Business English News 61 – Data Centers

Transcript

AI seemed relatively **uncontroversial** when it was limited to simple functions in your toothbrush or car. But then, in 2022, ChatGPT **made an** enormous **splash**, signaling the **commercialization** of **generative AI**. Since then, there's been a **rapid proliferation** of new tools. And the popularity of these tools has **necessitated** massive **infrastructure** to support all this computing power. As Forbes reports:

Data centers are rapidly **sprouting** across America, with **hyperscalers** spending billions to build thousands of **facilities** nationwide. **Rural** areas in particular have seen a **surge in** development as companies **seek** cheaper land and **generous** local **tax incentives**. Many see the **trend** as providing an **entry point** into the growing AI **sector** for communities outside traditional **urban centers**, especially those looking for new sources of **tax revenue** and high-paying jobs.

The promise of jobs may seem **irresistible**, particularly when there's so much economic **uncertainty**. But research in Virginia has shown that data centers created just one job for every $13 million of investment. That's a pretty weak **return** for an industry that **consumes** a shocking amount of energy, as Pew Research outlines:

U.S. data centers consumed 183 **terawatt-hours** of electricity in 2024, according to **IEA** estimates. That **works out to** more than 4% of the country's total electricity **consumption** last year – and is **roughly equivalent to** the annual **electricity demand** of the entire nation of Pakistan. A typical AI-focused hyperscaler annually consumes as much electricity as 100,000 **households**. The larger ones currently **under construction** are expected to use 20 times as much.

Energy usage itself is **accompanied by** environmental **impacts**. But with an increasing **load** on the **grid**, there are **knock-on effects**, such as new **power plants** and **transmission line** expansion. Rural electrical grids also tend to be **fossil fuel** heavy, which is alarming for anyone who cares about climate change. And the **carbon footprint** isn't the only concern with this new generation of data centers, as CBS explains:

Aside from their electricity needs, AI data centers also require a **great deal of** water to cool the **hardware**. This can strain **municipal** water supplies and **disrupt** local **ecosystems**, research from **MIT** shows. For now, there are no **regulations** that require corporations to **disclose** how much energy or water their AI tools consume**.**

The hyperscalers have so far found enough communities willing to provide **breaks** to new data centers, but an increasing number of regions see it as a **deal with the devil**. As **resistance** grows, it **encompasses** both sides of the **political divide**. Today it seems that everyone can find something to hate about data centers, as NPR reports:

Some people don't want huge **industrial facilities** — and all the **noise and light pollution** that comes with them — changing the **character** of their community. But people are also concerned about data centers **depleting** local water **supplies** for their **cooling systems, driving up** electricity **bills** and **worsening** climate change if the facilities rely on fossil fuel power plants for the electricity they need.

Faced with such **fierce criticism**, tech companies are **desperate** to **shore up** public opinion. They've been **pouring** resources into different ways of reducing the environmental impact. On the water **front**, some data centers have developed **evaporative cooling** systems, while others rely on **closed-loop systems** that use less water. Companies are also **enacting** various **policy** changes, as the World Economic Forum notes:

Amazon has **matched** 100% of its operation's global energy consumption with electricity **generated** by **renewable energy** systems. Microsoft established a supplier **code of conduct**, requiring suppliers to **transition to** 100% **carbon-free** electricity by 2030. And Salesforce announced that it is **lobbying** for new regulations to **compel** companies to report AI **emissions** data and **efficiency** standards as part of its Sustainable AI Policy **initiative**.

Critics see much of this as **greenwashing** at best. Other people are happy that companies are at least **acknowledging** the issues. Either way, it seems the public conversation is **two steps behind** the **leading edge** of technology and industry. Indeed, many **regulators** and **utilities** say that demand growth will continue to **outpace** any efficiency **gains**. This sets the world up for a pretty tough **predicament**, as Forbes reports:

The **energy footprint** of AI is no longer **niche**; it is becoming a **central concern** for the power system. AI's **appetite** for electricity will compete with increasing needs from industry, homes, and transportation. "I think everybody understands the **criticality** of getting this right," says Jim Robb, CEO of the North American Electric Reliability Corporation, "But a lot of us are **stuck in the way** we've done things for the last 20 years, which simply isn't **viable** for the next 10."

Vocabulary

AI (Artificial Intelligence): Computer systems that can perform tasks that normally require human intelligence. "AI is being used to analyze customer data more efficiently."

Uncontroversial: Not causing disagreement or debate. "It's uncontroversial to say that data demand is increasing."

To make a splash: To attract a lot of attention. "The company made a splash with its new AI platform."

Commercialization: The process of turning a product or idea into something that can be sold. "The commercialization of AI tools has accelerated in recent years."

Generative AI: AI that creates content such as text, images, or code. "Generative AI can produce reports in seconds."

Rapid proliferation: Very fast growth or spread. "There has been rapid proliferation of data centers worldwide."

To necessitate: To make something necessary. "Higher demand necessitates more powerful servers."

Infrastructure: Basic systems and facilities needed for operations. "We need to develop the infrastructure to handle this demand."

Data center: A building that houses computer systems and data storage. "The company built a new data center in Texas."

To sprout: To appear or grow quickly in many places. "New tech hubs are sprouting across the region."

Hyperscaler: A very large cloud computing company with massive data capacity. "Hyperscalers invest billions in new facilities each year."

Facility: A building or place designed for a specific purpose. "The new facility will support our manufacturing base in Romania."

Rural: Related to the countryside, not cities. "Many data centers are built in rural areas for lower land costs."

Surge: A sudden increase. "There was a surge in demand for cloud storage."

To seek: To try to find or obtain something. "Investors are seeking opportunities in renewable energy."

Generous: Large or more than usual. "The state offered generous incentives to attract startups."

Tax incentive: A tax benefit offered to encourage investment. "The company received tax incentives to build locally."

Trend: A general direction of change over time. "The trend shows steady growth in electricity use."

Entry point: The first way to enter a market or industry. "Cloud services provide an entry point into the AI sector."

Sector: A specific area of the economy. "The energy sector is adapting to higher demand."

Urban center: A large city or metropolitan area. "Urban centers face higher power consumption."

Tax revenue: Money the government collects from taxes. "The new project will increase local tax revenue."

Irresistible: Too attractive to refuse. "The offer of a guaranteed return was irresistible for many investors."

Uncertainty: Lack of certainty about the future. "Economic uncertainty slowed investment decisions."

Return: Profit from an investment. "Investors expect a strong return on new technology projects."

To consume / Consumption: To use something, especially resources like energy. "Data centers consume large amounts of electricity."

Terawatt-hours (TWh): A unit used to measure large amounts of electricity. "The facility uses several terawatt-hours of power annually."

IEA (International Energy Agency): An organization that provides energy market analysis and data. "According to the IEA, energy demand is rising."

To work out to: To equal or total after calculation. "That works out to about 5% of national consumption."

Roughly equivalent to: About the same as. "The output is roughly equivalent to the power used by a small city."

Electricity demand: The amount of electricity required. "Electricity demand is expected to increase."

Household: A home or family living together. "One data center can power thousands of households."

Under construction: Currently being built. "Several new facilities are under construction."

Accompanied by: Happening together with something else. "Growth was accompanied by higher operating costs."

Impacts: Effects or consequences. "The environmental impacts are being studied."

Load: The amount of power being used at a given time. "Peak load occurs in the summer months."

Grid: The network that delivers electricity from producers to users. "The national grid must be upgraded to handle demand."

Knock-on effect: An indirect result that happens because of something else. "Higher electricity demand has a knock-on effect on energy prices."

Power plant: A facility that produces electricity. "The region built a new power plant to support industrial growth."

Transmission line: Cables that carry electricity over long distances. "New transmission lines are needed to connect rural facilities to the grid."

Fossil fuel: Energy source such as coal, oil, or natural gas. "Some power plants still rely on fossil fuels."

Carbon footprint: The total amount of greenhouse gases produced by an activity. "The company is trying to reduce its carbon footprint."

Aside from: In addition to; except for. "Aside from energy costs, water use is also a concern."

Great deal of: A large amount of. "The facility requires a great deal of cooling."

Hardware: Physical computer equipment such as servers and processors. "Upgrading the hardware improved system performance."

Municipal: Related to a city or local government. "Municipal authorities approved the new construction permit."

To disrupt: To interrupt or cause problems. "Storms can disrupt power supply."

Ecosystem: A system of connected organizations or natural elements. "The local ecosystem may be affected by water usage."

MIT: Massachusetts Institute of Technology, a major research university. "A study by MIT examined data center energy use."

Regulations: Official rules made by authorities. "New environmental regulations may affect operations."

To disclose: To make information public. "Companies must disclose energy consumption data."

Break: A pause or rest. "Let's take a short break before continuing."

Deal with the devil: An agreement that brings benefits but has serious negative consequences. "Some critics call cheap energy contracts a deal with the devil."

Resistance: Opposition to something. "There was strong resistance to the new facility."

To encompass: To include or cover something. "The project encompasses several rural areas."

Political divide: A strong difference in opinion between political groups. "Energy policy often reflects the political divide."

Industrial facility: A building used for manufacturing or heavy industry. "The data center is classified as an industrial facility."

Noise / light pollution: Unwanted sound or light that disturbs people or nature. "Residents complained about noise and light pollution."

Character: The qualities that make a place unique. "Locals fear the project will change the town's character."

To deplete: To reduce or use up. "Heavy water use may deplete local supplies."

Supplies: Available amounts of something. "Water supplies are already limited in the region."

Cooling system: Equipment used to reduce heat. "The servers require an advanced cooling system."

To drive up: To cause something to increase. "Higher demand could drive up electricity prices."

Bill: A statement of money owed. "Households worry about rising power bills."

To worsen: To become more serious or severe. "The shortage could worsen during the summer."

Fierce criticism: Strong public disapproval. "The proposal faced fierce criticism from environmental groups."

Desperate: In urgent need of help or solutions. "Some regions are desperate for economic investment."

To shore up: To support or strengthen something. "Officials hope the project will shore up the local economy."

To pour: To invest large amounts of money or resources quickly. "Investors poured billions into AI infrastructure."

Front: The specific issue or subject under discussion. "On the PR front, we have hired a company to represent us."

Evaporative cooling: A system that cools air by using water evaporation. "Some facilities use evaporative cooling to reduce energy use."

Closed-loop system: A system where resources are reused instead of wasted. "A closed-loop system reduces water loss."

To enact: To officially make a law or rule. "The government enacted stricter environmental policies."

Policy: A set of official rules or guidelines. "The company updated its energy policy."

To match: To be equal or similar to something. "Renewable supply must match rising demand."

To generate: To produce or create something, especially energy or power. "The new solar farm can generate enough electricity for 50,000 homes."

Renewable energy: Energy from sources that naturally replace themselves, such as wind or solar power. "Many firms are investing in renewable energy to reduce emissions."

Code of conduct: A set of rules outlining expected behavior. "The company introduced a code of conduct for responsible AI development."

To transition to: To gradually change from one state or system to another. "The region plans to transition to cleaner energy sources."

Carbon-free: Producing no carbon emissions. "The company aims to operate its facilities with carbon-free electricity."

To lobby: To try to influence government decisions. "Tech companies are lobbying for faster permit approvals."

To compel: To force or strongly require someone to do something. "New laws could compel firms to report energy use."

Emissions: Gases released into the air, especially greenhouse gases. "Reducing emissions is a top priority for many industries."

Efficiency: The ability to do something using less time, energy, or resources. "Improved efficiency lowered overall operating costs."

Initiative: A new plan or action to solve a problem. "The sustainability initiative focuses on reducing water usage."

Greenwashing: Giving a false impression of environmental responsibility. "Critics accused the company of greenwashing its sustainability claims."

To acknowledge: To accept or admit that something is true. "Executives acknowledged the environmental concerns raised by residents."

Two steps behind: Falling behind others in progress or development. "Smaller providers risk falling two steps behind global competitors."

Leading edge: The most advanced or innovative position. "The company operates at the leading edge of AI development."

Regulator: A government authority that supervises and controls an industry. "The regulator introduced stricter reporting standards."

Utilities: Companies that provide essential services such as electricity or water. "Utilities are struggling to meet rising demand."

To outpace: To grow or move faster than something else. "Energy demand is outpacing supply in some regions."

Gains: Increases or improvements. "Efficiency gains helped reduce costs."

Predicament: A difficult or unpleasant situation. "The region faces a predicament due to limited water resources."

Energy footprint: The total amount of energy used by an activity or organization. "The firm is working to reduce its energy footprint."

Niche: A specialized area of the market. "The startup focuses on a niche within cloud security."

Central concern: A main or primary worry. "Water availability has become a central concern."

Appetite: Desire or demand for something. "There is a strong appetite for AI-powered services."

Criticality: The level of importance or urgency of something. "The criticality of reliable power supply cannot be overstated."

Stuck in the way: An outdated way of doing something. "We're a bit old fashioned and stuck in the way of doing everything by paper."

Viable: Practical and capable of working successfully. "Renewable sources are becoming a more viable option for large facilities."

Language Review

A. Collocations

Match words from each column to make collocations found in the article.

1. Leading	a. Construction	
2. Fossil	b. Footprint	
3. Fierce	c. Fuels	
4. Carbon	d. Point	
5. Under	e. Incentives	
6. Tax	f. Energy	
7. Entry	g. Edge	
8. Renewable	h. Criticism	

B. Vocabulary Quiz

1. Which of the following words are opposites? Select all that apply:

    a. Urban
    b. Industrial
    c. Municipal
    d. Rural

2. What do we call the amount of a product or service, like electricity, that is wanted or needed in an economy?

    a. Consumption
    b. Impacts
    c. Revenue
    d. Demand

3. Which of the following words indicates that something that is increasing or going up in number? Select all that apply:

    a. To shore up
    b. To drive up
    c. To worsen
    d. To encompass
    e. To disrupt
    f. Surge

g. To sprout
h. Proliferation
i. To work out to

4. Governments and regulators use _____ in order to _____ companies to follow ethical or responsible practices.

    a. Criticism / acknowledge
    b. Policy / compel
    c. Utilities / outpace
    d. Initiatives / enact

5. Which of the following are part of the "infrastructure" required to support the tech industry? Select all that apply:

    a. Hyperscalers
    b. Electrical grid
    c. Carbon footprint
    d. Power plants
    e. Households
    f. Regulations
    g. Transmission lines
    h. Cooling systems
    i. Emissions

6. Another word for an "incentive" is…

    a. … bill.
    b. … supplies.
    c. … entry point.
    d. … break.

7. Currently, companies are not required to _____ to the government or public exactly how much energy and water their AI tools use.

    a. Consume
    b. Disrupt
    c. Disclose
    d. Deplete

8. AI tools have a very high _____ for electricity.

    a. Appetite
    b. Predicament
    c. Niche
    d. Resistance

Answers

A. Collocations

1/g, 2/c, 3/h, 4/b, 5/a, 6/e, 7/d, 8/f

B. Vocabulary Quiz

1/a, d, 2/d, 3/b, f, g, h, 4/b, 5/c, e, h, i, 6/d, 7/c, 8/a

