

# The Reality of Climate Financial Risk



Those who argue that climate change has little to do with macroprudential risk management are offering a counsel of despair. If the 2008 global financial crisis revealed anything, it is that regulation matters, even if it isn't always politically popular or easily optimized.

LAUSANNE, SWITZERLAND – In a recent commentary, John H. Cochrane, a senior fellow at the Hoover Institution, argues that “climate financial risk” is a fallacy. His eye-catching premise is that climate change doesn't pose a threat to the global financial system, because it – and the phase-out of fossil fuels that is needed to address it – are developments that everyone already knows are underway. He sees climate-related financial regulation as a Trojan horse for an otherwise unpopular political agenda.

We disagree. For starters, one should acknowledge the context in which regulation emerges. With respect to climate policy, the Intergovernmental Panel on Climate Change has set the stage with its sixth assessment report, which concludes with a high degree of certainty that the Earth's climate is changing,

and that human activities are the cause. Ecologist William Ripple, the co-author of another recent study of planetary “vital signs,” goes further: “There is growing evidence we are getting close to or have already gone beyond tipping points associated with important parts of the Earth system.”

Unlike the 2008 global financial crisis – when banks that took excessive risks were bailed out, and global financial regulation was overhauled in light of our new understanding about interdependent financial markets – unmitigated climate change will lead to a crisis with irreversible outcomes.

The question, as Cochrane puts it, is whether climate-related financial regulation can do anything to help us avoid such outcomes. Although the answer is complex and currently incomplete, we would argue that it can. Financial regulation to mitigate climate risk is indeed worth pursuing, because the stakes are too high to let the perfect become the enemy of the good.

Consider some of the arguments about systemic financial risk and extreme climate events. First, we are told that the risk of “stranded assets” – particularly fossil-fuel assets – will become a fact of life, to be borne only by investors. Here, Cochrane points out, correctly, that fossil-fuel investments have always been risky. But can we reasonably say that the prevalence of this energy source should be left to market players alone, or that only investors will bear the costs?

Though per capita fossil-fuel consumption in countries such as the United States and the United Kingdom has declined since 1990, total consumption has grown dramatically elsewhere, rising by 50% globally over the last 40 years. In 2020, China and India were the planet’s two largest coal-energy producers, relying on coal for 61% and 71% of their electricity, respectively. Their economies, and those of many other developing countries, simply would not sustain a precipitous reduction in fossil-fuel energy.

Cochrane also suggests that there is no scientifically validated possibility that extreme climate events will cause systemic financial crises over the next decade, and that regulators are therefore stymied from assessing the risks on financial institutions' balance sheets over a five- or ten-year horizon. But the sheer scale of the challenge should make us reconsider the temporal dimensions of regulation.

If temperature increases are to be kept within 2° Celsius of pre-industrial levels this century, about 80% of all coal, one-third of all oil, and half of all gas reserves must be left unburned. All of the Arctic's oil and the remainder of Canada's oil sands – the world's largest deposit of crude oil – must be left in the ground, starting almost immediately.

Finally, it is said that the technocratic regulation of climate investments cannot protect us against un-modeled tipping points. But this view simply ignores the extensive literature in climate economics. In this field, the work of Nobel laureate economist William Nordhaus is widely referenced. His Dynamic Integrated Climate-Economy (DICE) model has influenced many scientists' and economists' own modeling of tipping points, and the US government already relies on these "integrated assessment models" to formulate policy and calculate the "social cost of carbon."

This interdependency between economics, policy, politics, public opinion, and regulation should be familiar from the crash of 2008. The dangerous over-leveraging that generated that crisis was an open secret; but those in a position, politically and culturally, to do something about it were willing to deny the systemic risk it posed. One can find the same denialism in the climate debate. According to the Center for American Progress, 139 members of the current US Congress (109 representatives and 30 senators; a majority of the Republican caucus) "have made recent statements casting doubt on the clear, established scientific consensus that the world is warming – and that human activity is to blame."

Cochrane makes an eloquent case for why policymakers should focus on creating coherent, scientifically valid policy responses to climate change and financial systemic risk separately, rather than pursuing climate financial regulation. But this isn't an either/or choice. We need both kinds of policies, and we need coordination between the two domains.

We therefore should welcome the approach being taken by US Secretary of the Treasury Janet Yellen's Financial Stability Oversight Council, which has brought together leading regulators and tasked them with preventing a repeat of the 2008 Wall Street meltdown. Yellen has said she will use this multi-regulator body as her principal tool to assess climate risks and develop the disclosure policies needed to shift to a low-carbon economy.

Counterintuitive though it may be, climate-related financial regulation could usher in a new form of political accountability, by putting governments and individuals (elected and unelected) on the hook for their decisions. Such accountability was notably absent before and during the 2008 crisis. With political will, serious thinking about regulating climate financial risk could open up a fruitful debate for similar action on all neglected policy fronts.

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**Surging wind industry faces  
its own green dilemma:  
landfills**



### **Siemens launches first recyclable wind turbine blade**

- **Anti-wind groups use dumping of blades as rallying issue**
- **Industry calls for EU landfill ban**

Wind turbines have become a vital source of global green energy but their makers increasingly face an environmental conundrum of their own: how to recycle them.

The European Union's share of electricity from wind power has grown from less than 1% in 2000, when the continent began to curb planet-heating fossil fuels, to more than 16% today.

As the first wave of windmills reach the end of their lives, tens of thousands of blades are being stacked and buried in landfill sites where they will take centuries to decompose.

Spanish turbine maker Siemens Gamesa this week launched what it called a "game changer" – the first recyclable blades, which use a technology that allows their carbon and glass fibres to be reused in products like screen monitors or car parts.

"We have reached a major milestone in a society that puts care for the environment at its heart," said Andreas Nauen, chief executive of Siemens Gamesa, which expects the blades to become the industry standard.

Europe is the world's second largest producer of wind-

generated electricity, making up about 30% of the global capacity, compared to China's 39%, according to the Global Wind Energy Council, an industry trade association.

Wind Europe, a Brussels-based trade association which promotes the use of wind power in Europe, expects 52,000 blades a year to need disposal by 2030, up from about 1,000 today.

"The public want to be reassured that wind energy is fully sustainable and fully circular," said WindEurope's chief executive, Giles Dickson, describing Siemens Gamesa's new recyclable blade as a "significant breakthrough".

While wind turbine blades are not especially toxic, the resulting landfill, if improperly handled, may contribute to dangerous environmental impacts, including the pollution of land and waterways.

All forms of energy have some environmental cost but renewables, almost by definition, cause less damage to the planet, said Martin Gerhardt, Siemens Gamesa's offshore wind chief.

"If you look at oil wells and the spills or if you consider methane leaks, compared to the fossil industries, wind is the lesser problem," he said.

Wind power is one of the cleanest forms of energy, with a carbon footprint 99% lower than coal and 75% less than solar, according to a study by Bernstein Research, a US-based research and brokerage firm.

Its emissions come mainly from the production of iron and steel used in turbines and concrete for windmill foundations.

If these were mitigated by techniques such as carbon capture and storage – where carbon dioxide is buried underground – "you'd be able to cut out the carbon footprint completely," said Deepa Venkateswaran, the study's author.

The growing mountains of waste created by old blades has become a rallying point for groups opposed to wind turbines, which they also say are noisy and spoil the countryside.

But landfill is likely to remain the preferred disposal option because it is the cheapest, said Eric Waeyenbergh, advocacy manager at Geocycle, a sustainable waste management firm.

“If you just throw it in the landfill, this is the cheapest price you can have when you’re dismantling the windmill. And that’s a problem because there’s no mandatory recycling or recovery obligation,” he said.

Geocycle and WindEurope are lobbying for landfills to be banned across Europe where only four countries – Austria, Germany, the Netherlands and Finland – have outlawed the landfilling of composite materials, such as wind turbine blades.

Geocycle co-runs a cement kiln in Germany, with building industry giant Lafarge, which is partly fuelled by burning thousands of tonnes of old wind turbines, which create less carbon dioxide than fossil fuels.

Recyclable blades can also be ground up for use in products such as rearview car mirrors and insulation panels, or heat-treated to create materials for roof light panels and gutters. However, industry groups say these techniques are not currently available at commercial scale or at a price that would make them viable alternatives to landfill.

David Romero Vindel, co-founder of Reciclalia, which cuts and shreds turbine blades for recycling as carbon fibre yarn and fabric, said a landfill ban would help his firm.

“We need the EU to push the sector in this direction of recycling,” he said.

Vivian Loonela, a spokeswoman for the European Commission said it will review its landfill policies in 2024.

“The recycling of (windmill) composite fraction remains a challenge due to the low value of the recycled product and the relatively small amount of waste (produced), which does not stimulate the recycling markets,” she said.

– Thomson Reuters Foundation

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# SEMINAL BOOK ON SETTTLING MEDITERRANEAN BORDER DISPUTES NOW AVAILABLE IN TURKISH



**ΡΟΥΝΤΙ ΜΠΑΡΟΥΝΤΙ - Αναλυτής**  
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## **Study stresses diplomacy, international law as pathways to energy boom and regional stability**

**Washington D.C. – 27th July 2021**

WASHINGTON, D.C.: A highly influential book about maritime boundary disputes in the Eastern Mediterranean has been translated into Turkish, its publisher announced on Monday, spreading its message of peaceful dialogue to a key audience in a region poised for offshore energy riches.

The Transatlantic Leadership Network said it hoped the Turkish translation of author Roudi Baroudi's "Maritime Disputes in the Eastern Mediterranean: The Way Forward" would be just as well-received as its Arabic, French, Greek, and original English versions. The book, distributed by the Brookings Institution Press, co-edited by Debra Cagan and Sasha Toperich has been hailed by a wide variety of academics, diplomats, and other experts.

Baroudi's study emphasizes the paucity of settled maritime boundaries in the region, how crucial these are to the safe and effective exploitation of offshore energy resources, and the proven avenues available for dispute resolution. He explains the purpose and ever-increasing applicability of the United Nations Convention on the Law of the Sea (UNCLOS), the use of legal and diplomatic creativity to circumnavigate mistrust, and the power of shared interest to foment some form of cooperation, even if indirect.

Given recent history, the subject matter could be neither more relevant, nor more timely. Enormous quantities of natural gas have been discovered off the coasts of several East Med countries in the past few years, but thus far the only ones to make real development progress have been Egypt, Israel, and, to a lesser extent, Cyprus. Baroudi's book stresses that the only thing these countries have in common is that their shared maritime boundaries are not in dispute, which has enabled them

to attract the necessary investment to the areas in question.

The problems involved – and the solutions on offer – relate to several points of friction across the region, including (to note but a few) a years-long US mediation effort to resolve the maritime boundary between Israel and Lebanon; decades-old tensions between Greece and Turkey, especially over Castellorizo, a Greek-ruled island just 2 kilometers off Turkey's Mediterranean coast; and multiple side-effects of the division – and partial occupation by Turkish troops – of Cyprus.

“Maritime Disputes in the Eastern Mediterranean: The Way Forward” examines these and other complexities of the regional situation, and the several analyses reach a single conclusion: for each of the region's countries, the only viable option is to trust in the rules and processes of UNCLOS, engage in bi- and/or multilateral dialogues with its neighbors, and start reaping the rewards of this emerging energy hub.

Baroudi's background consists of more than four decades in the energy sector, during which time he has helped design policy for companies, governments, and multilateral institutions, including the European Commission, the World Bank, U.S. Exim Bank and the International Monetary Fund. His areas of expertise range from oil and gas, petrochemicals, power, energy security, and energy-sector reform to environmental impacts and protections, carbon trading, privatization, and infrastructure. This book was his latest as being author and co-author of several studies and his next – a study of the region's Blue Economy prospects in the post-carbon era – is expected to come out in the first half of 2022. He currently serves as CEO of Energy and Environment Holding, an independent consultancy based in Doha, Qatar.

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# Rolls-Royce, Shell Deepen Sustainable Jet-Fuel Partnership



Rolls-Royce Holdings Plc and Royal Dutch Shell Plc said they'll deepen their cooperation on sustainable aviation fuels as part of the push to achieve net-zero carbon emissions.

At the heart of the agreement are plans to explore opportunities for bringing 100% SAF to certification, the companies said Wednesday. Such fuels can currently be blended with kerosene in concentrations of no more than 50%.

Airlines are counting on SAF to reduce carbon emissions in the years before electric- and hydrogen-based propulsion systems become widely available, most likely after 2035. Progress has been hampered by regulatory hurdles and a lack of supply both of biofuels and their synthetic equivalents, which has pushed prices significantly beyond those for traditional jet fuel.

The collaboration will also aim to develop new innovations, with SAF expected to have a role powering hybrid-electric versions of flying taxis currently in the final stages of development as well as jetliners and corporate aircraft, Rolls-Royce Chief Technology Officer Paul Stein said.

“The investments that are going to be required to scale up sustainable aviation fuels are measured in billions,” Stein said in an interview following the announcement. For energy companies, “before they invest their dollars in SAF-plants they need comfort that the market will be there and customers will buy the fuel.”

The agreement deepens an existing partnership between the companies in alternative fuels. Shell will supply sustainable aviation fuels to Rolls-Royce as the company aims to test engines like Ultrafan to demonstrate they are 100% SAF compatible. Shell is also the exclusive supplier for Rolls-Royce’s new SAFinity service allowing business travelers to take carbon-neutral flights, while the firms will also look at opportunities to co-operate in shipping and rail.

The key to moving forward with sustainable fuels is getting regulation in place to mandate their use, said Stein. The U.S. favors subsidizing the fuel at source, which is “not incompatible” with the European approach, he added.

In April, Shell announced an investment in sustainable-fuels technology company LanzaJet, adding to a string of deals meant to position the oil giant for the energy transition. Rolls-Royce in turn plans to make all of its in-production civil aircraft engines compatible with burning 100% SAF by 2023.

How biofuels cut emissions:

The carbon dioxide absorbed by plants during the growth of biomass is roughly equal to the amount produced when the fuel is burned, making SAF approximately carbon-neutral over its life cycle. However, CO<sub>2</sub> released during the production and transport of SAF means the reduction in emissions is about 80% compared with fossil fuels. Feedstocks for biofuel also include spent cooking oil, waste gases and agricultural residues.

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**Economics needs a climate revolution**



By Tom Brookes And Gernot Wagner/ Brussels/New York

- **There is no excuse for continuing to adhere to an intellectual paradigm that has served us so badly for so long**

Nowhere are the limitations of neoclassical economic thinking – the DNA of economics as it is currently taught and practised – more apparent than in the face of the climate crisis. While there are fresh ideas and models emerging, the old orthodoxy remains deeply entrenched. Change cannot come fast enough.

The economics discipline has failed to understand the climate crisis – let alone provide effective policy solutions for it – because most economists tend to divide problems into small, manageable pieces. Rational people, they are wont to say, think at the margin. What matters is not the average or totality of one's actions but rather the very next step, weighed against the immediate alternatives.

Such thinking is indeed rational for small discrete problems. Compartmentalisation is necessary for managing competing demands on one's time and attention. But marginal thinking is inadequate for an all-consuming problem touching every aspect of society.

Economists also tend to equate rationality with precision. The discipline's power over public discourse and policymaking lies

in its implicit claim that those who cannot compute precise benefits and costs are somehow irrational. This allows economists – and their models – to ignore pervasive climate risks and uncertainties, including the possibility of climatic tipping points and societal responses to them. And when one considers economists' fixation with equilibrium models, the mismatch between the climate challenge and the discipline's current tools becomes too glaring to ignore.

Yes, a return to equilibrium – getting “back to normal” – is an all-too-human preference. But it is precisely the opposite of what is needed – rapidly phasing out fossil fuels – to stabilise the world's climate.

These limitations are reflected in benefit-cost analyses of cutting emissions of carbon dioxide and other greenhouse gases. The traditional thinking suggests a go-slow path for cutting CO<sub>2</sub>. The logic seems compelling: the cost of damage caused by climate change, after all, is incurred in the future, while the costs of climate action occur today. The Nobel prize-winning verdict is that we should delay necessary investment in a low-carbon economy to avoid hurting the current high-carbon economy.

To be clear, a lot of new thinking has gone into showing that even this conventional logic would call for significantly more climate action now, because the costs are often overestimated while the potential (even if uncertain) benefits are underestimated. The young researchers advancing this work must walk a near-impossible tightrope, because they cannot publish what they believe to be their best work (based on the most defensible assumptions) without invoking the outmoded neoclassical model to demonstrate the validity of new ideas.

The very structure of academic economics all but guarantees that marginal thinking continues to dominate. The most effective way to introduce new ideas into the peer-reviewed academic literature is to follow something akin to an 80/20-rule: stick to the established script for the most part; but try to push the envelope by probing one dubious assumption at a time. Needless to say, this makes it extremely difficult to

change the overall frame of reference, even when those who helped establish the standard view are looking well beyond it themselves.

Consider the case of Kenneth J Arrow, who shared a Nobel Prize in Economic Sciences in 1972 for showing how marginal actions taken by self-interested individuals can improve societal welfare. That pioneering work cemented economists' equilibrium thinking. But Arrow lived for another 45 years, and he spent that time moving past his earlier work. In the 1980s, for example, he was instrumental in founding the Santa Fe Institute, which is dedicated to what has since become known as complexity science – an attempt to move beyond the equilibrium mindset he had helped establish.

Because equilibrium thinking underpins the traditional climate-economic models that were developed in the 1990s, these models assume that there are tradeoffs between climate action and economic growth. They imagine a world where the economy simply glides along a Panglossian path of progress. Climate policy might still be worthwhile, but only if we are willing to accept costs that will throw the economy off its chosen path.

Against the backdrop of this traditional view, recent pronouncements by the International Monetary Fund and the International Energy Agency are nothing short of revolutionary. Both institutions have now concluded that ambitious climate action leads to higher growth and more jobs even in the near term.

The logic is straightforward: climate policies create many more jobs in clean-energy sectors than are lost in fossil-fuel sectors, reminding us that investment is the flipside of cost. That is why the proposal for a \$2 trillion infrastructure package in the United States could be expected to spur higher net economic activity and employment. Perhaps more surprising is the finding that carbon pricing alone appears to reduce emissions without hurting jobs or overall economic growth. The problem with carbon taxes or emissions trading is that real-world policies are not reducing emissions fast enough and



therefore will need to be buttressed by regulation.

There is no excuse for continuing to adhere to an intellectual paradigm that has served us so badly for so long. The standard models have been used to reject policies that would have helped turn the tide many years ago, back when the climate crisis still could have been addressed with marginal changes to the existing economic system. Now, we no longer have the luxury of being able to settle for incremental change.

The good news is that rapid change is happening on the political front, owing not least to the shrinking cost of climate action. The bad news is that the framework of neoclassical economics is still blocking progress. The discipline is long overdue for its own tipping point towards new modes of thinking commensurate with the climate challenge.

– Project Syndicate

- *Tom Brookes is Executive Director of Strategic Communications at the European Climate Foundation. Gernot Wagner is Clinical Associate Professor of Environmental Studies at New York University.*

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## **Why hybrid cars are popular in an increasingly electric world**



By Kyle Stock Bloomberg

Confession: I'm an auto writer and I drive one of the world's most boring vehicles.

It's a minivan and a hybrid, though not a particularly robust one.

The 2018 Chrysler Pacifica manages just 30 miles on a charge.

Did I mention it's white?

While my Tesla-driving neighbour may snicker, my dad-math is simple and sanguine: my crew seldom rolls more than 20 miles in a day.

Even with a standard outlet, we can fully recharge the Pacifica's meagre battery overnight and start again the next day, cruising on the electric motor on the eight-mile soccer commute or the 12-mile Home Depot lap.

On the rare road trip, we burn some fossils.

All told, we buy gas about four times a year.

Electric vehicles are killing the gas-powered car – even faster than expected – but they are also running roughshod over hybrid vehicles like mine, their cranky older siblings.

In America, sales of fully electric vehicles eclipsed those of plug-in hybrids four years ago and have steadily pulled away since.

Americans bought four EVs for every hybrid in the first quarter of this year.

In Asia, hybrids lost the lead to EVs almost six years ago and the gap is far wider.

I get it, no one wants to do dad-math while they're standing on the sales lot.

With a purchase that big, the heart wants what the heart wants – namely something new and exciting.

A hybrid, increasingly, is a flip phone in an iPhone world.

Here's the thing, though: hybrids are bonkers good these days.

The nice thing about writing about the auto industry is that I get to drive a lot of different vehicles – “press cars” in the industry lexicon.

The first-hand experience is helpful when interviewing auto executives, and one of the best ways to stay familiar with what they're making.

Lately, my driveway has been a parade of excellent hybrids.

Right now, it's a Toyota Highlander that is steadily posting 35 miles to a gallon.

Before that, there was the Hyundai Sonata, Kia Sorento and a sublime BMW 530e.

Some, like my Pacifica, can be plugged in and charged, but many generate their electricity exclusively by dragging off the car's momentum when it slows.

In the industry argot, the former are plug-in hybrid electric vehicles, or PHEVs, and the latter are hybrid electric vehicles, or HEVs. Their much cooler, electric-only cousins are known as battery electric vehicles, or BEVs.

Nothing with an “H” in the acronym carries any gravity in the Tesla-sphere, but they all quietly nudged the needle on carbon emissions.

And they're all a little more fun to zip around in than their combustion cousins.

The standout of late was the Toyota RAV4 Prime, which goes for 42 miles before the spark plugs flare up and the tiny explosions start.

That's top of the hybrid class these days, and more than

enough for the average US commute.

And on a road-trip, it entirely cancels out the biggest EV bugaboo: range anxiety.

The combustion engine on a car like the RAV4 Prime is like a standby package of hot dogs at a barbecue or a well-rested starting pitcher sitting in the bullpen.

Don't think of it as a gas vehicle with a trickle of electrons, but as an EV with a robust Plan B.

True, it lacks the tech smugness of a silent, sentient Tesla, but the tradeoff is pretty good.

And I'm not the only one who thinks so – the rigs are selling like ice cream at the beach, according to Samantha Groot, Toyota general manager of vehicle marketing.

In the first quarter of this year, nearly one in four vehicles Toyota sold in the US was some form of hybrid, up from 12% a year earlier.

Honda is part of the acceleration, as well.

The share of customers buying its hybrid CR-V SUV surged 10-fold this spring.

Zombies With Batteries In Europe, the Middle East and Africa, more stringent emissions thresholds in the first quarter boosted plug-in hybrid sales ahead of purely electric vehicles for the first time in nearly three years, according to BloombergNEF.

In America, EVs stayed far ahead in that period, but there's some evidence the chimera vehicles gained back some ground in the second quarter.

Combination gas and electric vehicles accounted for 6% of US vehicle registrations in April, more than double the share of fully electric rigs, according to IHS Markit.

This isn't coming from Gen Z early adopters.

The new wave of hybrid buyers tend to be older, and many of them live in the South and Midwest, according to IHS.

In short: it's regular old car people making slightly more pragmatic (and greener) decisions.

Tesla surely doesn't care, but rest assured this stat isn't lost on other auto executives.

In the race to EV supremacy, the slow lane will be stacked with better and better hybrids.

So don't pour one out for the Prius just yet.

It's still doing just fine, and is increasingly in good company.

Just this week, Ferrari unveiled its second plug-in hybrid.

It's a lot like my minivan, save for the 205 miles-per-hour bit.

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## GREECE-TURKEY: ENERGY AS A MECHANISM FOR COOPERATION



“Climate crisis gives Greece and Turkey opportunity for ‘historic compromises’”

By: Roudi Baroudi – Washington D.C. 23 June 2021

Greece and Turkey have one of the world's most complicated relationships. We all know the history, although many of the details are contested by dueling narratives. However we got here, some indisputable facts are clear. Two former long-time

enemies were thrown together as allies by the Cold War, when both of them joined NATO, but have generally remained at odds over a long list of issues.

The essential lesson from this simple synopsis is that Greece and Turkey joined the Atlantic alliance for the same core reason: each viewed their feud as a lesser threat than the one posed by the Soviet Union, which was potentially existential. At the end of the day, and despite both age-old resentments and ongoing tensions, successive governments – including military juntas – of both countries abided by the same rational analysis for decades.

Both are still NATO members, but the Soviet threat is no more, replaced only partially by a far weaker Russia. To some extent, this has led to a resumption of Greco-Turkish friction, especially over their maritime boundaries in the Mediterranean. And this time, there is much more than either pride or territory at stake. Since huge amounts of offshore natural gas have been discovered in several parts of the Eastern Med, the border dispute may well involve resources that could confer historic advantages on whoever controls them.

Once again, these sound like rational calculations. But are they really? I will allow that large reserves of natural gas have the potential to help any country secure a better future for its people. The savings and revenues would allow unprecedented investments in education, healthcare, transport, and other infrastructure, creating more and better jobs and lifting countless people out of poverty. Even the transit fees from hosting an international pipeline can provide significant income, and the more territory a pipeline crosses, the higher the fees.

But ladies and gentlemen, I would submit that, as was the case during the Cold War, both Greece and Turkey would do well to take fuller account of larger – in fact, much, much larger –

considerations. And all of them have to do with climate change. This challenge constitutes a mortal threat, not only to Greeks and Turks, but also to human civilization itself. And unlike the Soviet Union, this is not a politico-military power that can be deterred, mollified, or reasoned with. Nor can we wait it out and hope that, like the USSR, climate change will be torn apart by its own flaws.

No, we will only save our planet by working together to undo the damage we have done by pumping endless streams of carbon into the atmosphere. We can only do that by drastically reducing emissions, and that can only be accomplished by transitioning to renewables and cleaner, greener fuels. And like it or not, as major Mediterranean powers, Greece and Turkey have enormous roles to play in this process – and therefore enormous responsibilities. As in NATO, both will be expected to pull their respective weights.

As a result of all this, Greece and Turkey once again face a common and potentially existential threat. Energy is a crucial consideration in combating this threat, but the acreage that matters most in the long term is no longer on the seafloor. Instead, it is on the surface, where offshore wind and solar parks figure to provide much of the electricity required to reduce, and eventually end, reliance on hydrocarbons.

The sea will abet decarbonization efforts in other ways, too, by hosting multiple clean energy activities and technologies that help reach the Paris Agreement goal of “Net Zero” carbon emissions by 2050. The options include wave, rain, and tidal power; undersea geothermal; and, yes, natural gas, which is cleaner than other fossil fuels and can be expected to persist for a considerable time as a transition fuel. In addition, no coastal country can ignore the potential of “Blue Carbon”: if we restore and maintain the health of coastal and marine ecosystems, they will naturally remove more and more carbon from the atmosphere.

But here is the thing. Implementation of offshore energy

projects will be slowed, or even indefinitely postponed, if Greece and Turkey continue on their current course. Even if they agree to reduce tensions but fail to settle or suspend their differences, the uncertainty will steer many investors to less troubled waters. By contrast, if they find a way to truly put the past behind them, both countries' decarbonization efforts will be vastly more attractive. As a result of an earlier and stronger start, they will also be more effective – exponentially so if they take the next step and actively cooperate, especially on maritime issues.

The sea is a wondrous place filled with many things we need, many we simply love, and others that we have yet to discover. It is also, however, a veritable and pitiless force of nature: what it cannot violently destroy in an instant, it will inevitably erode, undermine, and dissolve over time. We now have technologies to make far more – and far more responsible – use of the sea than ever before, but its very nature makes most undertakings more difficult and potentially dangerous than on land. And as any sailor knows, the best tools we have to predict, avoid, and/or overcome whatever the sea throws at us are information and cooperation.

As neighbors in this shared space and de facto partners in the campaign to reduce emissions, Greece and Turkey could maximize the return on their efforts, both individual and combined, by working together. Given the importance of information and the rate at which our ability to gather it is growing due to technology, the natural place to start would be comprehensive data-sharing. For almost anything built, installed, and/or operated at sea, advance knowledge of weather conditions, tides, currents, water temperatures, salinity levels, etc., can be crucial for planning, performance, and the protection of both human beings and the environment. Wind and solar parks are no exceptions, and neither are numerous other activities in the Blue Economy, including maritime transport, aquaculture, conventional fisheries, tourism, seabed mining,



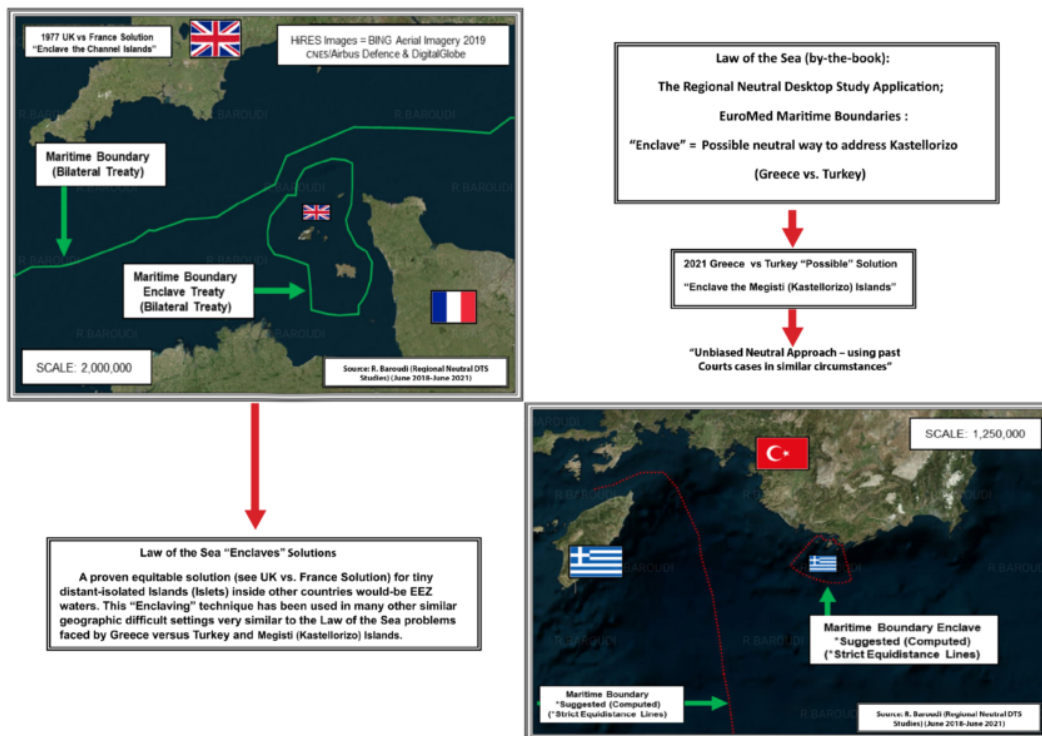
and bio-prospecting.

In addition to activating commercial, efficiency, safety, and environmental gains, cooperation in these fields would also help build trust, but operational coordination and regulatory harmonization would go even further. In the best-case scenario, Greece and Turkey would both reap significant benefits by expanding into joint compliance and enforcement work, streamlining cross-border trade and investment, easing the migrant crisis, and addressing numerous other issues of mutual concern.

To get there, both Athens and Ankara need to take strategic decisions which, one way or another, insulate their present and future relationship against all extraneous considerations. And more than one clock is ticking. In addition to the 2050 target date for Net Zero carbon, an even more pressing deadline attaches to the region's natural gas prospects. In a report for consideration during the UN Climate Conference, COP 26, at Glasgow in November, scientists have recommended that if we are to meet the 2050 goal, development of new oil and gas fields should not be permitted beyond the end of this year. It is too early to know whether that deadline will be adopted, but the writing is on the wall: apart from those that have already started – Egypt, Israel, and to some extent Cyprus – if East Med countries want to profit from their offshore hydrocarbons, they need to make meaningful progress very soon.

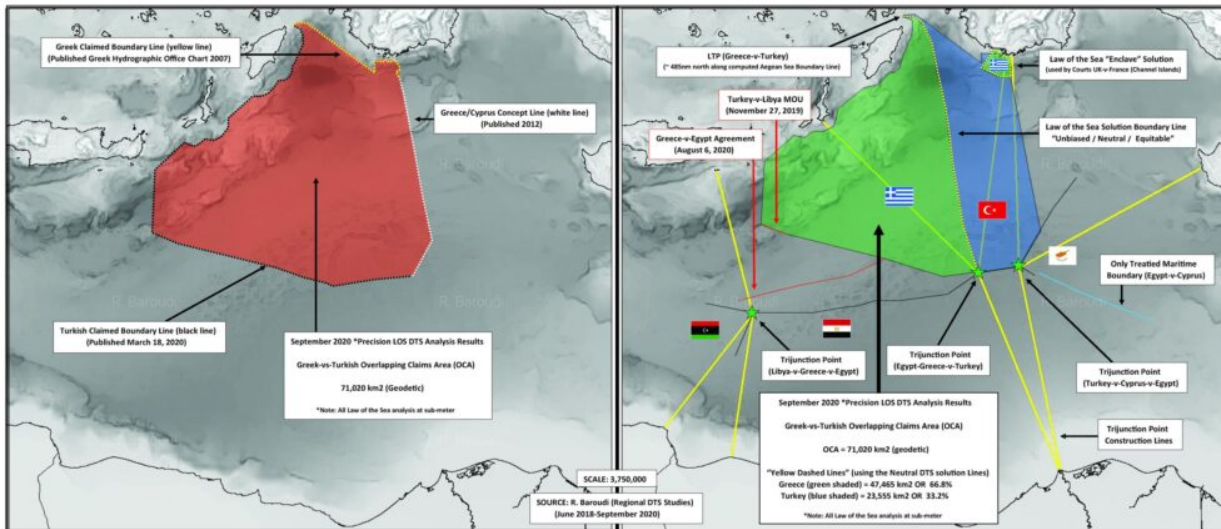
For several countries in the region, the primary obstacle is that most of its maritime boundaries remain in dispute or otherwise unresolved, so their claimed Exclusive Economic Zones overlap. With Greece and Turkey, the overlap is considerable.

## Example of Law of the Sea “Enclaves” Techniques



But even this obstacle can be surmounted if there are sufficient amounts of both goodwill and self-interest. Both Greece and Turkey need to make the most of the Blue Economy, but neither will realize its full potential unless and until it helps the other do the same. The UN Convention on the Law of the Sea, or UNCLOS, lays down a comprehensive assortment of legal and scientific standards for the fair and equitable drawing of borders at sea, and these apply to both member and non-member states. Whatever mechanism the parties use to settle their boundary dispute, whether it's direct negotiations, an international court, or some form of arbitrations, the same rules apply.

### Greece vs. Turkey Overlapping Claims Analysis (Sketch for Illustration purposes only) - 2021



Ideally, Greece and Turkey would mount an all-out effort to recognize the relevant limits of their respective EEZs. It may be too late to succeed before a moratorium on new gas development is declared, but even if that is the case, they will still need in certain areas EEZ clarity to maximize both their offshore renewables and the non-energy components of their Blue Economy industries. In addition, they also have the option of circumventing the EEZ issue, allowing them to develop subsea gasfields and share the proceeds, while temporarily putting their territorial dispute in abeyance. Even if that fails too, the mere attempt might improve relations, establishing a basis for the cooperation described above.

Previous attempts at reconciliation have always fallen short or been derailed, but there is reason to hope that the time is right for a new effort, and that some of the key players are in the right frame of mind. Last week's NATO summit, for instance, saw US President Joe Biden hit very different notes than his predecessor, Donald Trump, by stressing the alliance's potential to influence a wide variety of geopolitical issues. His meetings on the sidelines of the summit included one with his Turkish counterpart, Recep Tayyip Erdogan, who later described their conversation as having opened a "new era" of constructive ties. If that turns out to

be true and Ankara really wants to repair its relations with Washington, it could have positive ramifications, not only for Greco-Turkish reconciliation, but also for a peaceful resolution of the Cyprus issue.

In the final analysis, both Greece and Turkey have everything to gain, and nothing or relatively little to lose, by cooperating at every opportunity, but especially on various forms of energy. As with their respective decisions to join NATO, this will require clear-headed analysis and pragmatic policymaking, but also the sangfroid to reach, promote, defend, and implement some historic compromises.

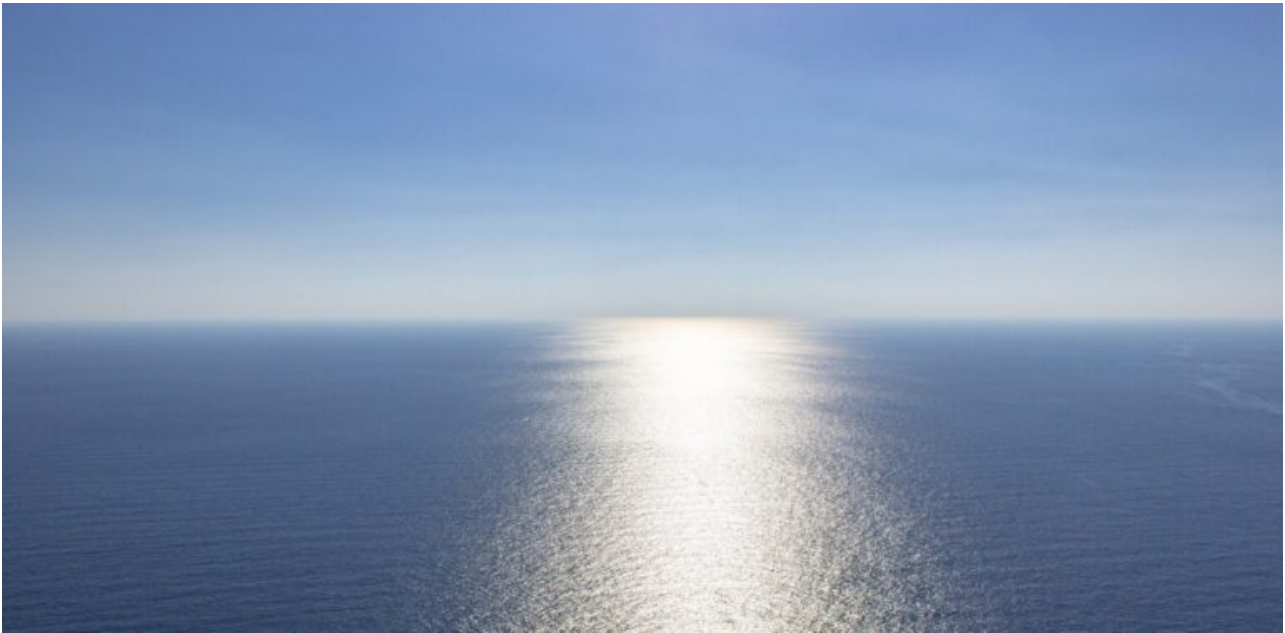
Roudi Baroudi has more than 40 years of experience in the energy business and has helped design policy for major international oil companies, sovereign governments, and multilateral institutions. He currently serves as CEO of Energy and Environment Holding an independent consultancy based in Doha, Qatar.



Roudi Baroudi has more than 40 years of experience in the energy business and has helped design policy for major international oil companies, sovereign governments, and multilateral institutions. The author or co-author of several books, his latest was “Maritime Disputes in the Mediterranean: The Way Forward” (2020), and his next – a study of the region’s Blue Economy prospects in the post-carbon era – is expected to come out in the first half of 2022. He currently serves as CEO of Energy and Environment Holding, an independent consultancy based in Doha, Qatar.

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# Roudi Baroudi: Μπλε οικονομία στη Μεσόγειο



Οι χώρες της Μεσογείου πρέπει να είναι από τους μεγαλύτερους νικητές στη μετάβαση από τα ορυκτά καύσιμα στις ανανεώσιμες πηγές ενέργειας, δήλωσε ειδικός σε θέματα ενέργειας την Τετάρτη σε ένα βασικό συνέδριο πολιτικής.

**«Εδώ στην περιοχή της Μεσογείου, η μετα-άνθρακα εποχή έχει στην πραγματικότητα τεράστιες ευκαιρίες όσον αφορά την μπλε οικονομία»**, δήλωσε ο βετεράνος της βιομηχανίας **Roudi Baroudi** στο εικονικό All Things Energy Forum. Πρόσθεσε ότι ενώ η συμβατική αιολική και ηλιακή ενέργεια θα έχουν «βασικό ρόλο να διαδραματίσουν», η εγγύτητα της θάλασσας προσέφερε μια άλλη διάσταση.

“Υπάρχουν και άλλες πολλά υποσχόμενες ενεργειακές τεχνολογίες, όπως η βροχή, τα κύματα και η παλιρροϊκή ενέργεια, καθώς και η υποθαλάσσια γεωθερμία”, δήλωσε ο κ. Baroudi, ο οποίος έχει διετελέσει σύμβουλος σε κυβερνήσεις, πολυμερείς οργανισμούς και μεγάλες διεθνείς εταιρείες για την ενεργειακή πολιτική.

«Μερικές από τις πιο υποσχόμενες αντικαταστάσεις για τα ορυκτά καύσιμα περιμένουν στη θάλασσα, αν μόνο έχουμε τη σοφία και την προνοητικότητα να τις αναπτύξουμε».

Η μεγάλη εγγύτητα μιας μεγάλης θάλασσας όπως είναι η Μεσόγειος δίνει στα παράκτια κράτη της βασικά πλεονεκτήματα σε σχέση με άλλα κράτη που είναι εγκλωβισμένα στην ξηρά, εξήγησε, επειδή έχουν πολλές περισσότερες επιλογές για παραγωγή ηλεκτρικής ενέργειας χαμηλής ή χωρίς άνθρακα.

Ο 40χρονος βετεράνος της περιφερειακής ενεργειακής σκηνής προέβλεψε ότι με ισχυρή ηγεσία, **οι περιφερειακές χώρες θα μπορούσαν να χρησιμοποιήσουν αυτό το δυναμικό για την πλήρη ηλεκτροδότηση όλων των κατοικημένων περιοχών τους.**

Αυτό το είδος πρόσβασης, στην ηλεκτρική ενέργεια, αποτελεί βασική προϋπόθεση για το είδος της οικονομικής ανάπτυξης που θα βοηθήσει εκατομμύρια ανθρώπους – ακόμη και δεκάδες εκατομμύρια – από τη φτώχεια», δήλωσε.

«Θα μειώσει επίσης τη ροή των Αφρικανών μεταναστών που δεσμεύονται για την Ευρώπη δημιουργώντας νέες οικονομικές ευκαιρίες για αυτούς στην έδρα τους».

Ο κ. Baroudi προειδοποίησε, ωστόσο, ότι παρέμειναν σημαντικά εμπόδια εάν η περιοχή επρόκειτο να πραγματοποιήσει το πλήρες δυναμικό της για υπεράκτια παραγωγή ενέργειας, κυρίως επειδή περίπου τα μισά από τα θαλάσσια σύνορα της Μεσογείου παραμένουν αδιευκρίνιστα.

Όπως και με τις προοπτικές για υπεράκτιο φυσικό αέριο, εξήγησε, οι επενδυτές αποφεύγουν τέτοια διαφιλονικούμενα σύνορα επειδή η αμφισβητούμενη ιδιοκτησία μιας περιοχής ενέχει πολύ μεγάλο κίνδυνο. Για αυτόν τον λόγο, είπε, και επειδή η πίεση χτίζεται για μορατόριουμ για την ανάπτυξη νέων πεδίων πετρελαίου και φυσικού αερίου, **οι περιφερειακές χώρες χρειάστηκαν να υιοθετήσουν τη διπλωματία και να καταρτίσουν συνθήκες που ορίζουν τις αντίστοιχες αποκλειστικές οικονομικές ζώνες τους.**

Δεδομένου ότι το φυσικό αέριο αναμένεται να παραμείνει βασικό καύσιμο μετάβασης για τουλάχιστον δύο δεκαετίες, εξήγησε, περιφερειακές χώρες θα μπορούσαν επίσης να κερδίσουν δισεκατομμύρια έσοδα από υπεράκτιες καταθέσεις – αλλά ορισμένες εξακολουθούν να χρειάζονται συμφωνίες ΑΟΖ για να ξεκινήσουν.

Δεν υπάρχει ανάγκη να είναι πιο πειστική, ειδικά επειδή ο διάλογος και οι συμβιβασμοί που απαιτούνται όχι μόνο θα ανοίξουν την ανάπτυξη του φυσικού αερίου, αλλά θα έθεταν επίσης τα θεμέλια για στενότερη συνεργασία σε άλλους τομείς – αυτό ακριβώς απαιτεί η Μπλε Οικονομία για να αξιοποιήσει πλήρως τις δυνατότητές του», δήλωσε ο κ. **Baroudi**, ο οποίος είναι επί του παρόντος διευθύνων σύμβουλος της Energy and Environment Holding, ανεξάρτητης συμβουλευτικής εταιρείας στη Ντόχα.

## Τα πλεονεκτήματα από την ηρεμία στη Μεσόγειο

«Ως μπόνους, μια πιο ήρεμη, φιλικότερη Μεσόγειος θα επέτρεπε επίσης την κατανομή ευθυνών και τη συγκέντρωση πόρων και δεδομένων, τα οποία θα βελτιώσουν σημαντικά τα αποτελέσματα σε όλα, από τη μετανάστευση, την πρόγνωση καιρού και την αναζήτηση και διάσωση σε συστήματα προειδοποίησης για τσουνάμι και την προστασία καλωδίων επικοινωνίας», είπε.

«Τότε θα μπορούσαμε απλώς να δούμε ολόκληρη την ευρωμεσογειακή περιοχή να γίνει ένας από τους καλούς γείτονες, ένα μέρος αμοιβαίων στόχων, διευθετημένων παραπόνων και ακόμη και γεωστρατηγικής συνεργασίας.

**Τολμώ να το πω, κυρίες και κύριοι, η Μεσόγειος θα μπορούσε να είναι απόλυτα ειρηνική στη ζωή μας”.**

Η εκδήλωση, της οποίας οι ομιλητές περιελάμβαναν διακεκριμένους ακαδημαϊκούς και ανώτερους ηγέτες επιχειρήσεων

και ενέργειας, καθώς και βασικούς κυβερνητικούς υπουργούς, πραγματοποιήθηκε την Τετάρτη.

Ο Roudi Baroudi έχει περισσότερα από 40 χρόνια εμπειρίας στον τομέα της ενέργειας και βοήθησε στη χάραξη πολιτικής για μεγάλες διεθνείς εταιρείες πετρελαίου, κυβερνήσεις και πολυμερείς θεσμούς. Σήμερα υπηρετεί ως Διευθύνων Σύμβουλος της Ενέργειας και Περιβάλλον Διαθέτοντας ανεξάρτητη συμβουλευτική εταιρεία.

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## Renewables boom unleashes war over talent for green jobs



Clean energy giants are finding a shortage of workers with the skills needed to support their ambitious growth plans.



The renewables jobs market is heating up and candidates with the right abilities are becoming harder to find, according to Miguel Stilwell, chief executive officer at Portuguese clean-energy firm EDP Renovaveis SA. The company is one of the world's top installers of green power and plans to hire 1,300 employees over the next two years.

"There's a war over talent globally," Stilwell said in an interview on May 28. "The renewable sector, given the massive amount of growth that is expected, doesn't have enough people."

As countries funnel billions of dollars into developing renewable power, policymakers are banking on the sector to create new jobs that are crucial for the post-pandemic economic recovery. Solar generation capacity is expected to triple by the end of the decade, while wind capacity is expected to more than double over the same period, according to clean energy research group BloombergNEF.

Green supermajors such as NextEra Energy Inc, Iberdrola SA, Enel SpA and EDP are leading the race to electrify the global economy. But some large oil companies are starting to get into the sector too, with BP Plc announcing last month it's looking to fill 100 offshore-wind jobs in the U.K. and the U.S., a figure that could double by the end of the year.

Engineering skills such as energy assessment, project management and project design are in high demand, EDP's Stilwell said. Good business developers who understand clean energy technologies are also a scarce resource. Other roles, such as managing mergers and acquisitions, or back office tasks, can easily be hired from other industries.

"We're having to bring in people from other sectors, whether it's oil and gas or other parts of the energy industry, or recruiting directly from universities," Stilwell said. "There's a lot of competition out there."

Engineering and chemistry graduates working on a masters degrees in renewables at the Universitat Politecnica de Catalunya in Barcelona are often hired while they're still in school, or right after they finish, according to Professor Jordi Llorca. The university has partnerships with other colleges in Europe and students often get hired to work in other countries like the U.K. or Denmark, said Llorca, who is also the director of an engineering research center at the university.

"We need to be fast to adapt the contents of our programs on the energy transition and renewable energies to make sure our graduates are competitive in the market," Llorca said. "We're constantly looking at the contracts and agreements we have with different industries to see what's needed."

The university launched a masters in hydrogen energy last year after professors realized very few people have the skills in mechanics and chemistry that the fast-growing sector will need very soon. "There's always a moment of vacuum whenever a new technology comes in, but we're able to put together new programs in just a few months."

Offshore wind farms are another growth area. The projects involve erecting and maintaining wind turbines the size of skyscrapers miles out to sea. A single turn of one of the massive blades could power a house for two days. The industry was pioneered in Europe, but is now rapidly expanding to Asia and the east coast of the U.S.

Those new markets don't have people with experience. That means that developers are often sending British and European employees to lead the way, according to Clint Harrison, director at renewable energy-focused recruitment firm Taylor Hopkinson. But as business takes off there's pressure to hire locally.

The limits of a well-trained workforce could end up being a

bottleneck in an industry that is key to slashing emissions.

“There’s a sense of urgency,” Harrison said. “The market is growing very, very quickly and we need to ensure we have the right people across various projects and regions to ensure projects move forward and aren’t delayed.”

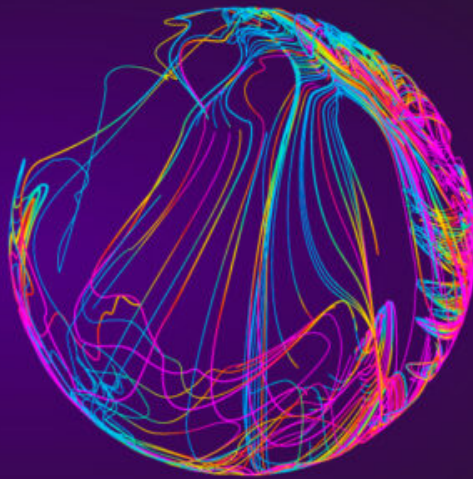
In the U.K. alone, around 200,000 skilled workers will be needed in the offshore energy sector by 2030, up from 160,000 today, according to a recent report by the Robert Gordon University in Aberdeen. About half the jobs are expected to be filled by people transferring from the oil and gas sector and about 90% of current workers in the fossil-fuel sector can be retrained for renewables, said author Paul de Leeuw.

“Demand for courses on renewable energy and the energy transition is ramping up rapidly and at the same time we see demand for oil courses declining,” he said. “It’s a societal and industry shift mirroring in the education system.”

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# **BLUE ECONOMY IN THE MEDITERRANEAN**

# ALL THINGS ENERGY FORUM



ATHENS, Greece: Mediterranean countries should be among the biggest winners in the transition from fossil fuels to renewables, an energy expert told a key policy conference on Wednesday.

“Here in the Mediterranean region, the post-carbon era actually holds enormous opportunities in terms of the Blue Economy,” industry veteran Roudi Baroudi told the virtual All Things Energy Forum. He added that while conventional wind and solar would “have a key role to play,” the proximity of the sea offered a whole other dimension.

“There are other promising energy technologies too, including rain, wave, and tidal power, as well as undersea geothermal,” said Baroudi, who has advised governments, multilateral institutions, and major international companies on energy policy. “Some of the most promising replacements for fossil fuels are waiting out at sea, if only we have the wisdom and the foresight to develop them.”

The very proximity of a large sea like the Mediterranean gives its coastal states key advantages over landlocked counterparts, he explained, because they have many more options for low- or no-carbon power generation. The 40-year veteran of the regional energy scene predicted that with

strong leadership, regional countries could use this potential to fully electrify all of their populated areas.

“That kind of access [to electricity] is a key requirement for the kind of economic growth that would lift millions of people – even tens of millions – out of poverty,” he stated. “It also would reduce the flow of African migrants bound for Europe by generating new economic opportunities for them at home.”

Baroudi cautioned, however, that significant hurdles remained if the region was to realize its full potential for offshore energy production, mainly because about half of the Mediterranean’s maritime boundaries remain undefined.

As with the prospects for offshore natural gas, he explained, investors avoid such unsettled borders because contested ownership of an area and/or resource poses too great a risk. For this reason, he said, and because pressure is building for a moratorium on developing new oil and gas fields, regional countries needed to embrace diplomacy and hammer out treaties that define their respective Exclusive Economic Zones. Since gas is expected to remain a key transition fuel for at least a couple of decades, he explained, regional countries could also earn billions in revenues from offshore deposits – but some still need EEZ deals to get started.

“No need is more pressing, especially since the dialogue and compromises required would not only open up gas development, but also lay the groundwork for closer cooperation in other fields – which is exactly what the Blue Economy demands in order to realize its full potential,” said Baroudi, who currently serves as CEO of Energy and Environment Holding, an independent consultancy in Doha.

“As a bonus, a calmer, friendlier Mediterranean would also allow the sharing of responsibilities and the pooling of resources and data, which would significantly improve outcomes in everything from immigration, weather forecasting, and

search and rescue to tsunami warning systems and protecting communication cables,” he said. “Then we could just see the whole Euro-Med region become one of Good Neighbors, a place of mutual goals, settled grievances, and even geostrategic cooperation. Dare I say it, ladies and gentlemen, the Mediterranean could be fully at peace in our lifetimes.”

The event, whose speakers included noted academics and senior business and energy leaders, as well as key government ministers, on Wednesday.

*Roudi Baroudi has more than 40 years of experience in the energy business and has helped design policy for major international oil companies, sovereign governments, and multilateral institutions. He currently serves as CEO of Energy and Environment Holding an independent consultancy based in Doha, Qatar.*