**Renewable Energy in Middle Earth**

The last page of this activity has a map of Middle Earth, as taken from the J.R.R. Tolkien Lord of the Rings series. For now, we will assume that this land has moved past the industrial revolution and has growing demands for energy in the form of heat, fuel, and electricity.

The primary source of electricity and heat in Middle Earth is coal. The coal is extracted using underground mining along the Misty Mountains and mountaintop removal techniques along the Barrow Downs and South Downs near the town of Bree. Oil for transportation is imported into Middle Earth on large ships across the Great Sea (lower-left). Some deep-ocean drilling is also conducted there.

Color-code each of regions above on the map that are in use for coal or oil extraction.

What alternative sources of energy might be available in Middle Earth? Shade in an area that would be a good place for harvesting energy from wind, the sun (solar), the Earth’s heat (geothermal), and moving water (hydrokinetic).

Provide a rationale, based on the geography shown in the map, of why you think that area is ideal. If you aren’t familiar with the world of Middle Earth, search for an area you think might be promising at the Lord of the Rings Wiki site, located at <http://lotr.wikia.com/wiki/Main_Page>

|  |  |  |  |
| --- | --- | --- | --- |
| **Energy Source** | **Region(s)** | **Rationale** | **Drawbacks** |
| **Coal** | **Misty Mountain Barrow Downs South Downs** | **Many of the coal deposits in the United States are found in and around the Appalachian mountains.** | **Surface mining, such as mountaintop removal, completely destroys the ecosystem of the area.** |
| **Oil** | **Great Sea** | **There are many oil pockets found at the bottom of seas.** | **Potential oil spills from ships or the platform itself.** |
| **Wind** |  |  |  |
| **Solar** |  |  |  |
| **Geothermal** |  |  |  |
| **Hydrokinetic** |  |  |  |
| **Biomass** |  |  |  |

