# Norfolk Southern partners with Alstom to retrofit locomotives with hybrid electric propulsion



Norfolk Southern, an Atlanta-based railroad corporation, is embarking on a significant initiative aimed at improving efficiency and reducing emissions in transportation by retrofitting two ageing locomotives with a cutting-edge hybrid electric propulsion system. This innovative project, executed in collaboration with manufacturing giant Alstom, is part of Norfolk Southern's broader commitment to sustainability and reducing its carbon footprint amid growing business risks associated with climate change.

The retrofitting project will involve replacing the internal components of two diesel-powered locomotives, which are nearly 50 years old, with modern battery packs. New, smaller Cummins diesel engines will be fitted to re-charge the batteries, which can also be plug-in charged. Norfolk Southern Chief Sustainability Officer Josh Raglin likened the new locomotives to a "200-ton Toyota Prius," highlighting the transformational potential of this approach.

The hybrid locomotives are expected to undergo conversion in western New York, with anticipated entry into service scheduled for 2026 or 2027. The company plans to utilise these hybrid models primarily within rail yards in upstate New York to facilitate the movement of railcars as well as for short-haul freight operations.

The financial backing for this project is multifaceted, comprising $5 million from Norfolk Southern, a $16 million grant from the Federal Railroad Administration, alongside support from the Steuben County Industrial Development Agency and Binghamton University’s New Energy New York consortium.

Norfolk Southern has been exploring fully electric trains for over 15 years, yet Raglin articulated that hybrid locomotives might present a more pragmatic solution. He illustrated a critical consideration behind this decision, noting that battery-only locomotives require substantial electrical grid capacity, which is a significant operational burden. Alstom’s hybrid technology, while successfully operational in Europe, will mark its debut in North America with this project, according to Raglin.

The hybrid propulsion system is poised to reduce emissions by as much as 90% and improve pulling power by nearly one-third, ultimately leading to higher fuel efficiency—an essential metric for a company where fuel costs rank second only to personnel expenses. "It’s not only good for the environment but good for the company as well," Raglin mentioned, reinforcing the dual benefits of this initiative.

Additionally, the company expects the new hybrid locomotives will necessitate less maintenance, yielding further cost-saving opportunities. The modularity of the Alstom system means that as technological advancements unfold, specific components can be replaced without overhauling the entire system.

Raglin also pointed out that rail transport is typically the most sustainable ground-based transportation method, capable of removing 300 to 400 trucks from roads with a single train. However, he acknowledges that achieving lower carbon emissions within the freight rail sector is a formidable challenge. Eric Rondeau, leading Alstom’s innovation centre for sustainable mobility solutions in North America, noted in a recent press release that “decarbonizing the rail industry is a huge challenge, and this grant will support critical strategic collaboration and shared expertise needed to innovate new sustainable technologies.”

Thus, the joint endeavour between Norfolk Southern and Alstom appears to mark a meaningful step towards enhancing the sustainability of freight transport while addressing pressing economic concerns.

Source: [Noah Wire Services](https://www.noahwire.com)

## References

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* [https://norfolksouthern.mediaroom.com/2024-11-12-Norfolk-Southern-to-launch-cutting-edge-hybrid-locomotive-project-through-Alstom-partnership,-federal-support](https://norfolksouthern.mediaroom.com/2024-11-12-Norfolk-Southern-to-launch-cutting-edge-hybrid-locomotive-project-through-Alstom-partnership%2C-federal-support) - Confirms the launch of the hybrid locomotive project, the expected reduction in carbon emissions, and the increase in pulling power.
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* <https://www.railwayage.com/mechanical/locomotives/ns-alstom-team-on-hybrid-locomotive-project/> - Supports the partnership between Norfolk Southern and Alstom to convert two 50-year-old GP 38/40 locomotives to hybrid technology.
* <https://www.railwaygazette.com/traction-and-rolling-stock/norfolk-southern-revives-battery-traction-ambitions-with-alstom-partnership/67869.article> - Provides information on the modular design allowing for upgrades or replacements of propulsion systems as technology advances.
* <https://www.progressiverailroading.com/norfolk_southern/news/Norfolk-Southern-Alstom-to-prototype-battery-diesel-hybrid-locomotives--73285> - Details the financial backing, including the $16 million CRISI grant and support from other entities.
* [https://norfolksouthern.mediaroom.com/2024-11-12-Norfolk-Southern-to-launch-cutting-edge-hybrid-locomotive-project-through-Alstom-partnership,-federal-support](https://norfolksouthern.mediaroom.com/2024-11-12-Norfolk-Southern-to-launch-cutting-edge-hybrid-locomotive-project-through-Alstom-partnership%2C-federal-support) - Mentions the involvement of the Steuben County Industrial Development Agency and Binghamton University’s New Energy New York consortium in funding the project.
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* <https://news.google.com/rss/articles/CBMi0AFBVV95cUxNWnNrdTJlY0Q5cWdUbGV3NWtzUVotS25WRkJybTAtZlNNcnVacnFyUFFOeXdlblFFVGQzYnhhNXNwX2FGZHlDdVU0T3NWb09Na0ZSNTBpZlFBWHNrcmJlU24yNXhEQnNJSVUzMHI0TWxpSFR6aGVzdnpXSXJkS2xHcEJrLUg3aU5NblZBenV2M2NXbEhCMll4dVZGZmItMW12ckE5clA4ajF2d1RzTmYwSUVrMDZfcGdNY09HbVhZeDVLUEJ3U1pTaXNuMUJYaGlW?oc=5&hl=en-US&gl=US&ceid=US:en> - Please view link - unable to able to access data