



# ATLANTIC FUTURE BUSINESS BRIEF

## Outlook for the Fossil Fuel and Renewable Energy Industries in the Wider Atlantic Space 01

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ABSTRACT

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## Fossil Fuel and Renewable Energy Industries

### 1. Summary

Although, the Atlantic Space holds a large share of the world's unexploited fossil fuel reserves, including 40% of oil reserves, 20% of natural gas reserves, and roughly 40% of coal reserves (BP 2015), the future of the industry is uncertain. Large profit margins (in the past) and continued subsidies have made some of these unconventional and difficult hydrocarbon reserves easier to access via new technologies, particularly in the cases of the North Atlantic shale revolution and the Southern Atlantic "oil ring" ( Isbell 2014). In the North Atlantic, shale gas now accounts for more than 35% of American gas production, compared to 2% in 2000. Demand for shale oil and gas is predicted to rise from 1.96 BCM/day to 2.69 BCM/day by 2035 (Szalai 2013). In the Southern Atlantic oil ring, deep-water offshore oil rigs now span from Namibia and Morocco in the east to Argentina and the Gulf of Mexico (Isbell 2014), but their further expansion is in doubt given current and projected oil prices.

Yet since early 2014, doubts about the future of the fossil industry have grown. Recent price levels have undermined the expectation of future profits from new exploration and field development, while also reducing the profitability of existing extraction. The fossil fuel industry used to and currently still continues to reap most of the monetary benefits of the rising energy demand. Lower prices, however, erode the profitability of the sector, and stock market valuations have declined.

Conversely, the renewable energy sector keeps growing, in spite of falling fossil prices, albeit at a somewhat reduced pace. Over 70% of the global installed renewable energy capacity is held in the Atlantic Space (Tedsen and Kraemer 2013).

### 2. Trends and analysis

Spurred by growing concerns regarding the implications of global climate change, many governments have implemented mechanisms to promote the uptake of renewables. The European Union has achieved notable success in this regard; 15% of energy demands were met by renewable sources in 2013 in line with the 2009 Renewable Energy Directive (European Commission 2015). Germany is well known for its transition to renewables with its implementation of the feed-in tariff (Laird and Stefes 2009; Kraemer 2009, 2011, 2012). The feed-in tariff approach has also been introduced in many other countries across the Atlantic Space. The U.S. relies largely on tax credits, subsidies, rebates, and renewable portfolio standards (IEA 2012; Tedsen and Kraemer 2013). Additionally, the Atlantic Space accounts for more than 50% of the world's hydroelectricity generation, particularly in Norway, Latin America, and the Caribbean (BP 2015). Sub-Saharan Africa, with the exception of South Africa, has increasingly turned to hydropower, which now accounts for 60% of electricity generation in that region (Behrens 2011; Tedsen and Kraemer 2013).

Despite such strides to promote the renewable energy sector, economic path dependency and previously large profits provide the fossil fuel industry with

considerable advantages. Profit margins earned by the fossil industry are due in large part to subsidies and privileges provided by central governments around the world. The International Energy Agency (IEA) (2014) estimates that in 2014 global fossil fuel subsidies amounted to more than USD \$550 billion. However, the International Monetary Fund (IMF) has estimated that when accounting for externalities, fossil fuel subsidies are around USD \$5 trillion dollars annually (Coady et al. 2015). Comparatively, the renewable sector received only USD \$120 billion in 2014 (IEA 2014) and produces comparatively few social or environmental costs.

### **3. Business implications and opportunities**

Subsidies have created large profit margins and the ability to continue extracting both conventional and unconventional fossil fuels, contributing to the “Atlantic Energy Renaissance”. Isbell (2014) describes this result as a shifting away from the “Great Crescent”—the Middle East, Central Asia, and Russia—as the traditional center of fossil fuel production towards the Atlantic Basin, which has been able not only to meet its own needs but also to become the dominate supplier to the Asia-Pacific region. In addition to shifting the world’s energy flow, production has outpaced demand, which has contributed to falling energy prices and subsidies to the fossil fuel industry over 2014 (Berman 2015).

The extraction of shale oil and gas in the North Atlantic has increased the competitiveness of that segment of the fossil fuel industry. The United States surpassed Russia as a top producer of natural gas in 2009, and may yet surpass Saudi Arabia in the near future. Shale oil and gas alone contributed USD \$283 billion to the U.S. GDP in 2012. Shale oil and gas production is also driving the U.S. petrochemical industry, in which USD \$197 billion has been invested as of 2014 (Batson 2015). The effect of falling oil prices on deep-water offshore drilling is unclear but may be significant given the large price tag of such projects. Estimates hold that if oil prices average between USD \$50 and \$70 per barrel over 2015, the number of deep-water wells might increase by 32% (Jervis 2015; Shauk 2015). Production in the Gulf of Mexico alone was projected to increase 21% in 2015. Companies with deep-water wells in that area predict that the price would have to plummet to around USD \$20 per barrel before they begin to scale back production from existing wells (Jervis 2015). Drilling is continuing off the coast of Morocco in order to harness oil reserves off the country’s Atlantic coast, while Norway plans to proceed with a deep-water project in the North Sea that by 2019 will produce 380 thousand barrels of oil equivalent per day (Spencer Ogden Ltd. 2015). Similar deep-water drilling prospects are also being explored off the coasts of Namibia and Argentina. All of these projects were conceived and commenced before the recent collapse in oil and gas prices, and it remains to be seen how many of them are brought to conclusion.

The shifting flow of energy as a result of increased Atlantic fossil fuel production appears to call into question the rate of growth in the renewable sector. However, political momentum in the face of the climate crisis and improving economics point to the continued growth of renewable energy. Models of successful transitions to renewables already exist in the Atlantic Space, including Germany, Denmark, and Spain. Outside of Europe, solar energy is already competitive in the Southern Atlantic, and Isbell (2014) has described Africa’s potential to leapfrog fossil fuel dependent development in favor of a more sustainable energy model through the provisions of the UN’s “Sustainable Energy for All” initiative. van der Hoeven (2015), the executive director of the IEA, has also suggested that the recent drop in energy prices has created a critical juncture at which countries have the opportunity to abolish—or at least drastically decrease—fossil fuel subsidies without producing severe inflation. She

also suggests transparency and a depoliticization of energy pricing mechanisms. The low fossil energy prices thus provide an opportunity to accelerate the transition towards renewable energy.

## 4. Conclusions

Overall, the Atlantic Space is characterized by two competing energy systems.<sup>1</sup>

A fossil energy industry of coal, oil and gas that was dominant in the past, has economic breadth and depth to sustain momentum over a period of low prices and eroding profitability, and still enjoys significant subsidies and privileges. These may however be abolished as countries seek to reduce fiscal stress and at the same time seek to reduce the speed of climate change. It is doubtful that technological developments will allow the fossil industry maintain its current size in the Atlantic Space, especially as it competes with lower-cost producers in other parts of the world.

A relatively young and dynamic renewable energy industry that has achieved cost competitiveness with new coal (and new nuclear) plants and is beginning to erode the profitability and ultimately viability of existing fossil and nuclear plants. The improved economic competitiveness is the result of a technological learning process as well as economies of scale created as the industry has grown. Economic improvements are projected to continue in the medium and perhaps also longer term. This renewable energy industry is poised to take over from the fossil industry wherever new energy infrastructure is built, or where significant re-investment or expansions are needed.

These two industries will continue to co-exist, one declining and the other growing, with the speeds of decline and growth and their relative weight determined as much by changes in fossil energy prices as in policies promoting one energy system or the other.

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<sup>1</sup> The topic of nuclear energy is not covered and not within the scope of this brief.

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**WEBSITE** [www.atlanticfuture.eu](http://www.atlanticfuture.eu)

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**FURTHER  
READING**

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