



# Revision Sheets

This is a sample edition of the  
**Energy Security Revision Booklet.**

The total content has been reduced in  
this copy, and content watermarked.

The **Revision Booklet** available to  
download contains 21 pages of content  
and more detailed exam technique.

# Revision Sheets

**Energy** is a resource, used to **generate power**. The relationship humans have between finite and renewable resources is **unbalanced**.

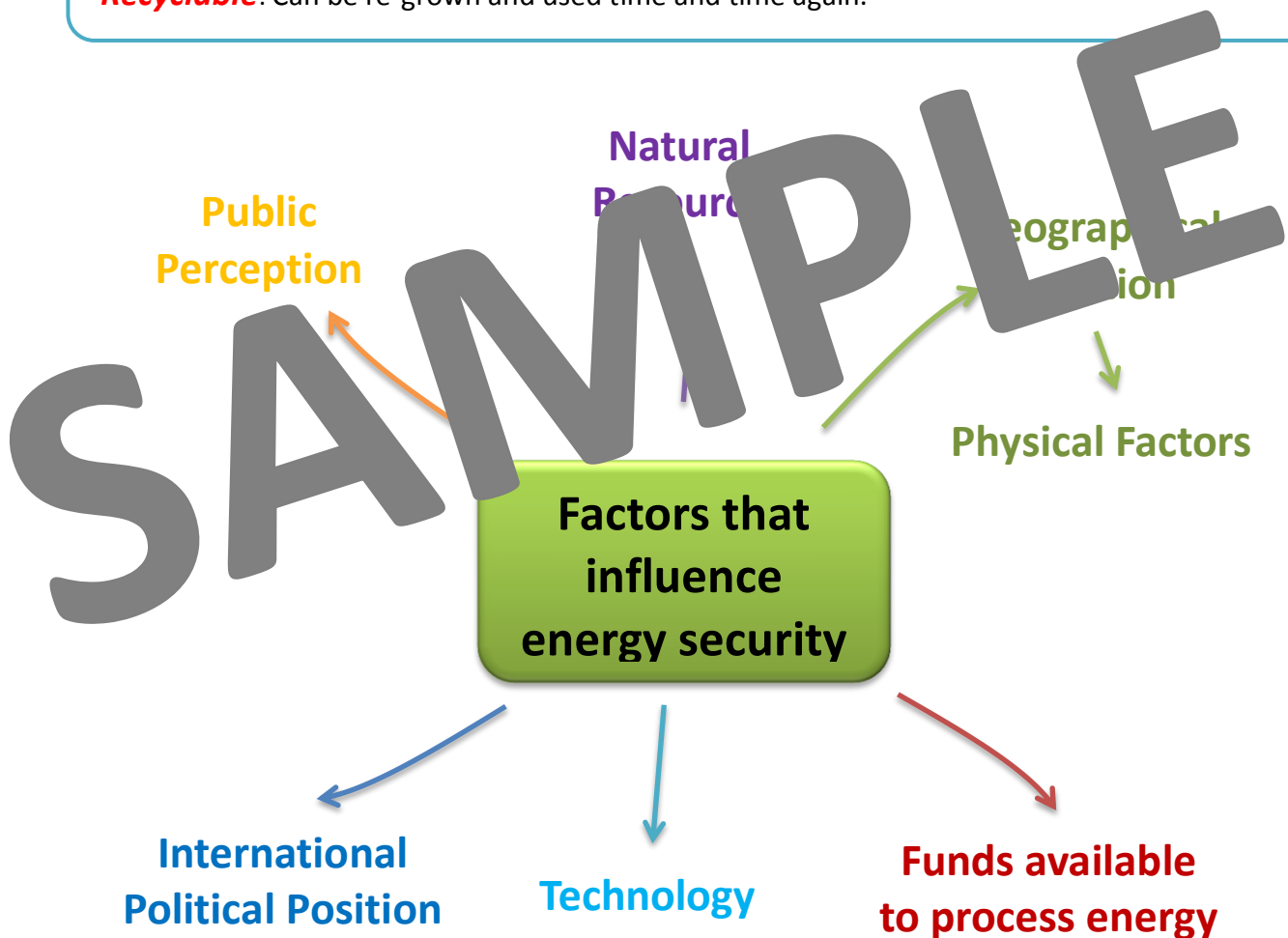
**Security** is the **reliability** and **availability** of energy. Some countries have energy **surplus**, whereas others have an energy **deficit**.

**Energy security** is the access to **reliable** and **affordable** sources of energy. Areas where countries have a surplus of energy are said to be **energy secure**, whereas those with an energy **deficit** suffer energy insecurity.

**Renewable**: Infinite resources, capable of natural regeneration.

**Non Renewable**: Finite resources, exploitation of these will lead to their exhaustion.

**Recyclable**: Can be re-grown and used time and time again.



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## Russia's Energy Reserves

- Major Player in the energy industry
- President's aim is to become the world leader in the energy sector

Proportion of Global Energy Reserves:

Natural Gas	Oil	Coal	Uranium
32%	28%	16%	8%

Most of this energy is located in the East of Russia.

Energy is Russia's often described as its political weapon. The high natural resource wealth the country has given it power around the world. Recent disputes, in which Russia has threatened to actively suspend supply – include Ukraine, Lithuania and Poland.

As a result, Russia is very energy secure. The state owned monopoly Gazprom controls 94% of Russia's natural gas production.

## South Africa's Energy Reserves

- No significant oil reserves
- United Nations ruled that no Oil could be imported to South Africa from 1979 to 1990

Proportion of Global Energy Reserves:

Natural Gas	Oil	Coal	Uranium
0%	0%	8%	0.5%

Most located in the Western Cape and in the eastern KwaZulu-Natal

South Africa is usually associated with rich energy reserves. Both its Natural Gas and Oil stocks are insignificant as a proportion of global contribution. Due to political tensions in the past, the UN embargo on their oil supply – meaning they had to rely on coal.

The coal mining industry is a large part of the South African economy. In terms of meeting their demand for energy, the country is quite energy secure. However, in terms of economic energy market stability, they are insecure.

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## China

China's rapid economic growth has meant its consumption of energy has soared. Holding 10% of the world's oil reserves and being self-sufficient in oil until 2004, the country's oil demand has caused them to import.

China relies on coal for 70% of its energy generation and will continue to rely on it for the foreseeable future.

The country is building an average of three new coal power stations per week, and in 2006 added the capacity of 10 GW to its national grid.

As a result, the country's dependence on coal has given China some serious environmental problems. It needs to build new, clean power stations. The construction of new projects to turn dirty coal into clean gas has also been commissioned.

## **Technology and Cost**

- The cost of manufacturing and installing wind turbines has fallen, however, the price of the electricity generated is still high. Solar panels have become cheaper due to mass production, enabling developing countries to gain potential profits.
- Renewable energy can generate power more cheaply in developing countries than in industrialized nations, but the cost of installing new power plants and transmission lines is high.



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**OPEC** is a grouping of Oil and Petroleum Exporting Countries. It's an intergovernmental organisation (IGO), consisting of 12 nations.

Its aims:

- To protect interests of member states
- Stabilise oil prices
- Ensure efficient, economic and regular supply of oil

Notes:

- Has 70% of the world's oil reserves
- Produces around 45% of crude oil and 15% of natural gas
- Has the power to significantly affect oil prices by increasing or decreasing production.
- **OPEC is a cartel, with monopolistic and price control powers**
- Formed in 1960
- Can increase production sharply if global economic conditions allow it

Rank	Oil Production	Suppliers to the USA
1	Saudi Arabia	Nigeria
2	United Arab Emirates	Saudi Arabia
3	Iran	Venezuela
4	Kuwait	Angola
5	Nigeria	Angeria
6	Venezuela	Iran
7	Libya	Libya
8	Iraq	Kuwait
9	Algeria	Venezuela
10	Angola	United Arab Emirates
11	Qatar	Qatar
12	London	Iran

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## Energy Pathways

An **energy pathway** is a route along which energy sources move from **producer** to **consumer**.

### Oil Pathways



### Gas Pathways

Gas pathways are more localised and transport through pipelines. A possible future is that as demand grows, more pipelines will be built. A possible future is that as demand grows, more pipelines will be built.

## What Disrupts Oil Pipelines?

Developed nations developed **national and international energy policies** after oil crises of 1973. These aimed to reduce the risks of disruption to supply the **energy security**. After these were implemented, most parts of the developed world enjoyed a period of uninterrupted and generally cheap energy supplies.

Risks associated with energy supplies:

- Unprecedented growth in energy demand across the globe, e.g. India and China, leads to more **competition and conflict**.
- Concerns about supply infrastructure
  - Fuels **travel further** in **higher quantities** than ever before
  - Threats from **terrorism**
  - Political rivalry
- Unknowns in the energy markets
  - E.g. Iraq war of 1980-88 had a relatively limited impact on oil supplies. However more recently oil prices have jumped at the mention of strikes in Nigeria. **Volatility is unpredictable**.

# Revision Sheets

## Does Russia use its gas as an economic weapon?

The relationship between Russia and China is vital. They share a 4300km border, and are both suspicious of each other. Russia sees China as a potential ally, but they have been reluctant to commit too heavily in terms of energy supply for China.

### Gazprom

- Controls about 1/3 of the world's gas reserves
- Produces 20% of the world's natural gas
- Is the world's third largest corporation (annual earnings in 2006 was £31.55 billion)
- Half of its shares belong to the state, with 50.002% of shares owned by Russian Federation.
- Employed 430,000 in 2006.

### Effects of Russia's Energy:

- Helped reassert Russia's power and influence over former Soviet nations
- Increased Russia's power within the region
- Given Russia a way to restore its international position and regain geopolitical importance

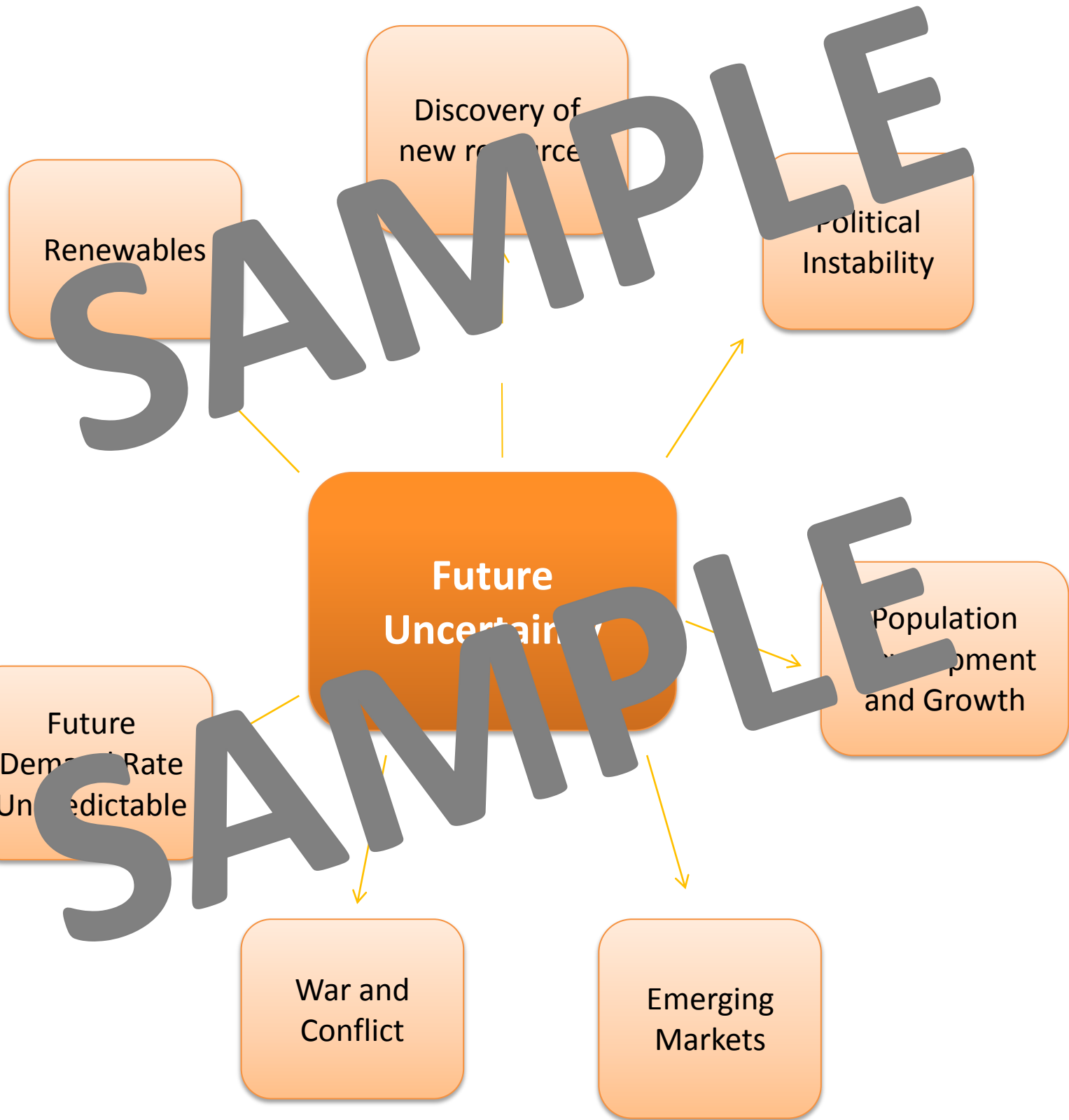
### Suggestions that it is being used as a weapon

- Ukraine got rid of its pro-Russian government in favour of a pro-Western government and a year later its gas prices were quadrupled and Russia cut its gas supplies when the new government refused to pay.
- Later, when Ukraine was trying to join NATO and the EU, Gazprom again cut its supplies to 50% - stating it was a trading debt.

Some critics state that it is a concern that countries use energy as a weapon and that it is an instrument of foreign policy. The same view is that American oil companies are instruments of American foreign policy. It is stated that if Russia was to blackmail countries regarding energy, then they shouldn't have special deals with European nations who are eager to have long term deals with Gazprom.



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## Essay Question – Part A (10 Marks)

- Approximately **one** side in the exam book
- Spend approximately **10** minutes writing
- Refer to the **figure** throughout
- Go **beyond** the figure giving **new** information
- Critique the **figure**, good for **evaluation** marks
- Don't waste time with an **introduction** and **conclusion**
- **Structure** your answer using the **figure**

SAMPLE