

Energy & Environment

ALTEN ADDED VALUE

ALTEN Technology provided cost-reduced designs with ease of installation and resolved manufacturing pain points.

ALTEN Technology was immediately able to provide additional resources and quickly ramp up the project.

Daily interactions and daily standups were scheduled to share the detailed progress of the work packages.

KEY DATA

Team Size: 15 Engineers

Time: Since 2021

Location: Greensboro, NC

Work Package

LINEAR GENERATOR REDESIGN

OVERVIEW

- Mainspring was founded in 2010 by three Stanford engineers seeking a new approach to generating clean, resilient, affordable electricity.
- Mainspring has designed the first linear generator to maximize efficiency, resilience, and flexibility in electricity production while significantly lowering both emissions and cost.
- ALTEN Technology has been supporting Mainspring since mid-2021 to revise the designs with the primary objective of reducing the total manufacturing cost while meeting the functional and reliability requirements for the manufacturing ramp-up.

PROJECT DETAILS

- Drafted container CAD to Mainspring's standard and made it a consistent assembly in terms of the weldment/assembly, with well-defined interfaces
- Concept modeling of different existing components like intake frame assembly, exhaust duct assembly, main fan assembly, exterior walls, and core exhaust with an intent to reduce the overall cost and resolve manufacturing pain points
- CAE analysis was performed on all the new designs made by ALTEN Technology; detailed documentation comparing the current results to the previous results was prepared



- Released the designs and drawings in their system with the guidelines and directions given by the Mainspring
- **Cost Reduced Parts**—Some assemblies identified by the Mainspring engineers were redesigned with a primary objective of cost reduction
- **Cast Design**—Some machined parts were converted to cast products for cost reduction
- **Work Instruction**—Work instructions were created and updated following the new designs

TOOLS

- SolidWorks 2020, PDM Pro Vault, Google Workspace