Sweden's wooden datacentre runs on renewables

LEVEL B1


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I. WARM-UP

1. What online services do you use every day?
2. How is electricity produced in your country?
3. What makes a building environmentally friendly?

II. KEY VOCABULARY

renewable
Energy that comes from sources that do not run out, like wind or water.

timber
Wood prepared and used for building.

assemble
To put parts together to make something.

facility
A building or place for a special purpose.

capacity
The largest amount something can hold or produce.

emission
Gas or pollution that is released into the air.

efficiency
How well something uses energy without waste.

grid
The network that carries electricity to homes and businesses.

III. READING

EcoDataCenter in Falun, Sweden, says it has built one of the greenest datacentres. The facility is made from timber, not mainly steel and concrete. Large cross-laminated panels arrived pre-cut and were assembled by crane, like flatpack furniture. The company says this cuts the building's embodied carbon to a third.

It also says the timber used could grow back in Sweden's forests in about 10 to 15 minutes. Its electricity is 100% renewable: 75% hydroelectric and 25% wind. In rural areas, surplus clean power can help balance the grid, so energy-hungry datacentres may even be useful. Falun's cold climate cuts cooling needs.

The site has a capacity of 80MW, roughly equal to 60,000 homes. On performance, EcoDataCenter reports very low emissions: 1.17gCO2 per kWh, versus 263g in the EU and 414g in the US. Its power efficiency is also strong, with a score of 1.15 compared with the EU average of 1.36.

Reading text adapted from reporting by **The Guardian***: "Datacentres are deeply unpopular. Has...". Original article linked at theenglishwire.com.*

IV. COMPREHENSION QUESTIONS

1. Where is EcoDataCenter's wooden datacentre located?
2. What material was used instead of steel and concrete?
3. How is the datacentre's electricity supply divided by source?
4. What is the site's capacity in megawatts?
5. How do its carbon emissions per kWh compare with the EU and US averages?

V. DISCUSSION

1. Should new datacentres use only renewable power? Why?
2. Is using timber for large buildings a good idea in your view?
3. What benefits could cold climates offer for technology sites?
4. How can a datacentre support the local community and grid?

VI. GRAMMAR FOCUS

Past perfect

Use had + past participle to show an action finished before another past time. Common signals: before, by then, by the time, until then.

"By the time the site opened, crews **had installed** *sensors."*

"Before officials published figures, the team **had measured** *emissions."*

VII. GRAMMAR EXERCISE

Complete the sentences with the past perfect (had + past participle).

1. By the time panels arrived, crews (prepare) ___ frames. _____
2. By then surplus power (help) ___ balance the grid. _____
3. By that point, a firm (compare) ___ its emissions with others. _____
4. By the time tests started, designers (build) ___ a timber shell. _____
5. Until our visit, I (not/see) ___ a wooden datacentre. _____

Teacher's Notes

TEACHERS ONLY

These notes are designed to help you get the most out of this lesson. Please do not share this page with students.


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I. LESSON GUIDE

- Timing: 8-10 minutes warm-up, 10 minutes vocabulary, 12-15 minutes reading and comprehension, 8-10 minutes grammar, 10 minutes discussion.
- Pre-teach or check: datacentre, renewable, timber, assemble, capacity, emissions, grid, efficiency. Highlight that several figures compare the datacentre with the EU and the US.
- Run the reading in two passes: first for the main idea (a greener design), then for numbers (power mix, capacity, emissions, efficiency). Have students pair-check before whole-class feedback.
- During discussion, keep the focus on energy and design choices rather than personal tech habits; encourage students to refer to numbers from the text to support opinions.

II. DISCUSSION FACILITATION TIPS

1. Take a quick show of hands, then pair students to argue for or against 100% renewables, using the 75/25 mix as evidence.
2. Elicit pros and cons. Prompt with facts: lower embodied carbon by three times and timber regrows in 10–15 minutes.
3. Link answers to the text: less cooling in cold places. Ask for examples from students' regions or nearby countries.
4. Keep it grounded in the text: mention balancing the grid and using surplus power. If ideas stall, ask for one concrete action the centre could take.

III. EXTENSION ACTIVITIES

Writing: In pairs, write a 60-word visitor sign explaining why the Falun site is "green", using numbers from the text.

Role-play: One student is an EcoDataCenter representative, the other a local official; hold a 3-minute meeting on benefits like renewable power, cold climate and grid balancing.

IV. ANSWER KEY OVERVIEW

Comprehension questions: short factual answers from the text.

Grammar exercise: Past perfect

Discussion: open-ended. Accept any reasonable ideas supported by examples and reasoning.

Answer Key

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IV. COMPREHENSION QUESTIONS

1. Where is EcoDataCenter's wooden datacentre located?
   Falun, Sweden.
2. What material was used instead of steel and concrete?
   Timber, in large cross-laminated panels.
3. How is the datacentre's electricity supply divided by source?
   It is 100% renewable: 75% hydroelectric and 25% wind.
4. What is the site's capacity in megawatts?
   80MW.
5. How do its carbon emissions per kWh compare with the EU and US averages?
   It reports 1.17gCO2/kWh, lower than the EU's 263g and the US's 414g.

V. DISCUSSION

Open answers. Accept any reasonable ideas supported by examples and reasoning.

VI. GRAMMAR FOCUS

Key point: Use had + past participle to show an action finished before another past time. Common signals: before, by then, by the time, until then. (Examples constructed.)

> *"By the time the site opened, crews* **had installed** *sensors."*
>
> *"Before officials published figures, the team* **had measured** *emissions."*

VII. GRAMMAR EXERCISE

Complete the sentences with the past perfect (had + past participle).

1. By the time panels arrived, crews ___ frames. **had prepared**
2. By then surplus power ___ balance the grid. **had helped**
3. By that point, a firm ___ its emissions with others. **had compared**
4. By the time tests started, designers ___ a timber shell. **had built**
5. Until our visit, I ___ a wooden datacentre. **hadn't seen / had not seen**