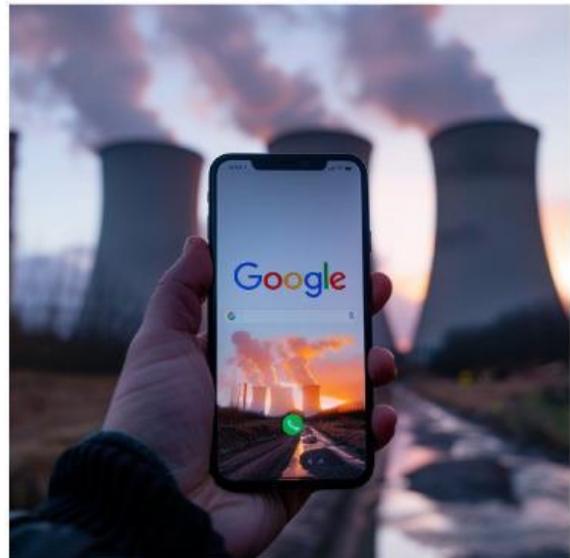# GOOGLE TO USE NUCLEAR POWER FOR AI

Scan to review worksheet

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1EPS-21L7-EE0

1 Warm up

Look at the images below and answer the questions that follow.

A. a nuclear power station

B. a coal power plant

C. a windfarm

D. solar panels

Discuss in pairs.

1. What are the advantages and disadvantages of each type of power?

2. Is one of the options better than the others?

3. Which option is the most harmful to the planet? Which is the least harmful?

4. Can you think of any other ways to generate energy?

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2 Pre-listening task: general vocabulary

Match the words and phrases with the correct definitions.

Group 1

1.	start-up (n)	a.	being an essential part of something
2.	chapter (n)	b.	risk having a harmful effect on something
3.	fusion (n)	c.	a company that is just beginning to operate
4.	prominent (adj.)	d.	important or well-known
5.	compromise (v)	e.	a period of time in a person's life or in history
6.	integral (adj.)	f.	the act or process of combining the central parts of atoms in order to release energy

Group 2

1.	reactor (n)	a.	a large network of computer servers, typically used by organizations for storing, processing or sharing large amounts of information
2.	insatiable (adj.)	b.	always wanting more of something; not able to be satisfied
3.	data center (n)	c.	(of machines, buildings, etc.) consisting of separate parts or units that can be joined together
4.	net zero (n)	d.	the state in which the harmful gases produced by a particular company, region or country have no impact on the climate because they have been balanced by actions that protect the environment
5.	build-up (n)	e.	a large structure used to produce nuclear energy
6.	modular (adj.)	f.	an increase in the amount of something over a period of time

Discuss the following questions in pairs.

1. Why do you think artificial intelligence has insatiable power needs? Will AI require more or less power in the future?

2. Do you think that most countries and corporations will meet their net zero goals? Why/why not?

3. Are you worried about the build-up of AI tech and infrastructure, or excited?

4. Does artificial intelligence mark a new chapter for humanity, or is it just a trend that will soon disappear?

5. Can you think of any prominent business owners who support AI?

3 Listening for specific information

Listen to or watch the report. Tick the items you hear mentioned. Which three items were not mentioned in the video?

1. ☐ giant

2. ☐ power

3. ☐ electricity

4. ☐ sector

5. ☐ companies

6. ☐ corporations

7. ☐ example

8. ☐ players

9. ☐ disaster

10. ☐ risk

4 Listening for comprehension

Part A: For each question 1-8 below, select the answer that most accurately reflects the information given in the audio. Listen to the report again to check your answers.

1. Who did Google strike a deal with to meet their nuclear power needs?

   a. Constellation Energy

   b. Kairos Power

   c. Chaos Power

2. Who or what is the 'hyperscaler' that Pippa refers to?

   a. the nuclear power company Google is making a deal with

   b. a new type of nuclear technology

   c. Google

3. Which company is bringing Three Mile Island back online?

   a. Amazon

   b. Google

   c. Microsoft

4. Who did Amazon buy a data center from?

   a. Talen Energy

   b. Constellation Energy

   c. Microsoft

5. Who or what is Susquehanna?

   a. the name of a major tech player

   b. a new type of nuclear reactor

   c. a nuclear power plant

6. Who has funded a fusion company?

   a. Sam Altman

   b. Jeff Bezos

   c. Jensen Huang

7. Who called nuclear power "an integral part of the AI future"?

   a. the CEO of Nividia

   b. the CEO of Microsoft

   c. the CEO of Amazon

8. What is Google funding that may send an "important" signal about demand?

   a. a new type of computer

   b. small modular reactors

   c. the American government

Part B: Read the sentence below. Underline the two idioms that feature in the report. What do the idioms mean? Could you rephrase each idiom in a different way? Discuss in pairs.

> *In today's business news, we look at two corporations that have **struck a deal** which experts hope will **breathe new life into** the renewable energy sector.*

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4/8

LIVEWORKSHEETS

5 Pre-reading task: general vocabulary

You are going to read an article about the impact artificial intelligence could have on global warming. Scan the text quickly and find words that match the synonyms and definitions below in each paragraph.

Group 1

1. _____ (adj., para. 1): unpleasant; real and impossible to avoid

2. _____ (phr. v, para. 1): spend a lot of money on something (informal)

3. _____ (n, para. 1): a type of large plane

4. _____ (adj. para. 1): attracting attention by being bright, expensive, large, etc.

5. _____ (adj. para. 1): not stopping

6. _____ (n, para. 2): a period when something such as a sport or a type of music suddenly becomes very popular and successful

7. _____ (n, para. 2): a style, activity, or trend that is very popular for a short period of time

8. _____ (adj. para. 2): copied

Group 2

1. _____ (n, para. 2): a fact that people are made aware of, especially one that has been secret and is surprising

2. _____ (v, para. 3): restoring

3. _____ (n, para. 3): a new beginning for something which is old or which had disappeared or become weak

4. _____ (adj. para. 3): weak and easily hurt or damaged

5. _____ (adv. para. 3): in a way that is strange or funny because it is very different from what you expect

6. _____ (v, para. 4): make it difficult for somebody to do something or for something to happen

7. _____ (n, para. 4): craziness

8. _____ (n, para. 4): a sudden wish to do or have something, especially when it is something unusual or unnecessary

Can AI Generate a New World When Ours Is Gone?

The Climate Costs of Generative AI and Big Tech's Energy Demands

1. We're moving in the wrong direction. Despite all the stark warnings about climate change, we're splurging on huge, gas-hungry cars. We're flying around the world more and more frequently, leaving a carbon footprint as big as a jumbo jet. As scientists present us with the extent of the impending climate breakdown, with the statistics and graphs, our politicians, under pressure from a public focused on the cost-of-living crisis, cancel green deals and reject renewable energy plans. Meanwhile, in flashy tech boardrooms, CEOs are giving inspiring speeches about their new product: generative AI. A 'must-have' for companies and individuals alike, AI is being pushed with the same amount of relentless energy it consumes, to the cost of us all.

2. Like the Bitcoin boom before it, artificial intelligence is the latest energy-intensive fad to emerge from Silicon Valley. Arriving at what may well be the worst possible moment for the planet, AI requires incredible amounts of power in order to generate such vital contributions to humanity as: a picture of a poodle playing golf, or a plagiarized essay to be submitted to university. Some estimates have placed the amount of energy required by data centers to reach one thousand terawatt hours by 2026; equivalent to twice the yearly power demands of Japan. Corporations such as Google and Microsoft have, in the wake of these revelations, admitted that they are struggling to meet their net zero goals.

3. Step forward nuclear power. On paper, a clean source of energy that can reliably power artificial intelligence for decades to come. The news that Microsoft was reviving the power plant at Three Mile Island – the site of the worst nuclear disaster in US history – raised alarm, but, with each of the major tech giants appearing to jump on board, it appears that the resurrection of the controversial technology is inevitable. While some maintain that the risk of nuclear accidents is low, the war in Ukraine has shown how vulnerable such power plants can be, with the Zaporizhzhia site experiencing several near misses as it became a key objective in the conflict. Ironically, nuclear power plants may also be vulnerable to rising temperatures brought on by climate change.

4. The twenty-first century promises to be a decisive one, with questions around human survival on our planet arising from our apparent addiction to fossil fuels. Whether major tech companies switch entirely to nuclear energy or not, pushing any form of new technology that hinders our fight against global warming is madness. Of course, not all applications or artificial intelligence are negative, and some, such as using the technology to cure diseases or solve pressing problems. Generative AI, however, is not. At best, the technology, which works by searching through vast data centers to piece together images, videos or passages of text from stolen excerpts, is robbing us of our culture and our jobs. At worst, it will rob us of our planet. Collectively rejecting generative AI seems, therefore, the only sane position. Will we go along with the whims of tech corporations, or will we choose a brighter future? - *sources: theguardian.com, bbc.com, reutersconnect.com*

6 Reading comprehension

Part A: Read the article again. For each question, select the correct option to finish the sentence according to the information given in the article.

1. We're flying more frequently and spending money on huge cars, despite the rise of **artificial intelligence / warnings about climate change / the cost-of-living crisis**.

2. Politicians are cancelling green energy deals due to pressure from a public focused on **the war in Ukraine / climate change / the cost-of-living crisis**.

3. In order to generate images or text, AI requires **an incredible amount of power / huge investments from billionaires / vital contributions from humanity**.

4. The amount of energy data centers will require by 2026 will be equivalent to **twice the yearly power demands of Microsoft / twice the yearly power demands of Japan / the amount of power required by Bitcoin**.

5. On paper, nuclear power is **the safest way to generate energy / the cheapest way to power AI in coming decades / a clean source of energy that can reliably power AI in the future**.

6. Nuclear power plants could be vulnerable to **natural disasters / artificial intelligence / war and climate change**.

7. Some worthwhile applications of AI include **treating diseases and solving important problems / generating songs and films / replacing people's jobs**.

8. The only sane position seems to be **embracing AI / moving to another planet / rejecting AI**.

Part B: Look at the phrases in bold in the sentences below and discuss the following questions in pairs. What do you think the phrases mean in each sentence?

1. *In the wake of the news story*, the board decided to close the company down.

2. *On paper*, my team should have easily won the game, but we lost by several goals.

3. Since Lucy and Matt *jumped on board*, the website has been a lot more successful.

1. Can you think of a time in which you changed your mind about a decision **in the wake of** new information?

2. Why do you think some films succeed **on paper**, but not in reality?

3. Why are so many companies keen to **jump on board** when it comes to artificial intelligence?

7 Talking point

In pairs or small groups, discuss the following questions.

1. Are you more concerned about climate change than you were five years ago, or less worried?
2. Can one person make a difference in the battle against global warming? Why/why not?
3. Have you used generative AI? If so, were you impressed or disappointed?
4. Do you think that using nuclear power to generate energy for AI is a good or bad idea?
5. Why do you think that nuclear energy is so controversial?
6. Do tech companies have too much power?

8 Optional extension / homework

Write an opinion essay on one of the topics below. Your essay should agree with or disagree with the statement, and should be between 260 – 320 words long.

1. Laws only exist to protect companies from individuals, rather than protecting individuals from companies.
2. All corporations should have to follow strict regulations on the amount of energy they can consume, with no exceptions.

Alternative extended activity:

Work in two groups. One group should argue in favor of the statement below, and the other against. Each group should think of seven points to support their argument and consider what the other side might say. Present your argument to the class, ensuring that each group member has talking time.

- *Nuclear power is the best option for the planet.*