Lesson 1

THE IMPACT OF AN OIL CRISIS

• Record-high prices of crude oil have had a significant impact on many aspects of life, from rising prices to international tensions and even threats of war. In this lesson we look at the origins of the recent oil crisis, its effects, and how people are responding.

Before You Read

I. The price of crude oil has increased dramatically in recent years. The figure below shows the price of crude oil from 2004 to 2008. With a partner discuss some of the reasons why the price may have risen and some of the effects.

II. Do you know which countries were the top oil producing countries of 2007? Here are five nations marked A-E, please rank the countries according to their production level. Compare your answers with a partner and explain your reasons.

A. China  B. United States  C. Saudi Arabia  D. Russia  E. Iran

**Top World Oil Producers, 2007** (thousand barrels per day)

<table>
<thead>
<tr>
<th>Rank</th>
<th>Country</th>
<th>Production</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>10,248</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>9,874</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>8,456</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>4,034</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>3,912</td>
</tr>
</tbody>
</table>
Coping with a Persistent Oil Crisis

According to recent statistics, US motorists have responded to record-high prices at the pump by driving less. Any hope that this cutback will significantly restrain global oil prices is misplaced, however: fundamental factors of supply and demand will keep oil costly for years to come. Although US drivers account for around 13 million barrels a day (mbd) out of 85 mbd of worldwide demand, the growth in driving in China, India and other developing countries will easily outstrip any cutback in US demand.

Crude oil production in the Persian Gulf has been nearly flat at just over 20 mbd since the early 1970s. The growth in world supply since that time has come from oil fields outside the Middle East, but many of them have reached their production limits and important ones are in decline. There are few prospects for megadiscoveries that could keep up with fast-growing world demand.

The 18 billion barrels or so that is supposedly economically accessible in protected US offshore sites would slake around seven months of global demand in 2008, and a much smaller share by the time they reached the market in 10 to 15 years. And these small gains would come at enormous environmental risks.

Today China has around 50 million cars, trucks and buses (roughly 40 per 1,000 people), compared with around 250 million in the US (roughly 800 per 1,000 people). If China attains just half of the US per capita ownership of passenger vehicles, it would have some 500 million of them, roughly twice as many as the US. Engineering advances in automobile production will dramatically accelerate the trend. Low-cost cars such as the Tata Nano, India’s newly unveiled $2,500 compact sedan, will bring auto ownership within reach of hundreds of millions of newly middle-class households in the coming decades. Currently around 900 million cars, trucks and buses are on the road worldwide. China and India alone could add another 25 million to 30 million vehicles per year in a decade; they could plausibly add another 600 million within 30 years. Conventional oil has little prospect of keeping up with this soaring demand.
Of course, a grave economic crisis—war, global depression, collapse of one or more major economies—would cut oil demand the hard way. There are two much better alternatives. The first is a redesigned, far more energy-efficient vehicle that uses low-carbon-emitting energy carriers such as electricity or hydrogen. Variants of plug-in hybrids and all-battery cars have been promised by major auto producers for as early as 2010, and demonstration hydrogen fuel-cell cars are also expected around then.

Unresolved problems of cost, performance and infrastructure face these technologies. Public funding for technological research, development and demonstration and for supporting infrastructure should be deployed to ensure a timely changeover to new energy-efficient (and low carbon dioxide–emitting) vehicles. Any electric or hydrogen option will require large-scale deployment of new low-emissions electricity generation, such as solar, wind, nuclear and coal plants that capture and sequester carbon dioxide.

The second alternative is a gradual reconfiguration of city life to reduce our dependence on driving and raise our reliance on walking, cycling and taking public transport. Despite free-market ideological presumptions, urban sprawl is at least as much a function of zoning and the provision of public infrastructure (for example, roads versus light rail) as it is of individual choices.

The current energy crisis will most likely worsen before it gets better. It threatens to create a prolonged period of stagflation, increased oil skirmishes and even oil wars, and further marginalization of the poor, who will find themselves priced out of transport and perhaps even out of food if the US keeps up its dangerous policy of converting corn to ethanol fuel. Yet it could also be the critical spur to action, prompting vital changes in technologies and lifestyles. It’s not too late to take the more productive path, but time is running out.

Excerpt from “Coping with a persistent oil crisis,” published in Scientific American, November 2008, issue #81

After You Read

The eight statements below represent the main ideas of each paragraph. Please match them with the corresponding paragraph.

Paragraph 1: _______ A. The oil consumption situation in the US
Paragraph 2: _______ B. Solving the problems while developing new energy vehicles
Paragraph 3: _______ C. Oil production in the US
Paragraph 4: _______ D. Introducing low-carbon-emitting, energy efficient vehicles
Paragraph 5: _______  E. The impact of increasing numbers of vehicles in need of oil
Paragraph 6: _______  F. Some further considerations about the oil crisis
Paragraph 7: _______  G. An alternative solution that doesn’t involve more vehicles
Paragraph 8: _______  H. The problem of crude oil supply

II  Re-read the article and complete the blanks in the following sentences.

1. Global oil demand is ___________ million barrels a day (mbd). The US uses ___________ mbd, and ___________’s and ___________’s demands for oil are fast-growing.
2. Two better options to reduce oil demand are ___________ and ___________.
3. New low-emission electricity generation, such as ___________, ___________, ___________, and ___________ plants, will be required to develop renewable energy.
4. The policy of changing ___________ to fuel in the US is dangerous because poor people may be priced out of ___________ as well as ___________.
5. Although a reconfiguration of city life would help to reduce our dependence on driving, individual choice is still limited due to ___________ and poor provision of ___________.

Vocabulary Comprehension

General Vocabulary

This vocabulary is used for general purposes.

restrain v to prevent, limit or restrict

demand v to require or to strongly ask for
n something demanded

account for phr v to provide an explanation or justification for something

megadiscovery n a very large discovery
adj mega—extremely large, as in megabytes (MB) of computer memory

slake v to satisfy or lessen the force of

attain v to achieve or to get
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accelerate v to increase speed

infrastructure n the basic elements, such as roads, water and electric supply that make a complicated system, such as society, possible

deploy v to utilize or start to use something

skirmish n a fight or argue

marginalization n to make someone or something seem not important or relevant

ESP Vocabulary

This vocabulary is commonly used in the fields of engineering and industry.

crude adj being in an unrefined or natural state; raw crude oil is unrefined petroleum (or gasoline), as it emerges from deep underground

hydrogen n the lightest of all gases and the most abundant element in the universe

emission n emission, release

sequester v to separate in order to store

reconfiguration n rearrange

stagflation n a combination of the words, stagnation and inflation; a period of rising prices and high unemployment

Exercise

Fill in the blanks with the words from the box. Make changes if necessary.

attained accelerated demand megadiscoveries stagflation

reconfigurations deploy emissions account restrain

1. Hydrogen fuel-cell cars can reduce carbon dioxide _____________.
2. The government is going to ____________ the supporting infrastructure necessary to use renewable energy.
3. Heavy _____________ for crude oil products has caused many problems.
4. A long period of _____________ may cause many social problems.
5. Many _____________ of the way we live have been introduced to reduce carbon dioxin emissions and to establish clean energy.
6. If people do not change their habits, they will have to _____________ for the damage they are doing to the environment.
7. It is unlikely that any _____________ will enable us to easily increase oil production.
8. When infrastructure for renewable energy is well-established, the goal of using new power can be _____________ easily.
9. It is very difficult to _____________ global oil prices.
10. The demand of crude oil has _____________ dramatically in recent years.

**Language Focus**

**Corpus Tutorial: Just the Word (JTW)**

Corpuses help us find collocations. Collation is the way in which particular words tend to occur together. For example, “medicine” usually collocates with the verb “take” rather than “eat.” In order to understand the collocations of words, there are several free online corpora that can be accessed. In this lesson, JTW is introduced. It contains 80 million words and displays the collocations from the licensed version of the British National Corpus. One advantage of this corpus is that it is very easy to use. Now, let’s search the collocations on this website step by step.

**Step-by-Step Instructions**

1. Go to JTW http://86.188.143.199/JustTheWord/. However, please note that this corpus system is constantly being updated, and the page or data may have some changes when you access it.
2. Enter the word and then click **Combinations**.

3. You will enter a page showing you the combination of the word you key in. Look at the right column on the page. The various combinations can be found.

<table>
<thead>
<tr>
<th>demand is N</th>
<th>Example</th>
<th>demand is N</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>V obj N</td>
<td>meet demand</td>
<td>ADJ + N</td>
<td>aggregate demand</td>
</tr>
<tr>
<td>N subj V</td>
<td>demand increase</td>
<td>N + N</td>
<td>consumer demand</td>
</tr>
<tr>
<td>N subj ADJ</td>
<td>demand high</td>
<td>N + V</td>
<td>demand made</td>
</tr>
<tr>
<td>N + PREP</td>
<td>demand for</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4. Select the form you are looking for. For example, we want to know the frequent combinations with the noun **demand** as an object, and so we select **V obj N**.

5. The results are displayed.

<table>
<thead>
<tr>
<th>N + V</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>agree to demand (21)</td>
<td>give to demand (38)</td>
<td>create demand (82)</td>
</tr>
<tr>
<td>balance demand (14)</td>
<td>make demand (393)</td>
<td>deal with demand (18)</td>
</tr>
<tr>
<td>comply with demand (16)</td>
<td>match demand (17)</td>
<td>generate demand (20)</td>
</tr>
<tr>
<td>concede demand (12)</td>
<td>supply demand (22)</td>
<td></td>
</tr>
</tbody>
</table>

6. We can see the most frequently used combination is **make demand**. The second one is **create demand**. Click the combination to see more examples by using the collocation.

**Exercise**

*Use JTW to search the frequent co-occurring combinations of* **adj + demand (n)**. **Two sentences from the reading using this combination are:**

There are few prospects for megadiscoveries that could keep up with **fast-growing world demand**. (Paragraph 2)

Conventional oil has little prospect of keeping up with this **soaring demand**. (Paragraph 4)

Now, look at the results from the corpus and write down the combinations.
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adj
1. ____________
2. ____________
3. ____________

Now let’s look for the combinations of verb + demand (n) again.

verb
4. ____________
5. ____________
6. ____________

Using the above combinations (verb + adjective + demand (n)), make three sentences to describe something that is in high demand.

The increasing number of passenger vehicles creates a great demand for crude oil.

7. ____________________________
8. ____________________________
9. ____________________________

Grammar—Passive Voice

When the focus of a sentence is on the action itself rather than who is responsible for the action, we use the passive voice. The passive form is:

Subject + be verb + past participle

The book is written in English.

This sentence tells us that the book is written in English, but it does not tell us who the author is. When we convert an active sentence into a passive one, it is important to note the following:

1. The subject of an active sentence becomes the object of a passive one, and can appear after ‘by’.
2. Conversely, the object of a passive sentence becomes the subject of an active one.
3. The verb is changed.
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The students performed a musical show. (Active sentence)
The musical show was performed. (by the students) ( Passive sentence)

Forms of passive voice

<table>
<thead>
<tr>
<th></th>
<th>simple</th>
<th>perfect</th>
</tr>
</thead>
<tbody>
<tr>
<td>past</td>
<td>S + was/were + P.P.</td>
<td>S + had been + P.P.</td>
</tr>
<tr>
<td>present</td>
<td>S + is/are/am + P.P.</td>
<td>S + have/has + been + P.P.</td>
</tr>
<tr>
<td>future</td>
<td>S + will be + P.P.</td>
<td>S + will have been + P.P.</td>
</tr>
</tbody>
</table>

Here are some passive sentences from the article.

Any hope is misplaced.

Public funding for technological research, development, and demonstration for supporting infrastructure should be deployed to ensure a timely changeover to new energy-efficient vehicles.

Variants of plug-hybrids and all-battery cars have been promised by major auto producers as early as 2010.

Exercise

Change the following active sentences into passive ones.

1. A grave economic crisis cuts oil demand.

2. A redesigned energy-efficient vehicle and a reconfiguration of city life can reduce oil consumption.

3. An energy crisis will create a prolonged period of stagflation.

4. Any electric or hydrogen option will require large-scale deployment of new low-emission electricity generation.

5. China and India may add another 25 million to 30 million vehicles per year in a decade.
**Task**

**Group Work**

**Using Passive Voice**

Using passive voice to claim, suggest, report or present an idea often makes the audience pay more attention to an action or an issue, without worrying about who or what is responsible for it. It also appears to be more objective for describing an action or an issue. For example, you can use the passive voice to introduce the process of manufacturing a product or to introduce the features of a product during a conference. In this task, you are going to practice how to use passive voice.

Using renewable power to develop new vehicles is an important issue around the world. Currently, two types of alternative vehicles are available for consumers. They are solar powered and plug-in hybrid cars.

*Now, work in groups of five or six. Compare the two new types of vehicles and conventional cars. There are some guiding questions below.*

- 1. What types of energy are used in the two alternative power vehicles?
- 2. Compared with petroleum cars, do you think that the overall expenses will be reduced or increased with these new vehicles? Why?
- 3. Can you list the advantages of using the new energy vehicles?
- 4. Are there any disadvantages to the new energy vehicles?

![Solar Power Car](image1.png) ![Plug-in Hybrid Car](image2.png)