

# What are the barriers to switching to renewable energy on CITU site and how does it affect their sustainable future?

## Introduction

Recent use of renewable energy has increased, such that the corresponding demand for other fuels declined by as much as 3% in 2020. During the same period the world experienced a downturn in electricity demand, construction delays and supply chain challenges and yet renewable energy continued to grow, in the face of existing long-term contracts, new plant development and priority grid access to the existing fuel suppliers. By 2020 renewable energy accounted for 29% of the global electricity generation, up from 27% the year before. Lower oil demand generally resulted in lower demand for biofuels and blended biofuels.

The research aim is to successfully identify the barriers to switching to renewable energy on a CITU site and conclude how to get over them but also investigating the affect CITU's sustainable future and the affect it has on their design and different processes.

The objective of the research is to facilitate the barriers to switching to renewable energy and the impact it has on sites when producing schemes.

## Literature review and other specific work directly to the research

Within the document it outlines the following topics which provides the objectives and guidance on the barriers to switching to renewable energy, including;

- Barriers to switching to renewable energy
- Barriers/impact within the site of CITU
- Methods of getting over the barriers

## Barriers in general

There are many reasons why switching to renewable energy is a difficult transaction. The following bullets outline the main factors.

- **Capital cost** - (upfront cost to design, invent, construct, advertise etc)
- **Technical** - (shortage of trained personnel to proceed with the process of the invention and creation)
- **Consumers** - (people are not willing to adopt the renewable energy way of living as many say its unreliable.
- **Market** - (the gap in the market is that small, therefore your invention has to be far greater than any other product but because of other barriers mention above this is why it's much harder.)
- **Geographical and Ecological** - (different areas of the world will gain greater amount of sun and therefore will generate more renewable energy.)

## Barriers in Construction

### Acceptance

In order to achieve a situation where sustainable energy solutions are adopted by construction companies, there is a need to achieve consensus regarding the respective benefits and disbenefits by all the stakeholders, including the building owner, the designers and the construction teams.

### Knowledge

From our presence in the construction market, we can evidently see that the lack of consistent and credible information about sustainable products and solutions, as being a key obstacle to embracing sustainable practices.

### Timing

Our experience in the industry suggests that there is a general belief that sustainable construction would take longer to execute.

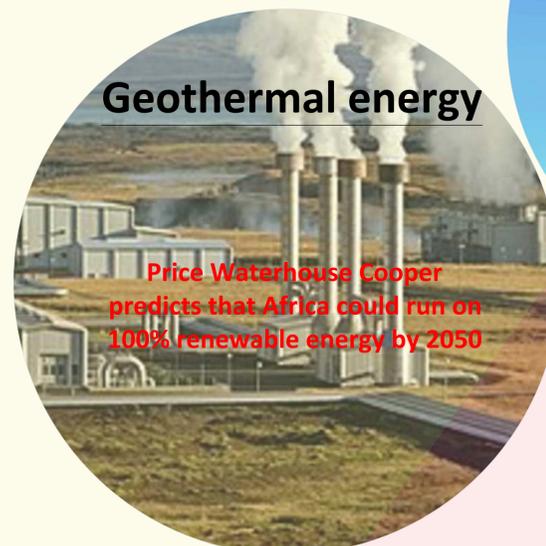
### Financial Matters

Cost may become a barrier directly in the form of perceived additional upfront cost or indirectly in the form of a more arduous design and construction processes.

## Conclusion

The primary barriers to CITU's sites adopting renewable energy solutions, were identified in the report in two categories, the more general adoption barriers for all and barriers specific to the construction industry. The general barriers include capital cost, complexity of the technical solutions, lack of consumer awareness, limited success from the marketing communication around the subject and a lack of suitable weather conditions in several locations. Specifically, within the construction industry, the four main barriers are identified as: a lack of acceptance of the potential benefit of sustainable solutions, inadequate knowledge regarding the solutions available, the negative impact of solutions on the overall timeline to completion, and financial concerns around upfront costs.

The report recommends that the Government and Building Regulations directly intervenes to provide better information, funding, tax incentives, and training courses. It is anticipated that these measures will have a positive impact, firstly on rate of adoption on CITU sites and secondly the inclusion of sustainable technology within the design that they construct.



## Geothermal energy

Price Waterhouse Cooper predicts that Africa could run on 100% renewable energy by 2050

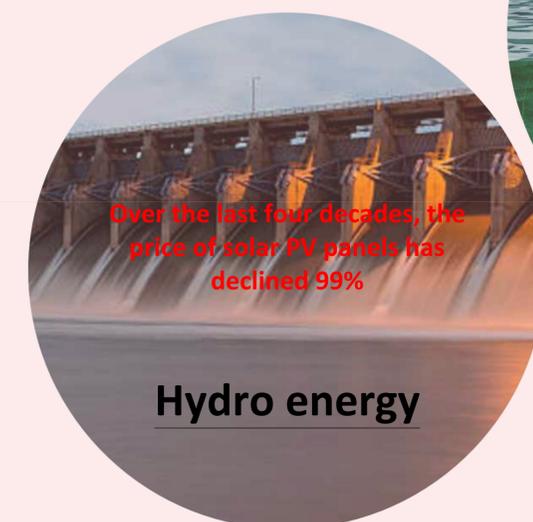
Natural heat can be captured beneath the surface of the earth and used to heat houses or generate electricity.



## Solar energy

Solar PV could account for 5% of global demand by 2020 and up to 9% by 2030

Solar energy is generated by the sunlight and is one of the most freely available energy resources in the world.



## Hydro energy

Over the last four decades, the price of solar PV panels has declined 99%

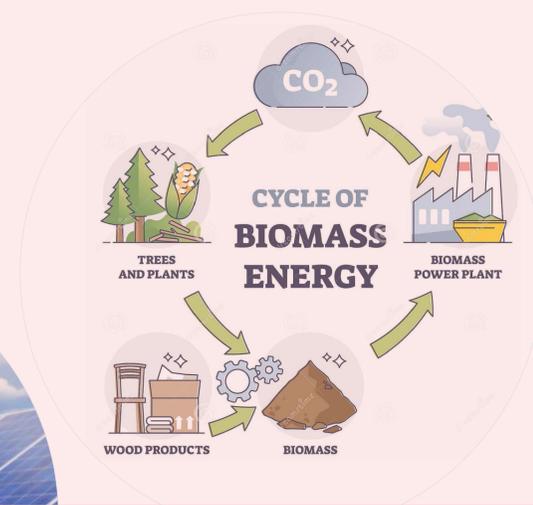
A large reservoir can be used as a source for creating a controlled flow of water to power a turbine, creating electricity.



## Wind energy

By the year 2050, our energy needs can be met by 95% renewable energy

There are many sources of clean energy available to us, and wind farms are becoming increasingly prevalent in the UK, bringing a significant contribution to the national grid.



Electricity is generated by the conversion of plant-based solid fuels into electricity. Although biomass is fundamentally a source of electricity generated by burning organic material, this process is nowadays much cleaner and more efficient.



## Tidal energy

Investment in renewable energy has surpassed fossil fuel investment. The global renewable energy market is now worth over \$250 billion

Using tidal currents twice daily, these turbines are driven by the twice-daily flow of water. Although tidal flow is not constant, it can compensate for low tidal flows during the low tide period.