

- renewable (N-count)  
(ADJ)

A **renewable** resource is a natural resource or source of energy that is not depleted by use. Water, wind and solar power are examples of renewable energies.

*Renewable resources are limitless or are replaced more quickly than we can use them.*

**Renewables** accounted for a quarter of the country's power supplies in 2015.

- non-renewable (N-count)  
(ADJ)

An energy that is **non-renewable** is depleted when it is used. Coal, oil and gas are examples of **non-renewable** energy resources.

*ANZ, NAB, Commonwealth Bank and Westpac provided three times more for **non-renewable** than clean energy projects in 2016.*

- fossil fuel (N-var)
- A **fossil fuel** is a hydrocarbon created from the remains of formerly living organisms (plants and animals) that can be used for energy. A **fossil fuel** is a non-renewable energy source. Coal, gas and oil are examples of **fossil fuels**.

*Advances in clean energy expected to cause a sudden drop in demand for **fossil fuels**.*

- solar (ADJ)
- Solar** energy refers to radiant energy from the sun. **Solar** energy also refers to the process of using the sun's energy to generate heat or electricity for human use.

Common collocations  
solar panel, solar cell, solar energy, solar water heating, solar roof tiles

- wind (N-var)
- Wind** power is the use of air flow through **wind turbines** to mechanically power generators for electric power.

- turbine (N-count)
- A **turbine** is a machine that works by the action of a fluid or the wind on a series of surfaces, usually a circular set of blades.

Common collocations  
wind turbine, gas turbine, steam turbine, turbine engine

- shale oil (N-uncount)  
tight oil (N-uncount)
- Tight oil** (also known as **shale oil**, **shale-hosted oil** or **light tight oil**, abbreviated **LTO**) is light crude oil that is contained in certain geological formations, including shale or tight sandstone.

*Growth in **shale oil** and gas supplies, along with other fuel sources, will make the western hemisphere virtually self-sufficient in energy by 2030.*

- oil rig (N-count)
- An **oil rig** is a structure above an **oil well** on land or in the sea that has special equipment attached to it for drilling and removing **oil** from the ground
- oil platform (N-count)
- An oil platform is a large structure that has equipment that is used to get oil and gas from under the sea.

*An autonomous robot will be deployed to an offshore **oil** and gas **platform** in the North Sea later this year, in a first for the sector.*

- well (N-count)
- An **well** is a deep hole which is made in order to get a liquid such as water or oil out of the ground.

Common collocations for 'oil'  
oil refinery, oil producer, oil pump, crude oil, crude oil production, crude oil supply, oil spill, oil field, oil price, tight oil

- drill (drill, drills, drilled, drilling) VERB
  - drill (N-count)
- When you **drill** into something or **drill** a hole in something, you make a hole in it using a **drill**.

1. Match each beginning of the sentence (i.-iii.) with an appropriate end to create a short paragraph.

- |      |   |    |   |
|------|---|----|---|
| i.   | As we use up fossil fuels such as coal, oil, and natural gas, | a. | non-renewable energy will be even more expensive.         |
| ii.  | At some point, even if renewable energy costs are high,       | b. | these non-renewable resources will become more expensive. |
| iii. | Ultimately,   | c. | we will have to use renewable sources.                    |

2. Read the text and answer the questions.

Fracking is the process of fracturing rock that is used to obtain shale oil or tight oil. First, oil companies drill down as far as two miles, where the layers of oil and shale exist. They then pump high-pressure bursts\* of water, sand, and chemicals to fracture the shale and release the oil. The sand holds the fractures open. That allows the oil to seep\* into the well.

Shale oil extraction methods are more flexible than traditional oil well drilling. The initial drilling only accounts for 40 percent of the total cost. Extracting the oil costs roughly \$1 million for each well. That made shale oil extraction profitable when oil reached \$100 a barrel.

When oil prices fall, shale oil companies keep drilling. They stop extracting and store the oil in the ground. They call these wells DUCs for Drill and Cover. They can safely wait until oil prices return to \$60 a barrel. At that point, they can start extracting oil from the wells they've already drilled. That will keep prices from rising much above that price level.






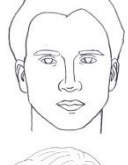

\* *burst* (N-count) a sudden brief outbreak

*seep* (VERB) to pass slowly through small openings

- What kind of oil is produced by fracking?
- In what kind of rock can oil be found?
- What happens to the rock in fracking?
- What advantage does fracking have over traditional oil well drilling?
- Why do shale oil companies keep drilling when oil prices are low?
- Why don't shale oil companies extract the tight oil when the price of oil is under \$60/barrel?

3. What is each person talking about? Match each term in the box to one of the comments.

renewable energy sources	solar energy	fossil fuels	
crude oil	oil platforms	fracking	wind energy

- a.  I don't agree with that kind of energy or process. It's very destructive to the environment. Gas can seep into the water table and contaminate the water. Did you see the Michael Moore film where they could set fire to the water coming out of the kitchen tap?
- b.  I think they look futuristic up there on the hills. But I was surprised by how much noise they make when you get up close.
- c.  There are huge fields of them when you cross the border into Spain. It makes sense because the climate is very sunny. In Portugal they use sheep to graze between the panels to keep the grass from growing too much.
- d.  When you look out to sea you can see the lights on the ones that are close. The workers work 12-hour shifts and have to spend up to four weeks on them. Then they go home for a few weeks before returning.
- e.  When things go wrong, the beach and wildlife suffer the consequences. And it's often volunteers who end up cleaning the beach afterwards. It's horrible to see the birds and beach covered in a black sludge.
- f.  They are the future. We won't have oil and gas forever. The sooner we only use other kinds of energy the better. It's better for the environment too.
- g.  OK, I know that they are efficient and can produce a lot of energy. But they are the main energy sources that are responsible for pumping CO<sup>2</sup> into the atmosphere, and that's been linked to global warming.