



## Energy: An Ever Evolving Pillar of Civilization

Richard Harris | August 2024

After a somewhat tumultuous 2024 and as we have discussed both local and offshore markets at length in recent newsletters, we thought we would redirect this month's writing to a very important global topic and take a look at the energy sector as a whole, discussing supply and demand forces, new technologies and political forces that are constantly evolving global energy requirements and production.

Energy is the foundation on which modern civilisation is built. It powers our homes, drives industry, enables transportation, and drives technological progress. The history of energy is a story of evolution, from the primitive use of fire to the complex, interconnected global energy systems of today.

Energy exists in many forms, each essential to different aspects of human activity.

**The main types of energy produced globally are:**

- **Fossil Fuels:** Coal, oil, and natural gas have fuelled industry and daily life for over a century, but burning them releases carbon dioxide, which is a major contributor to climate change.
- **Renewable Energy:** This includes solar, wind, hydro, and geothermal energy. Renewable energies are clean and growing fast. They generate energy without greenhouse gas emissions.
- **Nuclear Energy:** Nuclear energy generated by nuclear fission is efficient and low carbon, but controversial due to safety and waste concerns.
- **Biomass Energy:** Biomass derived from organic materials is renewable but can cause problems with land use and emissions if not managed sustainably.
- **Hydrogen Energy:** Used in fuel cells to generate electricity, with water being the only by-product. Promising for the decarbonisation of industry, but production is currently energy intensive.
- **Electricity:** A versatile energy carrier that is obtained from various sources and is essential for modern life.

To understand the global supply and demand forces of energy, we need to look at the major producers

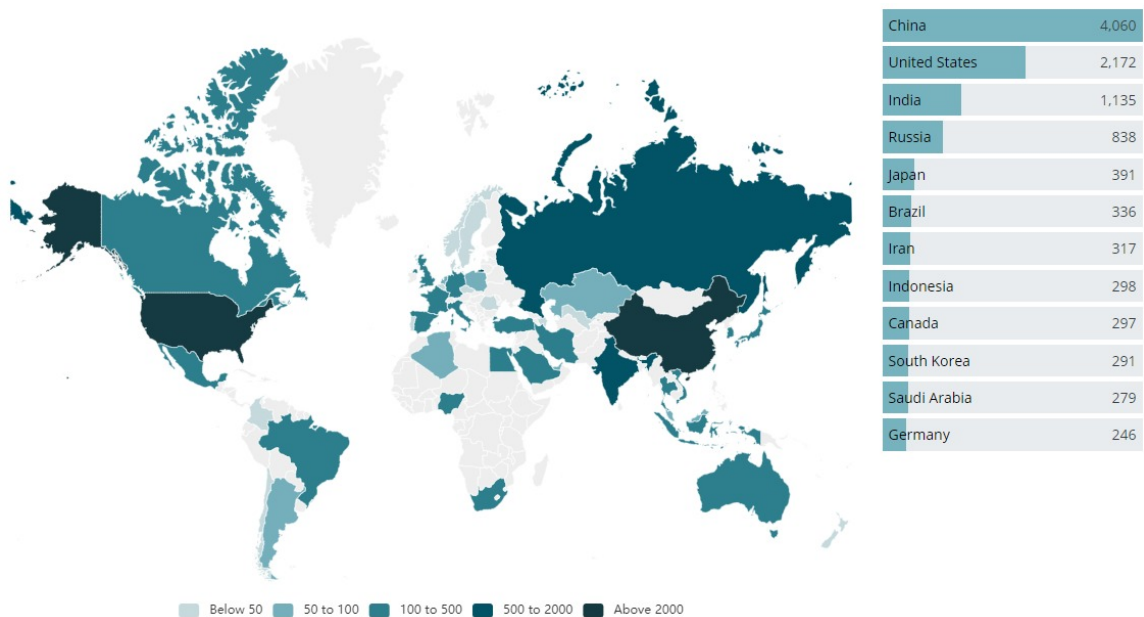
and consumers to get an accurate understanding of the countries that have the greatest influence on energy prices.

### Major Producers of Energy Globally

Energy production is concentrated in certain regions of the world, depending on the availability of natural resources. **China**, the world's largest energy producer, dominates coal production and has rapidly expanded its renewable energy capacity, particularly in solar and wind. The **United States** is a leading producer of oil and natural gas, thanks to the shale revolution, and also has significant renewable energy resources and nuclear power generation. **Saudi Arabia**, a major oil producer, plays a crucial role in global energy markets and is a world leader in oil exports, which are vital to the country's economy. **Russia** is a major global player in the production of natural gas and oil and is also one of the leading producers of nuclear energy. While **India** is a major coal producer, it's also investing heavily in expanding its renewable energy capacity to meet its growing energy needs. The **European Union** as a whole is a major energy producer, with a strong focus on renewable energy as it moves away from fossil fuels.

### Major Consumers of Energy Globally

The energy demand is determined by population, economic activity, and technological development. **China**, the world's most populous country and a manufacturing powerhouse, is the largest consumer of energy. The **United States** has one of the highest per capita energy consumption due to the industrial sector, transport, and household demand. In **India**, energy consumption is growing rapidly due to the large population and economic growth. The **European Union** is a major energy consumer with high demand in manufacturing, transport, and households and is moving towards a more sustainable energy mix. **Japan** has a high energy consumption, especially in industry and transport, and has reduced its reliance on nuclear energy after the Fukushima disaster, focusing instead on fossil fuels and renewables.



### New Technologies

The energy landscape is constantly evolving, driven by innovations that promise cleaner, more efficient, and more sustainable solutions. Advances in battery technology, particularly lithium-ion batteries, are revolutionising energy storage, which is crucial for balancing supply and demand in renewable energy systems and for the wider adoption of electric vehicles. New methods for producing green hydrogen (hydrogen from renewable energy) are being developed, and fuel cells that convert hydrogen into electricity are being used in transport and stationary machinery. Intelligent electricity grids (smart grids) integrate information and communication technologies into the energy infrastructure and enable more

efficient energy distribution, better integration of renewable energies, and greater grid stability. Carbon capture and storage (CCS) technology captures carbon dioxide emissions from fossil-fuelled power plants and industrial processes and stores them underground. It is seen as a way of mitigating climate change while maintaining the use of fossil fuels. Modern nuclear reactors, including small modular reactors (SMRs) and fusion reactors, promise greater safety, efficiency, and lower waste production, which could make nuclear energy more viable in the future energy mix.

Demand for base metals such as copper, aluminum, nickel, and cobalt is expected to rise sharply over the next decade as they play a crucial role in renewable energy technologies, electric vehicles, and energy storage systems. Copper and aluminum will be essential for cabling, solar panels, wind turbines, and electric vehicle production, while nickel and cobalt will be crucial for lithium-ion batteries used in electric vehicles and energy storage systems. As the world accelerates the transition to clean energy and electrification, these metals will become increasingly important in supporting sustainable energy infrastructure and technologies.

We have discussed the topic of artificial intelligence (AI), which has been at the forefront since the beginning of 2023. The rapid progress of artificial intelligence has led to a significant increase in energy consumption, mainly due to the enormous computing power required to train large AI models in data centres that are constantly in operation and consume immense amounts of electricity. As AI becomes increasingly complex, there is also growing concern about its impact on the environment. In response, the tech industry is developing more energy-efficient algorithms, exploring the use of renewable energy to power data centres, and using edge computing to reduce energy consumption.

### **Nuclear Energy as an Efficient Source of Energy**

A hotly debated topic in recent times is the use of nuclear energy for global energy generation. Nuclear energy is one of the most efficient sources of power. It generates large amounts of electricity with a small amount of fuel and emits no greenhouse gases during operation. A single nuclear reactor can be operated continuously over long periods of time and provides a stable and reliable energy supply. This makes nuclear energy a valuable asset in the transition to a low-carbon energy system.

However, nuclear energy is not without its challenges. The high cost of and time taken to build nuclear power plants, safety concerns following incidents such as Fukushima and Chernobyl, and the issue of radioactive waste disposal are major obstacles. Despite these challenges, many countries are reassessing the role of nuclear energy in achieving climate targets, as it has the potential to provide baseload power without carbon emissions.

Back to fossil fuels. Dependence on these 'dirty' means of energy production will likely be reduced over the next decade, but it is important to note that the alternatives are not yet being produced at a scale that will allow this to happen. Coal and oil have long played a central role in global energy systems. The use of coal is declining in industrialised countries due to high carbon emissions, but it remains essential in developing countries such as India and China, where it is affordable. Over the next decade, coal consumption is expected to decline in industrialised countries, but could continue to rise in developing countries. Oil is likely to continue to play an important role, especially in transport, but its dominance will gradually decline as decarbonisation efforts, the rise of electric vehicles, and advances in renewables reduce demand.

Current geopolitical tensions play a major role in the supply and demand for these fossil fuels, as we have seen in the recent wars in Russia/Ukraine and the Gaza Strip.

In conclusion, energy is a dynamic and complex area that is linked to every aspect of modern life. As the world struggles with the dual challenge of meeting growing energy demand and tackling climate change, the energy landscape is undergoing profound change. While fossil fuels continue to play a role, the future increasingly belongs to renewables, advanced technologies, and potentially a resurgence of nuclear power. The decisions made today will shape the energy systems of tomorrow and determine how

well humanity can balance progress and sustainability.

## Market Update

In August, the consumer price index in the US fell below 3% for the first time since 2021, the July labour market report fell short of expectations and a historic jobs revision, subsequently the Fed signaled that it would adjust its policy amid fears of a cooling labour market. This has led to a broadening of the market, which is reflected in the performance of the US sectors, where there has clearly been a rotation into more defensive areas of the market. The three best performing MTD sectors in the US were: Consumer Staples (+5.15%), Real Estate (+4.71%) and Health Care (4.74%). The worst performing sectors were technology (-0.62%), consumer discretionary (-1.68%) and energy (-2.44%).

Looking at the major indices, in the US the S&P 500 gained 1.3%, the Dow Jones Industrials gained 1.2% and the Nasdaq lost 0.5%. In Europe, the German DAX rose by 2.2% and the FTSE gained 0.1%. In Asia, the Nikkei 225 lost 1.9% and the Shanghai Composite 3.9% for the month as investors continue to monitor the deteriorating situation in the Chinese property sector.

Apart from platinum (-2.6%), hard commodity prices broadly rose in August, driven by supply constraints, heightened tensions in the Middle East and the threat of interest rate cuts in the US. The two biggest gainers were palladium (+10.97%) and steel (+5.49%).

The local market posted a strong performance in August, with the JSE Allshare gaining 3.74%. A standout market segment were the small caps (+6.39%), which outperformed mid (+3.78%) and large caps (+3.45%). This was due to a lower base, improved power supply and a general improvement in sentiment in and towards South Africa. Among the major sectors in South Africa, telecoms gained 14.99%, financials gained 7.14%, industrials gained 3.11% and Resources shed -4.41%. Due to the weakening of the dollar and the aforementioned improvement in sentiment, the rand strengthened significantly against the dollar, falling below R18 and stabilising between 17.90 and 17.60.

Our market outlook, both domestically and internationally, remains cautious as we continue to monitor current global developments and central bank commentary. We remain defensively positioned, with maximum offshore exposure and relatively high cash and defensive holdings in our portfolios. In the short term, we will seek to invest in assets that generate higher returns (alpha) and offer reasonable risk-adjusted returns at favourable entry points.

## Chart of the month

The chart below shows Microsoft's remarkable energy consumption as it aggressively expands its AI development. The company's extensive use of data centers to power and train advanced AI models has significantly increased its energy demands. This rapid expansion reflects the broader trend in the tech industry, where the energy requirements for supporting cutting-edge technologies are climbing, highlighting the need for sustainable energy solutions alongside technological advancements.





*"Energy and the environment are the two major global issues that are converging. Understanding the dynamics of the energy markets is crucial for any long-term investor" - Ray Dalio*



Absolut Wealth Management is an FPI Approved Professional Practice™



Copyright © 2024 Absolut Wealth Management, All rights reserved.

**Our mailing address is:**  
Absolut Wealth Management  
1st Floor, North East Block  
5 Wessels Road  
Rivonia, Gp 2128  
South Africa

**Add us to your address book**

No longer want to receive these emails?  
We'll be sorry to see you go, but you can unsubscribe from this list [here](#).