



GM Energy Unveils V2G Support and Advanced Battery Tech

Description

Poppe stated that increasing the grid's capacity by one gigawatt could reduce customer rates by one per cent. He also suggested that artificial intelligence (AI) could enhance the company's efficiency with existing resources. By implementing a new operational strategy that incorporates AI for simultaneous engineering, the firm aims to improve grid placement and utilisation, ensuring that resources are allocated effectively for the lowest possible costs.

The success of this approach for PG&E customers remains uncertain, as the practical implications of Poppe's vision have yet to be fully realised.

In parallel, General Motors (GM) acknowledged the significance of developing vehicle-to-grid (V2G) support within its product range. However, the company emphasised that battery storage technology is essential for providing consistent support to the power grid. To this end, GM revealed plans to introduce sodium-ion batteries specifically designed for Energy Storage Systems (ESS), which are crucial for reinforcing the electrical grid.

These sodium-ion batteries differ from electric vehicle (EV) traction batteries, which are designed for performance and lightweight characteristics. In contrast, ESS batteries prioritise longevity and cost-effectiveness. Kurt Kelty, GM's vice president of battery and sustainability, articulated the company's strategy: to create tailored batteries for distinct applications.

GM is collaborating with Peak Energy to develop sodium pyrophosphate (NFPP) batteries, which should reduce maintenance costs by 20 per cent compared to current ESS options. This next-generation battery is anticipated to enter production in 2028. Although GM has not disclosed manufacturing costs or energy density targets, it highlighted the broader operational temperature range of its sodium-ion batteries, suggesting they could endure between -40 °C and 60 °C. The company aims for these batteries to achieve between 10,000 and 20,000 cycles, surpassing traditional lithium iron phosphate (LFP) batteries.

Comprehension Questions

Multiple Choice

1. How much could customer rates be reduced by increasing the grid's capacity by one gigawatt?

Option: One per cent

Option: Two per cent



Option: Three per cent

Option: Four per cent

2. What technology does General Motors emphasize as essential for consistent power grid support?

Option: Lithium-ion batteries

Option: Sodium-ion batteries

Option: Battery storage technology

Option: Supercapacitors

3. What year is the next-generation NFPP battery anticipated to enter production?

Option: 2025

Option: 2026

Option: 2028

Option: 2030

4. What is the temperature range that GM's sodium-ion batteries can endure?

Option: -10 °C to 50 °C

Option: -20 °C to 40 °C

Option: -40 °C to 60 °C

Option: 0 °C to 70 °C

5. What is the primary focus of Energy Storage Systems (ESS) batteries?

Option: Performance

Option: Lightweight characteristics

Option: Cost-effectiveness

Option: All of the above

6. Who is collaborating with GM to develop sodium pyrophosphate batteries?

Option: Peak Energy

Option: Tesla

Option: Ford

Option: Nissan

True-False

7. Increasing grid capacity by one gigawatt can reduce customer rates by two per cent.

8. AI is being proposed to enhance the efficiency of the company's resources.



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9. Sodium-ion batteries are designed for performance like electric vehicle traction batteries.
 10. Kurt Kelty is the CEO of General Motors.
 11. GM plans to introduce sodium-ion batteries for Energy Storage Systems.
 12. The broader operational temperature range of sodium-ion batteries is less than that of lithium iron phosphate batteries.

Gap-Fill

13. Poppe stated that increasing the grid's capacity by one gigawatt could reduce customer rates by _____ percent.
14. GM revealed plans to introduce sodium-ion batteries specifically designed for _____ Storage Systems.
15. These sodium-ion batteries are crucial for reinforcing the _____ grid.
16. The next-generation NFPP battery is anticipated to enter _____ in 2028.
17. GM aims for these sodium-ion batteries to achieve between _____ and 20,000 cycles.
18. Sodium-ion batteries differ from electric vehicle traction batteries in that they prioritize _____ and cost-effectiveness.

Answer

Multiple Choice: 1. One per cent 2. Battery storage technology 3. 2028 4. -40 °C to 60 °C 5. Cost-effectiveness 6. Peak Energy

True-False: 7. False 8. True 9. False 10. False 11. True 12. False

Gap-Fill: 13. one 14. Energy 15. electrical 16. production 17. 10,000 18. longevity

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1. Business - LEVEL6

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