Global Carbon Mitigation from BACnet Adoption in Commercial Building Automation Systems 1995-2030

- A new University of New Hampshire research study, Global Carbon Mitigation from BACnet Adoption in Commercial Building Automation Systems 1995-2030, has quantified the global climate impact for the first time.
- Since 1995, the BACnet-enabled building automation has mitigated 1.4 billion tonnes of CO2.
- What is this equivalent to?
    - Eliminating 300 million cars from the road for a full year
    - Offsetting the entire annual emissions of Japan (the world's fifth-largest carbon emitter) and Spain combined.
    - The annual carbon sequestration of 56 billion mature trees, a forest that would cover two-thirds of the landmass of the United States.
- What are some key findings from the study?
    - **Cumulative Impact:** Global mitigation reached 1.4 billion tonnes by 2025 and is projected to surge to **2.06 billion tonnes by 2030**.
    - **The Power of Interoperability:** The study highlights that the open systems nature of BACnet accelerated adoption rates across four major regions (U.S., Canada, Europe, and the Rest of World), creating a "cohort effect" where overlapping systems compound energy savings over time.
    - **Regional Drivers:** In the United States, approximately 70% of the mitigation came from electricity savings. In contrast, in Europe and Canada, natural gas savings played a dominant role due to colder climates and gas-intensive heating loads.
    - **Economic Value:** Based on current social cost of carbon estimates, the 1.4 billion tonnes of CO2 avoided by BACnet systems have saved the global economy an estimated **$266 billion** in climate-related costs.
- **A Critical Path to 2030:** The report underscores that while grid decarbonization (the shift to wind and solar) is important, the efficiency provided by BAS remains a "near-term mitigation powerhouse." As the world continues making progress toward climate targets, the study calls for sustained maintenance of existing BAS systems and broader deployment in under-automated building segments to maximize the "carbon value" of every kilowatt saved.
- **About BACnet:** BACnet is the global data communication protocol for Building Automation and Control networks. Developed under the auspices of ASHRAE, it allows building systems—including heating, ventilation, air-conditioning, lighting, life-safety, and other systems —to communicate and cooperate, driving the efficiency of the modern built environment.