a day (+1mbd vs +2mbd, respectively) in their projections for the annual oil demand increase in 2024 (already half over). Meanwhile, the IEA is projecting peak oil demand in 2030 and OPEC+ not until after 2050[32].

This growing breech between the expectations (and perhaps hopes) of what are essentially the 'emerging powers' of Great Crescent and the long-standing 'great powers' of the Atlantic Basin – with Asia hanging in the balance, and increasingly energy dependent upon both regions – reveals how the intensified geostrategic competition mentioned above can only work to poison the prospects for successful climate change action at the global level. From 2010 on, the global climate regime of the UNFCCC became the most successful global governance mechanism of the international system, as the Bretton Woods and other UN institutions, particularly the WTO, became dysfunctional. The Paris Agreement and the years that followed up to the COP26 in Glasgow in December 2021 have, so far, been the heyday of global cooperation to avoid the worst damages from climate change.

Ever since, however, the COPs have stumbled upon a battle over the inclusion of language in the final statements for the 'phase out' or 'phase down' of fossil fuels. In many ways, this struggle reflects the deepening geopolitical fault line that has opened between the Northern Atlantic, on the one side, and China, Russia and the BRICS+, on the other. This breech is only exacerbated by the divisions between the IEA and OPEC+, and between the fossil fuel sector (and traditional net exporters) and the decarbonization movement.

The interaction between these two sets of deteriorating trend shifts – in geopolitics and in global climate cooperation – has revived and recharged this conflict between competing (short versus longer term) interests and (increasingly polarized) discourse. Western sanctions on Russia have now placed energy security concerns everywhere back into rivalry with the longer-term imperative to augment 'climate security'. And too many signs point to the former soon eclipsing the later – although this is not yet inevitable.

What distinctive features remain the same?

What trends continue in the same direction as foreseen by our Atlantic Basin projections in 2015? Where have there been discontinuities or stagnation over the last decade?

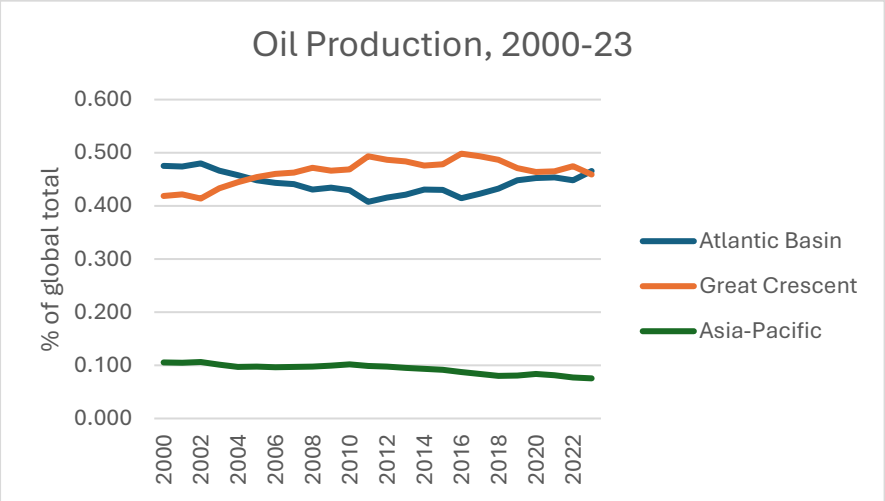
The Atlantic Energy Renaissance

Atlantic Basin Oil

The trends in oil production continue, and perhaps have even intensified. In the Atlantic Basin, production had previously peaked in the mid-late 1990s as Russian oil collapsed; but it then went into decline as US conventional production continued its long slump from the early peak in 1970s (despite the temporary respite from Alaska and the Gulf offshore), and Russian oil recovered. Atlantic Basin oil production hit a trough of 41% of the global total in 2011; but then the Atlantic Energy Renaissance in unconventional hydrocarbons began to manifest itself.

Ever since, the Atlantic Basin's share has been climbing (except for the two short-lived periods of oil price decline in 2014-2015 and during the first half of the pandemic, as unconventional oil was edged out of the market). This is in line with the projections made in 2015 (using BP data) that had forecast the Atlantic Basin's share to be 49% by 2035. Indeed, it rose steadily to nearly 47% in 2023 – perhaps rising even faster than projected. (See Figure 8)

Figure 8. Oil Production, Atlantic Basin vs. Great Crescent



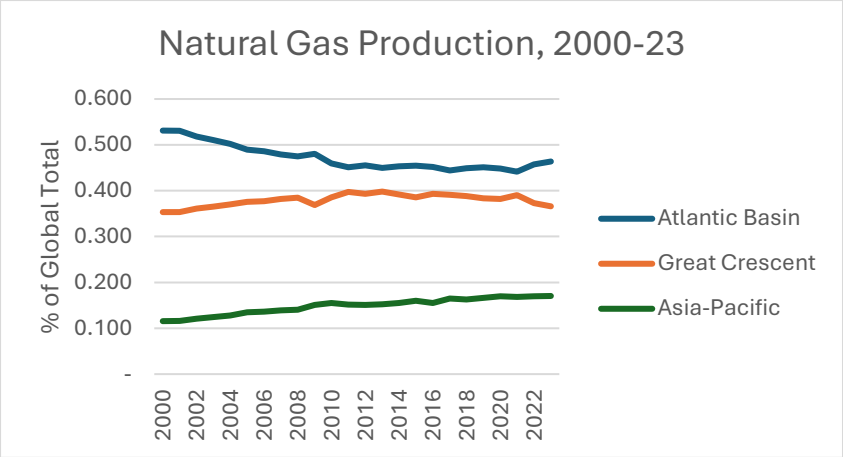
Source: 2024 Energy Institute Statistical Review of World Energy (formerly BP)

Atlantic Basin Gas

The trends in gas production also have continued. The Atlantic Basin's share of global gas production began its long-term decline in the late 1990s as rising demand overtook production. During the years that followed, the US was projected to become increasingly dependent on LNG imports. But then, as in the case of oil, the shale revolution and the offshore gas boom began, halting the Atlantic Basin's decline, stabilizing its share at 45%. It began to rise again as US LNG exports began late in the decade, but it broke away as of 2021 and 2022 – reaching more than 46% in 2023 -- as the energy

crisis took hold in Europe, sanctions were imposed on Russia, and the US began a surge of shale-produced LNG exports to Europe to replace Russian gas (see Figure 9).

Figure 9. Gas Production, Atlantic Basin vs. Great Crescent

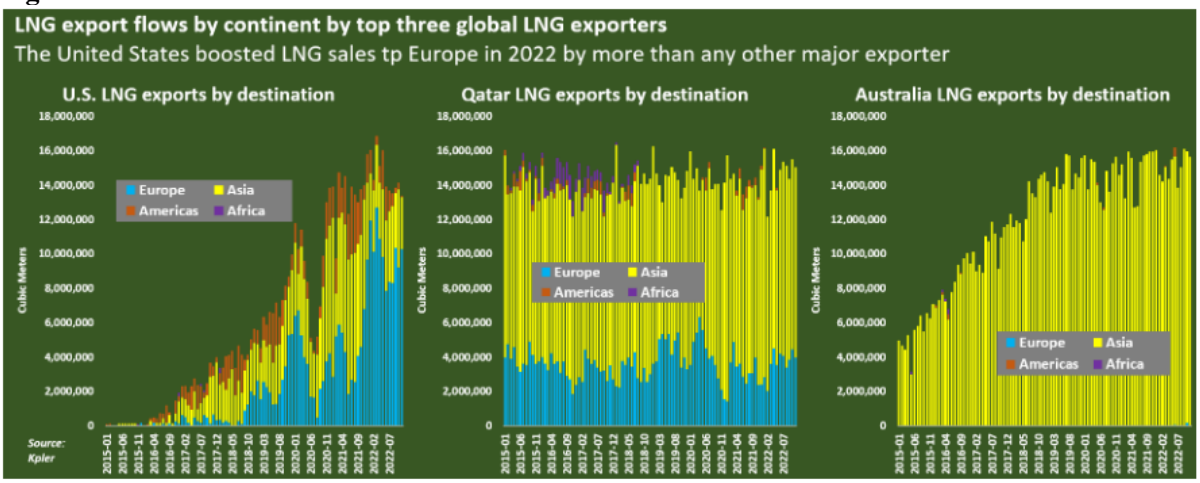


Source: 2024 Energy Institute Statistical Review of World Energy (formerly BP)

Atlantic LNG

Indeed, over the period, US exports of LNG to Europe have risen to represent between 75% and 80% of both US total LNG exports and Europe's total of LNG imports (both of which have surged in the last 5 years). This new, strategically induced surge in 'intra-Atlantic' energy trade has finally cut the continent's dependence on Russian gas, progressively choking off one of the last remaining major East-to-West energy flows into the Atlantic Basin (see Figure 10, below).

Figure 10.



LNG export flows by continent by top three global LNG exporters

Source: Gavin Maguire, "U.S. LNG exports both a lifeline and a drain for Europe in 2023", Reuters, December 21, 2022 (https://www.reuters.com/business/energy/us-lng-exports-both-lifeline-drain-europe-2023-maguire-2022-12-20/).

Furthermore, the chasm that has opened in the years between the Atlantic Basin's share of global gas production and that of the Middle East and former Soviet sphere (i.e., the Great Crescent) has reflected not only the shale surge of US LNG exports to Europe, but also rising gas demand in these traditional net exporters and the huge projected future demand in Asia. These trends reflect the ongoing shifts in the center of gravity of global gas demand and supply identified in 2015, and they continue to reinforce the historic reversal of global net energy flows. And these are the same trends that are producing the rising 'Asian call' on Atlantic Basin energy exports – as much as half of Asian

demand by 2035 -- that we revealed a decade ago, based on BP projections and re-mapped into our 'Atlantic Basin projection' (see Figure 4, above).

Atlantic Basin Shale Revolution Continues

Most of this growing Atlantic Basin energy, in the form of growing Atlantic Basin crude oil, product and LNG exports, has been driven upwards by the continued surge in US shale oil and gas. According to estimates from the US Energy Information Administration (EIA), in 2023: "…about 3.04 billion barrels (or about 8.32 million barrels per day) of crude oil were produced directly from tight-oil resources in the United States. This was equal to about 64% of total U.S. crude oil production in 2023"[33]. An even higher proportion of the US's nearly 38 trillion cubic feet of dry natural gas production – 78%-- came from shale formations[34].

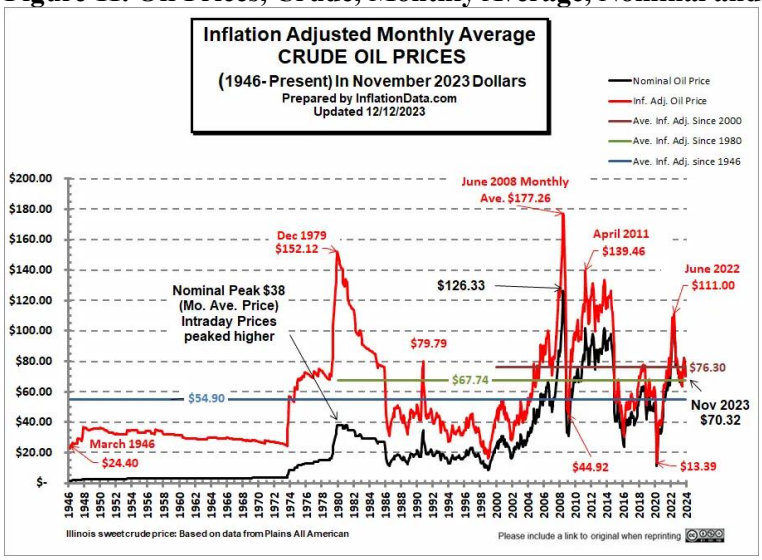
The expectation that Argentina would soon follow the US headlong into the shale revolution – still palpable in 2015, but later dimmed by internal toil in the Argentine political economy – has been revived with vigour by the current Milei administration. The government's new economic, trade and energy policies plan to significantly expand investment in the *Vaca Muerta* shale basin in a strategic bid to increase the energy supply and improve Atlantic Basin 'connectivity' (i.e., intra-Atlantic Basin energy trade interdependence), thereby extending and deepening the regional ties to create an even denser 'Atlantic Basin energy system'. Advanced forecasts from Argentina indicate a massive increase in oil and gas exports in the coming years – up to twice as much as current national oil production – with new shale gas moving by pipeline to neighboring countries in South America, and by LNG to Europe and Asia. The strategy also calls for a significant expansion of domestic pipeline capacity to deliver growing quantities to several planned new gas liquefaction plans to convert Vaca Muerta shale gas to LNG[35].

The Atlantic Basin Offshore on the Rise Again

One of the shocks hitting the global energy system in 2015 – the impact of which was still unclear -- was the sharp decline in energy prices, particularly oil, that began in the second half of 2014 and gathered force the following year. After 15 years of low and stable oil prices from 1987 to 2003 – during which OPEC's oil price range target of approximately $15-$18/bbl to $25-$30/bbl was maintained remarkably well -- the surge of demand from emerging Asia during the 2000s sent prices to their historic nominal peak ($177/bbl) in the summer of 2008 ($126/bbl in 2023 dollars), before briefly falling to a low trough as a result of the early intimations of the global financial crisis. But they then rose to a high plateau averaging (on yearly basis) over $100/bbl for five years before the price collapse of 2015 (itself driven by the surge in supply from the Atlantic Energy Renaissance over the previous decade)[36] (see Figure 11).

Over the 10 years since, prices have experienced an ever greater range of volatility: after hitting a near historic low at the beginning of 2016 at just over $20/bbl (nominal), it rose again to over $65/bbl before the pandemic drove them down to historic lows in 2020 ($42/bbl and $13.40/bbl on an average yearly and monthly basis, respectively) and even to negative levels on the one month forward market for some days during the winter/spring of 2020. However, oil prices were back over $100/bbl again, once the Ukraine-Russia war and related sanctions began. It has since settled down into an uncertain equilibrium around $70-$75/bbl ($68/bbl on September 28, 2024).

Figure 11. Oil Prices, Crude, Monthly Average, Nominal and Real, 1946-2024

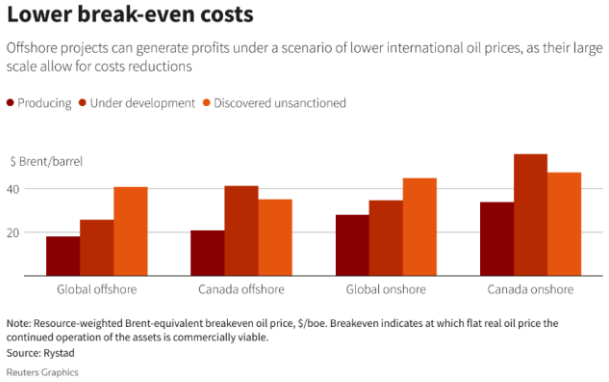


Source: Tim McMahon, "Historical Oil Prices Chart", Inflation.Data.com, December 12, 2023 (https://inflationdata.com/articles/inflation-adjusted-prices/historical-oil-prices-chart/).

What does such price volatility since 2015 – driven by BOTH positive shocks from Atlantic Basin shale and offshore hydrocarbons AND negative shocks stemming from the pandemic and the subsequent geostrategic disturbances to energy supply chains – mean for the Atlantic Basin offshore today (especially the Southern Atlantic deep offshore)? We considered this question back in 2015. Atlantic Basin production fell slightly as a result of the 2015 price collapse, but the surge in Atlantic shale and in the Atlantic offshore had also been the principal factor behind the price fall. At the time, it was estimated that prices needed to be largely and consistently maintained above $60 in order to provide continued support for both the shale and deep offshore booms. This condition has indeed held since then.

Furthermore, both shale and the offshore have experienced reductions in their costs and breakeven points over the last decade (see Figure 12)[37]. And both have developed efficiencies and other policy changes which have reduced their emissions intensities, perhaps allowing in the future for both Atlantic dominance in hydrocarbons AND sufficient decarbonization transition.

Figure 12. Reduced Break-Even Costs for Offshore oil Production, 2024



In any event, the deep offshore boom in Brazil continues, and is projected to significantly increase the country's production in the coming years (rising from 3.1mbd in total production in 2022 to 4.4mbd in 2026 and 5.2mbd in 2031 when the deep offshore pre-salt basins will provide for 80%)[38]. Guyana's deep offshore is also coming on stream. In Africa, where the oil and gas boom carries on, seven of the top 10 upcoming oil fields are found in the Atlantic African offshore[39]. Even South Africa, always

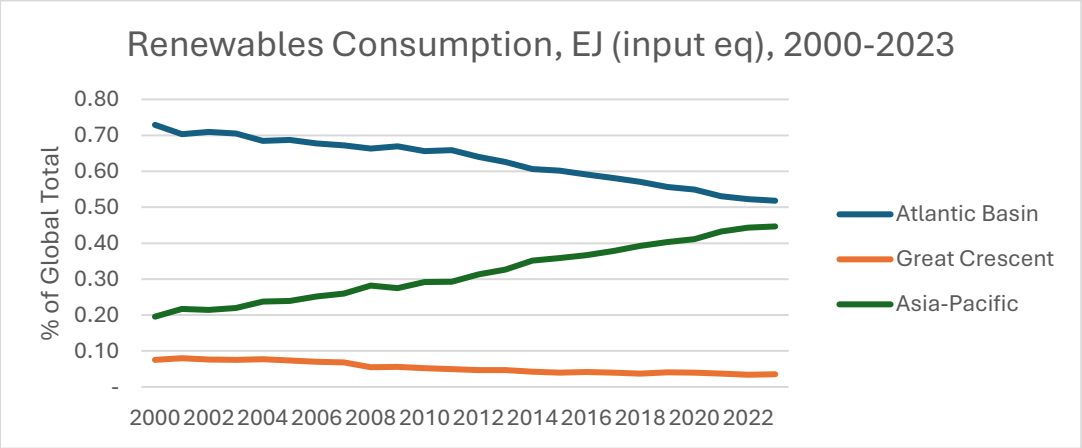
completely dependent upon oil and gas imports, is beginning to engage promising offshore prospects[40].

Offshore investment continues to rise again after the temporary pause after 2015 and is forecast by industry sources to notably rise by 90% (from $37bn to $67bn) in the offshore drilling market over the decade to 2030[41]. Furthermore, given current trends in decarbonization, the IEA projects that offshore oil and gas production will remain strong to 2040, even under a 'climate sustainable' scenario, with offshore gas projected to significantly rise under all scenarios[42].

Renewable Energy and the Decarbonization Transition in the Atlantic Basin

Although the Atlantic Basin could lay claim to the apparent center of gravity for renewable energy investment, production and consumption back in 2015, that moment proved to be the culmination of the first-generation rollout of 'green energy' over the previous decades, during which the Atlantic still enjoyed 'first mover' status. But as pointed out in Part I, the emerging trend at the time was already showing signs of a shift of gravity to Asia. Events since suggest the trend is more permanent.

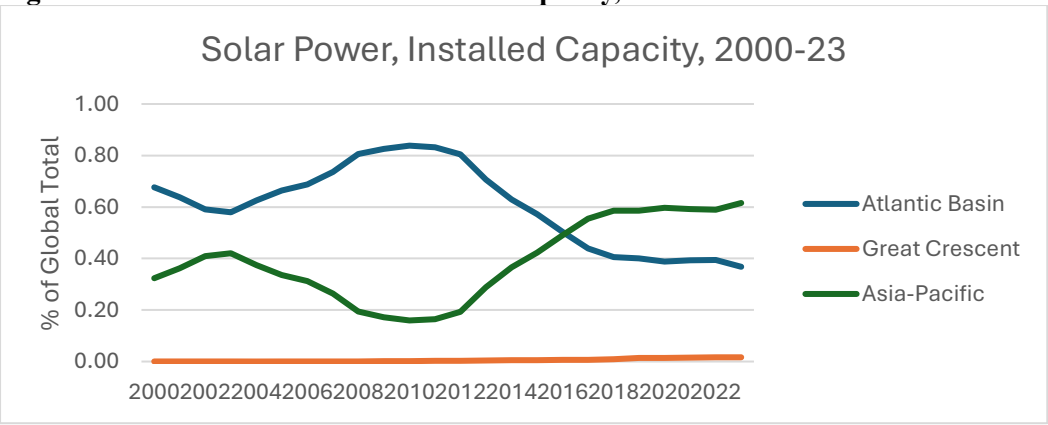
Figure 13. Total Renewable Energy Consumption, EJ, 2000-23



Source: 2024 Energy Institute Statistical Review of World Energy (formerly BP)
Note: Combined renewable electricity (including hydro) and biofuels primary energy input consumption; Based on gross generation and not accounting for cross-border electricity supply. "Input-equivalent" energy is the amount of fuel that would be required by thermal power stations to generate the reported electricity output.

Total renewable energy consumption (including hydropower and bioenergy) continues to reflect the growing relative importance of Asia, anchored by China (see Figure 13).

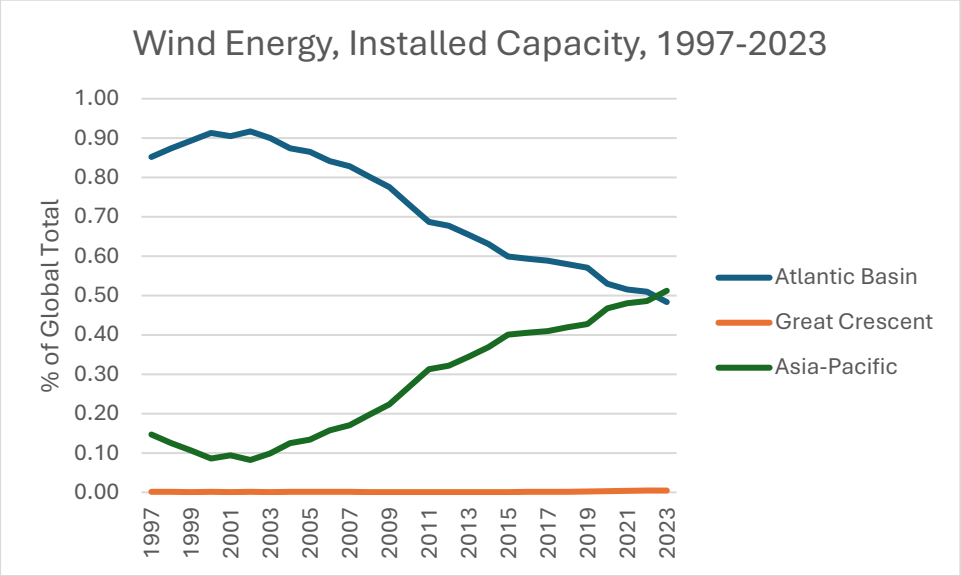
Figure 14. Global Solar Power Installed Capacity, Atlantic Basin vs Asia-Pacific



Source: 2024 Energy Institute Statistical Review of World Energy (formerly BP). Based on IRENA (2024), Renewable Capacity Statistics 2024, The International Renewable Energy Agency, Abu Dhabi. Note: Installed photovoltaic (PV) power and concentrated solar power (CSP) at end of year.

This has been underpinned by growing investment in Asia in renewable installed capacity. The switch has been most noticeable in the solar industry (see Figure 15), but it has also been inexorable in the wind sector as well (see Figure 16).

Figure 15. Global Wind Energy, Installed Capacity, Atlantic Basin vs Asia-Pacific



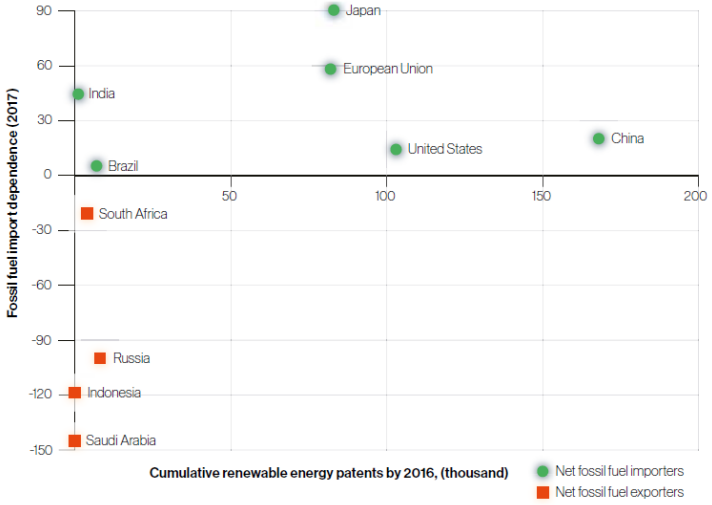
Source: 2024 Energy Institute Statistical Review of World Energy (formerly BP). Based on IRENA (2024), Renewable Capacity Statistics 2024, The International Renewable Energy Agency, Abu Dhabi. Note: installed wind turbine capacity; includes both onshore and offshore wind capacity on an AC basis.

This displacement of the global center of gravity for decarbonization action from the Atlantic Basin to Asia is, in part, a natural reflection of the demographic and economic weight of the East, along with the fact that renewable energy is still largely a 'non-tradable' (although in a future of intensified regional electricity integration and sub-sea electricity cables, this could change).

But there could also be strategic implications of the growing Asian predominance in the renewable energy sectors and all along the network of global decarbonization supply chains. As the Atlantic Basin becomes, for some, the most 'fossil' of ocean basins, China has emerged as the decarbonization 'pivot of the world'. In the current context of heightened geostrategic competition, this asymmetrical web of interdependencies – growing Asian reliance on Atlantic Basin fossil energy, particularly gas, and increasingly reliance on China's decarbonization hub for renewables components of all types – is now shaping the underlying energy structure of a new cold war.

However, there is still the potential for international climate cooperation – if tensions between the Northern Atlantic and China can subside. Although it may be a truism that all states on the planet have a strong interest in successful decarbonization of the global political economy, for some key states it is more existential than for others. Fortunately, for the key protagonists in the current geostrategic competition, it also represents a great opportunity. This is particularly true of China (the only state that could potentially influence Russia in the current historical juncture), but it is also still true for the major powers of the Atlantic Basin. Figure 17 reveals one foundational aspect – cumulative renewable energy patents -- of this potential.

Figure 17. Impact of energy transition on selected countries



Source: BP, IRENA.

Atlantic Basin energy interdependence and intra-Atlantic energy trade?

As with the Atlantic Energy Renaissance, another key feature of Atlantic Basin energy remains in place: the high levels of intra-Atlantic interdependence in most forms of energy trade. A snapshot update of current intra-Atlantic energy trade reveals the continued existence of a potential Atlantic Basin energy system. In 2023, 70% of all Atlantic Basin trade in oil was intra-Atlantic Basin trade: 67% of all Atlantic Basin crude oil trade and 76% in oil products trade[43]. The situation is very similar in gas. In 2023, 74% of all Atlantic Basin trade in LNG was intra-Atlantic Basin trade.

Leading Atlantic Basin LNG exporters include:

- in North America: The US (114.4 bcm, 21% of global total)
- in Central and South America: Peru (5.3 bcm, 1%) and Trinidad y Tobago (10.5 bcn 2%)
- in Europe: Norway (5.5, 1%)
- in Africa: Algeria (19 bcm, 3.5%), Egypt (4.9 bcm, 0.9%), Angola (4.9 bcm, 0.9%) and Nigeria (17.5 bcm, 3.2%)

The slight downward trend in intra-Atlantic energy interdependence, identified in 2015, over recent years has continued. More Southern Atlantic oil and gas has begun to head to Asia, as the Atlantic Basin – particularly out of the Southern Atlantic offshore in South America and Atlantic Africa – begins to supply Asia at the margin, increasing Asian energy dependence on the Atlantic Basin.

However, this new 'extra-Atlantic" energy trade is also now being offset by the recent increase in intra-Atlantic energy trade implied by the switch in European dependence from Russia to the Atlantic Basin, a trend that will continue to maintain the intra-regional density of the Atlantic Basin energy system, even as the potential geopolitical influence of the Atlantic Basin over Asia-Pacific and the Great Crescent continues to rise – if a critical mass of states in the Northern and Southern Atlantics re-engage pan-Atlantic energy cooperation.

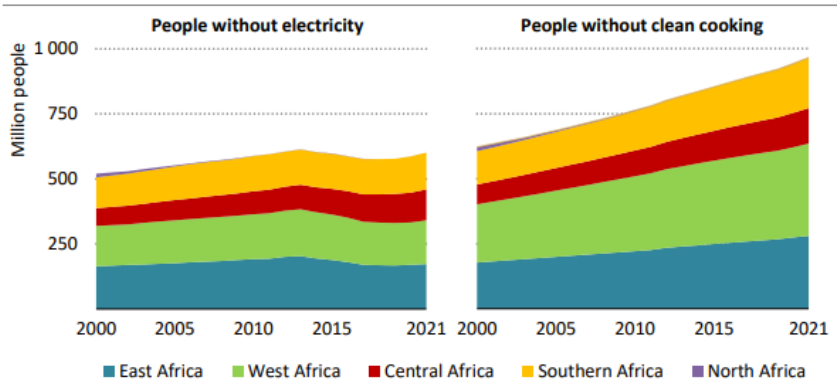
<u>What is new and emerging</u>?

There are a number of new challenges and opportunities, and others that are now emerging into clarity that also demand an Atlantic Basin framing and a pan-Atlantic approach to cooperation on energy and related climate and geostrategic concerns. Without going into extensive detail, a few of these new phenomena are presented in brief outlines here.

Energy Poverty, Access and Sustainable Development

Energy poverty, particularly in Africa, but also in pockets of Latin America and the Caribbean, once seemed to be on the decline – at least from the picture in 2015. But it began to climb again soon after (See Figure 18).

Figure 18. Population without access to modern energy



Source: IEA Africa Energy Outlook 2022

According to the IEA, the electricity access rate has declined 4% since 2019, leaving 600 million Africans (43% of the population) without access (and a far higher and rising number lack clean cooking services). To achieve both universal access to modern energy services in Africa and maintain climate stability, more than 90 million Africans a year will need to be connected to electricity – triple the recent pace – and most of this will need to come from renewable or sustainable sources.

This will require innovative and sustained approaches: the kind that could come from meaningful pan-Atlantic cooperation.

The Atlantic Ocean

In 2015, the importance of the ocean for Atlantic Basin energy was already clear from the offshore oil and gas boom. However, the broader and more extensive significance to the ocean for energy and climate change has come into sharp relief in the last decade. Indeed, the interaction of many key climate changes and the integration of potential synergistic opportunities prompted the international community to declare the 2020s as the Decade of the Oceans.

First, in addition to offshore oil and gas, the potential for other ocean energy sources – like offshore wind and solar power, wave and tidal energy, and methane gas hydrates – is enormous. Already, the Atlantic Basin is emerging as the leading region in this regard.

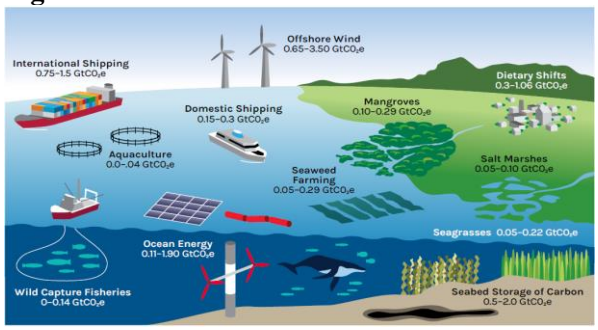
Just as important for the long-run sustainability of the Atlantic Ocean and for any successful Atlantic Basin contribution to achieving global climate goals, however, are a range of climate adaptation and resilience policies which would also sequester significant amounts of atmospheric and marine carbon dioxide. These include:

- Coastal and marine ecosystem protection and restoration (including mangroves, salt marshes and sea grasses)
- Sustainable fishing and aquaculture (and sea-weed farming)
- Carbon storage in the seabed

At the U.N. Secretary-General's Climate Action Summit in September 2019, the High-Level Panel for a Sustainable Ocean Economy (a group of 14 heads of states and governments) published "The Ocean as a Solution to Climate Change: Five Opportunities for Action". The report underlines the relationship between the ocean and climate and outlines five areas of prime opportunity for mitigating

emissions by engaging in sustainable ocean actions: ocean-based renewable energy; ocean-based transportation; coastal and marine ecosystems; fisheries, aquaculture, and shifting diets; and carbon storage in the seabed.

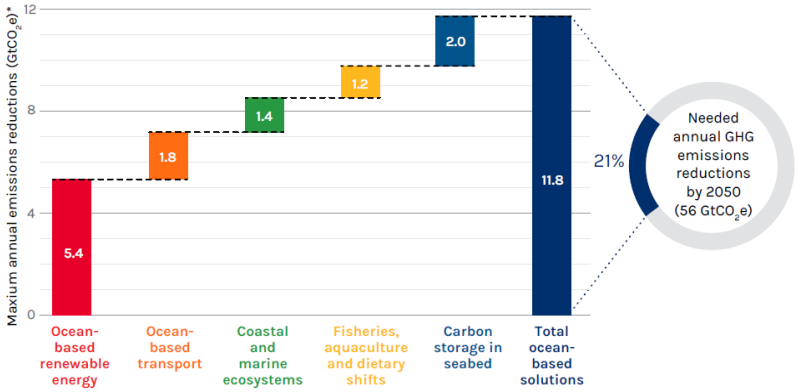
Figure 19. Potential for Ocean-based Action on Energy and Climate



Source: "The Ocean as a Solution to Climate Change: Five Opportunities for Action"

The findings of the study suggest that wide-scale, sustainable exploitation of these opportunities – which both reduce emissions directly and indirectly (through augmented carbon sinks that absorb CO2) could potentially cut the emissions gap by between 20% to 25% (see Figure 20).

Figure 20. Contribution of Five Ocean-based Climate Action Areas to Cut Emissions by 2050 Maximum GtCO2e



*Notes: * To stay under a 1.5°C change relative to pre-industrial levels*

Source: "The Ocean as a Solution to Climate Change: Five Opportunities for Action"

Once again, the strategic axis of the Atlantic Ocean itself emerges as a key potential focus of pan-Atlantic cooperation. It is also the framing which would most likely lead the new Partnership for Atlantic Cooperation to soon embrace Atlantic energy as theme to include in these first historic attempts at pan-Atlantic cooperation. One particularly ripe area for pan-Atlantic consideration is the pending decarbonization of international shipping and the role that Atlantic Basin port-cities could play in this particularly challenging aspect of the transition.

Critical Minerals

Renewable energies and other decarbonization technologies require an enormous of amount of critical minerals. As the transition progresses over the next two decades, mineral demand is expected to experience a challenging step-jump, with important potential implications for costs and prices of renewable energy, as well as for the environment. The peculiar geographic distribution of the wide range of critical minerals and rare earth elements required by the transition also presents a different international structure of dependence and interdependence, with much longer and more complex supply chains than in the traditional global fossil fuel economy. The fact that the world supply of many minerals is divided between the Atlantic Basin –- particularly in Africa and South America –

and Eurasia and Asia-Pacific is another potential barrier to successful defence of the internationally-adopted temperature limits. The rising strategic rivalry between these spheres, as mentioned above at the beginning of Part II, could deepen the dynamics of a new 'geopolitics of decarbonization' and derail the transition.

Pan-Atlantic cooperation on access to critical minerals in the Atlantic space should therefore be on the agenda of any Atlantic Basin discussions. This imperative is only reinforced by the nascent strategic trend to regionalize supply chains (through nearshoring or friendshoring).

Conclusions -- Key Takeaways

- **Renewed geostrategic competition** has reshaped the global energy scenario, but it has also generated even more incentives among Atlantic Basin states to engage in pan-Atlantic energy cooperation.

- Nevertheless, the new **post-2021 'business as usual' scenario is already complicating the decarbonization transition**, as the global climate consensus begins to loosen and impetus for serious cooperation fades.

- Still, **the key trends in Atlantic Basin energy** that were clearly discernible or visibly emerging in 2015 – and which stimulated the first early movements toward pan-Atlantic energy cooperation -- **all continue to deepen**. The case for an Atlantic Energy Forum is stronger than ever.

- **The historic directional shift in global net energy flows has not ceased**, as Atlantic Basin oil and gas production continues to increase in absolute terms AND in relative share of the global total.

- **The Atlantic Energy Renaissance continues strong**, as it enters a new and critical phase.

- **Atlantic Basin oil now accounts for 47% of global production** and could move beyond the 49% once projected for 2035.

- **Atlantic Basin gas – deep in the throes of an Atlantic revolution in LNG – remains set to supply an ever greater share** into the future of the 'Asian call' on global energy.

- **The shale revolution in the US has deepened**, and it has been essential in finally breaking the structural dependence of Europe on Russian gas. **New Atlantic Basin energy is now moving east to Europe in ever greater quantities**.

- **Sanctions against Russia have further reinforced this reversal of net energy flows**. The Russian energy that once flowed freely in the dominate East-to-West pattern of the past, now are increasingly directed East to China, India and other parts of Eurasia and Asia.

- **The offshore boom, after a brief pause following the 2015 price collapse, has revived in the years since**. After significant improvements in costs, efficiency and emissions intensity, the Atlantic offshore hydrocarbons sector is set to provide a growing share (already 25%) of global production, no matter how much or how little, oil and gas will be called upon, or allowed, to contribute to the energy mix moving forward.

- The early picture of an Atlantic Basin lead in the global energy transition has faded. Asia has overwhelming overtaken the West in renewables investment, manufacturing, installed capacity and generation. **While the Atlantic Basin clearly now dominates the fossil world,**

it has lost ground to Asia within the new interdependence networks of the decarbonization economy in which China has developed into the key hub.

- This situation presents vulnerabilities for Atlantic Basin states, but it also points to **a clear imperative to renew cooperative efforts with China** and its BRICS partners on energy and climate challenges. **Pan-Atlantic energy cooperation could play an important role.**

- **The Atlantic Basin remains the most energy interdependent region in the world**. Between two-thirds to three-fourths of the energy trade of Atlantic Basin states is 'intra-Atlantic'. **Even more than it did in 2015, the increased density of this energy system suggests high potential for pan-Atlantic energy cooperation** – whether from the cost and efficiency standpoint of industry or from the strategic perspective of energy and foreign policy makers.

- However, there are **many new energy and climate trends and possibilities that were not clearly visible in 2015**, but which today provide for additional points of focus in any new agenda for discussion regarding pan-Atlantic energy cooperation.

- **Energy access in the Southern Atlantic**, particularly in Africa

- **Atlantic Ocean energy** and ocean-based emissions mitigation and adaptation potential

- **Access to critical minerals** for decarbonization, particularly in the Southern Atlantic

- Finally, there is **a growing conflict between short-term energy and long-term climate interests**, as the discourses of 'Energy Security' vs 'Climate Security' reemerge.

- Amid the rising global tensions and the continued mounting of temperatures and the physical and economic damage they are provoking, **the imperative for pan-Atlantic energy cooperation is clear and its potential is ripe**.

Notes

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[1] For a more extensive and detailed analysis of this snapshot of Atlantic Basin energy dynamics, see Paul Isbell, "The Shifting Flows of Global Energy and Trade: Implications for Latin America," in Dane, Felix. (ed) *The Politics of World Security,* Konrad Adenauer Stiftung (KAS): Rio de Janeiro, 2015, pp. 183-212 (https://www.kas.de/c/document_library/get_file?uuid=086c2bdd-a3bb-9c1c-5ee7-c3dfcdf1fef7&groupId=265553).

[2] See 'The Skhirat Plea', High Commission for Planning of the Kingdom of Morocco, First Forum of Skhirat (Tricontinental Atlantic Initiative), May 30, 2009 (https://itca.hcp.ma/The-Skhirat-Plea_a116.html). See also, 'The Skhirat Declaration', High Commission for Planning of the Kingdom of Morocco, Second Forum of Skhirat (Initiative for an Atlantic Community), December 1, 2012 (https://itca.hcp.ma/Skhirat-Declaration_a305.html).

[3] See Paul Isbell, "The Rising Strategic Significance of the Atlantic Basin: An Emerging Pan-Atlanticism", Policy Center for the New South, December 14, 2023, PB-44/23 (https://www.policycenter.ma/publications/emerging-pan-atlanticism).

[4] 'Pan-Atlanticism' is a mode of consciousness, a method for thinking and analysis, and a pragmatic platform for action. It views the entire Atlantic Basin (i.e., the entire Atlantic Ocean and all the societies in and around it) as the central unit of analysis: not only the Northern Atlantic or only the Southern Atlantic, and not the two considered separately. A 'pan-Atlantic' challenge or opportunity would affect most if not all the countries of the Atlantic Basin, and in a way that is unique to the Atlantic and not present in the same form in other ocean basins or other terrestrial areas beyond the Atlantic Basin. 'Pan-Atlantic' cooperation should involve actors from all quadrants of the Atlantic Basin, including the Caribbean and Atlantic Ocean islands.

[5] Another contribution of the first generation of pan-Atlanticism was to identify a lingering North-Side divide in the Atlantic Basin that did not follow the arbitrary line of the equator separating the North Atlantic Ocean from the South Atlantic Ocean; rather it was the Mediterranean Sea and the Caribbean Sea-Rio Grande that divided the political economies of the Northern and Southern Atlantics.

[6] See, for example, European Commission, 'Final Report Summary - ATLANTIC FUTURE (Towards an Atlantic area? Mapping trends, perspectives and interregional dynamics between Europe, Africa and the Americas)', Cordis, August 18,

2016 (https://cordis.europa.eu/project/id/320091/reporting); and the Policy Center for the New South (https://www.policycenter.ma/), the Atlantic Dialogues (https://ad.policycenter.ma/) and the Atlantic Dialogues Emerging Leaders (ADEL) Program (https://www.policycenter.ma/atlantic-dialogues-emerging-leaders-program).

[7] For example, the Atlantic Basin Initiative (ABI), of the former the Center for Transatlantic Relations (now the Transatlantic Leadership Network) at JHU-SAIS and the EU-funded Jean Monnet Network on Atlantic Studies, a consortium of 10 universities and research institutes from all across the Atlantic Basin. See See the Atlantic Basin Initiative (ABI) (https://www.transatlantic.org/projects/the-atlantic-basin-initiative/), the Jean Monnet Network on Atlantic Studies (http://jeanmonnetnetwork.com.br/) and the JM Atlantic Network 2.0 (https://www.jmatlanticnetwork2.com/).

[8] See the Eminent Persons Group of the Atlantic Basin Initiative, 'A New Atlantic Community: Generating Growth, Human Development and Security in the Atlantic Hemisphere – A Declaration and Call to Action', ABI White Paper (Washington, DC: Johns Hopkins University-SAIS, Center for Transatlantic Relations and Brookings Institution Press, 2014) (https://archive.transatlanticrelations.org/wp-content/uploads/2017/03/Doc-25-Atlantic-Basin-Initiative-White-Paper.pdf).

[9] See the Atlantic Energy Forum of the Atlantic Basin Initiative (https://archive.transatlanticrelations.org/topic/the-atlantic-basin/atlantic-basin-initiative/).

[10] See the 'Luanda Declaration' of the Eminent Persons Group (EPG) of the Atlantic Basin Initiative: Towards a Atlantic Charter for Sustainable Energy (https://archive.transatlanticrelations.org/wp-content/uploads/2017/03/Doc-17-Atlantic_Basin_Initiative_Luanda_energy_declaration_EPG-version-PI-edits.pdf).

[11] The AC was officially launched on 14 May 2021 with the signing of the Atlantic Centre Joint Declaration by 16 Atlantic nations in the Azores (during the Portuguese Presidency of the Council of the EU). Since then, seven more nations have joined this initiative, bringing the total to 23 Signatory States from all four continents in the Atlantic Basin: Angola, Brazil, Cape Verde, Cameroon, Colombia, Denmark, Guinea-Bissau, Equatorial Guinea, France, Germany, Gambia, Ghana, Morocco, Nigeria, Netherlands, Portugal, Senegal, São Tomé and Príncipe, Togo, Spain, United Kingdom and Uruguay. See the Atlantic Centre (https://www.defesa.gov.pt/pt/pdefesa/ac).

[12] Joint Statement on Atlantic Cooperation, September 20, 2022 (https://www.state.gov/joint-statement-on-atlantic-cooperation/).

[13] Declaration on Atlantic Cooperation, September 18, 2023 (https://www.whitehouse.gov/briefing-room/statements-releases/2023/09/18/declaration-onatlantic-cooperation/).

[14] Paul Isbell, "The Rising Strategic Significance of the Atlantic Basin: An Emerging Pan-Atlanticism", op. cit. p. 11.

[15] The Atlantic African States Process (AASP) is a sub-basin regional cooperation mechanism, initiated by the Kingdom of Morocco in 2022, dedicated to developing a partnership to strengthen ties of cooperation and integration between African countries bordering the Atlantic Ocean. The AASP action program sets out the strategy for these 21 countries of the African Atlantic coast to achieve their common objectives on three strategic priorities: (1) political and security dialogue; (2) blue economy, maritime connectivity and energy; and (3) protection and conservation of the marine environment. Because this agenda essentially covers the combined priorities expressed in the Declaration on Atlantic Cooperation, and that of the Atlantic Centre, the AASP has great potential to serve as a key component in developing pan-Atlantic cooperation by, for example, coordinating the Atlantic African region in strengthening its ties, both with the northern Atlantic countries and across the southern Atlantic with Latin America; and by establishing partnerships with other pan-Atlantic initiatives. On May 27, 2024, on Terceira Island, the AASP signed an MOU with the Atlantic Centre to engage in such cooperation. See: https://diplomatie.ma/en/signing-joint-declaration-partnership-between-rabat-process-african-atlantic-states-aasp-and-atlantic-center-portugal and Paul Isbell, "The Rising Strategic Significance of the Atlantic Basin: An Emerging Pan-Atlanticism", op. cit. (https://www.policycenter.ma/publications/emerging-pan-atlanticism).

[16] "At the petition of Brazil, Resolution 41/11 of the United Nations General Assembly in 1986 created the 'Zone of Peace and Cooperation in the South Atlantic'-----also known as ZOPACAS (its initials in Spanish and Portuguese), SAPCZ, or ZPCSA in English-----as a forum linking South America with Africa and bringing together 24 coastal states in the southern Atlantic…" "….This reactivation of ZOPACAS aims to focus not only on the regional grouping's traditional concerns with security and defense-related issues, but also on such challenges as "seabed exploration and mapping and oceanographic research, environmental cooperation, protection and conservation of the marine environment and living resources, as well as marine scientific research, among other topics". In a presentation made at the United Nations on July 29, 2021, the Argentine government underlined "…the geostrategic nature of the South Atlantic, the importance of its incalculable natural resources for sustainable development and the cooperation between Latin American Atlantic countries and African members of ZPCSA." Argentina also stressed the importance of the South Atlantic as a key pillar to understand climate change globally". Once again, the objectives of this new southern Atlanticism anticipate and overlap with many of those highlighted in both the US and Portuguese-led joint statements in 2022 on pan-Atlantic cooperation and the subsequent Declaration on, and Partnership for, Atlantic Cooperation." See Paul Isbell, "The Strategic Significance of Pan-Atlanticism for the Southern Atlantic", Policy Center for the New South, January 3, 2024, PB-01/24 (https://www.policycenter.ma/publications/strategic-significance-atlantic-basin-and-pan-atlanticism-southern-atlantic), pp. 12-18.

[17] See Paul Isbell and Eloy Alvarez Pelegry, eds., *The Future of Energy in the Atlantic Basin*, Center for Transatlantic Relations, Johns Hopkins University SAIS with Brookings Press, Washington, DC, and Orkestra-Basque Institute of Competitiveness (pdf), Deusto University, Bilbao: CTR JHU, 2015.

[18] Ibid. See, for example, "Why Atlantic Energy?", pp. xix-xxvi, in the Introduction.

[19] On the eve of the pandemic, the oil import dependency ratio was 70% in China, 75% in India, and 65% in Southeast Asia, but they were projected by the IEAD to rise to 80%, 90% and 81%, respectively, by 2040. See International Energy Agency,

"Oil imports and import dependency in selected Asian countries, 2010-2040", last updated 19 Sep 2019 (https://www.iea.org/data-and-statistics/charts/oil-imports-and-import-dependency-in-selected-asian-countries-2010-2040).
[20] Paul Isbell and Eloy Alvarez Pelegry, op. cit.
[21] Paul Isbell, "The Shifting Flows of Global Energy and Trade: Implications for Latin America," op. cit.
[22] Raúl O. Parisi, "SHALE RESOURCES IN ARGENTINA: THE VACA MUERTA SHALE FORMATION A technical, economic and political analysis", Center for Transatlantic Relations Working Paper Series, 2015 (https://archive.transatlanticrelations.org/wp-content/uploads/2017/03/Doc-46-Shale-in-Argentina-Parisi.pdf).
[23] Paul Isbell, *Energy and the Atlantic: The Shifting Energy Landscapes of the Atlantic Basin*, German Marshall Fund of the US, Washington, D.C.-Brussels, December 2012.
[24] Offshore figures come from IFP Energie Nouvelle, "Panorama 2012: a look at offshore hydrocarbons" 2012, cited in Paul Isbell, "The Shifting Flows of Global Energy and Trade: Implications for Latin America," op. cit., pp. 6-8.
[25] Paul Isbell, "The Shifting Flows of Global Energy and Trade: Implications for Latin America," op. cit.
[26] Paul Isbell and Eloy Alvarez Pelegry, op. cit. p. 7.
[27] 'Modern renewable energy' is defined here to include wind, solar and geothermal power (and, in certain specified instances, it also may include bioenergy). 'Low carbon energy' incorporates 'modern REs' but it also includes nuclear power and conventional 'renewable' energy, like hydroelectric power.
[28] Paul Isbell, "Modern Renewable Energy: Approaching the Tipping Point?" in *Clean Energy Law and Regulation: Climate Change, Energy Union and International Governance*, edited by Vicente Lopez-Ibor; Wildy, Simmonds and Hill Publishing, 2017, p. 217.
[29] Ibid., pp. 218-219.
[30] For a more detailed description of the methodologies behind these two different framings (or projections) of the Atlantic and for more analysis of the contrasting results and what they imply for our understanding of 'intra-Atlantic Basin' energy trade and interdependence, see Paul Isbell, "The Shifting Flows of Global Energy and Trade: Implications for Latin America," op. cit., especially pp. 205-208 and pp. 194-198, respectively.
[31] See the 'Luanda Declaration', op. cit.
[32] Tsvetana Paraskova, "OPEC and IEA Oil Demand Views Are A World Apart", oilprice.com, Sepember 26, 2024 (https://oilprice.com/Energy/Crude-Oil/OPEC-and-IEA-Oil-Demand-Views-Are-A-World-Apart.html)
[33] EIA, FAQs, March 28, 2024 (https://www.eia.gov/tools/faqs/faq.php?id=847&t=6).
[34] **"**How much shale gas is produced in the United States?"
EIA, FAQs, September 19, 2024 (https://www.eia.gov/tools/faqs/faq.php?id=907&t=8)
[35] Raul O. Parisi, "ARGENTINA WILL IMPROVE ATLANTIC CONNECTIVITY BY BECOMING AN OIL AND GAS LARGE EXPORTER: A new dynamic for Vaca Muerta -- a technical, economic and political analysis", Policy Paper, Atlantic Energy Forum, 2024.
[36] See 'Oil Crude Prices since 1861', 2024 Energy Institute Statistical Review of World Energy (formerly BP).
[37] See also, Rod Nickel and Sabrina Valle, "Insight: This decade's oil boom is moving offshore - way offshore", Reuters, August 31, 2022 (https://www.reuters.com/business/energy/this-decades-oil-boom-is-moving-offshore-way-offshore-2022-08-31/), and IEA, "Offshore Energy Outlook 2018" " (https://www.iea.org/reports/offshore-energy-outlook-2018); also: "Offshore production sites are more expensive to build than onshore shale, the last decade's investment darling. But once they are up and running, they can turn profits at lower prices than other forms of production, according to consultancy Rystad Energy." Kongsberg.com, (https://www.kongsbergdigital.com/industry/offshore?utm_source=bing&utm_medium=cpc&utm_campaign=maritime_emea_industry&utm_term=offshore&hsa_acc=7733803125&hsa_cam=20876384566&hsa_grp=1361197944778156&hsa_ad=&hsa_src=o&hsa_tgt=kwd-85076047659696:loc-170&hsa_kw=oil%20drilling&hsa_mt=b&hsa_net=adwords&hsa_ver=3&msclkid=9cbaef65ed931bbd2f598992019104bf&utm_source=bing&utm_medium=cpc&utm_campaign=BV%20%7C%20Maritime%20%7C%20EMEA%20%7C%20Industry&utm_term=oil%20drilling&utm_content=Offshore)
[38] Rodolfo Saboia, "BRAZIL – WORLD BIGGEST OFFSHORE MARKET: Measures to keep production growing in medium and long term", ANP, August 2022, p. 10 (https://www.gov.br/anp/pt-br/centrais-de-conteudo/apresentacoes-palestras/2022/arquivos/brazil-world-biggest-offshore-market.pdf).
[39] Offshore Technology, "Top ten crude oil upcoming fields in Africa", August 28, 2024 (https://www.offshore-technology.com/data-insights/top-ten-crude-oil-upcoming-fields-in-africa/?cf-view)
[40] "Africa Oil completes farm down agreement in Orange basin block 3B/4B", Offshore, Aug. 29, 2024 (https://www.offshore-mag.com/regional-reports/africa/article/55136520/africa-oil-corp-africa-oil-announces-completion-of-farm-down-agreement-in-orange-basin-block-3b-4b).
[41] Kongsberg.com, op. cit.
[42] IEA, "Offshore Energy Outlook 2018", op. cit.
[43] 2024 Energy Institute Statistical Review of World Energy (formerly BP).