Addis Ababa University

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PETROLEUM AND COAL GEOLOGY

INDIVIDUAL ASSIGNMENT

**Question: Why fossil fuel resources are still important with respect to renewable energy resource?**

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**Introduction**

Much of the world’s energy is produced by burning fossil fuels such as **oil, coal**and **gas**. These natural resources are formed from the remains of plants and animals that died millions of years ago. They are used to power everything from planes to gas cookers. Burning fossil fuels creates **carbon dioxide** gas, which is damaging to the environment and is making the Earth warmer than it should be. Once fossil fuels are gone they cannot be replaced, so people are now using renewable sources of energy.

Renewable energy is a natural source of energy that will never run out. **Wind**, the **Sun** and **water** are renewable energy sources that can be used to create **electricity**. These sources of energy are much cleaner to use than fossil fuels because they do not produce harmful gases that cause pollution and climate change.

**Reasons why fossil fuels are still used**

**1. Efficiency**

With all the talk about how awful fossil fuels are, one relevant fact is almost invariably forgotten. Fossil fuels are fantastic at their job; that is, producing energy. Earth’s fossil fuel reserves were [formed over millions of years](https://youtu.be/zaXBVYr9Ij0) as the organic material of ancient plants and microorganisms (not [dinosaurs](http://bestanimations.com/Animals/Reptiles/Dinosaurs/Dinosaurs.html)) were compressed and heated into dense deposits of carbon basically reservoirs of condensed energy.  For these reason, fossil fuels are incredibly “[energy dense](http://energyeducation.ca/encyclopedia/Energy_density)“, meaning a little bit of a fossil fuel can produce a whole lot of energy. This energy dense quality is what led to Europe’s adoption of coal over wood as a fuel source, and this sudden increase in available energy [eventually led to the industrial revolution.](https://www.youtube.com/watch?v=zhL5DCizj5c) Coal, oil, and natural gas seem to exist to be fuels.

### 2. Convenience

As mentioned above, fossil fuels are the result of natural processes of millions of years. While it took a looong time to turn trees and ferns into coal, those millions of years have already passed and we have nothing to do now but reap the rewards of eons. To unlock most alternative fuels (think solar, geothermal, wind, etc…) we first have to figure out how to efficiently collect, transform, and store the energy before we can even begin to think about using it.  Fossil fuels, on the other hand, require no such innovation.

The work of collecting and storing the energy in fossil fuels has already been accomplished, and all that’s now needed to access the abundant energy reservoir is the technology of fire. And humans have [known about fire](http://www.ibtimes.com/when-did-man-discover-fire-ancestors-modern-humans-used-fire-350000-years-ago-new-1758607) for a lot longer than we’ve known about [photovoltaic.](https://en.wikipedia.org/wiki/Photovoltaics)

This “ready-made” quality of fossil fuels also means that we can access their energy anywhere, anytime.  Unlike solar power which is dependent on cooperative weather and hampered by things like night, fossil fuels can be used anywhere the appropriate infrastructure exists, regardless of time, weather, or even geographical location. Very few alternative energy sources can compete with fossil fuels when it comes to producing power “on-demand.”

### 3. Logistics

The last aspect of fossil fuels that makes them so hard to abandon is the fact that they have been the main source energy in much of the world **for the past two centuries.**  Two centuries may not seem like such a long time in the grand scheme of things, but this particular set of 200 years was a bit more remarkable than most, it contained the [industrial revolution.](https://youtu.be/mPYFEfIM9j0)

The industrial revolution (which I already mentioned [was made possible by coal](https://youtu.be/zhL5DCizj5c?t=7m3s)) and the modern world it resulted in changed the way humans do **everything.**  Everything from what we eat, to where we work, to what we wear, to how we get around.  Think about it the device you are using to read this blog. Think about the electricity that powers your home and refrigerator. Most, if not every part, of our lives is completely dependent and intertwined with the energy provided by fossil fuels.

Since fossil fuels have been the dominate source of our energy during the entirety of the development of the modern, industrialized world, all our systems, from production to infrastructure to transportation to residential, are set up for their use.  Switching to another energy source would mean completely rethinking the way we live and the way we understand energy.

## Will fossil fuels be replaced by renewable resources?

For an alternative energy source to be a viable substitution, it must be able to match fossil fuels in their efficiency as fuels, the accessibility of their energy, and their integration into society. Fossil fuels, and their use over the last 200 years, have left some pretty enormous shoes to fill and, as they currently stand, no alternative source is up to the task.  It is going to take some more Research and Development, perhaps funded by a [carbon tax](http://wordpress.uark.edu/sustain/2016/06/10/definition-carbon-tax/), to get one or several new sources of energy up to a sufficient level of production to replace the “dinosaur” fuels.

**Sources**

[**https://wordpressua.uark.edu/sustain/3-reasons-we-are-still-using-fossil-fuels/**](https://wordpressua.uark.edu/sustain/3-reasons-we-are-still-using-fossil-fuels/)

[**https://www.bbc.co.uk/bitesize/topics/zshp34j/articles/zntxgwx**](https://www.bbc.co.uk/bitesize/topics/zshp34j/articles/zntxgwx)