

Globalisation 2.0: The rise of electricity demand

Introduction

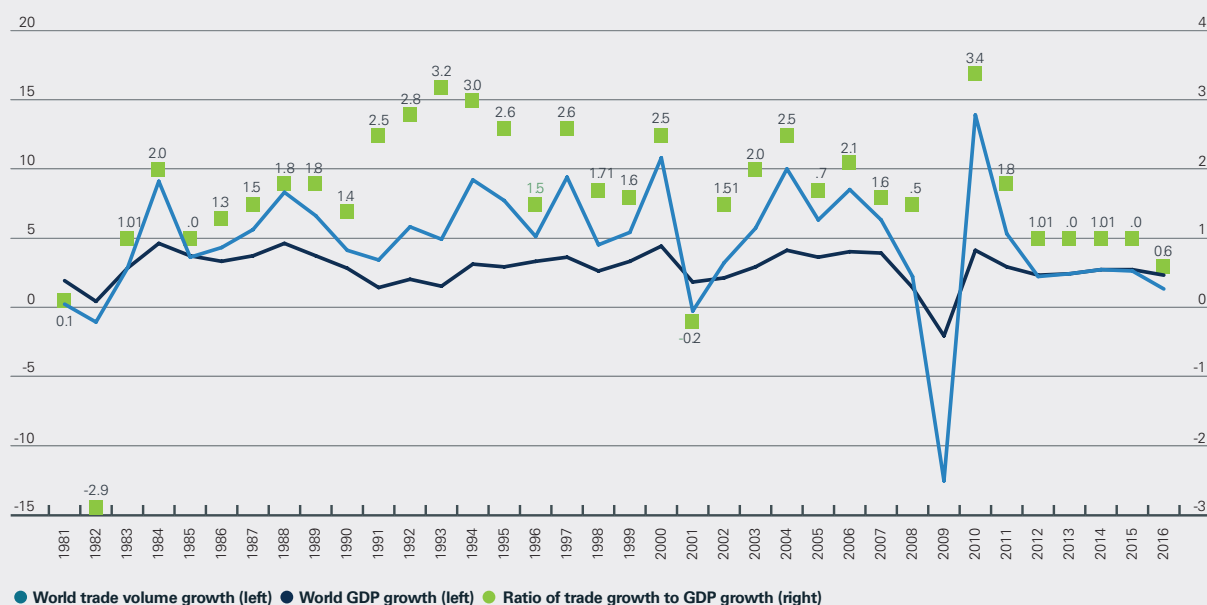
The purpose of this paper is to discuss the potential implications on the electricity market with a change in the globalisation of trade. We are not making a political judgement or venturing into assessing the probability of a redistribution of world trade. Until recently, however, a scenario in which ever-expanding globalisation would slow down or stop was unthinkable. Yet it has become a real possibility and is therefore worth analysing in terms of the potential implications for our investment universe. We believe that this is an additional factor supporting the case for electricity growth in the U.S. and Europe going forward. As the sector has experienced no demand growth for the past decade, a shift to growth would be a structural change leading to substantial investment opportunities in our view.

One world

Since the establishment of the General Agreement on Tariffs and Trade (GATT) in 1948 and the World Trade Organization (WTO) in 1995, the world has experienced a relentless advance in the globalisation of commerce. Some saw this interdependence as a tool to secure peace based on the idea that business partners don't go to war. Others believed that broader and easier commercial exchanges would spread wealth and elevate millions of people out of poverty. Many considered it as a vehicle to enrich themselves whilst others expected that their values would follow a "flattening" of the world. Irrespective of the drivers and motives, the fact remains that world trade, even in volume terms, has grown faster than GDP growth for decades.

Ratio of world merchandise trade volume growth to world real GDP growth, 1981-2016

(Annual percentage change and ratio)



● World trade volume growth (left) ● World GDP growth (left) ● Ratio of trade growth to GDP growth (right)

Source: WTO Secretariat for trade; consensus estimates for GDP based on reported data from a variety of sources including the International Monetary Fund, the Organisation for Economic Cooperation and Development and the United Nations. https://www.wto.org/english/res_e/statis_e/wts2017_e/wto_chapter_03_e.pdf.

Three waves against globalisation

Against this backdrop, it seems to us that unrelenting globalisation is now under heavy scrutiny. Indeed, globalisation of trade is now confronting three substantial tests with each, individually, possibly not significant enough to stop its course but which taken together have the potential to dramatically alter corporate behaviour and investment decisions for a long time.

The first wave against globalisation of trade came from the U.S. administration's decision to reduce the U.S.'s trade deficit with some of its largest business partners. Tariffs have awakened many companies to the risks embedded in their supply chains and these businesses have started either to find alternative suppliers in other locations or to ask their existing suppliers to locate some of their factories in multiple locations to reduce supply and tariff risks. It is difficult to precisely assess how much onshoring/nearshoring has taken place because of these tariffs, but evidence from conversations with companies in which we invest and public statements suggest that diversification of origin of supplies is happening and is now integral to every supply decision. While product cost was the main selection criteria of a supplier until recently, predictability of prices and supply have gained in prominence.

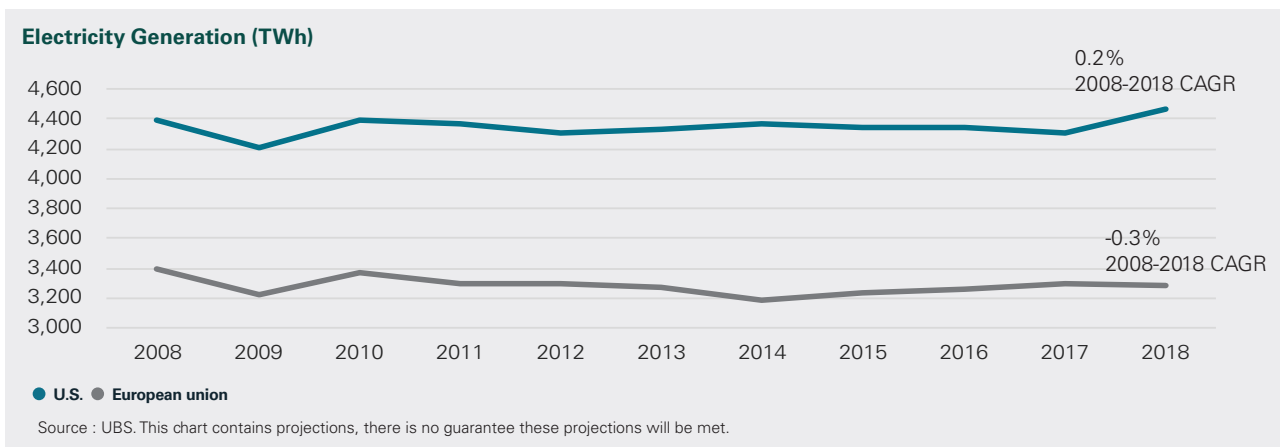
The second wave is related to COVID-19. Global trade will be impacted as a consequence of the following issues: 1) people and businesses will remember the virus originated in China, the manufacturing hub to the world 2) in the absence of a cure or vaccine, the only way to stop the spread of the virus is to isolate clusters and close borders 3) businesses and people cannot be dependent on international supply chains for a prolonged period of time. In the future, even if the virus is identified early and a country or region locks itself down to protect the rest of the world, the rest of the world cannot be cut from a sole source of supply coming from that country or region and 'just in time' inventory may need to be adjusted. Here again, onshoring/nearshoring and diversification of supply are the solutions.

The third wave was building up before the onset of COVID-19 and will return to the forefront as soon as the pandemic is under control. We are referring to a climate border tax or any climate-related action to favour clean power and clean product manufacturing. The idea of supplying products from anywhere around the world irrespective of their carbon footprint will have to change. We have previously discussed the E.U. Green Deal and firmly believe that climate change mitigation will be central to E.U. policies going forward. The E.U., COP meetings, government and corporate actions will produce a relentless stream of attacks on Green House Gases (GHG) that will impact imports of products manufactured using high carbon-emitting power.

Considering these three waves together, even if it is difficult to forecast their impact, it becomes undeniable that behaviour will change to ensure a more resilient and cleaner supply base than most companies have today. This means a higher share of onshoring and nearshoring for U.S. and European companies. It also means a higher rate of automation in factories around the world to reduce the human risk factor related to pandemics. We believe that both factors will converge to boost demand for electricity.

Electricity growth

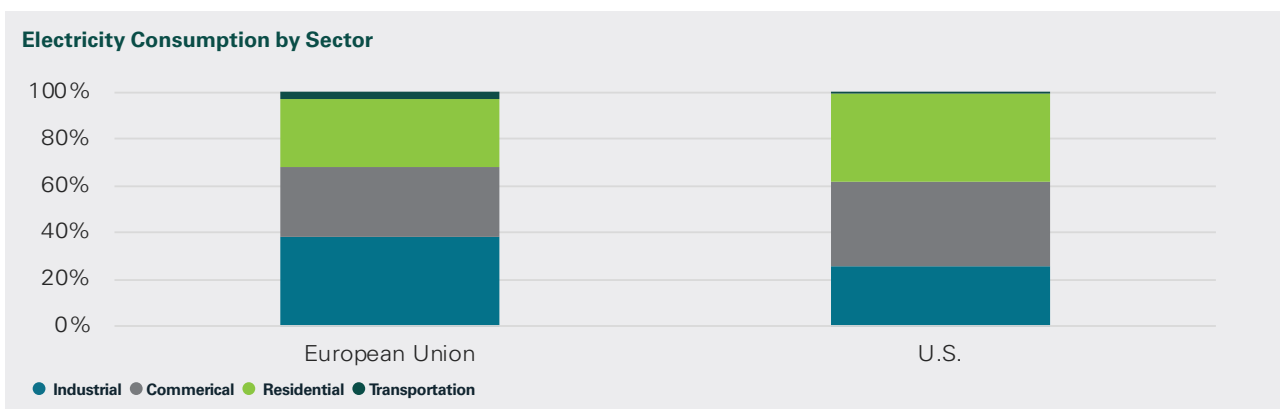
Over the past decade, electricity consumption in the U.S. and Europe has been stagnant despite real GDP growth and population growth. Affluence, rising penetration of electric devices, the growth of the internet and its needs for datacentres are all drivers of electricity demand. Yet gains in efficiency have been so great that they have managed to offset underlying demand growth. For example, LEDs replacing incandescent lightbulbs, regulation forcing the replacement of electricity-hungry household appliances by energy efficient products, low electricity consuming air-conditioning coupled with better air circulation technology replacing giant air-conditioning systems in factories. Many of these offsetting factors have taken place and even if innovation is relentless, the quantum benefit of past innovations cannot be repeated (e.g. migrating from a 50W lightbulb to a 5W LED saved 45W, that’s nine times more than what could be saved if we invented lights using no electricity and saved the 5W of an LED).



At the sector level, low demand growth is not an exciting backdrop. We believe, however, that electricity demand is on the cusp of accelerating growth as electricity takes market share from other sources of energy (e.g. electric vehicles, electricity replacing heat in industrial processes). We call this theme “Electricity Wins”. An additional argument is that a change in the dynamic of globalisation can be another leg of demand growth for the sector. This could play out through relocation of manufacturing facilities, known as nearshoring or onshoring, adding capacity locally, or more evenly distributing the sources of products.

Why is this important for electricity demand?

First of all, industrial use of electricity in the E.U. and the U.S. represents 38% and 25%, respectively, of total electricity consumed. Therefore, any increase in industrial activity, even of a few percentage points, would be visible in overall electricity demand growth relative to a baseline of flattish demand.



As an illustration, if 10% of goods manufactured overseas were to be manufactured domestically, this would represent an increase in domestic manufacturing in the E.U. and the U.S. of 8.6% and 10.9%, respectively (imported goods represent 86% of domestically manufactured goods in the E.U. and 109% in the U.S.). Applying these percentages to the industrial share of electricity consumption in each region leads to an increase in total electricity consumption of 3.3% in the E.U. and 2.7% in the U.S. That would be the direct increase; there would also be ancillary expansion and the indirect positive impact on the domestic economy adding to electricity demand. This might not seem a huge amount of additional electricity but in the case of the U.S., adding 2.8% to demand equals 125TWh, equivalent to U.S. \$6.2bn in additional revenue (assuming \$50 per MWh) and U.S. \$40bn in capex (assuming a solar capacity factor of 25% and capex at \$700,000 per MW). U.S. \$6.2bn of revenue is equivalent to the combined revenues generated by Brookfield Renewable Partners, Atlantica Yield, NextEra Energy Partners and Terraform Power. Hence, additional demand would not be insignificant to these fast-growing companies focused on renewable electricity.

This all assumes that new factories are identical to old factories. Assuming the normal course of modernization of the industrial tool, however, and keeping in mind the trauma created by COVID-19, we can expect an increase in automation-content in new factories to support “work distancing” and ensure a higher reliability of supply chains. As such, we can confidently forecast that the electricity consumption of new factories will be higher (than for old factories) and add to electricity demand growth.

Conclusion

We believe that a reshaping of the globalisation of trade is an additional driver that will return the electricity sector to growth in the U.S. and Europe. Electricity will gain market share in a few areas: 1) transportation from broad adoption of electric vehicles and electric trains 2) homes with the migration away from fossil fuels 3) industries with the move away from energy-intensive and carbon-emitting processes to green hydrogen, carbon capture and the rise of automation, onshoring and nearshoring. We believe all of this will further support the case for electricity increasing its market share at the expense of other sources of energy and that we will witness an acceleration of growth in the sector with companies exposed to growth being large beneficiaries in the years to come. In this context, renewable developers and power generators, which are migrating quickly to clean power will capture a larger share of this growth in electricity and value creation for investors.

Electricity demand incremental growth drivers

- Nearshoring and onshoring of manufacturing
- Electricity replacing steam in industrial processes
- Automation
- Green hydrogen electrolysis for industrial applications and household heating
- Carbon capture and storage
- Electricity replacing oil and gas to heat homes
- Broad adoption of electric vehicles and electric trains

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