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École Supérieure d'Économie- Oran

Business English Handout Applied in Tutorial Classes Intended for Master Students of First Year Energy Economics at The Graduate School of Economics

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Introduction:

The current handout is intended for master students of first year energy economics. It consists of texts adapted from updated articles concerning energy economics current issues. The texts are followed by series of exercises covering the four fundamental skills (reading, listening, speaking, and writing) to ensure students acquisition of general English and English for energy economics. The texts are also backed by series of graphs to highlight the content of each one of them.

The handout is divided into four sections. Section one entitled **"Energy Economics Fundamentals"** is the longest and it is devoted to the crucial aspects any student of energy economics needs to know. An introductory course is included to allow students be familiar with crucial concepts concerning energy economics. Other courses follow, that acquaint students with fundamental issues in energy economics such as: supply and demand, future energy choices, investment trends, production of oil and gas. Section two, entitled **"Renewable Energy"**, concerns how the later will evolve and the challenges facing it. Section three entitled **"Environmental Issues Related to Energy Use"** is devoted to environmental consequences of energy use and the measures to be taken to protect the environment. Section four entitled **"Important Energy Issues in Algeria"** is concerned with the Algerian energy law, the ways to reform it and Algerian law on renewable energy.

A bibliography of the main sources referred to in order to design this hand out is available at the end of this document.

Section One: Energy Fundamentals

First Year Master (Energy Economics)

Introductory Course

1) Energy Economics: Fundamentals

1) Definition

Energy is commonly defined as the ability to do work or to produce heat. Normally heat could be derived by burning a fuel—i.e. a substance that contains internal energy which upon burning generates heat, or through other means—such as by capturing the sun's rays, or from the rocks below the earth's surface. Similarly, the ability to do work may represent the capability (or potential) of doing work (known as potential energy as in stored water in a dam) or its manifestation in terms of conversion to motive power (known as **kinetic energy** as in the case of wind or tidal waves). Thus energy manifests itself in many forms: heat, light, motive force, chemical transformation, etc.

Properties of Energy Resources and Energy Commodities

Other than all embodying significant amounts of physical energy, energy resources or commodities vary greatly. They may embody chemical energy (e.g., oil, natural gas, coal, **biomass**), mechanical energy (e.g., wind, falling water), thermal energy (geothermal deposits), radiation (sunlight, infrared radiation), electrical energy (electricity), or the potential to create energy through nuclear reactions (uranium, plutonium.) They have differing physical forms.

Crude oil, most refined petroleum products, and water are liquids. Water includes available energy only through its motion. Coal, most biomass, and uranium are solids. Natural gas and wind are in gases, with wind including available energy based only on its movement. Geothermal energy is available through hot liquids (normally water) or solids (subterranean rock formations). Solar radiation is a pure form of energy. Electricity consists of electrons moving under an electrical potential. Resources can be viewed as renewable or depletable. Some renewable resources can be stored; others are not storable. These issues will be discussed more fully in a subsequent section.

1. Energy Conversion Processes

A fundamental property of energy is expressed by the first law of thermodynamics: energy can be neither created nor destroyed (except through nuclear reactions transforming matter to energy.) Energy can be converted between forms and human use of energy typically involves such conversions for human ends.

Energy conversion processes are basic to human experience. Fire, providing heat and light, is a process by which chemical energy stored in the fuel, say, wood, is converted to thermal energy and radiant energy. Chemical energy stored in wood is the result of **photosynthesis**, whereby plants convert energy in sunlight to chemical energy, stored in the plant material. Carbohydrates in food are converted within the human body to thermal energy and mechanical energy, providing body warmth and movement. Energy economics recognizes the fundamental physical realities that:

1) No energy is created or destroyed but can be converted among its various forms.
2) Energy comes from the physical environment and ultimately is released back into the physical environment.

Thus, energy economics is the study of human activities using energy resources from naturally available forms, through often complex conversion processes, to forms providing energy services.

Alternative Classifications of Energy

As energy can be obtained from various sources, it is customary to classify them under different categories, as discussed below.

A) Primary and Secondary Forms of Energy

The term primary energy is used to designate an energy source that is extracted from a stock of natural resources or captured from a flow of resources and that has not undergone any transformation or conversion other than separation and cleaning. Examples include coal, crude oil, natural gas, solar power, nuclear power, etc. Secondary energy on the other hand refers to any energy that is obtained from a primary energy source employing a transformation or conversion process. Thus oil products or electricity are secondary energies as these require refining or electric generators to produce them.

Both electricity and heat can be obtained as primary and secondary energies.

B) Renewable and Non-Renewable Forms of Energy

A non-renewable source of energy is one where the primary energy comes from a finite stock of resources. Drawing down one unit of the stock leaves lesser units for future consumption in this case. For example, coal or crude oil comes from a finite physical stock that was formed under the earth's crust in the geological past and hence these are non-renewable energies.

On the other hand, if any primary energy is obtained from a constantly available flow of energy, the energy is known as renewable energy. Solar energy, wind, and the like are renewable energies. Some stocks could be renewed and used like a renewable energy if its consumption (or extraction) does not exceed a certain limit. For example, firewood comes from a stock that could be replenished naturally if the **extraction** is less than the natural growth of the forest. If however, the extraction is above the natural forest growth, the stock would deplete and the resource turns into a non-renewable one.

C) Commercial and Non-Commercial Energies

Commercial energies are those that are traded wholly or almost entirely in the market place and therefore would command a market price. Examples include coal, oil, gas and electricity.

On the other hand, non-commercial energies are those which do not pass through the market place and accordingly, do not have a market price. Common examples include energies collected by people for their own use.

But when a non-commercial energy enters the market, by the above definition, the fuel becomes a commercial form of energy. The boundary could change over time and depending on the location. For example, earlier fuel-wood was just collected and not sold in the market. It was hence a non-commercial form of energy. Now in many urban (and even in rural) areas, fuel-wood is sold in the market and hence it has become a commercial energy. At other places, it is still collected and hence a noncommercial form of energy. This creates overlaps in coverage.

Another term which is commonly used is modern and traditional energies. Modern energies are those which are obtained from some extraction and/or transformation processes and require modern technologies to use them. On the other hand, traditional energies are those which are obtained using traditional simple methods and can be used without modern gadgets. Often modern fuels are commercial energies and traditional energies are non-commercial. But this definition does not prevent traditional energies to be commercial either. Thus if a traditional energy is sold in the market it can still remain traditional. Thus it reduces some overlap but the definition remains subjective as the practices and uses vary over time and across cultures and regions.

D) Conventional and Non-Conventional Energies

This classification is based on the technologies used to capture or harness energy sources. Conventional energies are those which are obtained through commonly used technologies. Non-conventional energies are those obtained using new and novel technologies or sources.

Once again the definition is quite ambiguous as conventions are subject to change over time, allowing non-conventional forms of energies to become quite conventional at a different point in time. Based on the above discussion, it is possible to group all forms of energy in two basic dimensions: renewability as one dimension and conventionality as the other.

Source: Bhattacharyya, Subhes C. 2011. Energy Economics: Concepts, Issues, Markets and Governance. London: Springer.

Practice:
Exercise One: Read the text above and answer the following questions:

1. How is energy defined?
2. In which forms does it manifest itself?
3. What is energy conversion? Can you give an example to illustrate this process?
4. Can you give examples of categories of energy?

Exercise Two: Explain the underlined words in bold type

Exercise Three: a) Find in the text words that are closest in meaning to the following

Demonstration § 1, emission §2, taken out § 4

b) Find in the text words that are opposite in meaning to the following

refined§ 3, inexhaustible.§ 3, cold § 4

Answer key

1. Energy is commonly defined as the ability to do work or to produce heat
2. Energy manifests itself in many forms: heat, light, motive force, chemical transformation, etc.
3. the process of changing one form into another, such as nuclear energy into heat or solar energy into electrical energy.
4. Primary/secondary, renewable/non-renewable, commercial/non-commercial.

Explaining words :

In physics, **kinetic energy** is the energy that is produced when something moves.

Biomass:

1. the total number of living organisms in a given area, expressed in terms of living or dry weight per unit area

2.vegetable matter used as a source of energy

Photosynthesis is the way that green plants make their food using sunlight.

Extraction: the act or process of extracting something

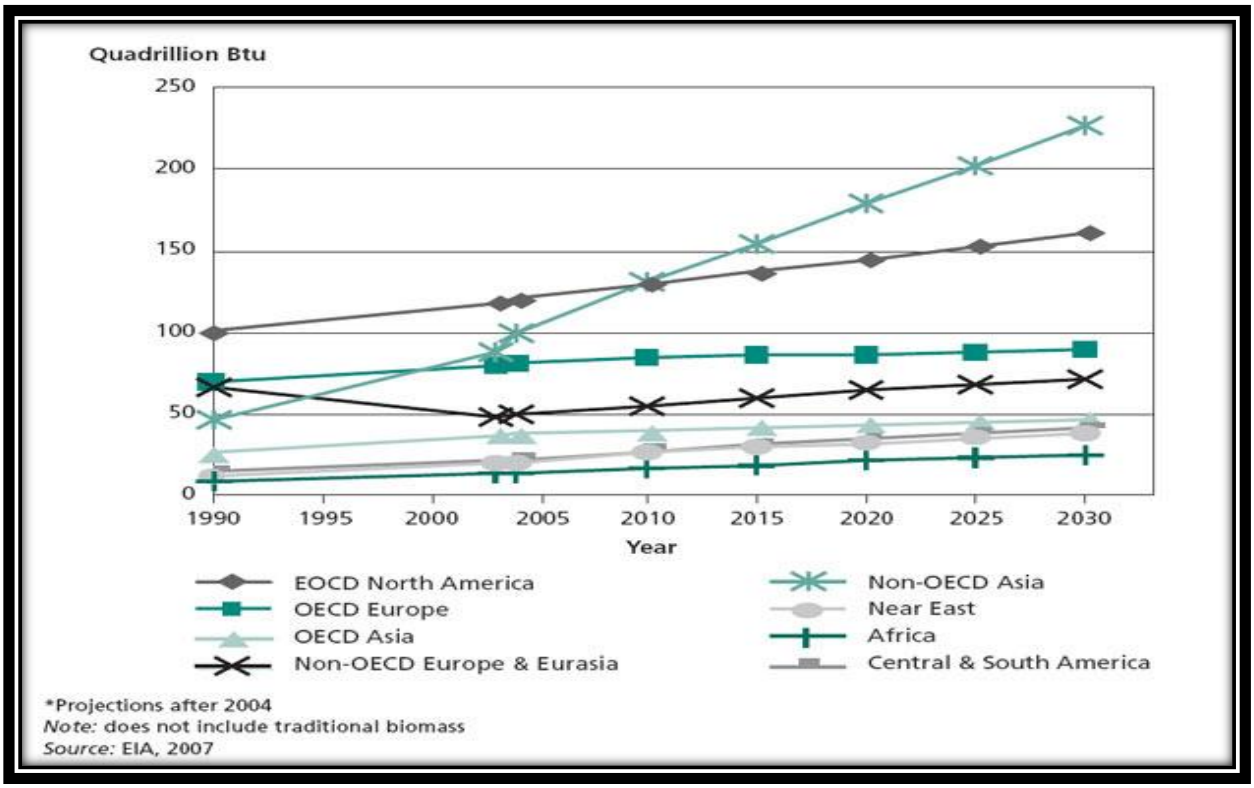
Synonyms: manifestation, radiation, extracted.

Oposites: crude, depletable, warmth.

Explanation source: https://www.collinsdictionary.com/dictionary/english/energy

2) What Are the Trends and Prospects of Energy Supply and Demand?

Figure 1. Total marketed energy consumption for OECD and non-OECD countries, 1990–2030*



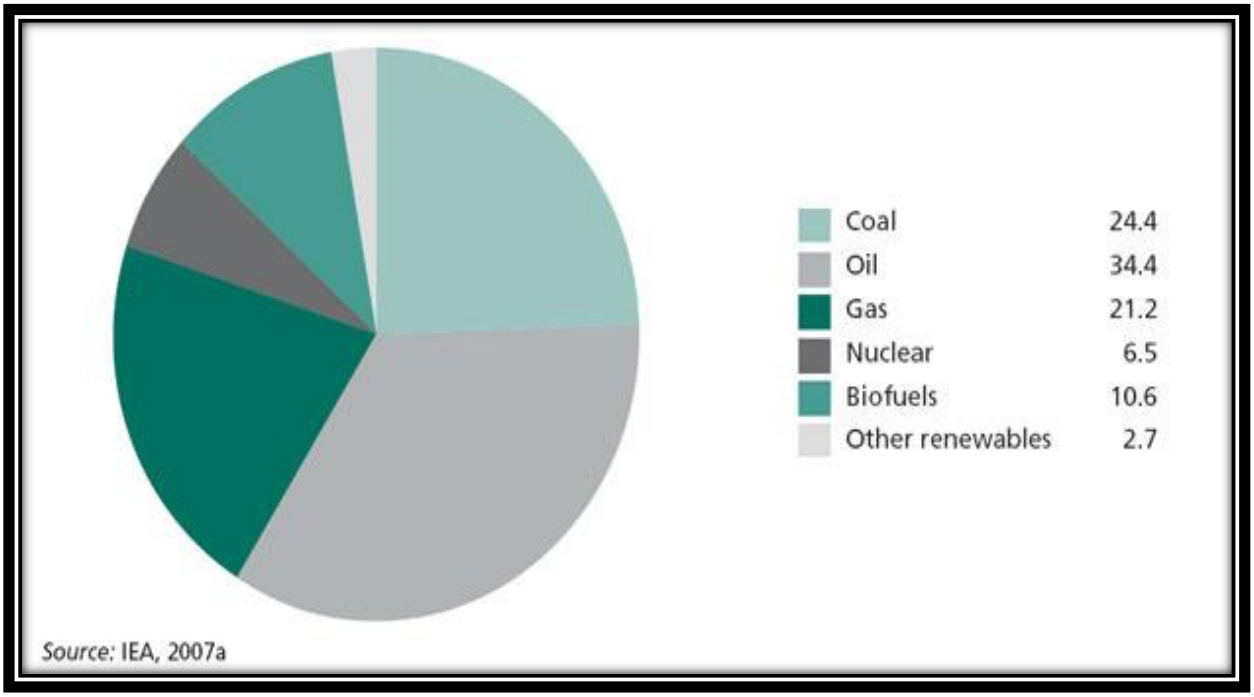
Energy demand is expected to increase considerably in the coming years as the result of population growth and economic development (EIA, 2007). Many people in the world are currently experiencing dramatic shifts in lifestyle as their economies make the transition from **subsistence** to an industrial or service base. The largest increases in energy demand will take place in developing countries where the proportion of global energy consumption is expected to increase from 46 to 58 percent between 2004 and 2030 (EIA, 2007). Per capita consumption figures are, however, likely to remain well below those in Organisation for Economic Co-operation and Development (OECD) countries.

Energy consumption in developing countries is projected to grow at an average annual rate of 3 percent from 2004 to 2020. In industrialized countries, where national economies are mature and population growth is expected to be relatively low, the demand for energy is projected to grow at the lower rate of 0.9 percent per year, albeit from a much higher starting point. Energy consumption in developing regions is projected to surpass that in industrialized regions by 2010. About half of the increase in global energy demand by 2030 will be for power generation and one- fifth for transport needs – mostly in the form of petroleum-based fuels (EIA, 2007).

Much of the increase in energy demand will result from rapid economic growth in Asian economies, especially China and India. Energy demand in the developing countries of Asia is

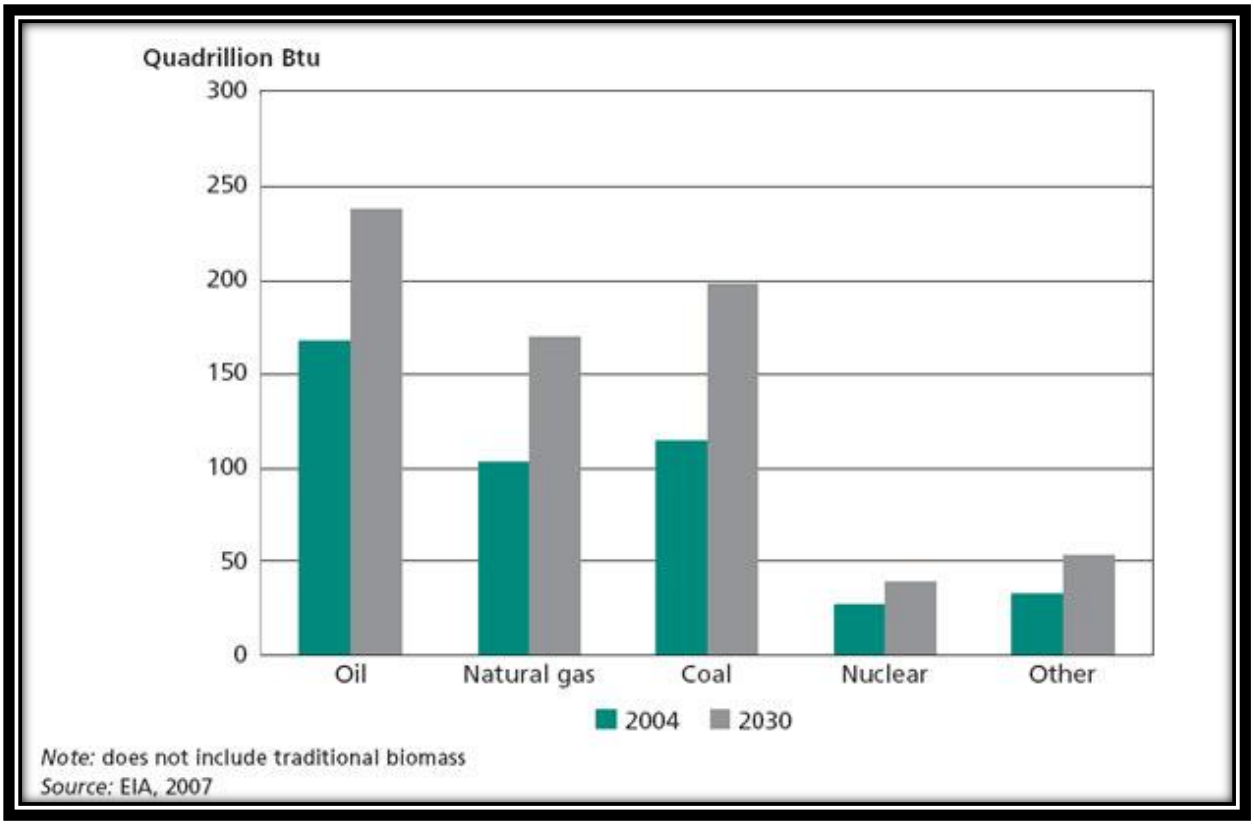
projected to grow at an average rate of 3.7 percent per year, far higher than any other region (Figure 1). Asia will more than double its energy consumption over the next 20 years, and is expected to account for around 65 percent of the total increase in energy demand for all developing countries. Although the energy consumption of developing countries in other regions is expected to grow at a slower **pace** than in Asia, rates are still expected to exceed the global average (Table 1). While all regions will play a role in future energy supply and demand, the enormous consumption increases projected in Asia make the region of key interest in future energy development.

Figure 2. Fuel shares of world total primary energy supply in 2004(%)



The vast majority of the world's energy is generated from non-renewable sources, specifically oil, coal and gas (Figure 2). Just over 13 percent of global energy is derived from renewable sources, 10.6 percent of which from combustible renewables and renewable municipal waste. The remainder of renewable energy comes from hydro-, geothermal, solar, wind, and **tidal wave** sources.

Figure 3. Total global marketed energy consumption by source in 2004 and projected for 2030



Projections of total global energy consumption show that between 2004 and 2030, fossil fuels will provide the bulk of the increase, with nuclear and other sources providing relatively minor contributions in absolute terms (Figure 3 and Table 1). In percentage terms, gas and coal are likely to show the greatest change with increases of 65 and 74 percent respectively. Oil consumption is expected to increase by 42 percent while nuclear and renewables, starting from a much lower baseline, are expected to increase by 44 and 61 percent respectively. The ultimate contributions from different sources will be highly dependent on policy directions. Projections should therefore be viewed primarily as a point of departure for further discussion.

Practice:

1) Comment on figure 1, 2 and 3. What do you notice?
2) In which area of the world is the demand for energy projected to increase and why?
3) Do growth rates differ from developing to industrialized countries?
4) What is the cause of the increase in energy demand?
5) What is the energy source that most of the world energy is generated from?
6) Explain the words underlined in bold type in the text.
7) Suggest a summary to the text using your own words.

Source: https://www.greenfacts.org/en/forests-energy/l-3/2-prospects-energy-supply.htm 2008

Answer Key

1. The largest increases in energy demand will take place in developing countries where the proportion of global energy consumption is expected to increase from 46 to 58 percent between 2004 and 2030 (EIA, 2007).
   Because many people in the world are currently experiencing dramatic shifts in lifestyle as their economies make the transition from **subsistence** to an industrial or service base.
2. Energy consumption in developing countries is projected to grow at an average annual rate of 3 percent from 2004 to 2020. In industrialized countries, where national economies are mature and population growth is expected to be relatively low, the demand for energy is projected to grow at the lower rate of 0.9 percent per year, albeit from a much higher starting point. Energy consumption in developing regions is projected to surpass that in industrialized regions by 2010.
3. Much of the increase in energy demand will result from rapid economic growth in Asian economies, especially China and India.
4. The vast majority of the world's energy is generated from non-renewable sources, specifically oil, coal and gas (Figure 2).
5. **Subsistence**: The action or fact of maintaining or supporting oneself, especially at a minimal level. **Pace:** The speed or rate at which something happens or develops. **Tidal wave**: An exceptionally large ocean wave, especially one caused by an underwater earthquake or volcanic eruption

3) Which Factors Will Determine Future Energy Choices?

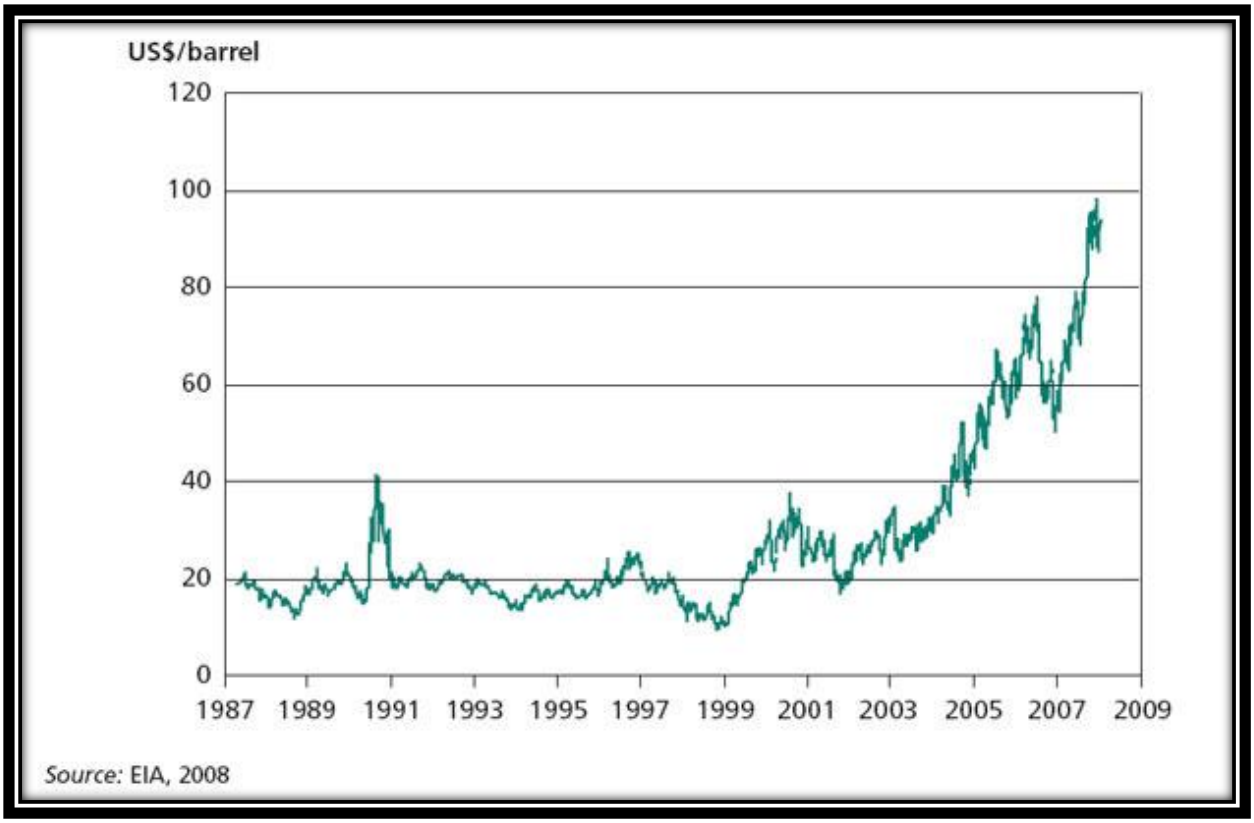


Figure 1. Europe Brent Spot Price FOB, 1987–2008

Future energy choices will depend on a number of factors. The significance of different energy sources varies in relation to the key objectives in energy policy. Differences in carbon emissions are of importance to **climate change**, whereas supply location is of importance to energy dependence. Also of importance are the future price of fossil fuels and the magnitude of efforts to provide alternatives. The weight given to each of these factors and the degree to which different policy objectives compete will, to a large extent, determine future energy consumption.

1. Oil price

In early May 2008, oil was selling at US$126 per barrel following a steep rise from below US$20 per barrel in 1999 (Figure 1). While IEA has projected that oil prices will be considerably lower than this level during most of the next 20 years, uncertainty over whether new production capacity will compensate for declining output at existing fields may mean an increase in oil prices prior to 2015 (IEA, 2007a).

The price of oil and other fossil fuels is likely to considerably affect the adoption of renewables. Falling prices are less likely to encourage policy makers to promote **renewables,** although in developing countries, in particular, rising oil prices may also forestall investment in renewables by dampening **economic growth**.

In this respect, developing economies are especially sensitive to fluctuations in global energy supply and demand. The International Energy Agency estimates that a US$10 increase in the price of oil can reduce GDP growth by an average of 0.8 percent in Asia, and up to 1.6 percent in the region's poor highly indebted countries. The loss of GDP growth in sub-Saharan Africa can be even higher, in some countries reaching 3 percent (IEA, 2004). The effects of oil price on the development of renewables and the global distribution of consumption is likely to be convoluted and issues such as trade and technology transfer will be of great importance.

2. Greenhouse gas emissions

Global greenhouse gas emissions are dominated by energy production Other sources, including land use change, forestry and agriculture account for around a third of emissions. Fossil fuel use is, however, the single largest human influence on climate, estimated to account for 56.6 of greenhouse gas emissions (IPCC, 2007). Transportation, although accounting for only one-eighth of emissions, has become a central focus in the bioenergy debate due to the carbon intensive nature of transportation, the high public profile of petroleum prices and dependency on producer nations.

Despite the focus on oil and transportation in recent years, the significance of coal in future energy use and its role in climate change cannot be overlooked, especially if coal gasification processes become widely used in the production of transport fuels (Perley, 2008). Coal, by far the most polluting of the fossil fuels, is also of increasing importance – particularly in Asia where the highest energy demand increases are predicted. Of all fossil fuels, coal is the greatest contributor of climate change gases, surpassing oil in 2003. It provides a similar proportion of total world energy as gas, but emits twice the amount of carbon dioxide (IEA, 2006).

Since the supply of coal is not as restricted as oil, an increase in the share of energy supplied by coal seems inevitable, notwithstanding environmental legislation. Coal reserves are more widely dispersed than oil and gas. Large reserves of coal suitable for power generation are located in Australia, China, Colombia, India, Indonesia, the Russian Federation, South Africa and the United States. Growth projections for coal use point to the most dramatic increases occurring in Asia and the Pacific. China and India together are estimated to account for almost three-quarters of the increase in coal demand in developing countries, and two- thirds of the increase in world coal demand (IEA, 2003).
The considerable proportion of greenhouse gas emissions from **deforestation** – 17.4 percent annually – must also be taken into account. Efforts to ensure that production of bioenergy does not result in losses of terrestrial carbon through forest removal are critical if climate change objectives are to be achieved. Recent research has suggested that clearing of grassland or forest to produce biofuels may result in losses of carbon that will take centuries to recapture (Searchinger et al., 2008; Fargione et al., 2008).

Energy dependence

Dependence on energy imports is another key factor in determining the extent to which renewables and bioenergy are likely to be promoted. All regions outside the Near East have a high level of importation, and many regions export more than they import, indicating that some substitution could take place. Asia's imports considerably exceed exports. Europe and North America show smaller discrepancies between imports and exports, which are accounted for in part by current moves to promote biofuels.

https://www.greenfacts.org/en/forests-energy/l-3/2-prospects-energy-supply.htm 2017

Practice:

1. Answer the questions below:

1. Which factors will future energy choices depend on?
2. Will decreasing oil prices persuade policy makers to promote renewable?
3. What are global greenhouse gas emissions dominated by?
4. What is the most polluting fossil fuel, and how useful is it?
5. Where are large reserves of coal suitable for power generation located?

2. Use the underlined words in bold type in sentences of your own

3. Write a summary of the text using your own words.

Key Answers

1. Future energy choices will depend on a number of factors. The significance of different energy sources varies in relation to the key objectives in energy policy. Differences in carbon emissions are of importance to **climate change**, whereas supply location is of importance to energy dependence. Also of importance are the future price of fossil fuels and the magnitude of efforts to provide alternatives.

2. Falling prices are less likely to encourage policy makers to promote renewables.

3. Global greenhouse gas emissions are dominated by energy production. Other sources, including land use change, forestry and agriculture account for around a third of emissions. Fossil fuel use is, however, the single largest human influence on climate, estimated to account for 56.6 of greenhouse gas emissions (IPCC, 2007). Transportation, although accounting for only one-eighth of emissions, has become a central focus in the bioenergy debate due to the carbon intensive nature of transportation, the high public profile of petroleum prices and dependency on producer nations

4. Coal, by far the most polluting of the fossil fuels, is also of increasing importance – particularly in Asia where the highest energy demand increases are predicted.

5. Large reserves of coal suitable for power generation are located in Australia, China, Colombia, India, Indonesia, the Russian Federation, South Africa and the United States

Words used in sentences:

We now have milder winters because of **climate change.**

Renewables are natural energy sources such as wind, water, and sunlight which are always available.

Japan has developed her **economic growth**.

400,000 square kilometres of the Amazon basin have already been deforested.

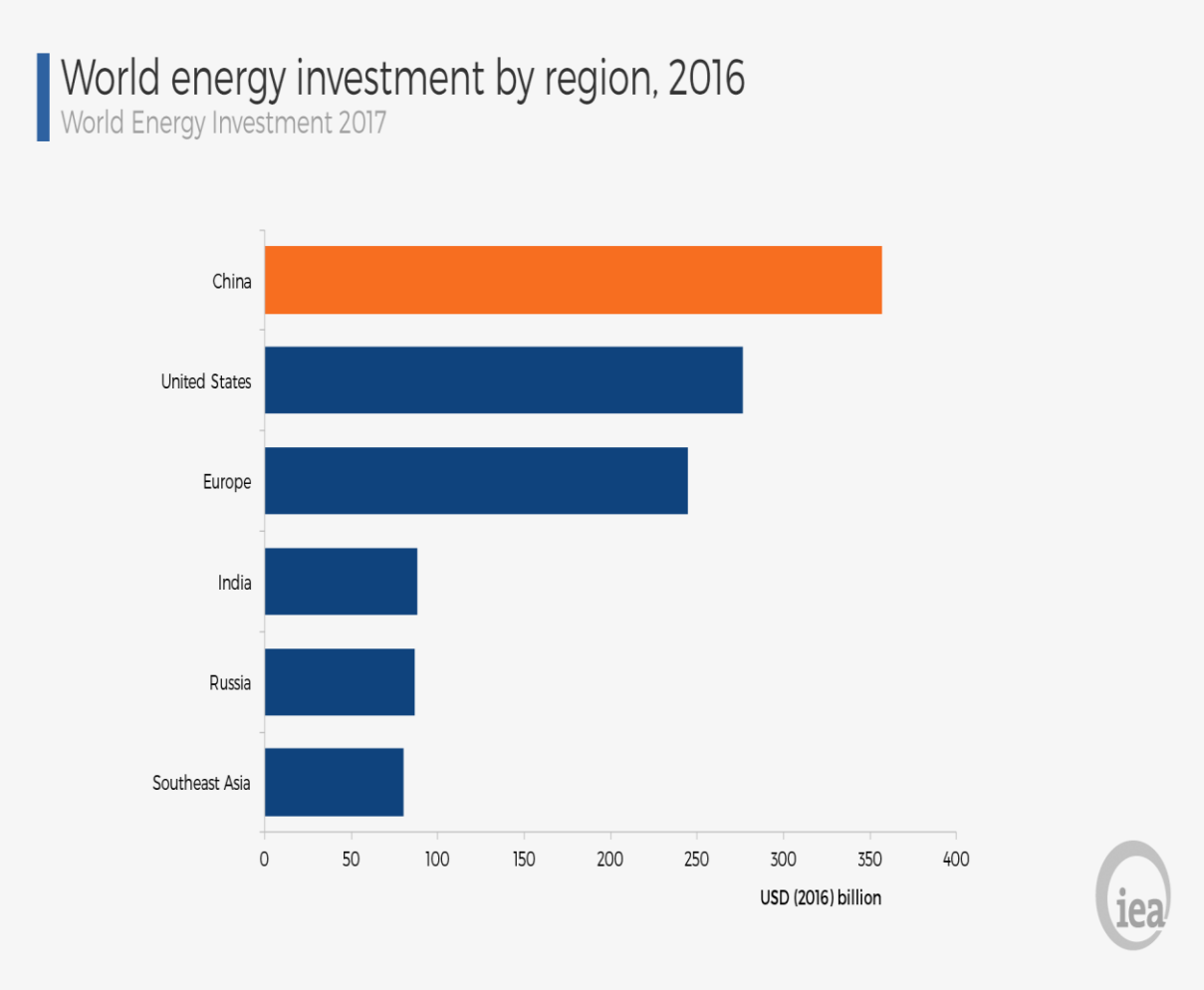
4) Investment Trends in Energy in 2016

Energy investment by sector

1. Total energy investment worldwide in 2016 was just over $1.7 trillion, accounting for 2.2% of global GDP. Investment was down by 12% compared to IEA's revised 2015 energy investment estimate of $1.9 trillion.
2. Spending in energy efficiency rose by 9% while spending in electricity networks rose by 6%, yet these increases were more than offset by a continuing drop in investment in upstream oil and gas, which fell by over a quarter, and power generation, down 5%. Falling unit capital costs, especially in upstream oil and gas, and solar photovoltaics (PV), was a key reason for lower investment, though reduced drilling and less fossil fuel-based power capacity also contributed.
3. For the first time ever, the electricity sector edged ahead of the oil and gas sector in 2016 to become the largest recipient of energy investment. However oil and gas still represent two-fifths of global energy supply investment, despite a fall of 38% in capital spending in that sector between 2014 and 2016. As a result, the share of low-carbon supply-side energy investments, including electricity networks, grew by six percentage points to 43% over the same period.

Regional trends in investment

4. China remained the largest destination of energy investment, taking 21% of the global total yet the makeup of investments in China has been changing. 2016 saw a 25% decline in commissioning of new coal-fired power plants. Today, energy investment in China is increasingly driven by low-carbon electricity supply and networks, and energy efficiency.
5. Energy investment in India jumped 7%, cementing its position as the third-largest country behind the United States, owing to a strong government push to modernise and expand India's power system and enhance access to electricity supply. The rapidly growing economies of Southeast Asia together represent over 4% of global energy investment.
6. Despite a sharp decline in oil and gas investment, the share of the United States in global energy investment rose to 16% – still higher than that of Europe, where investment declined 10% – mainly as a result of renewables.



A rebound in upstream investment

7. After a 44% plunge between 2014 and 2016, it appears that upstream oil and gas investment will rebound modestly in 2017. A 53% upswing in US shale investment and resilient spending in large producing regions like the Middle East and Russia looks to drive upstream investment to bounce back by 3% in 2017 (a 6% increase in nominal terms). Spending is also rising in Mexico following a very successful offshore bid round in 2017.

8. There are diverging trends for upstream capital costs: at a global level, costs are expected to decline for a third consecutive year in 2017, driven mainly by deflation in the offshore sector, although with only 3% decline the pace of the plunge has slowed down significantly compared to 2015 and 2016. The rapid ramp up of US shale activities triggers an increase of costs of 16% in 2017 after having almost halved in 2015-16.
9. The oil and gas industry is undertaking a major transformation in the way it operates, with an increased focus on activities delivering paybacks in a shorter period of time and the sanctioning of simplified and streamlined projects. The global cost curve has rebased, and the significant component of cost reduction experienced over the last two years is likely to persist in the foreseeable future.

Financial health of oil and gas companies

10. The downturn in oil prices did not significantly affect the funding of investments by oil and gas companies, though most of them increased leverage significantly. Despite investment cutbacks and better cost discipline, the oil majors increased debt by over $100 billion between late 2014 and early 2017.
11. Independent US oil companies, which have a more leveraged business model, initially saw debt costs soar, but the availability and cost of bond financing has improved with a rebound of oil prices since early 2016 and their financial health has improved with efficiency gains. Increased interest in shale assets by large oil companies and financial pressures to reduce debt led to a series of asset sales by independents.

Electricity

Increased spending on networks

12. Global electricity investment edged down by just under 1% to $718 billion, with an increase in spending on networks partially offsetting a drop in power generation. Investment in new renewables-based power capacity, at $297 billion, remained the largest area of electricity spending, despite falling back by 3%. Renewables investment was 3% lower than five years ago, but capacity additions were 50% higher and expected output from this capacity about 35% higher, thanks to declines in unit costs and technology improvements in solar PV and wind.

http://www.iea.org/publications/wei2017/

Practice:

A) **Decide whether the following statements are true or false**:

1. Falling unit capital costs, especially in upstream oil and gas, and solar photovoltaics (PV), was a key reason for increasing investment, though reduced drilling and less fossil fuel-based power capacity also contributed.
2. The electricity sector surpassed the oil and gas sector exceptionally in 2016 to become the largest recipient of energy investment
3. China continued to represent the greatest destination of energy investment, taking 21% of the global total.
4. Energy investment in The United States jumped 7%, cementing its position as the third-largest country behind China, owing to a strong government push to modernize and expand its power system and enhance access to electricity supply.
5. Despite a quick decrease in oil and gas investment, the share of the United States in global energy investment grew to 16% – still higher than that of Europe, where investment fell by 10% – mainly as a result of renewable energy sources.
6. Enlarged interest in shale assets by large oil companies and financial pressures to curb debt led to a series of asset sales by independents.

B) **Find synonyms** of the words below referring back to the text above:

1. Fall § 2, aptitude § 2, target §, durable § 7, deviating § 8.

C) **Find opposites** of the words below referring back to the text above:
   2. Halting § 2, inadequacy § 4, diminish § 5, slow § 8, increase § 10

D) **Grammar Section**: Pick out from the text the following:
   1. A passive sentence
   2. A relative pronoun referring to an object
   3. A conjunction used after comparative adjectives and adverbs to introduce the second member of an unequal comparison.
   4. A conjunction used to connect grammatically coordinate words, phrases, or clauses.

Key Answers:

False/true: (F, T, T, F, T, T)

Synonyms: Drop, capacity, destination, resilient, diverging
Opposites: Continuing, efficiency, expand, rapid, downturn

Passive Sentence: There are diverging trends for upstream capital costs: at a global level, costs are expected to decline for a third consecutive year in 2017, driven mainly by deflation in the offshore sector, although with only 3% decline the pace of the plunge has slowed down significantly compared to 2015 and 2016.

A relative pronoun referring to an object: which

Conjunction: Than.

Conjunction: And.

5) Marketing energy Products

Positioning Strategy for a New Energy Drink Brand

Warm up:

Answer the following questions before you read the texts below:

- ✓ What is **marketing**?
- ✓ What is meant by '**the four Ps of marketing'** mean?
- ✓ What does '**marketing mix'** mean?
- ✓ How do you call a person whose job is marketing?

Positioning Strategy:

The positioning of the brand is how consumers' give meaning to your brand based on impressions, feelings, and perceptions. The brand and products (or services) of your organization occupy a particular space in the consumers' mind in relation to your competitors.

Selecting a positioning strategy is **critical** to long-term success. Identification of the target consumer and segmenting the market are critical strategy elements prior to choosing a positioning strategy.

In the case of the energy drink category the target audience is the millennial consumer.

Selecting a Positioning Strategy

Determining your organization's competitive advantages is essential in the process of positioning strategy. The competitive advantages provide a position to establish significant value for consumers.

An organization should be cautious in identifying a competitive advantage. The following questions (guidelines) can be used to identify true competitive advantage:

- ***Is the competitive advantage distinct enough?***
- ***Is it important to consumers?***
- ***Is the competitive advantage truly superior compared to your competitors?***
- ***Can you communicate the advantage?***
- ***Is it affordable?***
- ***Can it be used to prevent competition?***
- ***Is it consistent with the organization's vision, mission, and values?***

There are several choices to determine a competitive position based on differentiation such as service, product, channel, image, personnel, and channels.

An understanding of the competitor's product positioning is essential in designing the positioning for any new brand. The basis of competition in the energy drink segment is differentiation, requiring a differentiation generic strategy.

Energy Drink Background

Energy Drinks were first introduced in the United States in 1997 when Red Bull entered the market. The energy drink market is a segment in the larger functional beverage category including sports and nutraceutical drinks.

Energy Drink Competitors Positioning

Red Bull, Monster, and Rockstar are the top brands with 90% of the market with other brands such as Amp, NOS, and Full throttle representing 10% of the market share. The competitor's positioning was based on the top three brands in the marketplace; this provides enough information and comparison points for the research proposal.

Red Bull

Red Bull is the largest selling brand in the energy drink market across the United States with 39% of the market. Red Bull sells approximately 4.6 billion cans per year, and the product is available around the globe in 164 countries. Red Bull's *"it gives you wings"* slogan serves as the brand message to target millennials and the brand is associated with extreme sports and other activities and events like music festivals. Red Bull endorses recognized sports figures and artists.

Red Bull uses a progressive marketing strategy as part of the marketing promotion strategy including sponsorship of inspirational and extreme sports and music events with high media coverage. The founder of Red Bull, Dietrich Mateschitz, explains his philosophy as "We don't bring the product to the consumer; we bring consumers to the product".

Red Bull's content marketing strategy is the core of their strategy. Red Bull operates as a marketing company that uses an association of the brand with extreme sports events, music, and valuable content delivered using digital and social media to differentiate the brand. The strategy uses videos and articles related to extreme sports and music with minimal correlation to the Red Bull energy drink.

Areas of interest for Red Bull's target audience have been excellent sources to create content, and they attract consumers to spend time accessing digital and social media content.

Nature of Competition

The energy drink market is monopolistically competitive based on a large number of competitors, easy entry and exit from the market, and product differentiation.

Consumer Perceptions, Legislation, and Lawsuits

Consumers have formed negative perceptions of energy drinks based on lawsuits, proposed legislation, and media attention the category must address. Despite the negative perceptions, the energy drink category continues to experience growth.

Product Positioning

Product positioning for a new brand must utilize research methodology based on primary and secondary research. Primary research includes an online **survey** of energy drink consumers within the **target** audience. Secondary research includes research from industry publications, articles, analyst reports, and trade associations.

Benefit Segmentation

Energy drinks offer consumers a boost of energy, through large amounts of caffeine and sugar, to start off his or her day or for an afternoon energy boost to accomplish more tasks or feel less sleepy.

Young adults consume the most energy drinks and are often unaware of how much caffeine and sugar he or she is consuming. Energy drink manufacturers are not required to label their product with the amount of caffeine contained in the drink, and most do not put this information on their product. The lack of regulations with respect to labeling poses a health risk since some of the larger energy drinks can contain as much caffeine as 14 cans of cola.

It is highly recommended a new energy drink take a healthier approach to the energy drink market with a labeled amount of caffeine and sugar content on the packaging. A new energy drink brand should focus on the millennial market and offer a variety of products to meet the needs of this target market and the major subculture **segment**s.

Product Attribute

Offering different product varieties based upon; taste and flavor is critical to an energy drink brand. An energy drink brand dedicated to the safe consumption with labels clearly indicating the caffeine and sugar content provides the best method to appeal to consumers.

A health conscious product with no calories, carbs, or sugar should be offered to appeal to the millennial market as a whole. Research has shown that including combinations of fruit juice flavors and reduced sugar content will make the product more appealing to the different subcultures of the millennial market. Offering product line extensions (5-% juice, dual fruit-flavor, and organic options) will appeal to the African-American and Hispanic subcultures, because of their taste and flavor preferences.

Labeled product information is also very important to these subcultures, and any new energy drink brand must appeal to the authentic and transparent requirements of the millennial group. In order to appeal to the millennial target audience, an energy drink brand must differentiate itself by providing labels clearly identifying the caffeine and sugar content.

1) **Comprehension of the text**: Read the texts above and answer the following questions using your own words.
1. What is meant by ‘positioning of brands’? Identify the steps that precede the selection of a positioning strategy?
2. Mention two guidelines that can be used to identify true competitive advantage.
3. What makes Red Bull a popular energy drink?
4. What must product positioning for a new brand utilize?
5. What attributes health conscious products should contain?

2) **Vocabulary: Guess** the **meaning** of the underlined words in **bold type** in the texts above.

3) **Grammar**:

   a) What do the words in **bold type** in the following sentences express?
      1. "The following questions (guidelines) **can** be used to identify true competitive advantage".
      2. An organization **should** be cautious in identifying a competitive advantage
   b) Identify examples of passive sentences in the text.

4) Pre-writing assignment
Sum up the text in your own words.

5) Writing assignment: Group work
Main tasks:

- Think of a new energy product that you intend to market.
- Describe in details the characteristics of your product.
- Answer the questions (guidelines) above to determine how significant and useful your product will prove for consumers.

Key Answers:

Marketing: It is the process of planning, designing, pricing, promoting and distributing ideas, goods and services, in order to satisfy **customer needs**, so as to make a **profit**.

The four Ps:

Product: deciding what to sell

Price: deciding what prices to charge

Place: deciding how it will be distributed and where people will buy it.

Promotion: deciding how the product will be supported with advertising, special activities, etc.

A fifth P which is sometimes added is **packaging**: all the material used to protect and present the product before it is sold.

The four Ps are a useful summary of the **marketing mix**, the activities that you have to combine successfully in order to sell.

A **marketer** is someone who works in this idea.

Comprehension

1. The positioning of the brand is how consumers' give meaning to your brand based on impressions, feelings, and perceptions. Identification of the target consumer and segmenting the market are critical strategy elements prior to choosing a positioning strategy.
2. (Is the competitive advantage truly superior compared to your competitors? (Can you communicate the advantage?)
3. Red Bull uses a progressive marketing strategy as part of the marketing promotion strategy including sponsorship of inspirational and extreme sports and music events with high media coverage. Red Bull endorses recognized sports figures and artists.
4. Product positioning for a new brand must utilize research methodology based on primary and secondary research.
5. A health conscious product with no calories, carbs, or sugar should be offered to appeal to the millennial market as a whole. Research has shown that including combinations of fruit juice flavors and reduced sugar content will make the product more appealing to the different subcultures of the millennial market.

   Guess:
   Critical: important
   Survey: investigation
   Target: aim
   Segments: **part**

Grammar: Possibility and obligation.

Passive: (The following questions (guidelines) can be used to identify true competitive advantage. (The competitor's positioning was based on the top three brands in the marketplace; this provides enough information and comparison points for the research proposal.)

A **Nutraceutical** is a pharmaceutical-grade and standardized nutrient.[1] Nutraceuticals are regulated by FDA under the authority of the Federal Food, Drug, and Cosmetic Act.

Carbohydrates, along with fats and proteins, are one of the three main classes of food. Carbohydrates are organic compounds consisting mainly of sugars, starches, and fiber.

Plants make carbohydrates during photosynthesis and store them as any of the saccharides (sugars) described below. They are used primarily for energy in the body. If carbohydrate isn't used in short order, it is stored.

A certain amount can be stored in the liver and muscles as glycogen, and the rest is stored as fat. Unlike protein and essential fats, our bodies can get along without dietary carbohydrate if needed.

6) Effectively Managing Your Business Enterprise

Definitions of Enterprise: /ˈɛntəˌpraɪz /

An **enterprise** is a company or business, often a small one

An **enterprise** is something new, difficult, or important that you do or try to do.

Enterprise is the activity of managing companies and businesses and starting new ones.

Enterprise is the ability to think of new and effective things to do, together with an eagerness to do them.

Source: https://www.collinsdictionary.com/dictionary/english/enterprise

Managing Your Business Enterprise:

Effectively managing your business enterprise involves many aspects. From the day-to-day to the large-scale annual events or maintenance, managerial duties are often never-ending. Your solid leadership and understanding of the industry are a great start, but these alone will not create solid management in your business.

1. Lead with knowledge and confidence. To build your leadership skills, find a more experienced manager willing **to mentor** you. Use networking to connect with managerial staff from other companies that can give you wisdom. In this ever-changing world, it is crucial that you stay current and informed on any technology, products and practices that relate to your company.

2. Delegate effectively. No matter how skilled you are, you will not be able to manage everything on your own. However, **delegating** can create more work for you if you do not do it well. Make a list of things that you know you must do yourself and things that could successfully be accomplished by another. Your time should be spent in the areas in which you excel, but be careful not to over-delegate. If you have given too many tasks away, you will spend all of your time monitoring their progress, leaving you unable to accomplish your own tasks.

3. Hire the right employees and manage them with care. Interview and screen every candidate, performing background checks and credit checks, especially if they will be handling money. Be purposeful about job descriptions so that the eventual employee will know of your expectations and be clear about what is required of them. Set clear expectations in employee

manuals and be prepared to consistently enforce those **expectations**. Consequences for **unethical** or inappropriate behavior should be labeled in employee manuals.

4. Motivate and train your employees. As business practices and technology change, it is important educate your employees. Motivate them with bonuses and rewards for specific achievements. Building employee morale will benefit you and the business. Share the company's success with the employees to give them a sense of ownership and belonging.

5. Meet the needs of your customers. Your employees should be well-trained in customer service, but you should lead as their best example. Make it a priority to truly listen to the needs of your customers. Ask appropriate, open-ended questions about the customer's needs and desires.

6. Market your company effectively. Although the business owner may have a paid marketing staff, you must still be willing to use your own skills and those found in your own department to market your company. You may be required to coordinate and create marketing activities, including print media, target market research, advertising and customer communication.

Source: https://smallbusiness.chron.com/manage-business-enterprise-2987.html by *Kristie Lorette*

Business Enterprise Planning

Planning is an essential business function that requires a dedicated effort from the company's management team in order to fully realize the benefits. Companies often have an annual planning process whereby the strategies and budget for the upcoming year are determined, but, ideally, planning should be a part of everyday management thinking. It is a mindset of continually looking for ways to make the enterprise more competitive.

Benefits

During the planning process, goals are set for both the short and long term. These may be financial goals, such as increasing revenues 25 percent in the upcoming year, or they may less intangible but just as significant goals, such as improving company-wide morale. Having goals provides direction for all members of an organization. Once goals are set, strategies are

determined to reach the goals. These are actions that must be taken to achieve the stated goals, including who is responsible for completing them. Planning provides a sharply focused blueprint by which the management team can guide the company.

Research Needed

Information is the raw material that fuels the planning process. Management must gather detailed information about the strengths and weaknesses of competitors in order to come up with strategies that create a competitive advantage for the company. To plan a business enterprise, you also have to have a thorough understanding of the current state of your industry so you can identify emerging opportunities. Market research is also key; understanding your customers will allow you to better attract and serve them. Consumers' needs change, their tastes change, and what they are willing to pay for products or services changes depending on the economic environment.

Thinking Process

Planning requires vision, or the ability to see success for your company before it occurs. Knowing where you want the company to be in three to five years and what you want to achieve during that time is an essential ingredient of successful planning. All of the decisions the company makes should contribute to making this vision a reality.

Opportunity Analysis

The core concept of enterprise planning is resource allocation, or making the tough decisions about where to spend money and devote staff members' time in order to reach the organization's stated goals and succeed versus the competition. Companies must allocate their resources to what they determine are their best opportunities, and should be constantly seeking out new opportunities. A company's best opportunities result from a combination of its capabilities, or what it does particularly well in comparison to its competitors, and what the most critical customer needs are. The products and services the company offers should match up extremely well with customer needs.

Planning the Team

The quality of the management team is an important determinant of the company's ultimate success. A business owner, as part of the planning process, must constantly assess the skills and capabilities of his current team versus the changing requirements of the business. Growth brings increasing complexity to the operation of a business and can expose weaknesses in management. The business owner must anticipate this and bring in additional talent as well as build the skills of the existing team members through additional training and education.

Source:https://smallbusiness.chron.com/business-enterprise-planning-4485.html *by Brian Hill*

Exercise One: read the Managing Your Business Enterprise section and guess the meaning of the underlined words in bold type in the same section.

Exercise Two : Read the **Business enterprise** section and say whether the following statements are true or false :

1. It is an outlook that prevents managers to frequently look for ways to make the enterprise more competitive.
2. Planning allows a harshly focused design by which the management team can guide the company.
3. To plan a business enterprise, you also have to have a superficial understanding of the current state of your industry so you can identify emerging opportunities.
4. The management team eminence is a very shallow determinant of the company's ultimate success.
5. The business owner must provide extra talent and foster the skills of the existing team members through additional training and education

Exercise Three: Complete the table below

Verb	Noun	Adjective
	Maintenance	
accomplish		
advertise		
improve		
	competitor	

Exercise Four: Put the following business dialogue into the correct order:

A. **Ms Adams:** OK, I'll arrange a meeting. Thank you Mr. Gilder.
Mr Gilder: No, thank you Ms Adams.

B. **Mr Gilder:** They usually pay on time. I don't understand ...
Ms Adams: Yes, you're right. They ARE excellent clients. Unfortunately, they aren't pleased with the merchandise we are sending them.

C. **Ms Adams:** Thank you for coming to the meeting today, Mr. Gilder.
Mr Gilder: My pleasure, Ms Adams. Now, what problems are we having around here?
Ms Adams: Well, unfortunately, we're having a number of problems with our clients in Holland.

D. **Ms Adams:** Shall we invite them to meet with us?
Mr Gilder: That's an excellent idea. It'll show them our concern.

E. **Mr Gilder:** How can that be? We always provide first class products.
Ms Adams: I know, however they aren't happy. They say they are meeting with a new manufacturer next week.

F. **Ms Adams:** Let's take a look at some of the suppliers in the area. I'm sure we can find a better one.
Mr Gilder: OK, what other suggestions have you got?

G. **Ms Adams:** Why don't we change suppliers?
Mr Gilder: Is that the problem?

H. **Mr Gilder:** Nonsense, and what are we doing to change things?
Ms Adams: Well, that's the reason for our meeting today. I'd like to make a few suggestions.
Mr Gilder: I'm listening ...

Answer Key:

Exercise One: Read the

Exercise Two : Say whether the following statements are true or false :

1. It is an outlook that prevents managers to frequently look for ways to make the enterprise more competitive. (f)
2. Planning allows a harshly focused design by which the management team can guide the company. (T)
3. To plan a business enterprise, you also have to have a superficial understanding of the current state of your industry so you can identify emerging opportunities. (F)
4. The management team eminence is a very shallow determinant of the company's ultimate success. (f)
5. The business owner must provide extra talent and foster the skills of the existing team members through additional training and education. (T)

Exercise One: read the Managing Your Business Enterprise section and guess the meaning of the underlined words in bold type in the same section.

to mentor: 1. An experienced and trusted adviser. 2. An experienced person in a company or educational institution who trains and counsels new employees or students.

'Regular meetings between mentor and trainee help guide young engineers through their early years'

delegating: (to delegate) Entrust (a task or responsibility) to another person, typically one who is less senior than oneself.
'She must delegate duties so as to free herself for more important tasks'
'The power delegated to him must never be misused'

expectations: A strong belief that something will happen or be the case.
'Reality had not lived up to expectations'

Unethical: Not morally correct.
'It is unethical to torment any creature for entertainment'

Verb	Noun	Adjective
To maintain	Maintenance	**maintained**
To accomplish	**accomplishment**	**accomplished**
To advertise	**advertisement**	**advertised**
To improve	**Improvement**	**improved**
To compete	competitor	**Competing**

C. Ms Adams: Thank you for coming to the meeting today, Mr Gilder.
Mr Gilder: My pleasure, Ms Adams. Now, what problems are we having around here?
Ms Adams: Well, unfortunately, we're having a number of problems with our clients in Holland.

B. Mr Gilder: They usually pay on time. I don't understand ...
Ms Adams: Yes, you're right. They ARE excellent clients. Unfortunately, they aren't pleased with the merchandise we are sending them.

E. Mr Gilder: How can that be? We always provide first class products.
Ms Adams: I know, however they aren't happy. They say they are meeting with a new manufacturer next week.

H. Mr Gilder: Nonsense, and what are we doing to change things?
Ms Adams: Well, that's the reason for our meeting today. I'd like to make a few suggestions.
Mr Gilder: I'm listening ...

G. Ms Adams: Why don't we change suppliers?
Mr Gilder: Is that the problem?

F. Ms Adams: Let's take a look at some of the suppliers in the area. I'm sure we can find a better one.
Mr Gilder: OK, what other suggestions have you got?

D. Ms Adams: Shall we invite them to meet with us?
Mr Gilder: That's an excellent idea. It'll show them our concern.

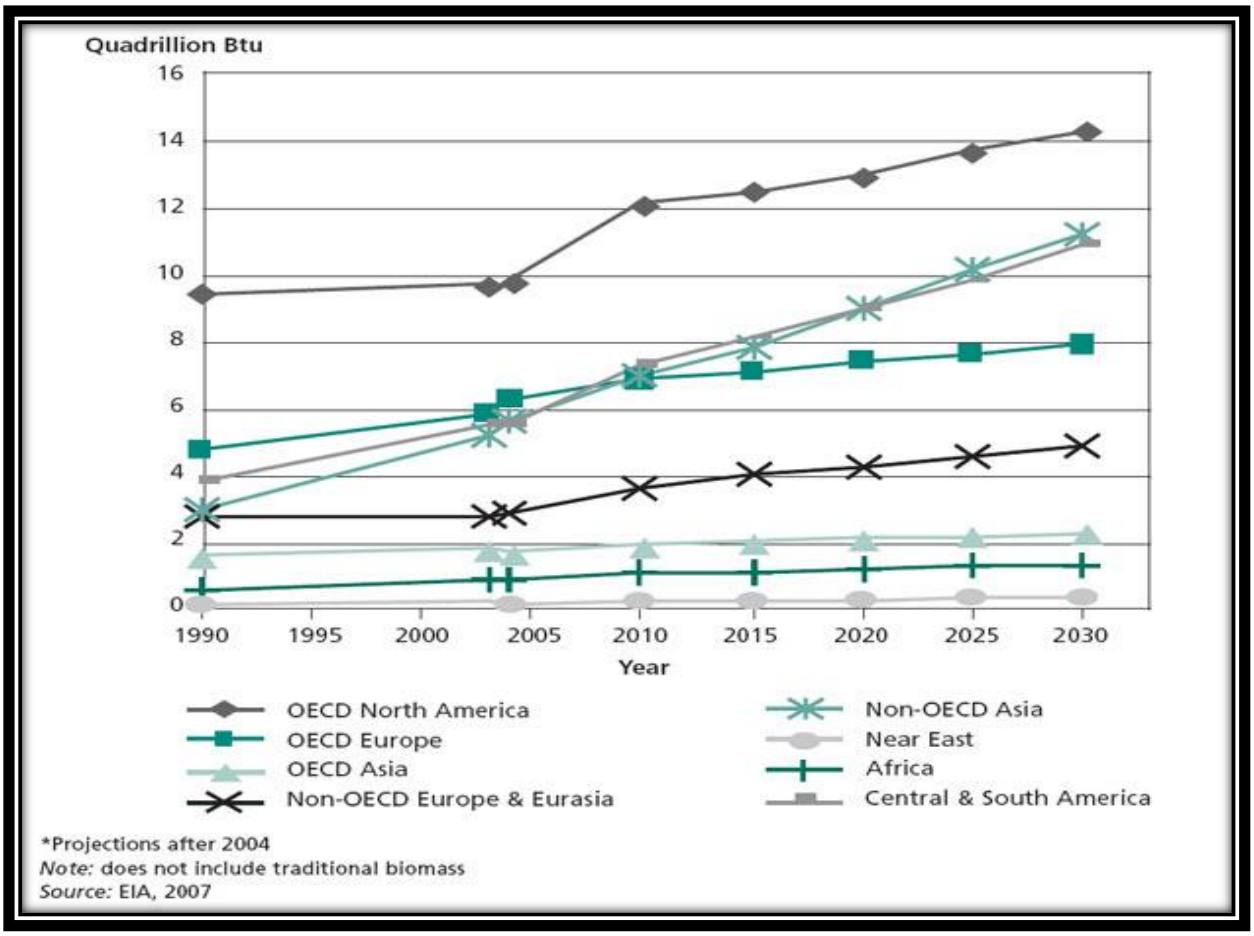
A. Ms Adams: OK, I'll arrange a meeting. Thank you Mr Gilder.
Mr Gilder: No, thank you Ms Adams.

Source:http://www.yeuanhvan.com/esp-business-english/business-dialogues/7372-intermediate-dialogue-problems-with-a-client

Section Two: Renewable Energy

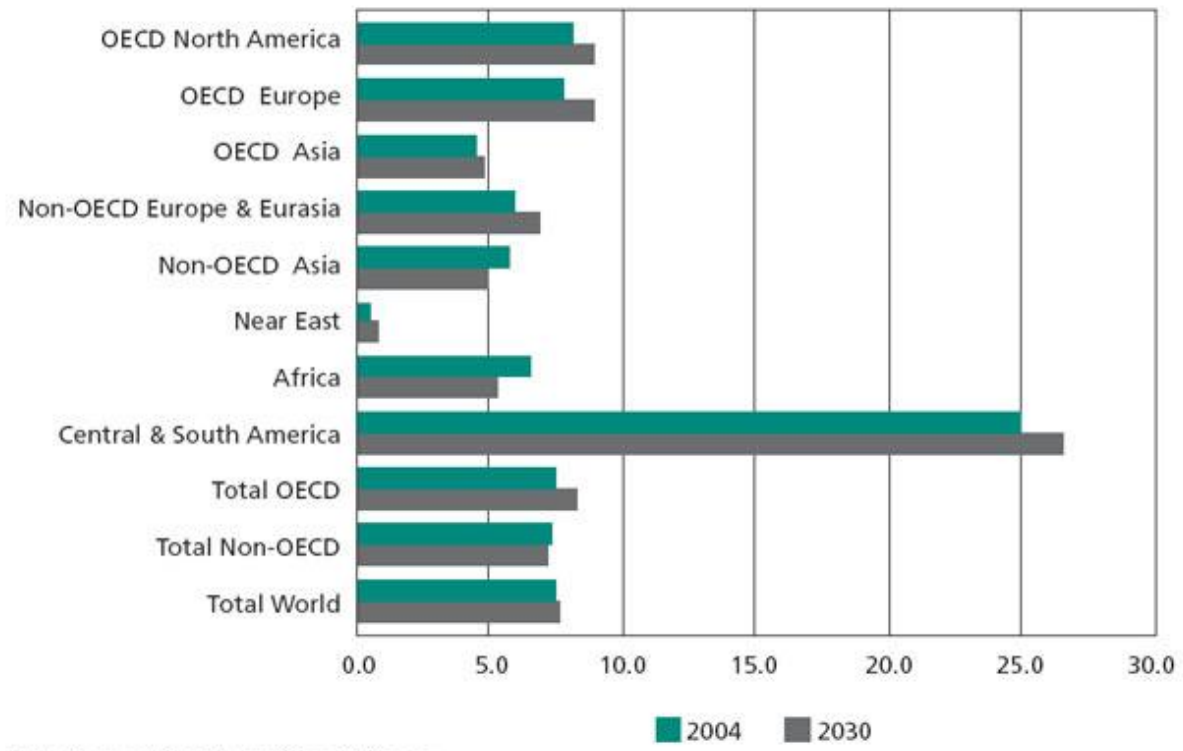
1) How is the use of renewable energy projected to evolve?

Figure 1. Marketed renewable energy consumption for OECD and non-OECD countries, 1990–2030*



Renewable energy consists of energy produced and/or derived from sources that can be renewed indefinitely, such as hydro-, solar and wind power, or sustainably produced, such as biomass. Notwithstanding the forecast dominance of fossil fuels, the use of renewable sources of energy is expected to expand. Based on United States Energy Information Administration (EIA) projections, marketed renewables will grow over the next decades at an annual rate of around 1.9 percent. The greatest absolute increases are expected in North America, Asian developing countries and Central and South America (Figure 1). Annual growth rates in consumption of renewables are expected to be highest in the Near East, Asian developing countries and Central and South America . In Asian developing countries, the trend is driven more by increased energy consumption than a particular focus on renewables as in Central and South America.

Figure 2. Percentage of marketed renewable energy in total energy consumption for OECD and non-OECD countries in 2004 and projected for 2030



Note: does not include traditional biomass
Source: EIA, 2007

In most of the world's regions, the proportion of energy from marketed renewable sources is expected to increase in the coming years (Figure 2). By far the greatest overall proportion of renewable energy consumption is in Central and South America, where economically competitive non-fossil fuelsources of energy are already well established (Box 2). These figures do not take into account the recent long-term energy strategy of the European Union (EU), which proposes that by 2020, EU consumption of renewables will increase to 20 percent of total energy use; the proportion of biofuels used in transport will increase to 10 percent; and EU **greenhouse gas emissions** will be reduced to 20 percent below 1990 levels (European Union, 2007).

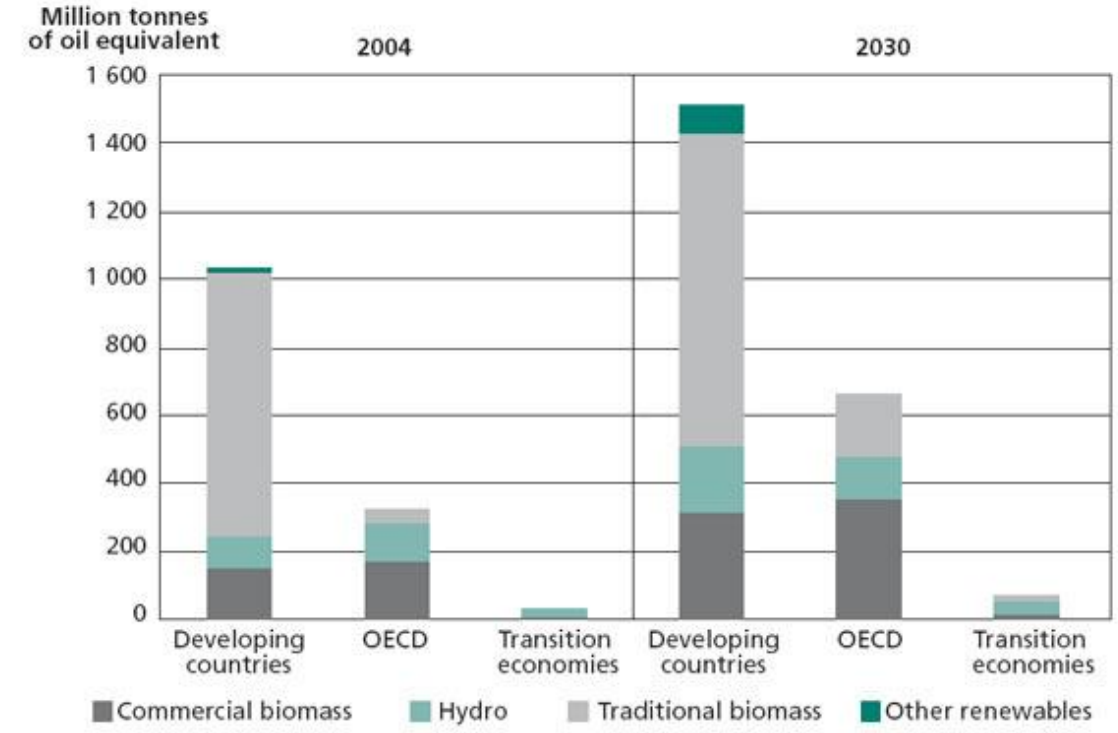
Higher fossil fuel prices and government policies and programmes in support of the development of alternative energy will be factors in the competitiveness of renewable energy sources. In spite of national and international efforts, however, forecasts do not show the global share of renewable energy increasing significantly. A minor expansion from 7.4 to 7.6 percent is all that is expected by 2030 (EIA, 2007).

The World Alternative Policy Scenario presented in the World Energy Outlook 2006 (IEA, 2006) shows how the global energy market could evolve if countries around the world were to adopt policies and measures currently under consideration for reducing **carbon dioxide** emissions and improving energy supply security. In the scenario, the share of renewables in global energy consumption remains largely unchanged while the share of **traditional biomass** falls. Hydropower production will grow but its share will remain stable, while the shares of other renewables (including **geothermal,** solar and wind) will

increase most rapidly, but from such a low base that they will remain the smallest component of renewable energy in 2030.

With the inclusion of traditional biomass, heating and cooking will remain the principal uses of renewable fuels over the next 25 years. The power sector, however, is expected to lead the global increase in renewable energy consumption (IEA, 2004). This sector accounted for a quarter of global renewable energy consumption in 2002, but its share is projected to rise to 38 percent by 2030. Currently, less than 1 percent of fuels used for transport are renewable. According to projections, this share will rise to 3 percent over the next 25 years. The overall impact of these changes on global energy consumption will be relatively small although the impact on **deforestation** and food security may be considerable.

Figure 3. World renewable energy consumption by region for 2002 and projected for 2030



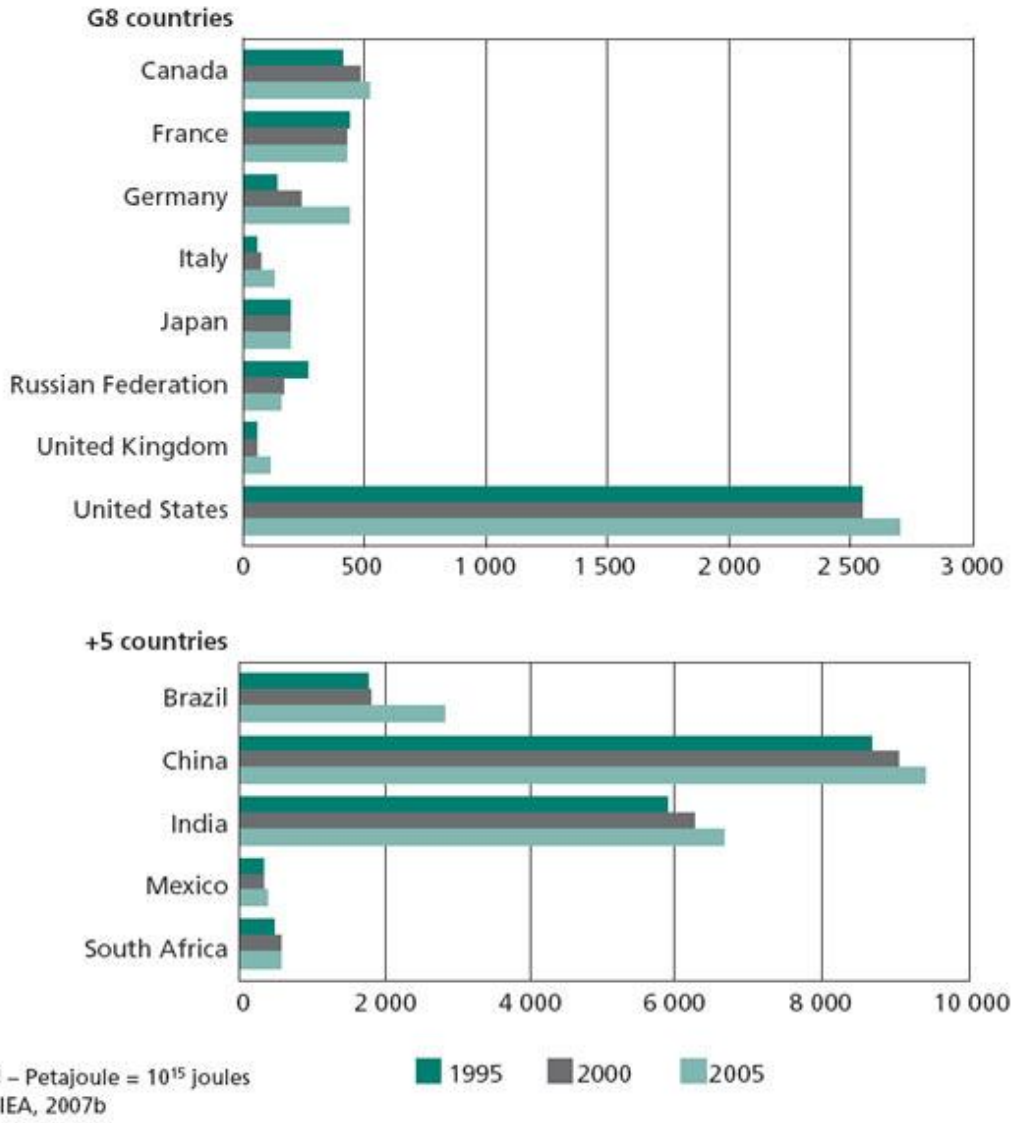
Source: IEA, 2004

Renewable energy including traditional biomass makes up a greater proportion of total energy supplies in developing than in developed countries. About three-quarters of renewable energy are consumed in developing countries, where most renewable energy production is based on the use of traditional **biomass** and hydropower. Industrialized countries account for 23 percent of the total renewable energy consumed worldwide, and transition economies for 3 percent (Figure 3).

The two regions where renewable energy is the most significant are Africa and Latin America. In Africa, this is largely due to consumption of **wood fuel** for heating and cooking.

In Latin America, it is due to the high use of renewables in Brazil, where 45 percent of all energy consumed is based on renewables – hydropower, wood, and sugar-cane ethanol.
Biofuel use is increasing in most of the G8 + 5 countries, which consume the largest amounts of energy in the world, with the notable exception of the Russian Federation where the availability of fossil fuels is increasing. In absolute terms, the United States, China and India consume by far the largest quantities of biofuels (Figure 4).

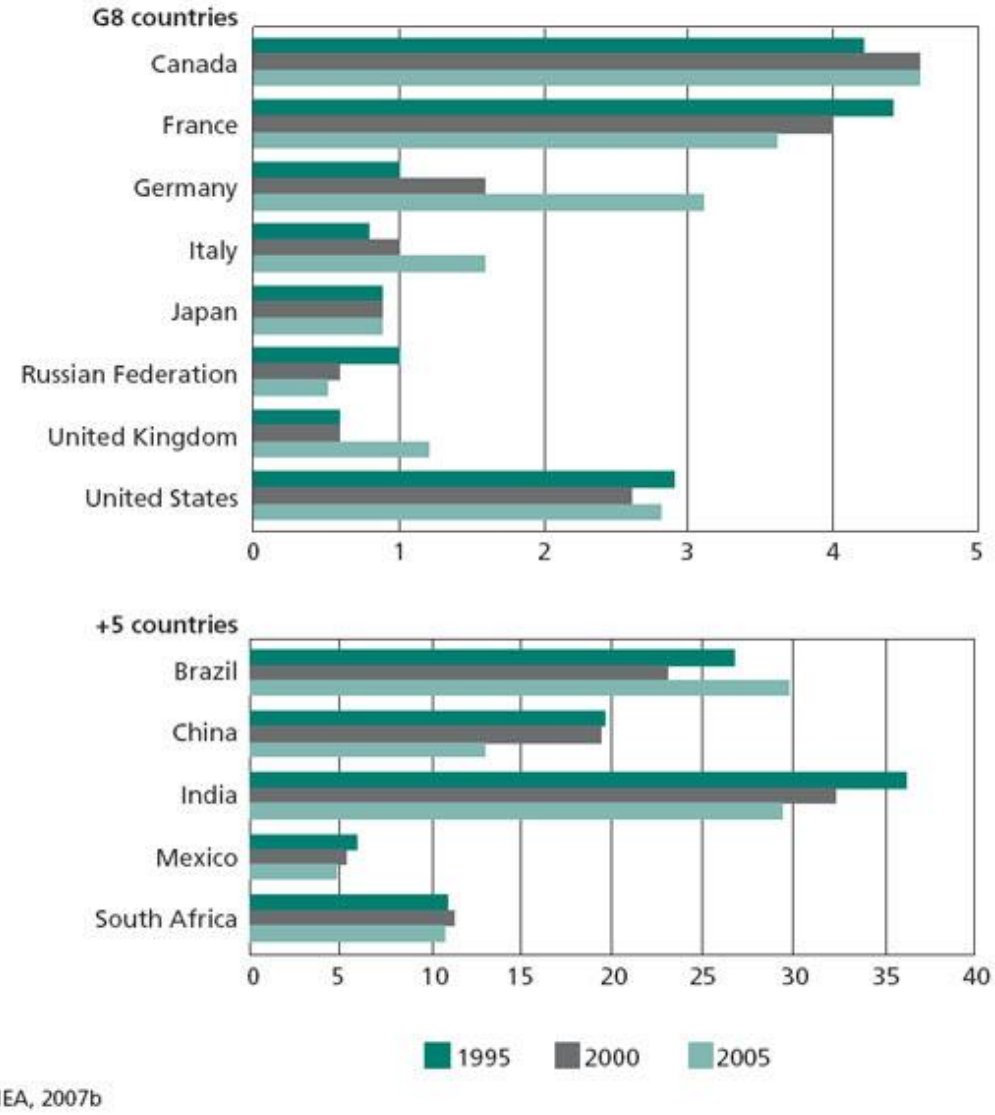
Figure 4. Total primary energy supply (TPES) from biofuels for G8+5 countries (PJ)



Note: PJ – Petajoule = 10^{15} joules
Source: IEA, 2007b

Figure 5 shows clearly the impact of government policies by comparing the relative use of **bioenergy** as a percentage of total energy consumption in the G8 + 5 countries between 1995 and 2005. Bioenergy increased as a percentage of total energy use between 2000 and 2005 in Germany, Italy, the United Kingdom, the United States and Brazil, all of which provided economic incentives for bioenergy consumption. However, the relative use of biofuels declined in China and India where high rates of economic growth outpaced the impacts of rising **fossil fuel** prices.

Figure 4. Percentage primary energy supply from bioenergy



Source: IEA, 2007b

Biofuels for transport in Brazil

Worldwide, only about 1 percent of the consumption of transport fuels comes from liquid biofuels. Brazil is a notable exception to this average. During the first global oil crisis in 1975, Brazil launched a national biofuel programme leading to the large- scale production of ethanol from domestic sugar supplies. More than 90 percent of all cars produced and sold in Brazil are "flex", that is equipped with a motor that can run on ethanol, petrol or mixtures. Brazil has recently launched a global campaign to promote biofuels as a viable alternative to fossil fuels for transport.

In Brazil, biofuel from sugar cane sources is more competitive than petrol, when the oil price is above US$35 per barrel. Bioethanol from corn in the United States is, by comparison, competitive at an oil price of US$55 per barrel, and bioethanol in the European Union requires an oil price of US$75 to $100 per barrel to be competitive (Worldwatch Institute, 2007).

The success of biofuels in Brazil is largely a result of the high productivity of sugar cane and the suitability of the feedstock for efficient conversion to ethanol. Approximately 90 000 ha of sugar-cane plantations are established every year, mostly in the southern parts of the country (FAO, 2007c). Brazil is expected to continue to be the major biofuels exporter worldwide (Global Insight, 2007).

Source text: https://www.greenfacts.org/en/forests-energy/l-3/2-prospects-energy-supply.htm

Source definitions : https://dictionary.cambridge.org/dictionary/business-english/

Practice:

A) Write true or false next each of the following statements:

1. The use of renewable energy is supposed to increase. ( )
2. The biggest increases in renewable energy are expected to concern Northern Asia and South Africa. ( )
3. Competitiveness of renewable energy sources will be the result of bigger fossil fuels use. ( )
4. Renewable energy including traditional biomass represents a higher fraction of total energy supplies in developing than in developed countries. ( )

B) Comment on each of the graphs in the text.

C) Explain the underlined words in bold type

Answer Key:

T, F, F,T,

Greenhouse gas emissions: any of various gaseous compounds (such as carbon dioxide) that absorb infrared radiation, trap heat in the atmosphere, and contribute to the greenhouse effect

Carbon Dioxide: a heavy colorless gas CO_2 that does not support combustion, dissolves in water to form carbonic acid, is formed especially in animal respiration and in the decay or combustion of animal and vegetable matter, is absorbed from the air by plants in photosynthesis, and is used in the carbonation of beverages

Geothermal: of, relating to or utilizing the heat of the earth's interior; *also*: produced or permeated by such heat.

Biomass: the amount of living matter (as in a unit area or volume of habitat) also: plant materials and animal waste used especially as a source of fuel

Deforestation: the action or process of clearing of forests; *also* **:** the state of having been cleared of forests

Wood fuel: **Wood fuel** (or **fuelwood**) is a fuel, such as firewood, charcoal, and sawdust. The particular form used depends upon factors such as source, quantity, quality and application.

Biofuel: A **biofuel** is a fuel that is produced through contemporary biological processes, such as agriculture. Biofuels can be derived directly from plants, or indirectly from agricultural, commercial, domestic, and/or industrial wastes.

Bioenergy : is renewable energy made available from materials derived from biological sources

Fossil fuels: a fuel (such as coal, oil, or natural gas) formed in the earth from plant or animal remains

Charcoal: charbon: Un carbone poreux noir ou noir préparé à partir de substances végétales ou animales (à partir du bois par carbonisation dans un four dont l'air est exclu)

Sawdust : sciure

2) ADDITIONAL CHALLENGES FACING RENEWABLE ENERGY

Aside from the massive challenges with the highly diffuse nature of incoming sunlight caused by the second law of thermodynamics, renewable energy faces a number of additional challenges, any one of which could derail the entire process on its own. This page will provide some more perspective on just how difficult it will actually be to achieve a sustainable energy future.

Intermittent nature

1. After the second law of thermodynamics, arguably the biggest challenge with renewable energy sources is their **intermittent** nature. **Solar and wind power only generate electricity when the sun is shining or the wind is blowing.** Yes, there are ways of storing energy for use on windless nights (such as pumping water up to a reservoir using surplus electricity and letting it run down through a **turbine** when needed), but these methods greatly compound the lack of economic competitiveness of renewables against the awesomeness that is fossil fuels and are also greatly limited by other factors such as geography.

2. No, the odds are that we will always need to burn some kind of fuel during the times that renewables are not producing any power. And yes, this just brings yet another problem: even more expensive electricity. You see, due to very high capital costs, **a standard power plant can only be economical if it continuously generates electricity throughout all the years in its lifetime.** If power plants are reduced to backup generators for renewables and operate, say, at only 50% of their current loads, it is safe to say that the electricity they generate will become twice as expensive (probably more due to regular **startups**, **shutdowns** and sub-optimal operation).

3. Sure, it can be reasoned that this sharp increase in the cost of fossil fuel electricity (caused exclusively by renewables of course) can actually appear to make renewables cost competitive, but the vicious energy price inflation cycle that will result from this dynamic will crash the global economy long before any meaningful increases in installed renewable energy capacity is achieved.

4. The alternative is to just have a truly massive electricity grid to spread electricity over a very wide area from wherever the sun happens to be shining and the wind happens to be blowing. Unfortunately though, this is perhaps the most unrealistic idea of all. **A proposal for a single electricity line to transmit 3000 MW of electricity for a distance of 1600 km (which will require a clear channel 60 m in width for the entire distance) quoted a cost of $3 billion – an amount sufficient to simply build 3000 MW of fossil fuel power plants wherever they might be needed.** And yes, we will need thousands of much longer electricity lines if we are to successfully construct such a **super-grid**. Also just imagine the levels of coordination and international collaboration required to make this happen. The way in which Western politicians are

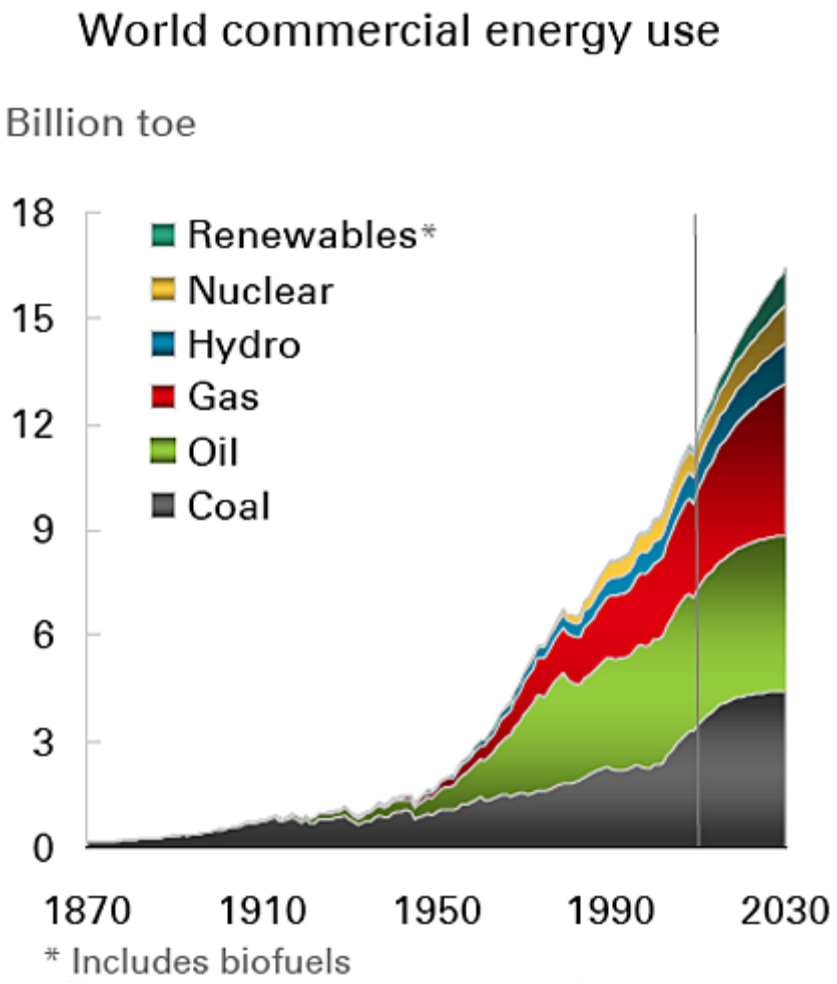
currently handling our self-imposed debt crisis should offer another stern reality check.

5. Finally, super-grid or large scale storage options might be theoretically feasible to smooth out short term intermittency such as night and day variations, but have no chance of countering for slow seasonal variations. When looking at solar power for example, the electricity that can be produced is linked very directly to **the seasonal solar influx.** If you are located on the equator, this is not a problem, but the vast majority of global energy is consumed thousands of miles north of the equator. According to these data, **the minimum winter solar influx at latitude of 40 degrees (which is typical for the USA) is 3 times smaller than the maximum summer influx. At 50 degrees north (which is typical for Europe), this ratio increases to 5.7 and then quickly blows up to infinity as we approach the Arctic Circle.** If you then also acknowledge that **energy usage normally peaks in the cold winter months,** the problem becomes pretty obvious.

Up-front capital costs

6. The next major challenge faced by renewable energy involves the massive upfront capital costs in terms of **money, materials and energy.** A normal fossil fuel power plant also has substantial capital costs, but a significant amount of the total cost is spread throughout its entire lifetime as fuel, operating and maintenance costs. This is not the case for renewables like solar and wind where **virtually the entire cost in terms of money, materials and energy (which, on average, is probably around 5 times more than a fossil fuel plant of similar wattage) must be paid up-front.** And yes, this is a major problem.

7. Just looking at the up-front energy costs, **it can be roughly estimated that replacing all of our fossil fuel power plants with solar power plants that last for 30 years and deliver three times the energy it took to construct and install them over that period will require the total amount of electricity that we currently generate in an entire decade.** So, even if we really tighten our belts and pledge 10% of the electricity we generate towards the construction of renewable energy resources, **we will need an entire century to get the job done.** And yes, this is of course based on a very shaky assumption that the world energy consumption will remain constant.



Sources: https://oneinabillionblog.com/summary-2/laws/additional-challenges-facing-renewable-energy/

Practice:

Answer the questions below:

1. What is the main idea of the essay above?
2. What are the supporting sentences expressed in each paragraph?
3. Comment on the graph below.
4. What conclusion does the author draw to the text above?
5. Explain the underlined words in bold type.

Key Answer:

Topic sentence: renewable energy faces a number of additional challenges, any one of which could derail the entire process on its own. This page will provide some more perspective on just how difficult it will actually be to achieve a sustainable energy future.

Supporting Sentences:

§ 1

- The intermittent nature of renewable.
- **Solar and wind power only generate electricity when the sun is shining or the wind is blowing.**

- Although there are ways of storing energy for use on windless nights, but these methods greatly compound the lack of economic competitiveness of renewables against the awesomeness that is fossil fuels and are also greatly limited by other factors such as geography.

§ 2

- The need to burn some kind of fuel during the times that renewables are not producing any power. And yes, this just brings yet another problem: even more expensive electricity. You see, due to very high capital costs, **a standard power plant can only be economical if it continuously generates electricity throughout all the years in its lifetime.**
- **Expensive electricity price**

§ 3

- The vicious energy price inflation cycle that will result from the dynamic of making fossil fuel electricity more expensive and thus rendering renewables competitive will crash the global economy long before any meaningful increases in installed renewable energy capacity is achieved.

§ 4

- The alternative is to just have a truly massive electricity grid to spread electricity over a very wide area from wherever the sun happens to be shining and the wind happens to be blowing. Unfortunately though, this is perhaps the most unrealistic idea of all.

§ 5

- Finally, super-grid or large scale storage options might be theoretically feasible to smooth out short term intermittency such as night and day variations, but have no chance of countering for slow seasonal variations.

§ 6

- The next major challenge faced by renewable energy involves the massive upfront capital costs in terms of **money, materials and energy.**

§ 7

- Just looking at the up-front energy costs, **it can be roughly estimated that replacing all of our fossil fuel power plants with solar power plants that last for 30 years and deliver three times the energy it took to construct and install them over that period will require the total amount of electricity that we currently generate in an entire decade.**

Conclusion: The world energy consumption will remain constant.

Intermittent: occurring at irregular intervals; not continuous or steady.

: (sporadic, irregular, fitful, spasmodic, broken, fragmentary, discontinuous, disconnected, isol ated, odd, random, patchy, scattered)
(FR: Intermittent)

Turbine: a type of machine through which liquid or gas flows and turns aspecial wheel with blades in order to produce power.

(FR: Dispositif rotatif destiné à utiliser la force d'un fluide et à transmettre le mouvement au moyen d'un arbre. Arbre, aubage, rotor, tuyère d'une turbine; turbine à gaz, à vapeur; turbine hydraulique; rendement, vitesse d'une turbine. La turbine est un organisme chargé de transformer en mouvement et force la pression formidable de la chute. Cette poussée s'exerce sur une roue de métal munie d'aubages spéciaux et fixée sur un axe, arbre d'acier puissant. L'arbre transmet mouvement et force à l'alternateur, où ils engendrent le fluide (Pesquidoux, Livre raison, 1925, p. 190).

Startups: the action or process of setting something in motion.

Shutdowns: a closure of a factory or system, typically a temporary closure due to a fault or for maintenance. (Arrêts)

Super-grid: A super grid is a wide area transmission network that makes it possible to trade high volumes of electricity across great distances. It is sometimes also referred to as a "mega grid". (FR: Super réseau)

Wattage: an amount of electrical power expressed in watts. (FR: wattage)

Section Three: Environmental Issues Related to Energy Use

1) Environmental Consequences of Energy Use

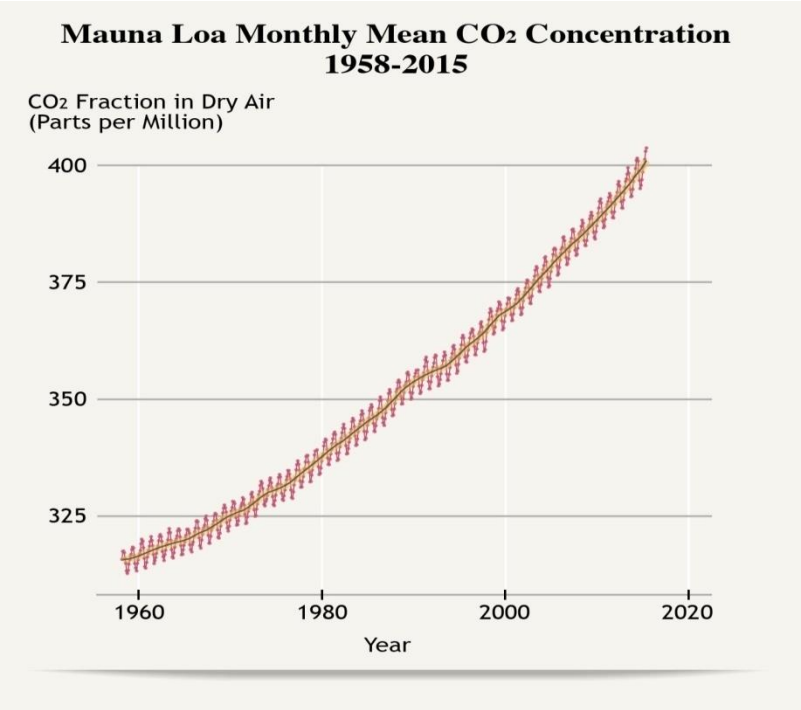
Many important environmental damages stem from the **production**, **conversion**, and **consumption** of energy. Costs of these environmental damages generally are not incorporated into prices for energy commodities and resources; this omission leads to **overuse** of energy. Concern about this issue is common to energy economics, environmental economics, and ecological economics.

Environmental impacts currently receiving most attention are associated with the release of **greenhouse gases** into the atmosphere, primarily carbon dioxide, from combustion of fossil fuels. The three primary fossil fuels – coal, petroleum, and natural gas – each include carbon. During **combustion**, carbon combines with oxygen to produce carbon dioxide, the primary greenhouse gas. Carbon dioxide accumulates in the atmosphere and is expected to result in significant **detrimental** impacts on the world's climate, including global warming, rises in the ocean levels, increased intensity of tropical storms, and losses in biodiversity. Fossil fuels account for 98% of the US carbon dioxide net releases into the atmosphere and 82% of the releases of greenhouse gases, measured on a carbon equivalent basis.

Energy use leads to additional environmental damages. Coal combustion, particularly high sulfur coal combustion, emits oxides of sulfur, which, through atmospheric chemical reactions, result in acid rain. Automobile gasoline combustion releases oxides of nitrogen and volatile organic compounds, which, in the presence of sunlight, result in smog. Electric generating facilities often use much water for cooling and release the heated water into lakes or oceans, leading to local impacts on the ecosystem. Extraction of oil or mining of coal can lead to subsidence of the land overlying of the extracted deposits. **Pervasive** environmental impacts of energy use, absent governmental intervention, imply that significant costs of energy use are not included in the price energy users face. These so-called externalities lead to overuse of energy and provide strong motivation for interventions designed to reduce energy use.

Environmental Impact

The combustion of fossil fuels releases carbon dioxide (CO2), a major greenhouse gas (GHG), into the atmosphere, and there is strong evidence that the buildup of GHGs is the primary cause of the global warming that has occurred in recent decades. CO2 concentration in the atmosphere has risen about 43% since the beginning of the industrial revolution in the mid-eighteenth century—half of that since 1980.



Temperature readings from around the globe show a relatively rapid increase in surface temperature during the past century, with an especially pronounced warming trend during the past 35 years. Because the effects of CO2 and other GHGs, such as methane and nitrous oxide, result in more than just rising temperatures, a more accurate term is **"climate change,"** which helps convey that other changes—such as sea-level rise from thermal expansion and ocean acidification from increased absorption of CO2—are taking place as well.

Climate change will have a range of impacts. In some parts of the world, it could bring positive effects such as longer growing seasons and **milder** winters. Unfortunately, however, it is likely to bring harmful effects to a much higher percentage of the world's population. And many of the world's poorest people, who lack the resources to respond to the impacts of climate change, are likely to suffer the most.

In recent years, as a result of thermal expansion and glacier melt, the global average sea level has been rising at about 3 millimeters (1/8 inch) per year during the past 20 years, threatening inundation of areas with low elevation. For example, Bangladesh, one of the world's most impoverished nations, is projected to lose 17.5% of its land if sea level rises about 1 meter (39 inches), displacing millions of people. Several islands in the South Pacific and Indian oceans may disappear entirely.

At present, the United States emits about 16% of the world's GHGs, behind only China, which accounts for approximately one-quarter of total global emissions. Assuming diminished reliance on coal for electricity, America's CO2 emissions are projected to decrease slightly during the next 25 years, from about 5.3 billion metric tons in 2015 to 5.0 billion metric tons in 2040, assuming no changes to the control of carbon emissions. However, such controls could take place if the United States adopts some form of a "cap and trade" system or a carbon tax to control CO2 emissions in the United States.

Of course, climate change is not just a national concern. All countries share the same atmosphere. Worldwide, CO2 emissions are projected to increase substantially, primarily as a result of increased

development in China and India. Therefore, future global decisions about whether and how to limit GHG emissions will affect us all.

http://www.switchenergyproject.com/experts/Helge-Lund

Practice:

A) **Reading Comprehension**

1**) Find synonyms of the following words in the texts above**:

Gather (§ 2), harm (§ 3), growth (§ 7)

1) Find opposites of the following words in the texts above:

Excluded (§ 1), Rich (§ 7), Decreasing (§ 7)

3) Guess the meaning of the underlined words in bold type.

B) Grammar:

2) Justify the use of the present simple in the following sentences:

- Many important environmental damages **stem** from the production, conversion, and consumption of energy.
- All countries **share** the same atmosphere

3) Which tense is the auxiliary to be used in the sentences below expressing?

- Assuming diminished reliance on coal for electricity, America's CO2 emissions **are projected** to decrease slightly during the next 25 years, from about 5.3 billion metric tons in 2015 to 5.0 billion metric tons in 2040, assuming no changes to the control of carbon emissions.
- Unfortunately, however, it **is** likely to bring harmful effects to a much higher percentage of the world's population.

4) Justify the use of the present perfect continuous in the sentence below:

- In recent years, as a result of thermal expansion and glacier melt, the global average sea level **has been rising** at about 3 millimeters (1/8 inch) per year during the past 20 years, threatening inundation of areas with low elevation.

5) Writing Assignment:

Sum up the texts above in your own words.

Key answers

Explaining/translation of vocabulary:

Green house gas : gaz à effet de serre

Fossil fuel : combustibles fossiles

Sulfur : soufre

Dioxyde de soufre

Smog : brouillard de pollution

Subsidence : effondrement/ affaissement

Overlying : superpose

Pervasive : envahissant/ omnipresent

nitrous oxide : oxyde nitreux

Milder : Plus doux

Cap and trade : plafonnement et échange.

Plafonnement Établissement d'un plafond, d'une limite supérieure pour un prix, un taux, un nombre d'heures

What is an 'Externality?'

An externality is a consequence of an economic activity experienced by unrelated third parties; it can be either positive or negative. Pollution emitted by a factory that spoils the surrounding environment and affects the health of nearby residents is an example of a negative externality. The effect of a well-educated labor force on the productivity of a company is an example of a positive externality.

Reading Comprehension

Gather (§ 2) accumulate, harm (§ 3) damage, growth (§ 7) expansion

6) **Find opposites of the following words in the texts above:**

Excluded (§ 1) included, Rich (§ 7) impoverished, Decreasing (§ 7) rising

7) **Guess the meaning of the underlined words in bold type.**

<u>Combustion:</u> burning

<u>Detrimental</u>: negative, harmful.

<u>Pervasive:</u> omnipresent, persistent.

1) Justify the use of the present simple in the following sentences:
2) Fact, general truth, the future, events starting in the past and continuing in the present (long action)

2) The Economics of the 'Economic Argument for Environmental Protection'

Apr 12, 2016 by Alan J. Krupnick

Doubtlessly few of this blog's readers have taken a course in environmental economics, but as the commentaries on this blog indicate, grounding in the principles of environmental economics would be very helpful in wading through proposals for or against environmental protection.

And given how numerous, contradictory, and **contentious** the conversations can be—whether about **fracking** regulations, protecting water bodies, or the EPA's Clean Power Plan—I thought that discussing a few principles might make decoding the debates a bit more palatable.

What is environmental economics? Environmental economics is a sub-discipline of economics, so it shares all the key principles of economics, but focuses on the identification, measurement, and correction of market failures around environmental issues. Its **overarching** goal is to maximize social welfare—where the aggregate economic well-being of society is as high as it can be, or is at least made higher by a policy, regulation, or activity.

For instance: in considering a new regulation on fracking, the effects of the regulation on raising costs of natural gas and even consumer electricity prices should be considered along with the reduction in environmental and health risks and damages.

The overarching operating principle of environmental economics is the **marginal principle**. This means that rarely does banning a practice, such as fracking, maximize social welfare. The idea is to equate the marginal benefits of a tighter regulation with the marginal cost of that tighter regulation. A ban makes that principle inoperative and ignores the positive economic effect of the oil and gas industry and consequences for energy prices.

The overarching *limit* of economics is ignoring the equity implications of a regulation or action (other than to describe them), focusing normatively on efficiency. The idea is to "make the pie larger," although economics has no guiding principles to proscribe how the pie is shared, much less as to how to trade off efficiency for **equity**.

Turning to environmental economics per se, identifying a market failure can be a tricky business.

Air or water pollution from a factory is a common example, because clean air and water (into which pollution flows) are usually unpriced in a market. They are free to all (a common resource) and will, thus often overused and abused as a sink for pollution.

Policies can fix these failures (or internalize these externalities, if you will), however, by creating a price on the use of the environment. This is what a tax on pollution or a tradable pollution permit market does, and at least partly explains while economists favor them. Prices provide signals for polluters to adjust their pollution production and **mitigation** activities, which generally leads to a lower cost way of reducing pollution than an overly bureaucratic, command-and-control solution.

Where does the trickiness come in? Negative side effects of regulation occur all the time, but they are not necessarily a market failure/externality, and don't necessarily merit government intervention.

Do we label as an externality the rising price of grain and bread caused by government mandates to blend ethanol into gasoline for environmental purposes? No. We might not be happy about this side effect of the regulation, but it is not a market failure—and environmental economists therefore wouldn't call on policy to correct it.

This leaves the measurement issues. Environmental economists in particular specialize in measuring in monetary terms the seemingly immeasurable, e.g., the value of improving the protection of the Amazon rain forest, reducing the risk of death caused by air pollution, or reducing the risk to fish caused by water pollution.

This valuation is done in two broad ways: (1) using statistical means to translate people's behavior when confronted by pollution into monetary terms, called revealed preference analysis; and, (2) using surveys to ask people how much they value risk changes like those noted above, called stated preference analysis.

Once these values are available, they can then be compared with the costs of reducing the pollution so a judgment can be made about the regulation's efficiency: do the benefits outweigh the costs? If so, the regulation is justified on economic efficiency grounds. If not, it might still be worthwhile to pursue the regulation, but one would need other types of justifications.

Among the most **controversial** measurements made by environmental economists is the value of statistical life. Right off the bat, we in the profession need to apologize for this term. It makes people think we are valuing human life. Thank goodness we are not even trying to do that! What we are valuing is how much people are willing to pay to reduce their risks of death by a little bit. People reveal this willingness to pay (or not pay) all the time: they pay extra for airbags and bicycle helmets, or they pay in time (which is easily translated to money), say by crossing in the middle of the block to save a minute when it's safer (but slower) to cross the street at the light.

If on average people are willing to pay $100 to reduce their risks of death by 1 in 10,000, let's say, that translates into a value of a statistical life of $1 million (i.e., $100/(1/10,000)). With this handy number, a regulation that saves 1,000 lives (according to an epidemiological analysis) provides a monetary benefit of $1 billion. When this benefit of a regulation is added to other benefits, whether market or non-market, and subtracted from the regulation's costs, a judgment can be made about the economic efficiency of the regulation: whether it raises social welfare on net.

This is the fundamental business of environmental economics: determining whether a particular action or policy raises social welfare on net—or, to be a bit cheesier about it, to determine whether the action or policy makes the world a better place, based on a number of key economic metrics—as well as using economic insights and principles to develop the policy options in the first place.

In a world where every decision has trade-offs, I would argue that environmental economics has a particularly valuable role to play in guiding decision-making and improving public understanding of government actions on the environment.

Source: http://www.rff.org/blog/2016/economics-economic-argument-environmental-protection

Practice :

A) Answer the following questions using your own words :

1. Define environmental economics.
2. Mention the encompassing concern of this discipline.
3. Does banning a policy the right decision to implement environmental protection?
4. What is the crucial of function environmental economics?

B) **Match the following definitions with the underlined words in bold type in the text**.

a) The act of of lessening the force or intensity of something unpleasant, as wrath, pain, grief, or extreme circumstances

b) Of, relating to, or characteristic of prolonged public dispute, debate, or contention; polemical.

c) Increase the level of an activity if its marginal benefit exceeds its marginal cost, but reduce the level if the cost exceeds the marginal benefit. If possible, pick the level at which the marginal benefit equals the marginal cost.

d) The process of injecting liquid at high pressure into subterranean rocks, boreholes, etc. so as to force open existing fissures and extract oil or gas

e) Encompassing or overshadowing everything

f) The quality of being fair or impartial; fairness; impartiality.

g) causing, involving, or characterized by argument or controversy

C) **Group Work**:

Discuss with your class mates the following query: “What laws did your country’s economics create for the enforcement of environmental protection?

Key Answers

1. **What is environmental economics?** Environmental economics is a sub-discipline of economics, so it shares all the key principles of economics, but focuses on the identification, measurement, and correction of market failures around environmental issues.

2. Its overarching goal is to maximize social welfare—where the aggregate economic well-being of society is as high as it can be, or is at least made higher by a policy, regulation, or activity. The overarching operating principle of environmental economics is the marginal principle.

3. No it does not. A ban makes that principle inoperative and ignores the positive economic effect of the oil and gas industry and consequences for energy prices.

4. This is the fundamental business of environmental economics: determining whether a particular action or policy raises social welfare on net—or, to be a bit cheesier about it, to determine whether the action or policy makes the world a better place, based on a number of key economic metrics—as well as using economic insights and principles to develop the policy options in the first place.

D) Definitions/words

a) Mitigation

b) Controversial

c) The Marginal Principle: Increase the level of an activity if its marginal benefit exceeds its marginal cost, but reduce the level if the cost exceeds the marginal benefit. If possible, pick the level at which the marginal benefit equals the marginal cost

d) Fracking: the process of injecting liquid at high pressure into subterranean rocks, boreholes, etc. so as to force open existing fissures and extract oil or gas. (FR: fracturation hydraulique)

e) Overarching

f) Equity

g) Contentious

In Micro-Economics, the word marginal means extra or additional. It can be used with Utility, cost, production, revenue, etc

1**) Marginal Utility** means the additional utility the consumer gets from consuming one additional unit of a certain good.

2) **Marginal Cost** means the cost added from producing one extra unit.

3) **Marginal Production** means the extra output produced from increasing the input by one unit.

4) **Marginal Revenue** is the additional revenue generated from increasing the sales by one unit.

Section Four: Important Energy Issues in Algeria

Algerian Law on Energy

Introduction

Algerian law on energy has changed much in recent years and has emerged in an energy landscape of national agencies with decision-making powers and regulators.

These agencies have been set up to **establish** a clear separation between the state acting as an economic partner to operators of gas and oil contracts, and the state as the owner of the powerful mining sector.

It is on these agencies that we will focus our study.

As a **preliminary** we shall review some important features, developed in previous editions of this book, such as various types of oil contracts, and the settlement of disputes in the energy sector.

(i) Types of oil contract

The various oil contracts are traditionally classified as follows:

- Prospecting permit: authorisation issued by the National Agency of Hydrocarbons Resources Valorization (*Agence Nationale pour la Valorisation des Ressources en Hydrocarbures*, "ALNAFT") giving the holder, on request, a non-exclusive right to perform exploration work in one or more areas.
- Mining title: contract concerning research authorisation and/or hydrocarbon exploitation.
- Concession contract: contract whereby the licensee is authorised to construct and operate transportation works by **pipeline** for a specified period.
- Contract research or exploitation: contract allowing research activities to be performed and/or **exploitatio**n of hydrocarbons.

The conclusion of oil contracts is subject to the prior approval of the ALNAFT and the Minister in charge of **Hydrocarbon**s. In addition, each agreement must be concluded with the ALNAFT.

The duration of research contracts and/or exploitation includes two periods:

- A first research period fixed at seven (07) years, with an initial phase of three (03) years followed by a second and a third, each having a duration of two (02) years.
- The second period is the period of exploration, fixed for its part for twenty-five (25) years.

For natural gas deposits, five (05) additional years are added to the exploration period.

For non-conventional hydrocarbons:

- The research period is fixed at eleven (11) years with an initial phase of three (03) years, followed by a second and a third, each having a duration of two (02) years.
- The exploration period is fixed at: (i) 30 years in case of operating liquid **unconventional hydrocarbons**; and (ii) 40 years for the exploitation of unconventional hydrocarbon gas.
- The exploration period can be extended for two successive periods of five (05) years at the request of the contractor.

(ii) Dispute settlement

Article 58 of Law No. 05-07 of 28 April 2005 concerning hydrocarbons, modified and supplemented by Ordinance No. 06-01 of 29 July 2006 and Law No. 13-01 of 20 February 2013, include the procedure for dispute settlement.

Any dispute between the ALNAFT and a **contractor** regarding the interpretation and/or execution of the contract is the subject of a friendly settlement procedure, in accordance with the contract.

If this fails, the dispute may be submitted to arbitration in accordance with the contract.

In case the dispute is between Sonatrach and another contractor, the dispute may be submitted to international arbitration in accordance with the contract. The applicable law is Algerian law.

The increasing role of regulatory authorities justifies examining the organisation and functioning of those authorities.

National Agencies in Energy

The National Agencies play a key role in the regulation of energy activities in Algeria. These are independent organisations.

(i) National Agency of Hydrocarbons Resources Valorisation, "ALNAFT"

The ALNAFT was created by Law No. 05-07. It has legal personality and financial autonomy, with its own assets.

(ii) Regulatory Authority of Hydrocarbons, "RAH"

The RAH is a legislative creation of Law No. 05-07 of 28 April 2005.

The RAH is an independent authority under the authority of the Minister of Energy.

(iii) **Electricity Regulatory Commission and Gas, "CREG"**

The Commission for Electricity and Gas Control ("CREG"**)** was created by Law No. 02-01 of 5 February 2002, Electricity and Gas distribution pipeline.

Just like the ALNAFT, it is an independent body with legal personality and financial autonomy.

(iv) Renewable Energy Centre

Under the aegis of the Ministry of Higher Education and Scientific Research, the Centre for development of renewable energy ("CDER") is a public scientific and technological establishment tasked to develop and implement research programs and development, science and technology, energy systems using solar, wind, geothermal and biomass energy.

The CDER does not have decision-making power in renewable energy but is actively involved in research and development in renewable energies.

Sources: Algeria Energy 2017, 5th Edition:
https://www.globallegalinsights.com/practice-areas/energy/global-legal-insights---energy-5th-ed./algeria

Practice:

Exercise One: Explain the underlined words in bold type.

Exercise Two: Fill in the table below

Verb	Noun	Adjective
	regulator	
To operate		
	exploitation	
To emerge		
	research	
To legislate		
		renewable

Verb	Noun	Adjective

Answer Key:

Exercise One:

Establish

Set up on a firm or permanent basis. E.g.: ***'the scheme was established in 1975'***

Initiate or bring about (contact or communication) e.g.: ***the two countries established diplomatic relations in 1992'***

Achieve permanent acceptance or recognition for. E.g.: ***'the principle of the supremacy of national parliaments needs to be firmly established'***

Preliminary

Preceding or done in preparation for something fuller or more important.
'a preliminary draft'
'the discussions were seen as preliminary to the policy paper'

Pipeline

A long pipe, typically underground, for conveying oil, gas, etc. over long distances.

Exploitation

The action of making use of and benefiting from resources.
'the Bronze Age saw exploitation of gold deposits'

Hydrocarbons

A compound of hydrogen and carbon, such as any of those which are the chief components of petroleum and natural gas.
'the rain is rich in benzene and hydrocarbons'

Unconventional

Not based on or conforming to what is generally done or believed.

Contractor

A person or firm that undertakes a contract to provide materials or labour to perform a service or do a job.
'the school meals service is provided by private contractors'

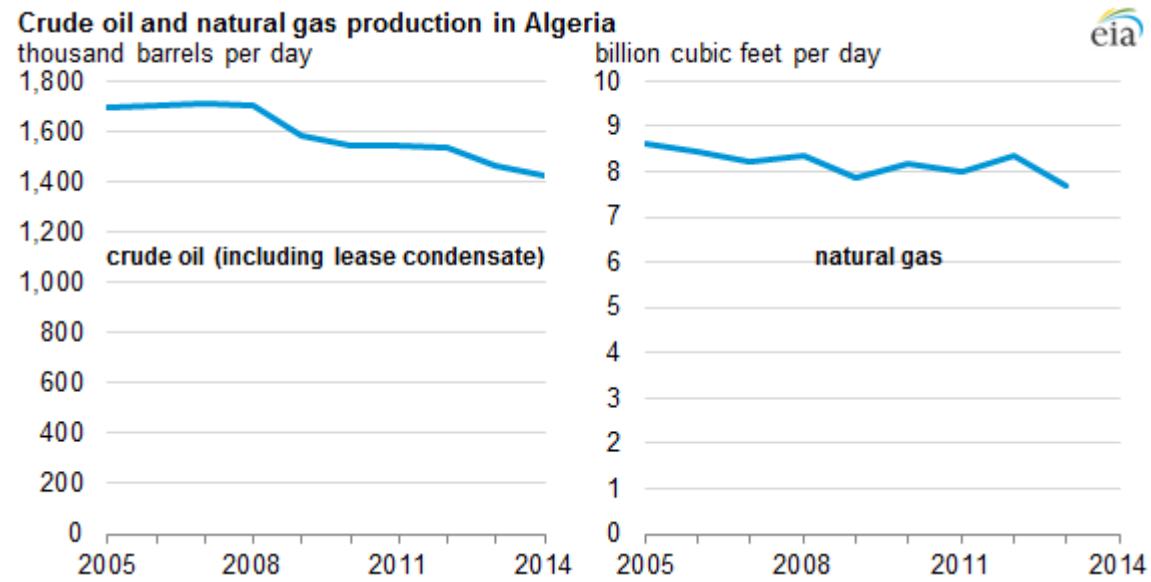
Exercise Two

Verb	Noun	Adjective
To regulate	regulator	**Regulated/regulatory/regulatable**
To operate	**operation**	**Operated/operative/operative**
To exploit	exploitation	**Exploitative/exploitable/exploitive**
To emerge	**emergence**	**Emergent/emerging/emerged**
To research	research	**Researched/researchable/researching**
To legislate	legislation	**legislative/legislated/legislatorial**
To renew	**renewal**	Renewable/

2)Algeria Is Reforming its Energy Law

AUGUST 4, 2015

Algeria is reforming its laws to attract foreign investment in hydrocarbons



Source: U.S. Energy Information Administration, International Energy Statistics

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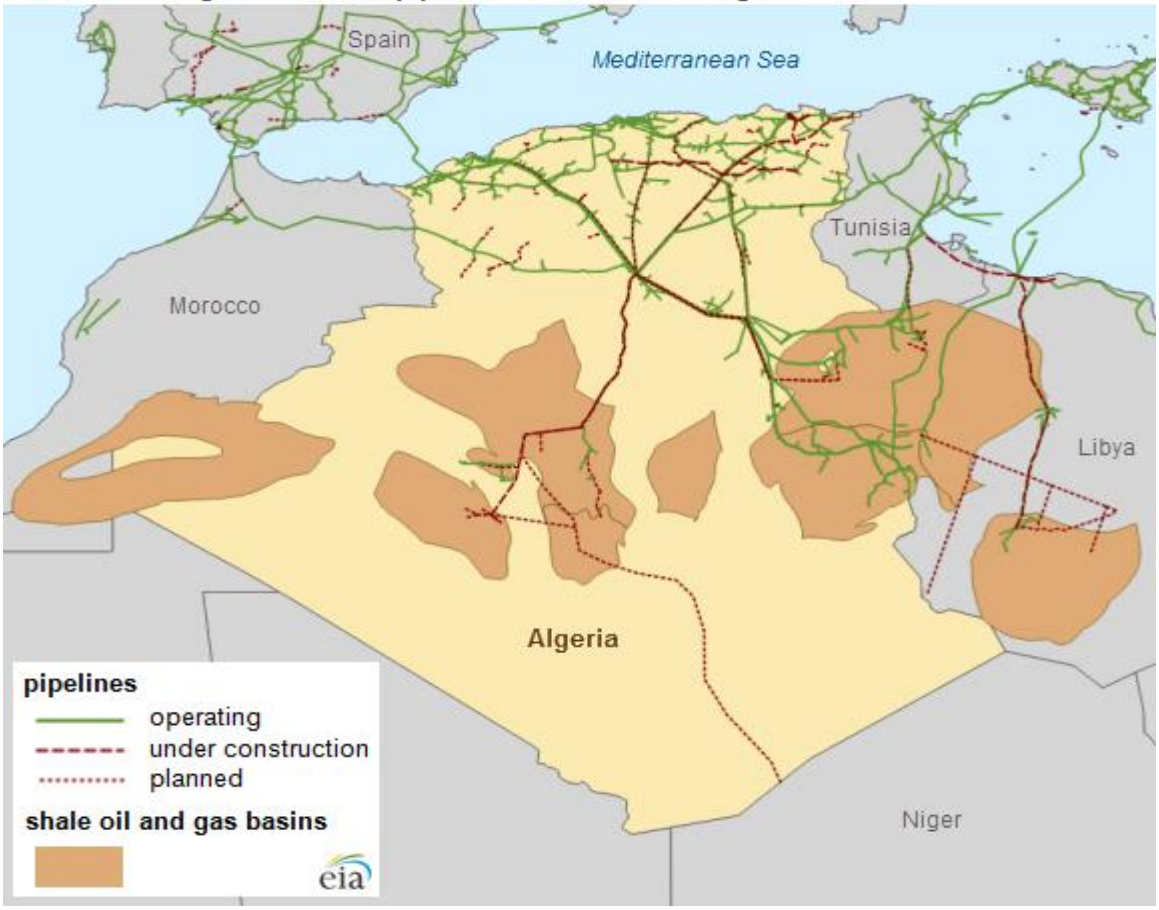
Algeria is the third-largest oil producer in Africa, after Nigeria and Angola, and the largest natural gas producer in Africa. However, production of both oil and natural gas has declined over the past decade. This declining production has led the Algerian government to **amend** its law regarding foreign investment in hydrocarbons in an attempt to attract the investment and technology improvements needed to help stop production declines. In 2014, the national oil and gas company Sonatrach offered 33 blocks located in four **sedimentary** basins with high shale gas and oil **potential.** This auction resulted in Sonatrach signing five contracts with Repsol, Shell, Statoil, and Dragon Oil-Enel. By law, Sonatrach takes a mandatory majority share (at least 51%) of any resulting projects.

In May 2014, the Algerian Council of Ministers gave formal approval for foreign partners to join Sonatrach in the exploration and development of shale gas resources.

Algeria has large proved crude oil and natural gas reserves and abundant resources that are already connected to world markets through an extensive natural gas pipeline network. In addition, Algeria has a large shipping fleet that sends liquefied natural gas (LNG) from several liquefaction plants to customers in Europe and elsewhere.

Proved crude oil reserves totaled 12.2 billion barrels in 2014, with an additional 9.8 billion barrels of undiscovered oil and natural gas liquids (NGL) resources estimated by the U.S. Geological Survey (USGS), and close to 6 billion barrels of technically recoverable shale oil resources estimated by U.S. Energy Information Administration and Advanced Resources International (EIA/ARI). Proved natural gas reserves totaled 159 trillion cubic feet (Tcf) in 2014, with an additional 49 Tcf of undiscovered natural gas resources estimated by USGS and more than 700 Tcf of technically recoverable shale gas resources estimated by EIA/ARI.

Oil and natural gas basins and pipeline infrastructure in Algeria



Source: U.S. Energy Information Administration, IHS EDIN, and Advanced Resources International

Early this year, Sonatrach announced plans to spend $64 billion, or 70% of its total investment program from 2015 to 2018, in upstream activities to reverse the decline in crude oil and natural gas production in Algeria. Sonatrach set a target to increase gross hydrocarbon output from 1,429 million barrels of oil equivalent (MMBOE) in 2014 to 1,649 MMBOE by 2019 (from 535 to 616 MMBOE of oil and from 894 to 1,034 MMBOE of natural gas).

During the past three years, Sonatrach intensified its exploration activities by **drilling** 275 oil and natural gas wells and by seismically mapping large areas of the country, with an estimated investment of $30 billion. Sonatrach also conducted its own shale resource assessment and started exploration activities. Sonatrach's first two vertical shale exploratory wells drilled in 2012 confirmed the potential for shale gas. Since 2014, Sonatrach has been engaged in a pilot project in the shale gas-rich Ahnet basin to drill, hydraulically fracture, and analyze three horizontal wells with up to 14 hydraulic fracturing stages.

Although the government seeks to reduce the country's dependence on oil and natural gas revenue, it has also made repeated calls for more investment in the sector. However, civil unrest and some opposition to the government's commercialization of shale resources may present obstacles to attracting foreign investment. Security is also a major concern, particularly following the attacks that took place at the Tigantourine natural gas processing **plant** in January 2013 in Illizi Province, near Algeria's eastern border with Libya.

Principal contributor: Faouzi Aloulou

Tags: Africa, liquid fuels, natural gas, oil/petroleum, shale

Sources : **https://www.eia.gov/todayinenergy/detail.php?id=22352**

Practice :

Exercise One: Say whether the following statements are true or false:

1. The production of both oil and natural gas has risen over the past decade and this increase in production has led the Algerian government to adjust its law regarding foreign investment in hydrocarbons.
2. Algeria owns large proved crude oil and natural gas reserves and rich resources that are already linked to world markets through a widespread natural gas pipeline network.
3. No efforts were attempted by the Algerian government to attract foreign investment in the area of hydrocarbons.
4. No security threats are to be considered concerning the government's commercialization of shale resources

Exercise Two: Explain the underlined words in both type

Exercise Three: Use the following words in sentences of your own:

Pipeline, shale gas, hydrocarbons, exploration

Key Answers :

Exercise One :

False, true, false, false

Exercise Two:

Amend: make minor changes to (a text, piece of legislation, etc.) in order to make it fairer or more accurate, or to reflect changing circumstances.

Sedimentary: of, relating to, or of the nature of sediment

Sedimentary rocks are formed from sediment left by water, ice, or wind.

Potential: You use potential to say that someone or something is capable of developing into the particular kind of person or thing mentioned.

If you say that someone or something has potential, you mean that they have the necessary abilities or qualities to become successful or useful in the future.

Drilling: Drilling is the process of cutting holes in a solid material using a rotating cutting tool.

Exercise three:

Installing the underground **pipeline** created hundreds of jobs in the community.

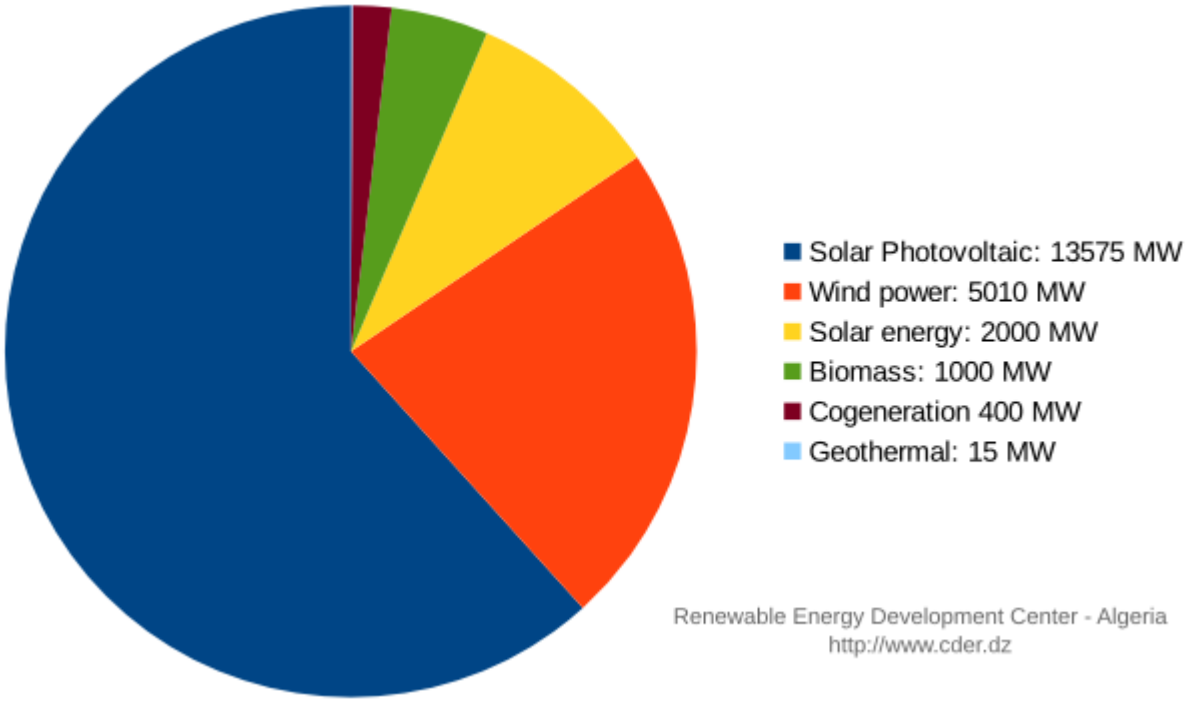
This area has huge deposits of **shale gas**.

Crude oil, natural gas, and natural gas condensate are all mixtures of various **hydrocarbons**, among which methane is the simplest.

Exploration operations include: aerial surveys, geophysical surveys, geological studies, core testing and the drilling of test wells.

3)Renewable Energy in Algeria

National Renewable Energy program - Algeria (2015 - 2030)



The national Programme for the Development of Renewable Energy in its updated version by the Ministry of Energy came just to be adopted by the government.

Indeed, the integration of renewable energies into the national energy mix constitutes a major challenge in the **preservation** of fossil resources, the diversification of electricity production ways and the contribution to sustainable development.

In the programme for development of renewable energies 2011-2030 adopted by the government in February 2011, renewable energies are placed at the heart of energy and economy policies led in Algeria.

This programme saw a first phase dedicated to the achievement of pilot and test projects of the different available technologies, during which relevant elements concerning technological evolutions in the concerned sectors appeared in the energy arena and led to the review of this programme.

Among these new elements, we should name:

- A better knowledge of the national potential in renewable energies, in particular for the solar energy and the wind energy, further to the hired studies;
- The reduction in the costs of the **photovoltaic** and wind sectors which assert themselves more and more on the market to establish viable sectors to be considered;
- Costs still high of the CSP sector (thermal solar) inferring a very slow growth of the development of this market worldwide;
- The perfection of a coherent and attractive national **regulations** for investors.

The review of this programme is on the large-scale development of photovoltaic and wind fields, on the introduction of biomass field (waste valuation), of the **cogeneration** and geothermal, and also the postponement, to 2021, of the development of the solar thermal (CSP).

The renewable consistency of the program to realize for national market needs over the period 2015-2030 is 22 000 MW, among whom more than 4500 MW will be realized before 2020.

The division of this program by technology sector, appears as follows:

Solar Photovoltaic : 13 575 MW
- Wind : 5010 MW
- Solar thermal : 2000 MW
- Biomass : 1 000 MW
- Cogeneration : 400 MW
- Geothermal : 15 MW

Achieving this programme will allow to reach by 2030 a part of renewables of about 27 % in the national report of electric production.

The volume of natural gas saved by the 22.000 MW of renewable energy, will be about 300 Billion M3, so a volume equivalent to 8 times the national **consumption** in 2014. According to the actual regulation, the realization of this programme is opened to state-owned and private investors local and foreigners. The **implementation** of this programme benefits from substantial and multiform state contribution which intervenes through the National Fund for Renewable Energies and Cogeneration (FNERC), feed from the sampling of 1 % from oil fees.

A mechanism of encouragement based on the guaranteed price lists of purchase is set up by the regulations. So, the producer of renewable energy benefits from price lists of purchase which are guaranteed for 20 years for the installations in Photovoltaic and in wind energy.

The benefiting sectors guaranteed price lists of purchase will be financed by the FNERC at the level of 50 % to 90 % of the capital cost according to the technology and the sector held.

The fallout from this program will be very significant in terms of job creation, industrialization, technological development and acquisition of know-how, so contributing to the growth and to the economic modernization of the country as well as to the environmental protection.

Sources: https://www.cder.dz/spip.php?article1748

Practice:

Exercise One: Read the text and answer the questions below:

1. Are renewable energies important for the energy and economic policies in Algeria?

2. Mention two elements that led to the review of the national programme for renewable energy.
3. Mention one result of the success of achieving this programme?
4. What are the consequences of falling out of this programme?

Exercise Two : Match the definitions below to the underlined words in **bold type** in the text.

1. The action of using up a resource
2. The process of putting a decision or plan into effect; execution
3. Able to produce electricity from light, or relating to the process of doing this
4. The generation of electricity and useful heat jointly, especially the utilization of the steam left over from electricity generation for heating.

5. The act of keeping something the same or of preventing it from being damaged
6. An official rule or the act of controlling something

Words: Preservation, photovoltaic, regulation, cogeneration, consumption, implementation
https://dictionary.cambridge.org/dictionary/english

https://en.oxforddictionaries.com/definition

Bibliography:

Mascull, Bill. 2002. *Business Vocabulary in Use*. Cambridge University Press.

Center for Energy Economics. 2009. University of Texas.
www.beg.utexas.edu/energyecoenrgyecon@utexas.edu

Bhattacharyya, Subhes. C. 2011. *Energy Economics: Concepts, Issues, Markets, and Governance*. London: Springer.

Stern, David. I. 2004. *Economic Growth and Energy.* Encyclopedia of Energy, Volume 2. New York: Troy.

Sorrell, S. 2010. Energy, Economic Growth and Environmental Sustainability: Five Propositions. *Sustainability (June,***2010),**. *2*, 1784-1809; Sussex University doi:10.3390/su2061784

Twidell, J. Weir, T. 2006. Renewable Energy Resources. (2end, ed). London & New York: Taylor and Francis.

Goldthau, A. 2013. *The Handbook of Global Energy Policy.* West Sussex: A John Wiley & Sons, Ltd., Publication.

Bayeur, J. 2014. Dictionnaire anglais-français sur les énergies renouvelables avec cooccurrents. Université de Montréal

Finley, M. 2012. The Oil Market to 2030—Implications for Investment and Policy. *Economics of Energy & Environmental Policy*, Vol. 1, No. 1. (25-36)

Birol, F. 2007. Energy Economics: A Place for Energy Poverty in the Agenda? *The Energy Journal*, Vol. 28, No. 3. (1-6)

What Are the Trends and Prospects of Energy Supply and Demand?

https://www.greenfacts.org/en/forests-energy/l-3/2-prospects-energy-supply.htm 2008

Which Factors Will Determine Future Energy Choices?

https://www.greenfacts.org/en/forests-energy/l-3/2-prospects-energy-supply.htm 2017

Investment Trends in Energy in 2016 http://www.iea.org/publications/wei2017/

Marketing energy Products

Positioning Strategy for a New Energy Drink Brand

Effectively Managing Your Business Enterprise:

https://www.collinsdictionary.com/dictionary/english/enterprise

https://smallbusiness.chron.com/manage-business-enterprise-2987.html by *Kristie Lorette*

https://smallbusiness.chron.com/business-enterprise-planning-4485.html *by Brian Hill*

How is the use of renewable energy projected to evolve?

https://www.greenfacts.org/en/forests-energy/l-3/2-prospects-energy-supply.htm

: https://dictionary.cambridge.org/dictionary/business-english/

ADDITIONAL CHALLENGES FACING RENEWABLE ENERGY

https://oneinabillionblog.com/summary-2/laws/additional-challenges-facing-renewable-energy/