



# S.P.S.E Reading & Writing Lessons

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# Obesity



## SPSE Reading Lesson

**Task:** Read a text on obesity. Identify the situation, key problems, possible solutions & evaluation, and complete a given outline.

## Teacher's Notes

### Reading Text – SPSE

Time: 1hour

Level: \*\*\*\*\*/[B2/C1]

#### Lesson Plan

Aim: to develop the students' ability to read one academic text and highlight key points connected to background, problems, solutions and evaluation.

#### Lead in

- What is obesity? Brainstorm ideas and associated vocabulary.
- Key vocab: *overweight, fitness, convenience food, lack of exercise, diabetes, heart disease, premature death, high levels of fat and sugar, a dietician, couch potato.*

#### SPSE Revision

- Remind students what an SPSE essay is.
- Go here: <https://www.academic-englishuk.com/spse> (models / Language).
- Key phrases sheet to support students with SPSE language at the back of this book.

#### Task

1. Distribute **outline (blank)** and **reading text**.
2. Students read text & complete the **outline** with situation, problems, solutions & evaluation (Allow 45 minutes).
3. Feedback: distribute **outline (answers)** for students to check their answers.

#### Extra

- Students research another societal problems (smoking, sugar tax, diabetes, traffic congestion, knife crime), complete an SPSE outline and then write an essay.
- Teachers take in and mark. Use error correction code:
- <https://www.academic-englishuk.com/error-correction>

## **Obesity**

Consumption of processed and convenience food and our dependence on the car have led to an increase in obesity and reduction in the fitness level of the adult population. In some countries, especially industrialized ones, the number of obese people can amount to one third of the population (WHO, 2015). This is significant as obesity and poor fitness lead to a decrease in life expectancy, and it is therefore important for individuals and governments to work together to tackle this issue and improve their citizens' overall health.

Obesity and poor fitness decrease life expectancy. Overweight people are more likely to have serious illnesses such as diabetes and heart disease, which can result in premature death (Wilson, 2014). It is well known that regular exercise can reduce the risk of heart disease and stroke, which means that those with poor fitness levels are at an increased risk of suffering from those problems.

Changes by individuals to their diet and their physical activity can increase life expectancy. There is a reliance today on the consumption of processed foods, which have a high fat and sugar content. According to Peterson (2013), in preparing their own food and consuming more fruit and vegetables, people could ensure that their diets are healthier and more balanced, which could lead to a reduction in obesity levels. However, organising such a change in diet and a reduction of food would need to be controlled by a dietician, which would incur further costs. In order to improve fitness levels, people could choose to walk or cycle to work or to the shops rather than taking the car. They could also choose to walk upstairs instead of taking the lift. These simple changes could lead to a significant improvement in fitness levels.

Governments could also implement initiatives to improve their citizens' eating and exercise habits. Jones (2011) argues that this could be done through education by making changes to the curriculum to incorporate diet & lifestyle. This could be implemented in high school and could have a preventative effect on the younger generations rather than a cure for the obese older generation. Governments could also do more to encourage their citizens to walk or cycle instead of taking the car, for instance by building more cycle lanes or increasing vehicle taxes. While some might argue that increased taxes are a negative way to solve the problem, Wilson (2014) highlights that it would not be any different from the high taxes imposed on cigarettes to reduce cigarette consumption.

In short, obesity and poor fitness are a significant problem in modern life, leading to lower life expectancy. Individuals and governments can work together to tackle this problem and so improve diet and fitness. Of the solutions suggested, those made by individuals themselves are likely to have more impact, though it is clear that a concerted effort with the government is essential for success. With obesity levels in industrialized and industrializing countries continuing to rise, it is imperative that we take action now to deal with this problem.

### **References**

- Jones, J. (2011) Educate for obesity. *The Educationalist Journal* 8 (4). pp34-56  
Peterson, R, J. (2013) Healthier eating creates a healthier world. *The New Scientist*. 76 (6).  
Wilson, C. (2014) Diseases connected to Obesity. *Medical Journal*. 55 (5). Pp23-56  
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[http://www.WHO.uk/obesity\\_guidelines](http://www.WHO.uk/obesity_guidelines) [Accessed 10 October 2020].



## **Obesity ANSWERS**

*Situation / Problems / Solutions / Evaluation / Conclusion*

Consumption of processed and convenience foods and our dependence on the car have led to an increase in obesity and reduction in the fitness level of the adult population. In some countries, especially industrialized ones, the number of obese people can amount to one third of the population (WHO, 2015). This is significant as obesity and poor fitness lead to a decrease in life expectancy, and it is therefore important for individuals and governments to work together to tackle this issue and improve their citizens' overall health.

Obesity and poor fitness decrease life expectancy. Overweight people are more likely to have serious illnesses such as diabetes and heart disease, which can result in premature death (Wilson, 2014). It is well known that regular exercise can reduce the risk of heart disease and stroke, which means that those with poor fitness levels are at an increased risk of suffering from those problems.

Changes by individuals to their diet and their physical activity can increase life expectancy. There is a reliance today on the consumption of processed foods, which have a high fat and sugar content. According to Peterson (2013), in preparing their own food, and consuming more fruit and vegetables, people could ensure that their diets are healthier and more balanced, which could lead to a reduction in obesity levels. However, organising such a change in diet and a reduction of food would need to be controlled by a dietician, which would incur further costs. In order to improve fitness levels, people could choose to walk or cycle to work or to the shops rather than taking the car. They could also choose to walk upstairs instead of taking the lift. These simple changes could lead to a significant improvement in fitness levels.

Governments could also implement initiatives to improve their citizens' eating and exercise habits. Jones (2011) argues that this could be done through education by making changes to the curriculum to incorporate diet & lifestyle. This could be implemented in high school and could have a preventative effect on the younger generations rather than a cure for the obese older generation. Governments could also do more to encourage their citizens to walk or cycle instead of taking the car, for instance by building more cycle lanes or increasing vehicle taxes. While some might argue that increased taxes are a negative way to solve the problem, Wilson (2014) highlights that it would not be any different from the high taxes imposed on cigarettes to reduce cigarette consumption.

In short, obesity and poor fitness are a significant problem in modern life, leading to lower life expectancy. Individuals and governments can work together to tackle this problem and so improve diet and fitness. Of the solutions suggested, those made by individuals themselves are likely to have more impact, though it is clear that a concerted effort with the government is essential for success. With obesity levels in industrialized and industrializing countries continuing to rise, it is imperative that we take action now to deal with this problem.

## SPSE Outline Plan #1

<b>Situation</b>	
<b>Problems</b>	
<b>Solutions</b>	<b>Evaluation</b>
<b>Solutions</b>	<b>Evaluation</b>
<b>Conclusion</b>	

## SPSE Outline Plan **ANSWERS**

<p><b>Situation</b></p> <p>Consumption (processed &amp; convenience food) &amp; dependence on car = obesity.          Some countries 1/3 population obese (WHO, 2015).          Obesity + poor fitness = decrease of life expectancy.          Individuals + Gov. work together = improve diet + fitness.</p>	
<p><b>Problems</b></p> <p>Obesity + poor fitness &lt; life expectancy.          Illnesses = diabetes + heart disease (Wilson, 2013).          No regular exercise = heart disease + stroke          = increase suffering.          Processed foods = high fat + sugar content.</p>	
<p><b>Solutions</b></p> <p><u>Diet</u>          Preparing own food (fruit &amp; veg) = healthier          balanced = reduction of obesity (Peterson, 2013).  <u>Fitness</u>          Walk, cycle to work / shops.          Walk upstairs – no lift.</p>	<p><b>Evaluation</b></p> <p>Change of diet needs dietician control = further costs.</p> <p>Significant improvement in fitness.</p>
<p><b>Solutions</b></p> <p><u>Government initiatives</u>          Improve eating + exercise.          Education = classes on healthy diet + lifestyle (Jones, 2011).          Gov - encourage walk / cycle schemes = cycle lanes + higher vehicle tax.</p>	<p><b>Evaluation</b></p> <p>Implemented in high school – preventative measure for younger generations.          Not a cure for obese generation.</p> <p>Tax is a negative way to solve the problem.          BUT no different than smoking (Wilson, 2014).</p>
<p><b>Conclusion</b></p> <p>Significant problem = lower life expectancy.          Ind. &amp; Gov. work together to improve diet &amp; fitness.          Best solution = individual decisions = more impact.          BUT needs Gov. to be successful.          Important to take action NOW.</p>	

## SPSE Language Phrases

### Key phrases for writing an SPSE essay

#### **Situation**

Follows the conventions of an introduction

(general > specific > definition > situation > outline)

*Outline: This essay will discuss two problems, propose possible solutions and evaluate the effectiveness of these solutions.*

#### **Problems**

Adjective: central / main / major / common / immediate / serious / significant.

Verbs: associate / raise / consider / discuss / address / resolve / discuss.

- *The most significant problem is...*
- *... poses / presents an immediate problem because...*
- *Another possible issue is ...*

Cause & effect language

*Leads to / results in / gives rise to / as a consequence / owing to / because of / as a result.*

Cause and effect phrases

*This suggests / ... Is linked to / associated with / connected to ... / ... may be affected by...*

#### **Solution**

Adjective: long-term / short-term / proposed / effective / comprehensive / possible / practical / feasible / cost-effective / workable / realistic.

Verbs: propose / put forward / suggest / adopt / provide.

- *One possible solution would be to.... / One way of solving the problem is...*
- *One practical approach could be to...*

#### **Evaluation** [Show both positive effects and negatives]

- *Implementation of these solutions would ... However, ...*
- *Although these solutions provide..., there are a number of limitations. The first one is...*
- *Overall, these solutions offer a range of ..., but it needs to be highlighted that...*

#### **Conclusion** [Make a decision]

*In conclusion / to sum up / to conclude.*

*If clause: if these solutions are implemented, then this would ...*

# Oil & Gas



## SPSE Writing & Reading Lesson

### EXAMPLE

**Task:** Write a SPSE essay on oil & gas or write a SPSE essay on oil & gas using an outline. Read a text on oil & gas and fill in the outline plan. Identify the situation, key problems, possible solutions and evaluation.

## Teacher's Notes

### Reading or Writing - SPSE

Time: 1+hour

Level: \*\*\*\*\*/[B2/C1]

#### Lesson Plan

Aim: to develop the students' reading ability to identify the situation, problems, solutions and evaluation in a text, or to develop the students' writing skills in the construction of an SPSE essay.

#### Lead in

- What is oil & gas? Where does oil & gas come from? What is it used for? How long will it last? Brainstorm ideas and associated vocabulary.
- Key vocab: *energy, fossil fuels, petroleum, crude oil, CH<sub>4</sub>, oil reserves, oil refinery, oil rigs, fracking, unsustainable, non-renewable, pollution, plastics.*

#### SPSE Revision

- Remind students what a SPSE essay is.
- Go here: <https://www.academic-englishuk.com/spse> (Models / Language).

#### Option 1: Reading Task

1. Distribute **reading text** and **outline (blank)**.
2. Students read **text** & complete the **outline** with situation, problems, solutions & evaluation (Allow 20 minutes).
3. Feedback: distribute **outline (answers)** for students to check.

#### Option 2: Writing Task

1. Distribute the **essay question**: *In the future, the Earth is likely to run out of oil and gas.* Check understanding.
2. Students plan & write the essay. Allow 50 minutes.
3. Feedback: either distribute **SPSE essay outline answers** & **model essay** for students to check themselves or take in and mark. Use error correction code:  
<https://www.academic-englishuk.com/error-correction>

#### Scaffolding/differentiation

- Students use **SPSE essay outline answers** to write the essay.
- Key phrases sheet to support students with SPSE language at the back of this book.

#### Extra

- Students research other similar problems (water resources, food resources, over-population) and then write an SPSE essay.

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## Oil & Gas Writing Question

**QUESTION:** *In the future, the Earth is likely to run out of oil and gas.*

- What problems do you foresee?
- What are the possible solutions?
- How effective are these solutions?

Answer this question and write a SPSE essay between 200 – 300 words.

Time: 50 minutes

**Plan** (make notes here...)

## SPSE Essay: Oil and Gas Reading Text

*In the future, the earth is likely to run out of gas and oil.*

The world is highly dependable on the energy of oil and gas. It [REDACTED] of fossil fuel [REDACTED] forever, therefore alternatives need to be found. This essay will focus on sustainable energy [REDACTED] solution and evaluate its effectiveness.

There are two significant problems with oil and gas running out. Firstly, [REDACTED] [REDACTED] uses oil. Examples of this [REDACTED]. A second problem is the difficulty of countries [REDACTED] of energy that is equal to fossil fuels.

There are two possible comprehensive solutions that can be implemented. The first key solution is for countries to [REDACTED] energy into their transportation networks. Another possible solution is more [REDACTED] developing sustainable [REDACTED].

Both solutions can be effective in ensuring that preventative measures have been put in place to avoid a catastrophe. However, [REDACTED] to run a country and [REDACTED] [REDACTED] and investment if they will be able to be used [REDACTED] [REDACTED] transport like aviation.

Sustainable energy is a possible solution for a future energy supply but needs much more [REDACTED] source of the future. However, it is a much [REDACTED] [REDACTED] be depleted unlike [REDACTED] recommended that much more research is done into developing sustainable fuel to replace oil and gas.

Words: 261



## Oil & Gas Outline 1

<b>Introduction</b>	<ul style="list-style-type: none"> <li>• Dependable on oil &amp; gas</li> <li>• [REDACTED]</li> <li>• Thesis: sustainable energy / academic research</li> </ul>
<b>Problems</b>	<ul style="list-style-type: none"> <li>• Transport system ( [REDACTED] )</li> <li>• Difficulty using [REDACTED].</li> </ul>
<b>Solutions</b>	<ul style="list-style-type: none"> <li>• Integrate sustainable energy</li> <li>• More [REDACTED]</li> </ul>
<b>Evaluations</b>	<ul style="list-style-type: none"> <li>• (positive) Effective preventative measures</li> <li>• (negative) Not [REDACTED]</li> <li>• (negative) [REDACTED]</li> </ul>
<b>Conclusion</b>	<ul style="list-style-type: none"> <li>• Sustainable energy is possible solution</li> <li>• Cleaner [REDACTED]</li> <li>• More [REDACTED] needed</li> </ul>

## Oil & Gas Outline 2

<b>Introduction</b>	<ul style="list-style-type: none"><li>•</li><li>•</li><li>•</li></ul>
<b>Problems</b>	<ul style="list-style-type: none"><li>•</li><li>•</li></ul>
<b>Solutions</b>	<ul style="list-style-type: none"><li>•</li><li>•</li></ul>
<b>Evaluations</b>	<ul style="list-style-type: none"><li>• (positive)</li><li>• (negative)</li><li>• (negative)</li></ul>
<b>Conclusion</b>	<ul style="list-style-type: none"><li>•</li><li>•</li><li>•</li></ul>

## SPSE Language Phrases

### Key phrases for writing an SPSE essay

#### **Situation**

Follows the conventions of an introduction

(general > specific > definition > situation > outline)

*Outline: This essay will discuss two problems, propose possible solutions and evaluate the effectiveness of these solutions.*

#### **Problems**

Adjective: central / main / major / common / immediate / serious / significant.

Verbs: associate / raise / consider / discuss / address / resolve / discuss.

- *The most significant problem is...*
- *... poses / presents an immediate problem because...*
- *Another possible issue is ...*

Cause & effect language

*Leads to / results in / gives rise to / as a consequence / owing to / because of / as a result.*

Cause and effect phrases

*This suggests / ... Is linked to / associated with / connected to .... / ...may be affected by...*

#### **Solution**

Adjective: long-term / short-term / proposed / effective / comprehensive / possible / practical / feasible / cost-effective / workable / realistic.

Verbs: propose / put forward / suggest / adopt / provide.

- *One possible solution would be to.... / One way of solving the problem is...*
- *One practical approach could be to...*

#### **Evaluation** [Show both positive effects and negatives]

- *Implementation of these solutions would ... However, ...*
- *Although these solutions provide..., there are a number of limitations. The first one is...*
- *Overall, these solutions offer a range of ..., but it needs to be highlighted that...*

#### **Conclusion** [Make a decision]

*In conclusion / to sum up / to conclude.*

*If clause: if these solutions are implemented, then this would ...*

# Shanty Towns



## SPSE Reading Lesson

### EXAMPLE

**Task:** Write a SPSE essay on Shanty Towns or write a SPSE essay on Shanty Towns using an outline. Read a text on Shanty Towns and fill in the outline plan. Identify the situation, key problems, possible solutions and evaluation.

## Teacher's Notes

### Reading/Writing- SPSE

Time: 1+hour

Level: \*\*\*\*\*/[B2/C1]

#### Lesson Plan

Aim: to develop the students' reading ability to identify the situation, problems, solutions and evaluation in a text, or to develop the students' writing skills in the construction of an SPSE essay.

#### Lead in

- What is a Shanty Town? Brainstorm ideas and associated vocabulary.
- Key vocab: *slum, poverty, poor people, housing crisis, developing countries, Favelas, unregulated, illegal, no services, diseases, crime, unhealthy, unemployment.*

#### SPSE Revision

- Remind students what an SPSE essay is.
- Go here: <https://www.academic-englishuk.com/spse> (Models / Language).

#### Option 1: Reading Task

1. Distribute **reading text** and **outline (blank)**.
2. Students read **text** & complete the **outline** with situation, problems, solutions & evaluation (Allow 20 minutes).
3. Feedback: distribute **outline (answers)** for students to check.

#### Option 2: Writing Task

1. Distribute **essay question: *Shanty Towns are unhealthy environments for people to live.*** Check understanding.
2. Students plan & write the essay. Allow 50 minutes.
3. Feedback: either distribute **SPSE essay outline answers & model essay** for students to check themselves or take in and mark. Use error correction code:  
<https://www.academic-englishuk.com/error-correction>

#### Scaffolding/differentiation

- Students use **SPSE essay outline answers** to write the essay.
- Key phrases sheet to support students with SPSE language at the back of this book.

#### Extra

- Students research another issue (homelessness, housing crisis, cost of living, unemployment, immigration) complete an SPSE outline and then write an essay.

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## Shanty Towns Writing Question

Question: **Shanty Towns are unhealthy environments for people to live.**

- What problems do they have?
- What are the possible solutions?
- How effective are these solutions

Answer this question and write an SPSE essay between 200 – 300 words

**Time:** 50 minutes

**Plan** (make notes here...)

## Shanty Towns Text

Shanty towns are usually found in slums; the poor areas of cities in some developing countries. In recent years, [REDACTED] in such housing has increased dramatically. This essay will look at two specific health problems [REDACTED] and propose [REDACTED] these issues and evaluate their effectiveness.

One of the most significant problems associated with shanty towns is health-related issues. Firstly, because the [REDACTED] not provide clean water. As a result, this causes diseases such as dysentery, typhoid and hepatitis. Secondly, houses are often [REDACTED]. This makes it easier to contract diseases such as flu, TB and diphtheria where infection enters through the throat.

There are several measures which could solve these problems. One possible solution is that the [REDACTED] to individual houses or, at least, to neighbourhoods. This would make drinking water safe and reduce [REDACTED] could provide householders with building materials to improve their conditions and educate them [REDACTED].

Although these solutions would [REDACTED] resistance from local [REDACTED] a safer, healthier environment, and would also lead to increased employment opportunities in areas such as construction and plumbing.

In conclusion, there are a number of health issues regarding the living conditions in shanty towns. In order to [REDACTED] allocates sufficient funding to housing projects in such areas. Only in this way can the people [REDACTED] their current living standards.

Words 273

## Shanty Town Outline 1

<b>Introduction</b>	<ul style="list-style-type: none"> <li>• Poor area / developing cities</li> <li>• [REDACTED]</li> <li>• Thesis: health problems / governmental solutions</li> </ul>
<b>Problems</b>	<ul style="list-style-type: none"> <li>• Illegal: [REDACTED] / typhoid / hepatitis)</li> <li>• Over-crowding &amp; [REDACTED] – flu, TB and diphtheria)</li> </ul>
<b>Solutions</b>	<ul style="list-style-type: none"> <li>• Governmental: [REDACTED] and reduce infections.</li> <li>• Authorities: [REDACTED] and education</li> </ul>
<b>Evaluations</b>	<ul style="list-style-type: none"> <li>• (negative) Require [REDACTED] resistance</li> <li>• (positive) Safer, healthier [REDACTED] and plumbing.</li> </ul>
<b>Conclusion</b>	<ul style="list-style-type: none"> <li>• Thesis: health issues regarding the living conditions in shanty towns.</li> <li>• Main point: [REDACTED] projects</li> <li>• Recommendation: [REDACTED] current living standards.</li> </ul>



## Shanty Town Outline 2

<b>Introduction</b>	<ul style="list-style-type: none"> <li>•</li> <li>•</li> <li>•</li> </ul>
<b>Problems</b>	<ul style="list-style-type: none"> <li>•</li> <li>•</li> </ul>
<b>Solutions</b>	<ul style="list-style-type: none"> <li>•</li> <li>•</li> </ul>
<b>Evaluations</b>	<ul style="list-style-type: none"> <li>• (negative)</li> <li>• (positive)</li> </ul>
<b>Conclusion</b>	<ul style="list-style-type: none"> <li>•</li> <li>•</li> <li>•</li> </ul>

## SPSE Language Phrases

### Key phrases for writing an SPSE essay

#### **Situation**

Follows the conventions of an introduction

(general > specific > definition > situation > outline)

*Outline: This essay will discuss two problems, propose possible solutions and evaluate the effectiveness of these solutions.*

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Adjective: central / main / major / common / immediate / serious / significant.

Verbs: associate / raise / consider / discuss / address / resolve / discuss.

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*Leads to / results in / gives rise to / as a consequence / owing to / because of / as a result.*

Cause and effect phrases

*This suggests / ... Is linked to / associated with / connected to ... / ... may be affected by...*

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Adjective: long-term / short-term / proposed / effective / comprehensive / possible / practical / feasible / cost-effective / workable / realistic.

Verbs: propose / put forward / suggest / adopt / provide.

- One possible solution would be to.... / One way of solving the problem is...
- One practical approach could be to...

#### **Evaluation** [Show both positive effects and negatives]

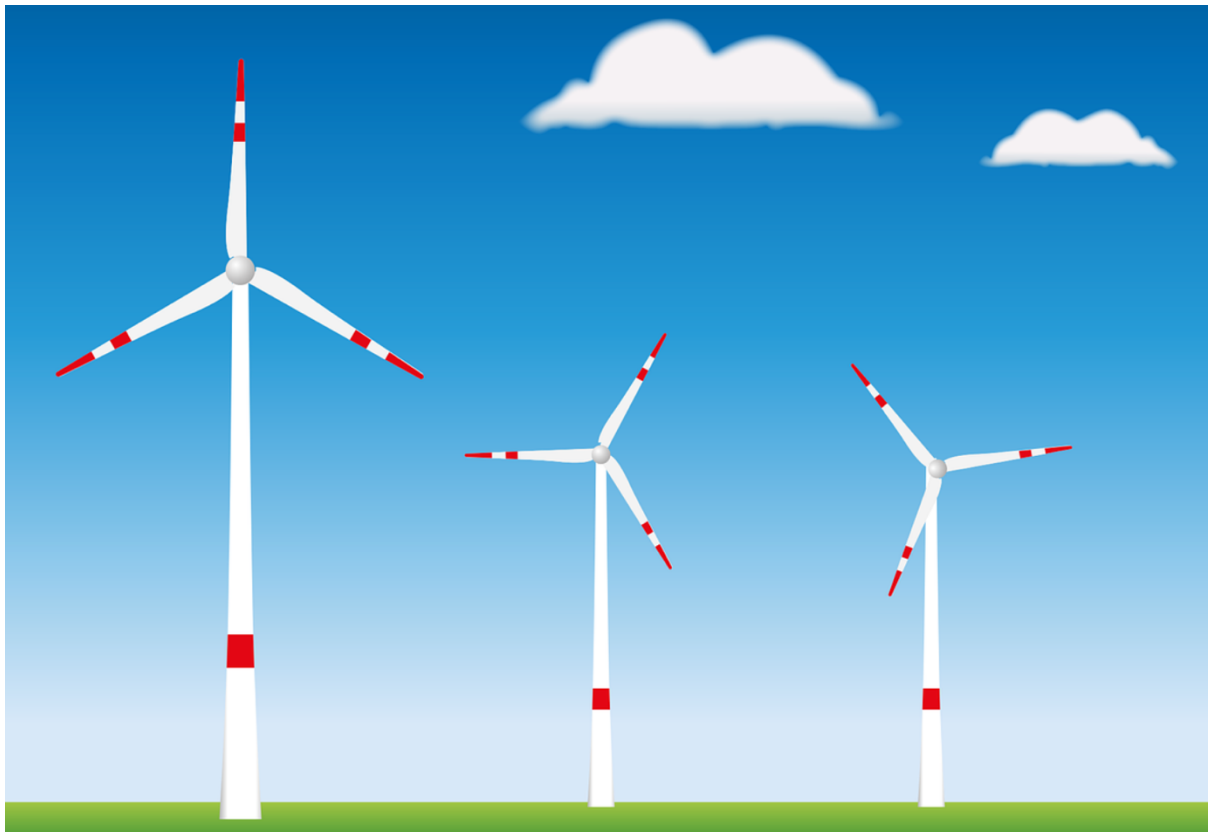
- Implementation of these solutions would ... However, ...
- Although these solutions provide..., there are a number of limitations. The first one is...
- Overall, these solutions offer a range of ..., but it needs to be highlighted that...

#### **Conclusion** [Make a decision]

*In conclusion / to sum up / to conclude.*

*If clause: if these solutions are implemented, then this would ...*

# Wind Energy



## SPSE Reading Lesson

### EXAMPLE

**Task:** Read the text on Wind Energy and fill in the outline plan. Identify the background, key problems, possible solutions and evaluation.

## Teacher's Notes

### Reading Text - SPSE

Time: 1hour

Level: \*\*\*\*\*/[B2/C1]

#### Lesson Plan

Aim: to develop the students' ability to read one academic text and highlight key points connected to background, problems, solutions and evaluation.

##### 1. Lead in

- What is wind energy? Brainstorm ideas and associated vocabulary.
- Key vocab: *wind farm, on-shore / off-shore, wind turbine, blades, generate electricity, sustainable energy, renewable energy (renewables), solar power, tidal energy, biomass, biogas, fossil fuelled power plants.*

##### SPSE Revision

- Remind students about what is a SPSE essay.
- Go here: <https://www.academic-englishuk.com/spse> (Models / Language).

##### 2. Reading

Give out blank outline and reading text. Set 45 minutes for the students to read the text and fill in the outline with the background, problems, solutions, evaluation.

##### 3. Feedback

Feedback as a group or give out model outline answer sheet.

##### 4. Extra

Students Internet research a sustainable energy (tidal, solar, biomass, biogas, etc..), create a SPSE plan and then write an essay.

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## UK Wind energy

The UK is one of the best locations for wind power in the world, with over 458 operational onshore wind farms operating 5,215 turbines and 1,465 turbines offshore (Renewable UK, 2015). Wind power is the largest renewable source of energy in the UK followed closely by Solar power and the Government is investing heavily into renewables to reduce its reliance on fossil fuels and . This essay will discuss two main problems of associated with reliability, offer possible solutions and finally evaluate their effectiveness.

According to Wilson (2016), the main problem associated with wind power is that it cannot produce a constant supply of energy. Obviously, it is reliant on a fluctuated source of power. The main consequence of this, is that the imbalance fails to meet the constant electricity energy needs of UK consumers, which in turn gives rise to backing up the supply grid through the use of fossil fueled power plants. This over-reliance on back-up systems leads to a further . Germany is the world leader in sustainable energy development but this process has raised electricity bills for the consumer and it is arguable how eco-friendly their sustainable energy program is (Peterson, 2014).

Many critics are now warning that countries should invest more in fossil fuel and nuclear power stations to compensate this disparity. However, . Being overly-reliant on one or two renewable sources is a grave mistake, evidence seems to suggest that using a variety would enhance energy efficiency. The main examples given by Johnson et al (2015), , these work on the same principle as conventional fossil fuel power stations and can activated when there is a fall in supply from wind and solar. Another possible solution, unlike Germany, , which is a consistent source of energy.

To a certain extent these solutions seem plausible in the compensation of fluctuating energy output from wind turbines and both release a minimum amount of CO2 compared to fossil fuel. However, (Wilson, 2016) and this would need to be developed and accepted through public consultation and Government Policy, which could take years. , although the initial costs to implement such projects would need significant investment (Johnson et al, 2015) and more (Renewable UK, 2015).

Overall, reducing CO2 and limiting the reliance on fossil fuels is the primary directive for the UK government. The solutions proposed have limitations but with investment and public backing it could be a better approach in .

### References

- Johnson et al. (2015) Biofuel is a viable alternative. [online] Available at: <http://www.renewable-energy.gov.uk> [Accessed 10 October 2015].  
Peterson, R, J. (2014) How countries are implementing eco-energy projects. *The New Scientist*. 78 (4).  
Renewable UK. (2015) Renewable Energy for future generations. *Science* 5 (3). Pp223-256  
Wilson, C. (2014) Sustainable energy is not the solution. *Nature*. 78 (2). Pp23-56

## SPSE Outline

<b>Situation</b>	
<b>Problems</b>	<b>Development</b>
<b>Solutions</b>	<b>Development</b>
<b>Evaluation</b>	<div>Positives</div> <div>Negatives</div>
<b>Conclusion</b>	

## SPSE Outline **ANSWERS**

<b>Situation</b>  Wind power - nearly [REDACTED] turbines = [REDACTED] energy. (Renewable UK, 2015)  Gov. directive / EU Renewables Directive 2009.  Essay outline.	
<b>Problems</b>  <u><b>Problem 1</b></u>  [REDACTED] supply of energy. (Wilson, 2016)  <u><b>Problem 2</b></u>  Sporadic use of fossil fuel power stations.	<u><b>Development</b></u>  Weather – fluctuation – [REDACTED] – back up system – fossil fuel power stations.  <u><b>Development</b></u>  Inefficient & expensive [REDACTED] costs.  Ex. Germany.  Q. Is it Eco-friendly? (Peterson, 2014)
<b>Solutions</b>  <u><b>Solution 1</b></u>  A variety of [REDACTED] sources. (Johnson et al. 2015)  <u><b>Solution 2</b></u>  [REDACTED] energy. (Peterson, 2014)	<u><b>Development</b></u>  Biofuel – [REDACTED]. (Johnson et al. 2015)  <u><b>Development</b></u>  Consistent source of energy. (Peterson, 2014)
<b>Evaluation</b>  Positives  <u><b>Solution 1</b></u>  [REDACTED] & less CO2.  <u><b>Solution 2</b></u>  [REDACTED] & constant (Johnson et al. 2015)	<b>Negatives</b>  No [REDACTED]. (Wilson, 2016)  Public consultation.  Gov. Policy.  Years.  Initial [REDACTED] costs / significant investment.  More research. (Renewable UK, 2015)
<b>Conclusion</b>  Solutions have limitations BUT [REDACTED].	

## SPSE Language Phrases

### Key phrases for writing an SPSE essay

#### **Situation**

Follows the conventions of an introduction

(general > specific > definition > situation > outline)

*Outline: This essay will discuss two problems, propose possible solutions and evaluate the effectiveness of these solutions.*

#### **Problems**

Adjective: central / main / major / common / immediate / serious / significant.

Verbs: associate / raise / consider / discuss / address / resolve / discuss.

- *The most significant problem is...*
- *... poses / presents an immediate problem because...*
- *Another possible issue is ...*

Cause & effect language

*Leads to / results in / gives rise to / as a consequence / owing to / because of / as a result.*

Cause and effect phrases

*This suggests / ... Is linked to / associated with / connected to .... / ...may be affected by...*

#### **Solution**

Adjective: long-term / short-term / proposed / effective / comprehensive / possible / practical / feasible / cost-effective / workable / realistic.

Verbs: propose / put forward / suggest / adopt / provide.

- *One possible solution would be to.... / One way of solving the problem is...*
- *One practical approach could be to...*

#### **Evaluation** [Show both positive effects and negatives]

- *Implementation of these solutions would ... However, ...*
- *Although these solutions provide..., there are a number of limitations. The first one is...*
- *Overall, these solutions offer a range of ..., but it needs to be highlighted that...*

#### **Conclusion** [Make a decision]

*In conclusion / to sum up / to conclude.*

*If clause: if these solutions are implemented, then this would ...*



# Burj Khalifa



## SPSE Reading & Writing Test

### EXAMPLE

**Question:** *Making reference to the points made in texts 1, 2 & 3, outline the situation and problem(s), summarise the solutions suggested and evaluate their effectiveness. Write between 400-600 words.*

## Teacher's Notes

### Reading & Writing Test - SPSE

**Time: 1:30 – 2:00 hours**

**Level: \*\*\*\*\*/[B2/C1]**

#### Lesson Plan

*Aim: to develop the students' ability to read three academic texts and highlight key points connected to situation, problems, solutions and evaluation. Students then use the key points to write a 400-600 word SPSE essay using summarising, paraphrasing and referencing skills.*

#### Lead in

- Students name some famous sky scrapers.
- Feed in examples: *Burj Khalifa (828m), Shanghai Tower (632m), Taipei 101 (503m), Shanghai Financial Centre (493m), Petronas Towers (451m), Empire State Building (381m)*
- Focus on Burj Khalifa & ask students: Where is it? What is it? What else do they know about it?

#### SPSE Revision

- Remind students what an SPSE essay is.
- Go here: <https://www.academic-englishuk.com/spse> (Models / Language).

#### Task

1. Students read **essay question** and check understanding.

**Essay Question:** Making reference to the points made in texts 1, 2 & 3 outline the situation and problem(s), summarise the solutions suggested and evaluate their effectiveness. Write between 400-600 words.

2. Distribute **SPSE essay outline** & the **three texts**.
3. Students take notes on the **three texts** using the **SPSE essay outline**.
4. Students write essay from their outlines. Allow 1.30 – 2.00 hours.
5. Feedback: Either distribute **SPSE essay outline answers** & **model essay** for students to check themselves or take in and mark. Use error correction code:  
<https://www.academic-englishuk.com/error-correction>

#### Scaffolding/differentiation

- Students compare with **SPSE essay outline answers** before writing essay.
- Distribute **key phrases sheet** to support students with SPSE language.

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## Burj Khalifa: The Project

**Text 1:** by Atkinson (2009)

The UAE, located in Middle East, is the third largest oil-producing country in the world. Currently, and over [REDACTED] have been taking place in the UAE. This is especially true of Dubai, one of the seven emirate states of the UAE. Dubai [REDACTED] economy in recent years and has also become a popular tourist attraction for visitors to the Middle East. Dubai has also become famous for its [REDACTED] of those towers is the 828m Burj Khalifa, which was built over a five-year period from 2004 to 2009. Originally named [REDACTED] in tribute to Sheik Khalifa Bin Zayed al Nahayah; ruler of Abu Dhabi, who provided a \$10bn bailout package to Dubai in 2008 when a number of [REDACTED] and bankruptcy.

The Burj Khalifa was designed to be a milestone of ingenuity, inspiration and achievement. An architectural characteristic of the tower is that it represents a flower on the desert to express a [REDACTED]. Technically, the tower exceeds architectural innovation through its application of a reinforced concrete and steel frame. This planning phase had to overcome [REDACTED] achieved through adopting a Y-type base (Figure 1) and spiralling construction patterns (Figure 2). From a [REDACTED] has several important building features. The tower is made up of 160 stories designated for leisure, business and residential use. The project implemented a new construction [REDACTED] aims to raise the entire construction one storey every three days. Much of this construction was done [REDACTED] in controlling the cement temperature. The distinctive features of the build are mainly attributed to the project management team and their [REDACTED] of build quality.

**Figure 1:** Y-Type Base



**Figure 2:** Spiral Construction Pattern



## Burj Khalifa: Project Failure

### Text 2: by Dobson (2011)

The internal measure of project success may be whether the project has accomplished what it was supposed to accomplish. The important aspect is that an evaluation of the project should [redacted] to the outcome. The prime criterion of success is what has been called the Iron Triangle, a criterion which measures the project based on [redacted] evaluating criterion it deems the Burj Khalifa as a failure as a project. From the point of view of cost, the initial planned [redacted]. The final cost, however, was approximately \$1.5bn. This rise was attributed to the prices of raw materials which had gone up significantly due [redacted] in 2008. According to the report of Global Informinell (2008), the price of iron had increased by 75% within [redacted] as aluminum, and cement had also increased. In addition, changes in design were also responsible. The final height of the building was reconstructed becoming [redacted] design. Also, the Armani hotel chain demanded that the interior design was to be more luxurious. T [redacted] earned value compared to initial plan and cost. The project's cost management was a significant failure.

Regarding time, originally the duration of project was set for forty-seven months, starting from February [redacted] excavation time. However, the Burj Khalifa project was completed nine months later, on September 2009. The change of design influenced this, but [redacted] deteriorating economic condition caused a delay in the construction. This was called the Dubai shock, and was [redacted]. As a result, this economic decline halted construction for four months in 2008.

With regards to quality, the main constructors, Samsung Engineering and Besix, introduced new technologies based on [redacted]. For example, Burj Khalifa was built using mixed reinforced concrete in order to stand against heavy wind and pressure. [redacted] engineers did a multitude of practice tests prior to the construction of the tower. This testing phase was important because it allowed engineers to plan [redacted]. If these tests were not carried out, and problems were found later during the construction of the building, the [redacted] increased significantly. From the point of quality, the project is successful.

## Burj Khalifa: Project Planning

### Text 3: by Barkley (2012)

It is a well-known fact that increasing the duration of a project increases the probability of risk. Due to the [redacted] rationale in raising the height of the building was questionable, as Burj Khalifa had already reached the world's tallest [redacted] to be a serious error of judgement to incur more costs at a time of uncertainty. This also includes meeting Armani's demands too. A much more [redacted] decision, would have been to stay with the original plan.

Although this project was successful in meeting many parameters, it failed the two objectives of [redacted] was not able to meet the expectations of the shareholders and was criticised as a failure. The project did not reach clear pre-negotiation [redacted] that even though the concept of the project is right, if planning and execution is not adequate, this can still [redacted] negotiated planning is recommended because repeated changes of plan eventually increase risk to customers. Indeed, a continuously reviewed project plan that is [redacted] of economic recession and price increases in raw materials can maximize the effectiveness of the project. Naturally, [redacted] fluctuations are incredibly difficult to predict and balance.

Success should not be solely measured through Project Evaluating Criterion (The Iron Triangle). Other [redacted] include the impressive architectural ingenuity and innovative engineering in succeeding such a flamboyant project, [redacted] technology. At present being the world's tallest building, breaking eight world records and encouraging tourism (45% increase) and business (37% increase) to the area have [redacted], and proclaiming to the world that Dubai is a major emerging economy. A final point is the Sydney Opera House (Figure 3) went [redacted] months longer to complete but no one ever says this was a failure. Only time will tell.



Figure 3:  
Sydney Opera House

## **SPSE Outline**

<b><u>Situation</u></b>	
<b><u>Problems</u></b>	<b><u>Solutions</u></b>
<b><u>Evaluation</u></b>	
<b><u>Conclusion</u></b>	

## Outline Answers

<p><b><u>Situation</u></b></p> <p>Middle East - UAE. [redacted] Dubai - Burj Khalifa. [redacted] skyscraper. 160 storeys: leisure, business &amp; residential (Atkinson 2009). [redacted] technology (Atkinson 2009). <u>Iron Triangle - failure on cost &amp; time</u> (Dobson, 2011).</p>	
<p><b><u>Problems</u></b></p> <ol style="list-style-type: none"> <li>1. Money: [redacted] 2008 economic crisis (Dobson, 2011).</li> <li>2. Wind [redacted] (Atkinson 2009).</li> <li>3. Concrete [redacted] (Atkinson 2009). Project Failure - cost &amp; time.</li> <li>4. <u>Cost</u>: \$876m = [redacted] materials, 2008 crisis, 100m height change, [redacted] (Dobson, 2011).</li> <li>5. <u>Time</u>: 9 months over 2005 – 2008 = 2005 – 2009. Dubai shock = 4 months no work (Dobson, 2011).</li> </ol>	<p><b><u>Solutions</u></b></p> <ol style="list-style-type: none"> <li>1. Sheik Khalifa [redacted] package (Atkinson 2009).</li> <li>2. Y-shaped base [redacted] construction (Atkinson 2009).</li> <li>3. Worked [redacted] (Atkinson 2009).</li> <li>4. Better plan (a plan that predicts changes in world economies). Changing the [redacted] luxury was a mistake in 2008 (Barkley, 2012.)</li> <li>5. Same as 4.</li> </ol>
<p><b><u>Evaluation</u></b></p> <p>Failure in project [redacted] but not necessarily [redacted] (Barkley, 2012).</p> <p>Sheik [redacted] = finish build (Atkinson 2009).</p> <p>Could you predict financial crisis? (Barkley, 2012).</p> <p>Y-shape base &amp; [redacted] help wind resistance (Atkinson 2009).</p>	<p><b><u>Evaluation</u></b></p> <p>Well-managed project team (Dobson, 2011).</p> <p>Tallest building: set records &amp; influenced construction (Barkley, 2012).</p> <p>Increase in [redacted] (Barkley, 2012).</p> <p>Economic [redacted] &amp; emerging economy. (Barkley, 2012)</p>
<p><b><u>Conclusion</u></b></p> <p>Time will tell (Barkley, 2012). Sydney Opera house example (Barkley, 2012).</p>	



## **Burj Khalifa Model Answer**

Dubai, in the UAE, has recently built the tallest skyscraper in the world called the Burj Khalifa. It aspires to a [redacted] innovative construction has changed construction technology, paving the way for a future of impressive high skyscrapers. [redacted] a number of issues when constructing such a high building which included using reinforced concrete, a y-shape base and spiraling constructive patterns (Atkinson, 2011). However, Dobson [redacted] was deemed a failure based on a number of project criterion under the theory of the Iron Triangle, [redacted]. This essay will discuss the main problems connected to failure, offer suitable solutions and then evaluate their effectiveness.

There are two main problems with the construction of [redacted]. With regard to the former, the initial plan was projected at \$876m; however, the final cost was [redacted] (2012), much of the cost increase was due to the 2008 financial crisis, where the price of raw building materials [redacted] (Global Informinel as cited in Dobson, 2012). Nevertheless, changes in design were also responsible, [redacted] the skyscraper 100m taller and much more luxurious (Dobson, 2012). It is important to highlight that these changes at a time of economic downturn placed the project into [redacted] of Abu Dhabi, provided \$10bn support (Atkinson, 2011). The second problem was that the project [redacted] Dobson (2012) highlights that the “deteriorating economic conditions caused delay” and as a result “halted construction for four months”. Barkley (2012) claims that increasing [redacted] of risk.

There [redacted] that could have been implemented to prevent the building project from failure. According to Barkley (2012), [redacted] difficult to predict but some of the decisions made in that period of economic uncertainty were [redacted] (2012) asserts that if the planners had stayed with the original plan and not raised the height or met Armani's luxury demands, then it is probable that the [redacted] and had not gone into near bankruptcy. Another clear solution is the forward-thinking of project planning. Project [redacted] markets, follow prices of raw material and look for economic instability, which in turn would guide [redacted] (Barkley, 2012).

With better project management, adhering to the original plan in times of economic uncertainty and [redacted] is the possibility the project would have been a success in the project criterion of the Iron Triangle. Of course, the predictability of raw material [redacted] complex areas and in depth planning and review may still not indicate volatile changes. Overall, it is debatable [redacted] (Barkley, 2012). To evaluate success on three main criteria is simplistic and not a true guide to achieving success. The project was completed, has improved [redacted] the world that Dubai is at the forefront in engineering construction technology. It would be important to [redacted]. [553 words]



## Key Phrases

### **Situation**

Follows the conventions of an introduction

(general > specific > definition > situation > outline)

*Outline: This essay will discuss two problems, propose possible solutions and evaluate the effectiveness of these solutions.*

### **Problems**

Adjective: central / main / major / common / immediate / serious / significant.

Verbs: associate / raise / consider / discuss / address / resolve / discuss.

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- Another possible issue is ...

Cause & effect language

*Leads to / results in / gives rise to / as a consequence / owing to / because of / as a result.*

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### **Solution**

Adjective: long-term / short-term / proposed / effective / comprehensive / possible / practical / feasible / cost-effective / workable / realistic.

Verbs: propose / put forward / suggest / adopt / provide.

- One possible solution would be to.... / One way of solving the problem is...
- One practical approach could be to...

### **Evaluation** [Show both positive effects and negatives]

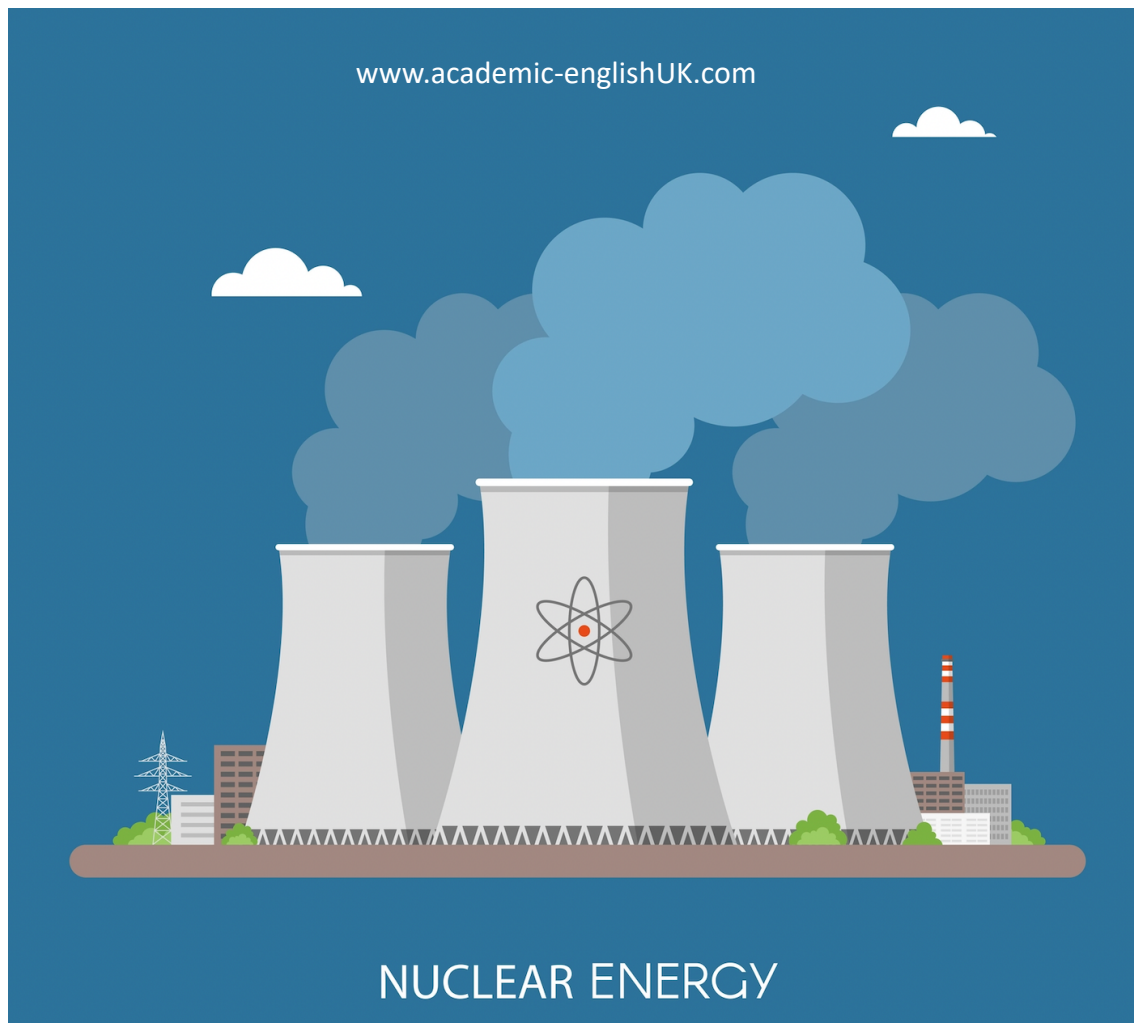
- Implementation of these solutions would ... However, ...
- Although these solutions provide..., there are a number of limitations. The first one is...
- Overall, these solutions offer a range of ... , but it needs to be highlighted that...

### **Conclusion** [Make a decision]

*In conclusion / to sum up / to conclude.*

*If clause : if these solutions are implemented, then this would ...*

# Nuclear Power



## SPSE Reading & Writing Test

### EXAMPLE

**Question:** *Making reference to the points made in texts 1,2,3,4 outline the situation and problem(s), summarise the solutions suggested and evaluate their effectiveness. Write between 400-600 words.*

## Teacher's Notes

### Reading & Writing Text - SPSE

Time: 1:30 – 2:00 hours

Level: \*\*\*\*\*(C1)

#### Lesson Plan

*Aim: to develop the students' ability to read four academic texts and highlight key points connected to background, problems, solutions and evaluation. Students then use the key points to write a 400-600 word SPSE essay using summarising, paraphrasing and referencing skills.*

#### Lead in

- What is nuclear power? Brainstorm topic and associated vocabulary.
- Associated vocabulary: *Reactor, uranium, rods, nuclear fusion, radioactivity, generate electricity, gas/coal fired power station, CO<sub>2</sub>, renewable energy, sustainable energy, energy demand, Fukushima disaster, Chernobyl disaster.*

#### SPSE Revision

- Remind students what an SPSE essay is.
- Go here: <https://www.academic-englishuk.com/spse> (Models / Language).

#### Task

1. Students read **essay question** and check understanding.

**Essay Question:** Making reference to the points made in texts 1, 2, 3 & 4, outline the situation and problem(s), summarise the solutions suggested and evaluate their effectiveness. Write between 400-600 words.

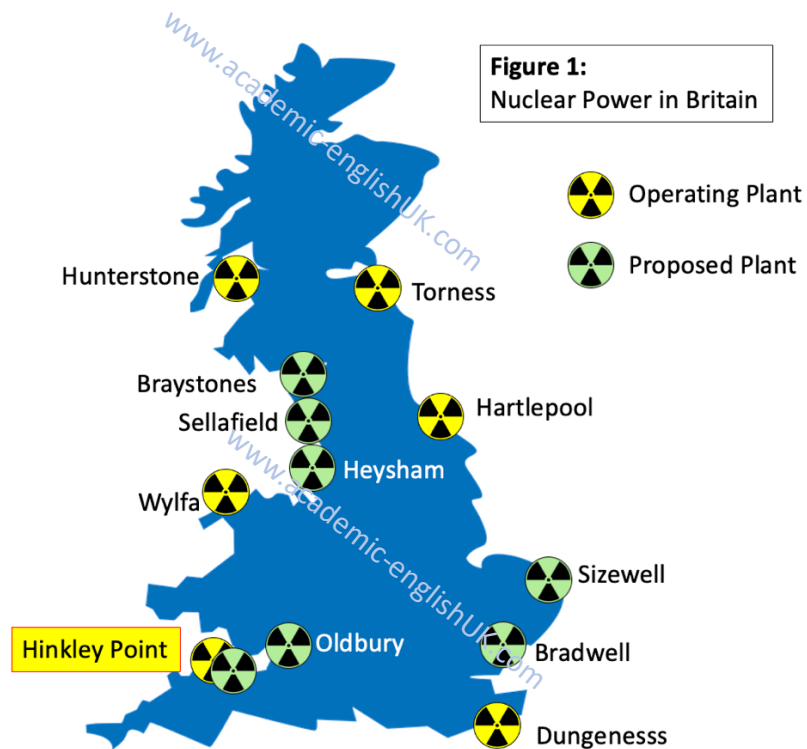
2. Distribute **SPSE essay outline** & the **four texts**.
3. Students take notes on the **four texts** using the **SPSE essay outline**.
4. Students write essay from their outlines. Allow 1.30 – 2.00 hours.
5. Feedback: Either distribute **SPSE essay outline answers** & **model essay** for students to check themselves or take in and mark. Use error correction code:  
<https://www.academic-englishuk.com/error-correction>

#### Scaffolding/differentiation

- Students compare with **SPSE essay outline answers** before writing essay.
- Key phrases sheet to support students with SPSE language at the back of this book.

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# Hinkley Point C Nuclear Power Plant



### **Text 1:** By Farrell (2016)

Hinkley Point C (HPC) in Somerset will be the first of a new batch of nuclear power stations to be built around the UK with Sizewell and Bradwell next in line (see figure 1). The plan is to build two 1,650-megawatt nuclear reactors, [REDACTED] at the HPC site as part of the UK's energy security strategy. The £18bn project plans [REDACTED] use anywhere else and is being built by France's EDF (Electricite de France), with some funding [REDACTED]. The site is already home to the disused Hinkley Point A and the still-operational Hinkley Point B (see figure 2). The HPC began construction in 2017.

New nuclear stations such as HPC would reduce the UK's reliance on imported gas. Gas and [REDACTED] the country's electricity. HPC is designed to meet 7% of the country's total energy needs. The UK's existing nuclear plants, such as Hinkley Point B, which was connected to the grid in 1976, are nearing the end of their working lives. In addition, the [REDACTED] to meet new EU air quality rules. That will create a big gap in generating capacity that must be filled if the lights are to stay on.

EDF, France's state-controlled electricity company, bought British Energy, which owned the UK's nuclear [REDACTED] but when the outline of the plans was announced in October 2013 it was clear the company needed an [REDACTED]. Two years later China's General Nuclear Power Corporation agreed to take [REDACTED]. However, EDF has still not made a full commitment to go ahead with building Hinkley Point C.

HPC will use two EPRs (European Pressurised Reactors) build by Areva. These are very high [REDACTED] of electrical production capacity of more than 1650 MWe (megawatts electric). It reduces production [REDACTED] which is nearly a third more than that of conventional nuclear power stations. These reactors are currently under construction [REDACTED] in **China** (2 units in Taishan), and is currently undergoing certification in the **United States** and the **United Kingdom**.

**Text 2:** by Johnson (2016)

Many economists are concerned with EDF's financial situation. The company has debt [REDACTED] past 12 months. The biggest concern is whether EDF should be building a power plant that is worth more than the company. A serious consequence of this is that with such [REDACTED] or met financial difficulties. HPC is a giant undertaking. Its two 1.65GW European Pressurised Reactors (EPR) would be among the biggest in the world. Of the original EDF £16bn estimated cost, £14bn was for construction with another [REDACTED], regulatory approvals and training future employees. In October 2015, EDF announced it needed [REDACTED] what they claimed was the increase in inflation. In addition to pre-build rising costs, there are concerns over EDF's construction of another nuclear power plant at Flamanville, on France's west coast. Its [REDACTED] running six years late.

If financial problems [REDACTED] use Avera's European Pressurised Reactors (EPR) technology. These reactors are being used for the [REDACTED] years behind schedule due to a serious fault in the reactor and cost overruns nearly bankrupting the company from four years of losses. As a result, the reactors for HPC [REDACTED] concerns and are now due to be ready for 2020. Delaying the construction of the project and adding to public anxiety of levels of safety.

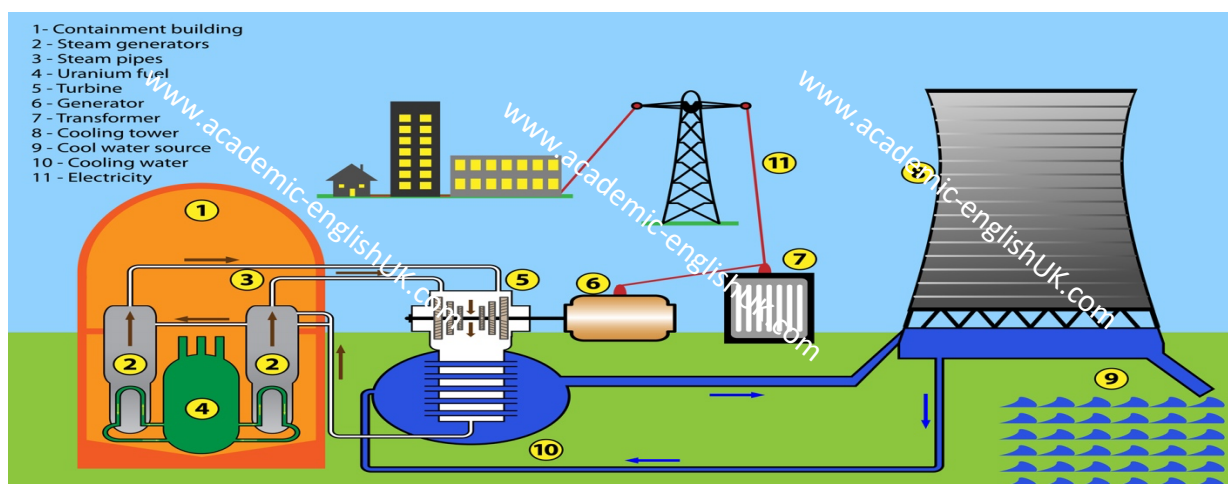
The UK government is committed to the HPC project as it wants to invest in Britain's future energy market [REDACTED] EDF have offered the government a 'strike price' that it will charge for electricity from HPC. The current electricity price [REDACTED] the price to £92.50 per megawatt hour when HPC goes onto the grid. Many consumer watchdogs are stating that EDF are forcing the Government into a corner to pay a highly marked up price. However, others argue that this price will be a constant and [REDACTED] will be a good deal for British consumers.



**Text 3:** by EDF (2016)

Nuclear power stations are a key part of the UK's strategy to reduce carbon emissions and fight climate change. HPC will be a first in the next generation of nuclear power stations with a [redacted] to deal with climate change. One step needed to achieve this is to replace our old, polluting oil, coal- and gas-fired power stations, with new, efficient, lower carbon alternatives (see figure 3). These alternatives include renewables, and indeed EDF Energy has invested in them in the UK. But renewables are intermittent, only [redacted]. So EDF Energy and others have also invested in modern gas-fired power plants, which can be switched on quickly when intermittent sources are not [redacted]. Nuclear power stations do not emit carbon dioxide when generating electricity. In fact, the total lifecycle emissions of HPC will be just 5g CO<sub>2</sub>e/kWh. The gas-fired power [redacted] times higher. It will generate enough low carbon electricity to power more than 5million homes, meeting 7% of the UK electricity needs. By restarting the UK's nuclear new build industry, HPC will pave the way for the UK to build further new nuclear power stations, [redacted] coast of England (see figure 1).

**Thriving economies:** HPC will create at least 1,000 apprenticeships and invest £14 million in education and training for that next generation. [redacted]. The construction and operation of Hinkley Point C is creating 25,000 employment opportunities, and the new nuclear power station will provide 900 jobs for its 60 year lifetime. EDF Energy's local and regional investment goes beyond this, [redacted] in local employment and skills, £16m in roads and infrastructure, and £3m for the 'inspire engineering programme' for young people.



**Figure 3** - non-polluting generation system.

**Text 4:** by Wilson et al (2015)

The clear reality is that the UK has ageing nuclear plants that need replacing or alternative forms need to be found rapidly. The government has invested heavily into renewables, producing [REDACTED] have found that solar and wind power are variable and lack the ability of energy storage. This leaves a dilemma [REDACTED] trying to meet the 2025 EU air quality rules. Germany, who are opposed to nuclear power from the recent Fukushima disaster, have decided to [REDACTED] could significantly affect their target to be using 80% renewable energy by 2050.

The UK, on the other hand, seems focused on nuclear power. Electricity demand is growing yearly and [REDACTED] the UK also has to stay globally competitive and attract global business with fair electricity cost. [REDACTED]. EDF is state-owned and the French Government need to be more committed in financially supporting EDF in its nuclear construction programme. Many economists [REDACTED] so that it meets the design specifications of its construction and can implement better safety protocols to prevent future delays. The UK government needs to set clear objectives with EDF with no extension to budget and costly penalties if they go over time.

Of course, the environmental impact of nuclear power is incredibly controversial. What never seems to be [REDACTED] uranium is a heavily polluting industry often done in other countries and not factored into pollution counting in the country where it is used. [REDACTED] before it is safe, there is no recycling process at this moment. And finally the decommissioning and dismantling of a nuclear power station takes up to 50 years and can cost over £10bn per station. These costs are not [REDACTED] so who pays for this?

Overall, the debate is healthy. The UK needs to become energy self-sufficient and the government needs electricity. [REDACTED]. Many people would prefer more research in alternative forms of energy but the economic and [REDACTED] to outweigh this research.



## SPSE Outline Plan

<b>Situation</b>
<b>Problems</b> (and development)
<b>Solutions</b> (and development)
<b>Evaluation</b> (positive & negatives)
<b>Conclusion</b>

## SPSE Outline Plan

### Situation

[REDACTED] (Wilson et al. 2015)  
HPC Somerset. (Farrell, 2016)  
Reduce fossil fuel / replace ageing plants. (Farrell, 2016)  
EDF & Chinese [REDACTED] (Farrell, 2016)  
7% energy / peak power. (Farrell, 2016) / (Wilson et al. 2015)  
Reduce carbon (EDF, 2016)  
[REDACTED] (Farrell, 2016)

### Problems

Nothing built yet. (Farrell, 2016)  
[REDACTED] (Johnson, 2016)  
Project more than company / liability. (Johnson, 2016)  
[REDACTED] (France). (Johnson, 2016)  
Avera reactor problems. (Johnson, 2016)  
Safety concerns. (Johnson, 2016)  
[REDACTED] (Johnson, 2016)  
Renewables not enough. (EDF, 2016)  
Power plants coming to an end. (Wilson et al., 2015)  
[REDACTED] (Wilson et al. 2015)

### Solutions

Cut CO2 emissions. (EDF, 2016)  
[REDACTED] (EDF, 2016)  
Initiate more nuclear programmes. (EDF, 2016)  
French [REDACTED] (Wilson et al.2015)  
Buying Avera EPRs. (Wilson et al. 2015)  
UK Government set clear objectives. (Wilson et al. 2015)  
U.K. Government committed. (Johnson, 2016)  
[REDACTED], infrastructure. (EDF, 2016)  
Electricity [REDACTED] (Johnson, 2016)

### Evaluation

Improve the economy. (EDF, 2016)  
[REDACTED] (Farrell, 2016)  
World leaders in Nuclear power. (EDF, 2016)  
Support the renewable energy [REDACTED] fossil fuels (Farrell, 2016) /  
(EDF, 2016) The environmental impact not accounted for (Wilson et al. 2015) Decommissioning  
- [REDACTED] (Wilson et al. 2015)

### Conclusion

[REDACTED] in storing energy. (Wilson et al. 2015)  
Healthy debate - may [REDACTED] (Wilson et al. 2015)

## Model answer

The U.K. has nine nuclear [redacted] of their life. Recently, the British government commissioned EDF to build a nuclear power plant next to an [redacted]. The new plant will be called Hinkley Point C (HPC) and will be one of the biggest nuclear power plants in the world at a cost of £18bn (Farrell, 2016). It will use two newly [redacted], than existing reactors. The plant will produce 7% of the UK's electricity and will run for 60 years. This essay will discuss the associated problems with building HPC and offer suitable solutions.

There are a number of serious problems associated with EDF and the construction of HPC. The most significant concern [redacted], Johnson (2016) argues that if a construction company is in more debt than the project, this [redacted] EDF are in the process of building a similar plant in Flamanville, France, which has gone over budget by [redacted] (Johnson, 2016). This provides evidence that EDF are unreliable in meeting budgets and time targets. Another equally important [redacted] is having a host of pre-installation problems with the efficiency of their reactors. Johnson (2015) points out that one of the reactors being installed in Finland has a serious reactor fault, and is over schedule by four years. This [redacted] more importantly safety. A final point is the price of electricity HPC will provide is double the current price. Although this is going to be a fixed concurrent price for 20 years, there is the possibility that electricity [redacted] will be over-charged.

The British government wants to be self-sufficient in energy and less reliant on fossil fuels so [redacted]. There are a number of concerns with EDF but there a number of solutions that can be implemented to reduce the financial stress and construction issues. Wilson et al (2015) suggests [redacted] French Government commit to the project and offer financial assistance if EDF go over budget. Another solution is that EDF buy out Avera and take control of the EPRs, this would mean more safety protocols could be applied and implement [redacted] (Wilson et al, 2015). Of course, all new projects normally come with imperfections and with the two plants already under construction ([redacted] weaknesses that can be addressed for HPC.

Overall, the bottom line is the UK needs an electricity solution to meet future needs. A new nuclear plant will improve the economy and generate [redacted] (EDF, 2016). It will also support the fluctuations in the

renewable [REDACTED] (Farrell, 2016). However, the reliability of EDF and Avera are questionable, the evidence suggested highlights significant financial [REDACTED] plant on time and under-budget. Even, if the British Government enforce a working contract that penalises EDF going over [REDACTED] and performance.

[Words 584]

## SPSE Language Phrases

### Key phrases for writing an SPSE essay

#### **Situation**

Follows the conventions of an introduction

(general > specific > definition > situation > outline)

*Outline: This essay will discuss two problems, propose possible solutions and evaluate the effectiveness of these solutions.*

#### **Problems**

Adjective: central / main / major / common / immediate / serious / significant.

Verbs: associate / raise / consider / discuss / address / resolve / discuss.

- *The most significant problem is...*
- *... poses / presents an immediate problem because...*
- *Another possible issue is ...*

Cause & effect language

*Leads to / results in / gives rise to / as a consequence / owing to / because of / as a result.*

Cause and effect phrases

*This suggests / ... Is linked to / associated with / connected to .... / ...may be affected by...*

#### **Solution**

Adjective: long-term / short-term / proposed / effective / comprehensive / possible / practical / feasible / cost-effective / workable / realistic.

Verbs: propose / put forward / suggest / adopt / provide.

- *One possible solution would be to.... / One way of solving the problem is...*
- *One practical approach could be to...*

#### **Evaluation** [Show both positive effects and negatives]

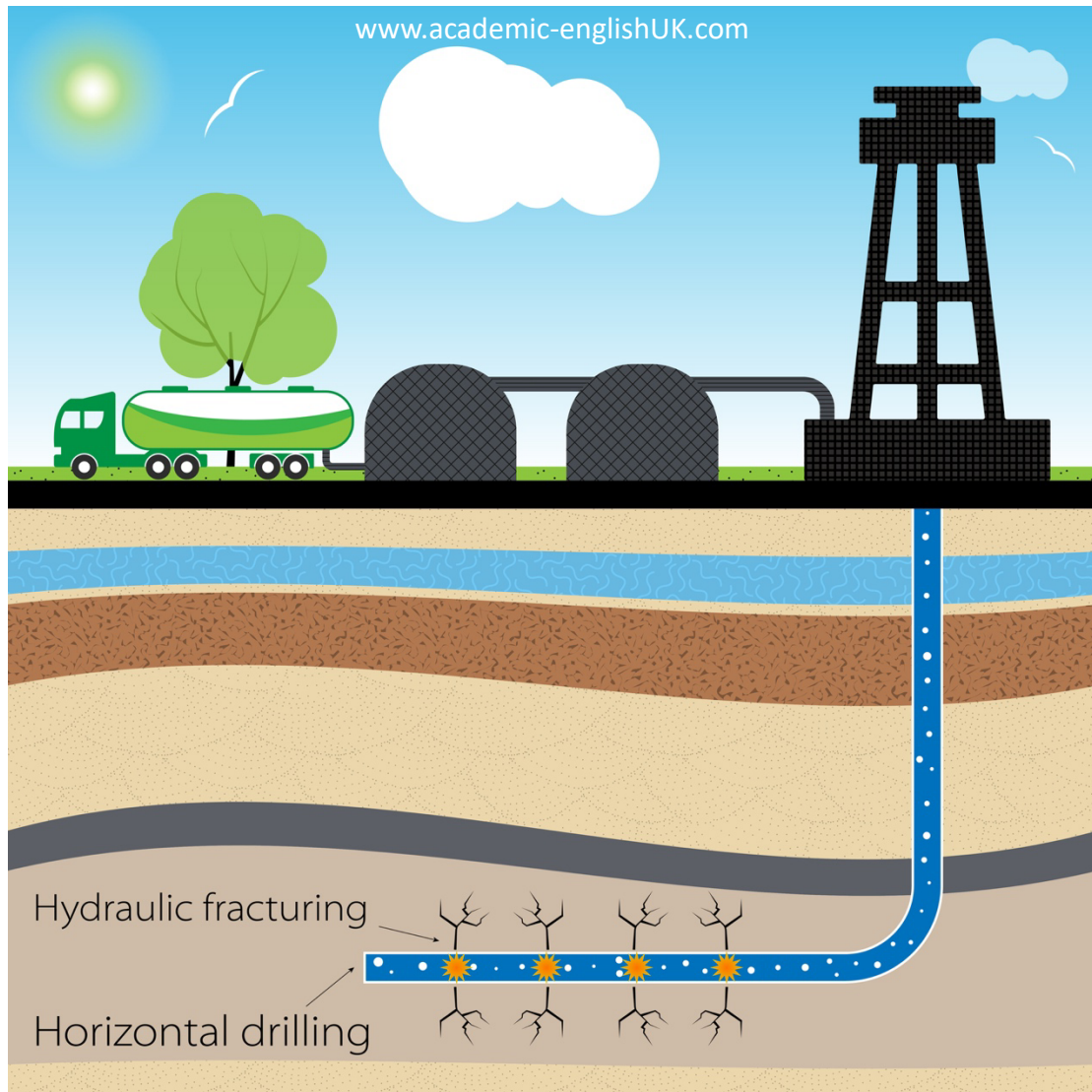
- *Implementation of these solutions would ... However, ...*
- *Although these solutions provide..., there are a number of limitations. The first one is...*
- *Overall, these solutions offer a range of ..., but it needs to be highlighted that...*

#### **Conclusion** [Make a decision]

*In conclusion / to sum up / to conclude.*

*If clause: if these solutions are implemented, then this would ...*

# Fracking



## SPSE Reading & Writing Test

### EXAMPLE

**Question:** Making reference to the points made in texts 1, 2 & 3, outline the situation and problem(s), summarise the solutions suggested and evaluate their effectiveness. Write between 400-600 words.

## Teacher's Notes

### Reading & Writing Test - SPSE

**Time: 1:30 – 2:00 hours**

**Level: \*\*\*\*\*/[B2/C1]**

#### Lesson Plan

*Aim: to develop the students' ability to read three academic texts and highlight key points connected to background, problems, solutions and evaluation. Students then use the key points to write a 400-600 word SPSE essay using summarising, paraphrasing and referencing skills.*

#### Lead in

- What is fracking? Brainstorm the topic and associated vocabulary.
- Associated vocabulary: *oil & gas, shale gas, drilling, wells, high pressure water, rock, fracking chemicals, contamination, pollution (pollutants), waste water, treatment plants, underground water aquifers, hazardous, carcinogenic.*

#### SPSE Revision

- Remind students what an SPSE essay is.
- Go here: <https://www.academic-englishuk.com/spse> (models / Language).

#### Task

1. Students read **essay question** and check understanding.

**Essay Question:** Making reference to the points made in texts 1,2 & 3, outline the situation and problem(s), summarise the solutions suggested and evaluate their effectiveness. Write between 400-600 words.

2. Distribute **SPSE essay outline** & the **three texts**.
3. Students take notes on the **three texts** using the **SPSE essay outline**.
4. Students write essay from their outlines. Allow 1.30 – 2.00 hours.
5. Feedback: Either distribute **SPSE essay outline answers** & **model essay** for students to check themselves or take in and mark. Use error correction code:  
<https://www.academic-englishuk.com/error-correction>

#### Scaffolding/differentiation

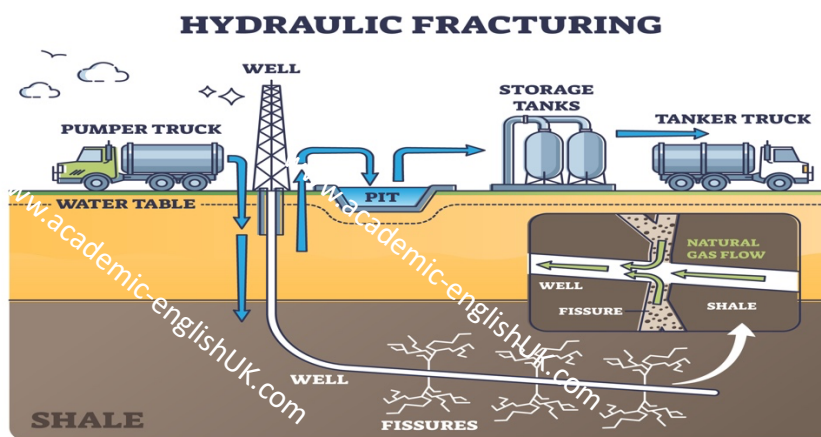
- Students compare with **SPSE essay outline answers** before writing the essay.
- Key phrases sheet to support students with SPSE language at the back of this book.

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## Fracking – extracting natural gas

**Text 1** by Wilson and Rakenberg (2018)

Fracking is the technique of drilling on land to extract oil and gas from underground reservoirs and wells. The [REDACTED] to as shale gas extraction, uses a high-pressure water mixture directed at the rock below the [REDACTED]. Water, sand and chemicals ([REDACTED]) injected into the rock at [REDACTED] allows the gas to flow out to the head of the well. The process can be carried out vertically or, more commonly, [REDACTED]. The term fracking refers to how [REDACTED] by the high pressure mixture (see figure 1).



**Figure 1:**  
The Fracking Process.

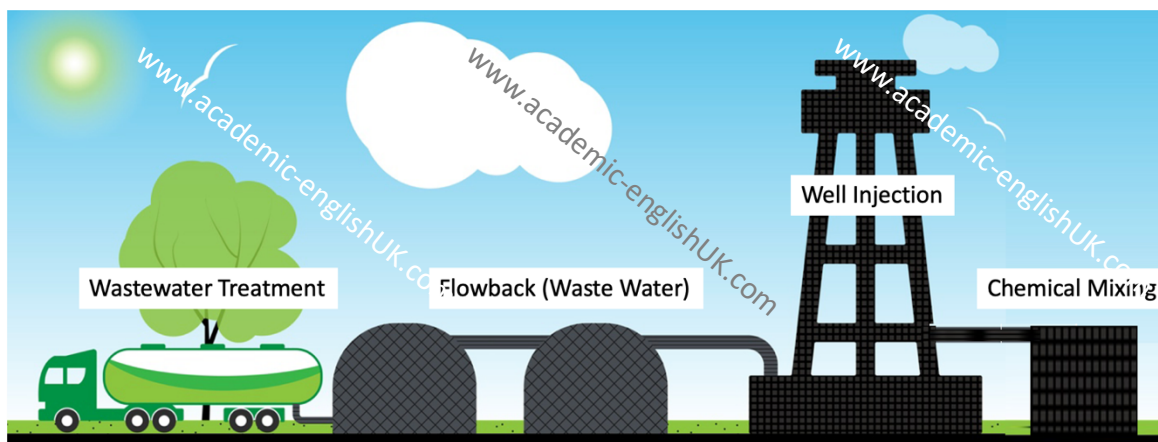
The most widespread concern is the water contamination of underground aquifers due to the [REDACTED] and chemicals [REDACTED], the most significant risk is the wastewater disposal on the surface surrounding the well. Indeed, this week a North [REDACTED] spilling [REDACTED] water [REDACTED]. This was due to human error (BBC, 2016).

House Energy and Commerce Committee (2015), [REDACTED] of the country's most active hydraulic fracturing companies had reported blowouts spilling over 866 million [REDACTED] (frack job uses 5 million gallons of water, containing thousands of gallons of fracking chemicals). It is being suggested that stricter limitations are [REDACTED] hazardous waste and harsher penalties (million dollar fines) for polluting ecosystems, although how this can be done is still [REDACTED] the long-term effects of fracking pollutants on the environment and also regulating fracking company spillages.



**Text 2** by US Environment Agency (2018)

drilling is wastewater (see figure 2). A single fracking process can return to surface as much as solids, radioactive elements and the hazardous chemicals used to release the shale gas. In certain wells, that water can usually be disposed of by injecting it back into deep wells. This is often regulated by the federal government but in the geology or will leach into the environment. This results in a serious problem and the waste water must be . The *New York Times* (2017) has reported that water-treatment plants are struggling to deal with the amount and hazardousness of fracking waste water. In fact, the longer as earlier this week Pennsylvania authorities called on fracking gas companies to stop sending waste to it.



**Figure 2:** The water process.

**Text 3** by Peterson (2017)

Shale gas drilling is going to continue given the sheer [REDACTED] however, there [REDACTED]. General Electric (GE) may have a solution. The company has developed a mobile evaporator designed to help drillers recycle waste water [REDACTED] trucking the water to a treatment plant. Water is a huge issue for fracking and with the mobile [REDACTED] contaminants [REDACTED] (see figure 3). You end up with water that can be used for recycling.



**Figure 3:** The evaporator.

The evaporator, which can be mounted on a [REDACTED] gallons a minute, and it is especially useful for porous sites where the water tends to come back with [REDACTED], it should push drilling companies to take [REDACTED] produce.

GE's technology is not a [REDACTED] associated with shale gas drilling and one question that has not been answered clearly is what will happen to the waste [REDACTED] At this moment, these waste chemical contaminates are being stored awaiting a viable option for disposal. Overall, it is important to remember that fossil fuel extraction, [REDACTED], greener and more efficient. It often [REDACTED] regulators to make it happen.

## Outline Plan

<b>Situation</b>	
<b>Problem</b>	<b>Solution</b>
<b>Evaluation</b>	
<b>Conclusion</b>	

## SPSE Outline Answers

<p><b>Situation</b></p> <p>Process – Shale gas &amp; fossil fuels.</p> <p>Fracking – drilling, [REDACTED] with chemicals that extract gas from rocks.</p> <p>Associated problems with accidents (blowouts), [REDACTED] fracking chemicals.</p>	
<p><b>Outline</b></p>	
<p><b>Problems</b></p> <p><b>Fracking Fluid Water</b> – hazardous &amp; carcinogenic – include [REDACTED] Zylene and Ethylbenzene &amp; 5 million gallons of water per frack (Wilson and Rakenberg (2016).</p> <p><u>Problem 1:</u> Blow out &amp; [REDACTED] (Wilson and Rakenberg, 2016). Example Pennsylvania, [REDACTED] million gallons of contamination (House Energy and Commerce Committee (2015).</p> <p><u>Problem 2:</u> Waste water – permeable / porous geology = water [REDACTED] it (US Environmental Agency, 2018).</p>	<p><b>Solutions</b></p> <p><u>Solution:</u> Limitation, [REDACTED] higher fines (Wilson and Rakenberg, 2016).</p> <p><u>Solution:</u> Store water underground or use [REDACTED] (Peterson, 2012) treats water on site processing 50 gallons a minute (Peterson (2017).</p>
<p><b>Evaluation</b></p> <p>Policy, limitations, [REDACTED]. Lacks evidence &amp; research. Difficult to regulate (Wilson and Rakenberg, 2016).</p> <p>The Evaporator is not [REDACTED] encourage frackers to take more responsibility. Questionable about what happens to waste chemicals &amp; storage is not a solution (Peterson (2017).</p> <p>Human [REDACTED] (Wilson and Rakenberg, 2016).</p>	
<p><b>Conclusion</b></p> <p>Overall, it needs [REDACTED] commitment.</p>	

## Model Essay

Extracting natural gas from deep underground wells is done through a process called fracking. It is a relatively [REDACTED]. It is a process of drilling wells on land and injecting these wells with high pressure water consisting of a range of chemicals that fractures the rock releasing the shale [REDACTED] with fracking because each frack can create over 5 million gallons of waste water mixed with toxic chemicals. This essay will highlight the key problems associate with fracking, suggest possible solutions [REDACTED] effectiveness.

The main key problem is using and disposing of the fracking fluid water. This water contains a number of hazardous substances such [REDACTED], which are carcinogenic to the environment. If mismanaged these chemicals can pollute ground water [REDACTED]. Wilson & Rakenberg (2016) state that the most serious danger is blowouts through human error, with fourteen fracking companies this year reporting that they have experienced these accidents. [REDACTED] that cause the spillage of thousands of gallons of fracking water into the surrounding environment [REDACTED] of contaminated fracking liquid has polluted the environment already this year (House Energy and Commerce Committee, 2015). One solution that has been suggested by Wilson & Rakenberg (2016) is [REDACTED] systems to create improved responsibility and awareness of such accidents. Although this could be quite [REDACTED] in how fracking pollutants affect the environment and how fracking companies can be monitored and regulated.

Another key problem associated with the contaminated waste water is its disposal. The US Environmental Agency (2016) notes that [REDACTED] the water back into wells but in areas where the geology is porous and permeable this cannot be done. Therefore, the [REDACTED] to be processed through water treatment plants but these plants are unable to cope to with the hazardous fracking chemicals within the water (The New York Times, 2017). Peterson (2017) [REDACTED] contaminated water which is the use of an Evaporator. This is a mobile waste water processing machine that can be placed on a truck which is capable of processing 50 gallons of fracking liquid a minute, [REDACTED] to processing and recycling water on site. The evaporator works well in principle but is not the perfect solution due to the questionable fact of how to dispose of the [REDACTED]. This does not seem to have a viable solution yet.

Overall, fracking offers new avenues to extract gas and this meets the ever increasing energy demands of the future. [REDACTED] problems but with governmental regulation and policy these can be overcome. The biggest concern and perhaps the most difficult to [REDACTED] safety protocols and higher fining systems this is something that can be reduced.

[Words 531]

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