**EXTERNALITIES OF FOSSIL FUELS**

**COAL**

Coal mining, transport, and combustion makes coal overall the dirtiest of all major fossil fuels. Its major use globally is in making electricity in thermal plants. It is also used for indoor heating in poorer households.

1. In most production regions, miners have among the highest injury, casualty, and lung cancer mortality rates of all industries.

2. In all but the most modern electricity plants, local emissions are high in mercury and other toxic pollutants. These pollutants cause toxic precipitation and thus reduce the productivity of downwind agricultural, forestry, and fisheries industries.

3. Strip mining and mountaintop removal techniques destroy local water systems and soils, permanently compromising them for humanity and wildlife. <https://www.youtube.com/watch?v=p5RcbPZXUZo>

**OIL**

Some externalities of oil:

1. Military expense of protecting global supply lines (particularly Persian Gulf). US presidents of both parties have stated this since 1970s. (well-documented in Daniel Yergin’s The Prize)

2. Geopolitical contradictions

-oil revenue props up corrupt, undemocratic petro states (eg Russia, Saudi Arabia, Nigeria, the Emirates of Persian Gulf, even Canada – case of Alberta\*)

-oil revenue funds radical Islam and terrorism (ISIS, Taliban, thousands of Imams/schools in several countries including Pakistan)

-oil supply stability needs of importing countries empowers Petro states (Russia’s influence over Europe, Saudi Arabia over the United States)

3. Oil price instability major contributor to most economic recessions of United States/others.

4. Major oil spills, refinery fires & emissions cause water and air pollution, reducing economic productivity, fisheries productivity, and increasing healthcare costs.

5. The easy-to-extract oil remains in few production areas, thus remaining resources require more energy to extract and tend to have greater impact on local freshwater resources (such as from hydraulic fracturing of tight oil formations and oil extraction from tar sands in Alberta), destroying entire regions.

6. Air pollution from gasoline, diesel and other fuels causes millions of premature deaths worldwide each year. [See World Health Organization Report](http://www.who.int/mediacentre/news/releases/2014/air-pollution/en/).

7. Not having their own, most countries must import nearly all of their oil (or its refined products such as gasoline). If these same countries could employ their people in their own domestic transportation energy sector, employment would rise, and these countries would have greater autonomy in their internal affairs. Note: importing fuel is not an externality per se, but does represent a lost opportunity.

**NATURAL GAS**

1. Cleanest burning of all fossil fuels, but extraction using hydraulic fracturing can ruin local water tables & cause local earthquakes (see case of Oklahoma). Size of greenhouse gas methane releases large.
2. Storage pipeline risks of explosions greater than other fossil fuels.
3. Intercontinental transport via tanker much riskier, vulnerable to attack. <http://www.foxnews.com/story/2004/12/20/ap-lng-tanker-attack-would-be-devastating.html>

-------

US premature deaths due to air pollution

<http://news.mit.edu/2013/study-air-pollution-causes-200000-early-deaths-each-year-in-the-us-0829>

\*view [Tar Sands Oil Extraction](https://www.youtube.com/watch?v=YkwoRivP17A)