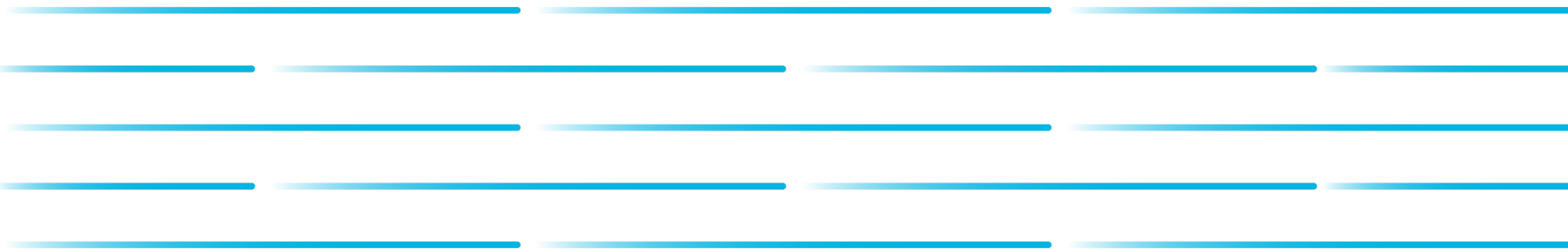




Introduction to GE/LM/Blade Dynamics New Orleans facility

7 August 2023

Confidential, not for external distribution



Top Wind Turbine Manufacturer in the USA in 2023

- General Electric (GE)
- ESAB Welding & Cutting Products
- EDF Renewables
- Acciona Energia
- Clipper Windpower, LLC

Top Wind Turbine Manufacturers in the World in 2022

- Vestas
- Siemens Gamesa
- Goldwind
- General Electric (GE)
- Envision



AVIATION



Helping customers achieve greater efficiency & sustainability while inventing the future of flight.

37K+

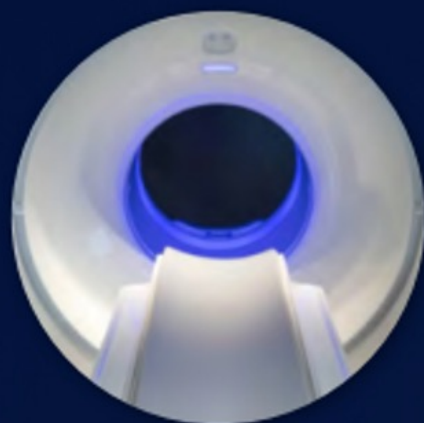
Commercial engines

&

26K+

Military engines

HEALTHCARE



Driving innovation in precision health to address critical patient & clinical challenges.

4M+

Installations

&

1B+

Patients served

RENEWABLE ENERGY & POWER



Supporting customers & communities seeking to provide affordable, reliable, sustainable power.

400+

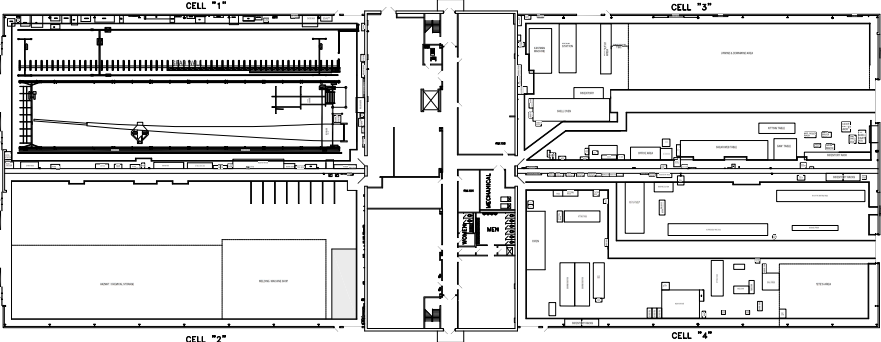
**GW of renewable energy
equipment installed**

&

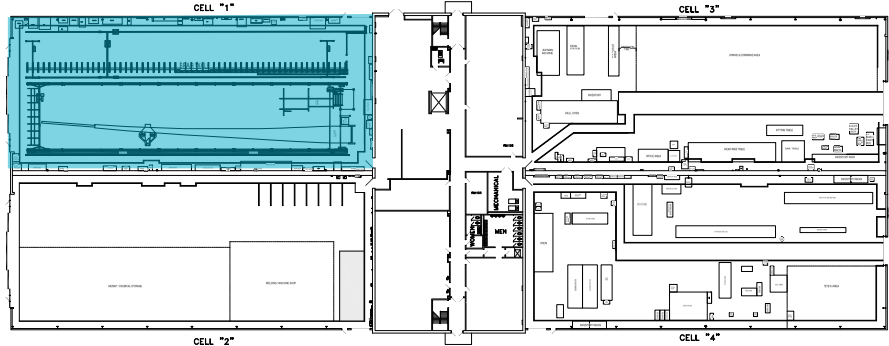
7K+

Gas turbines

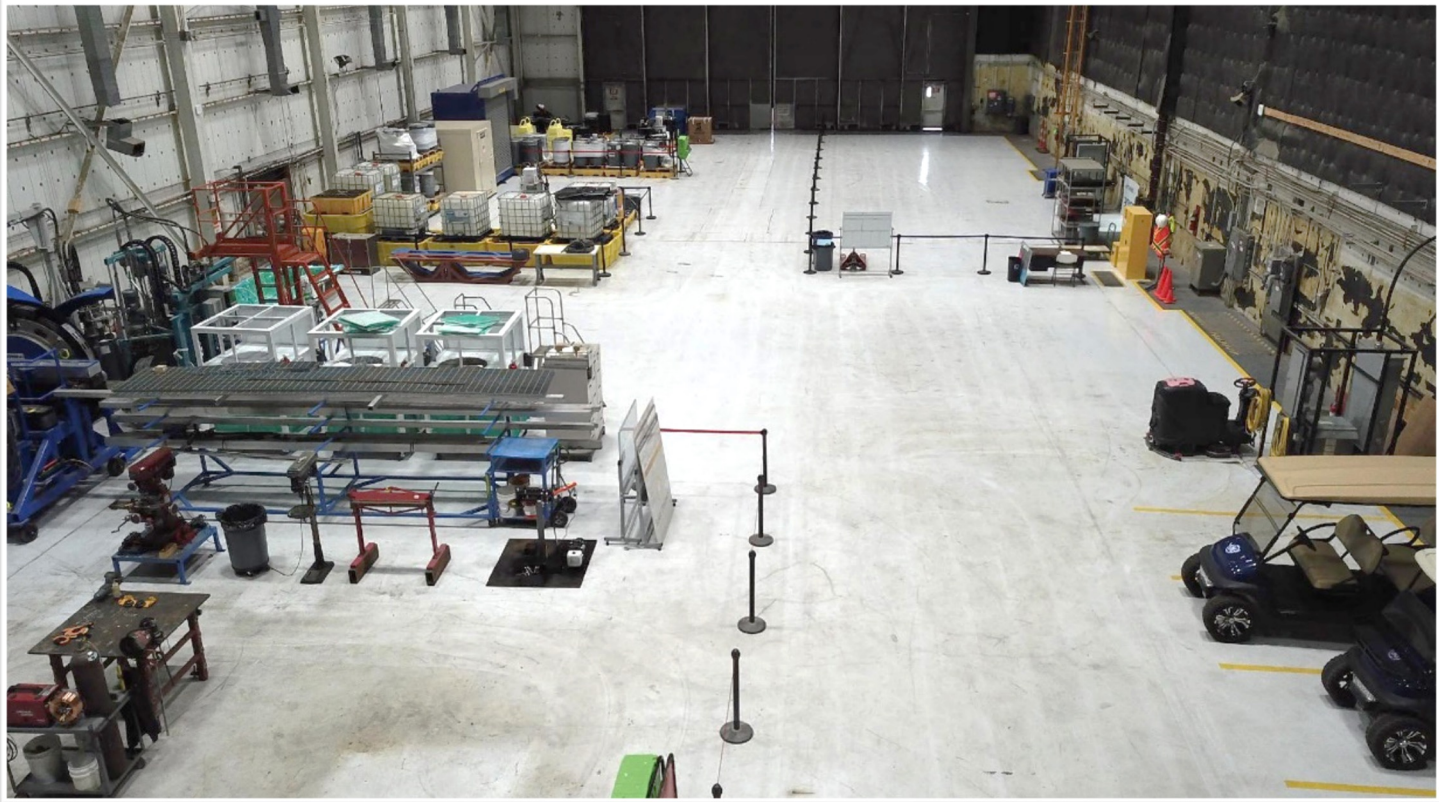
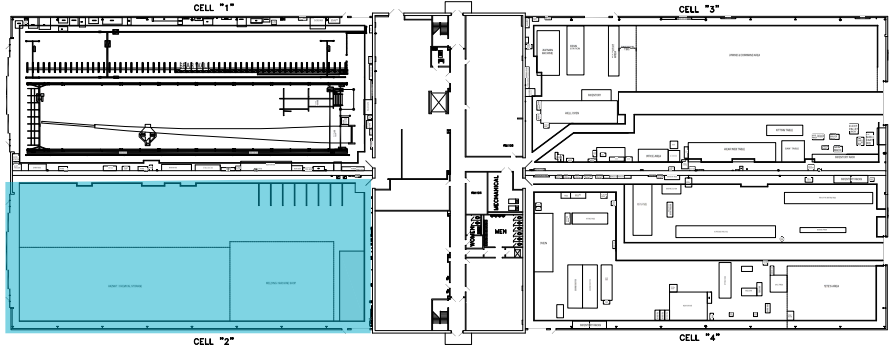
Building 420



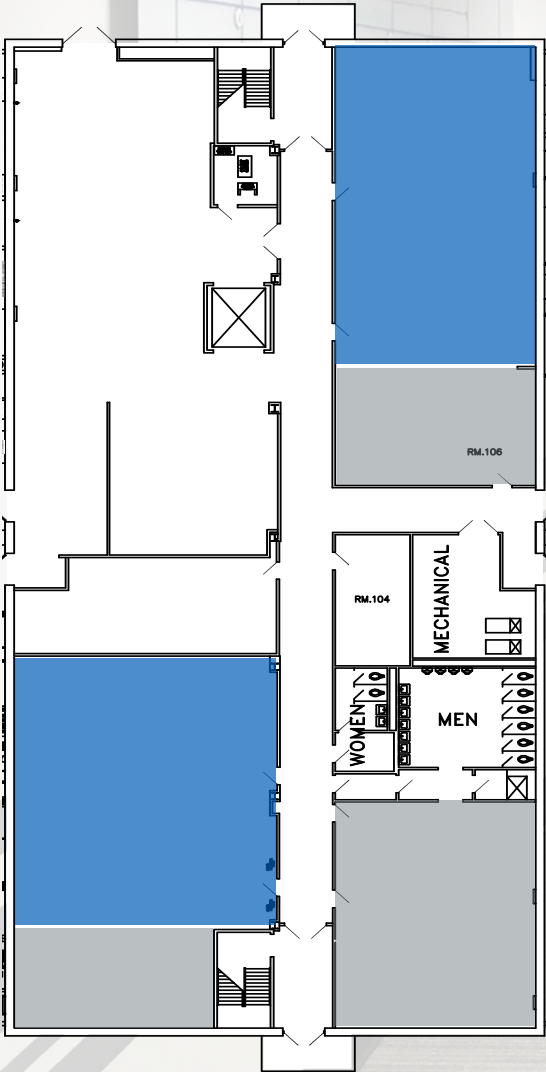
Building 420 Bay One



Building 420 Bay Two



Office and Conference Spaces



Currently Occupying

Building 420 – 7,6178 ft² [Second Floor]

Office Space

Conference Space

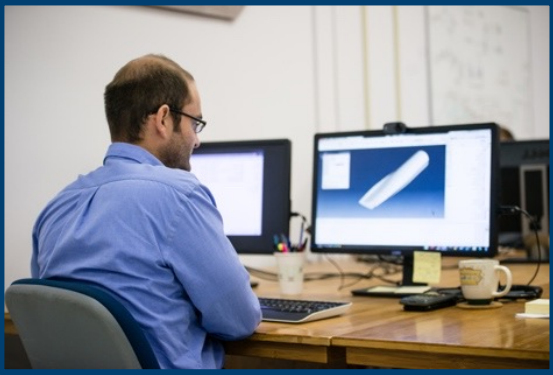
Office and Conference Spaces



Bldg. 420
Second Floor

LM NOLA Skills

- » Project management
- » Industrial engineering
- » Process engineering
- » Quality
- » Training
- » HSE
- » Design engineering (FEA, Stress analysis, etc...)
- » Composite specialists
- » Metal fabrication
- » Tool manufacturing
- » Program management
- » NDT
- » Prototyping
- » Test & Validation



GE Vernova committed to the energy transition in the US

GE Vernova is one of the top 5 Wind turbine OEM's and it own's LM WindPower, the largest wind turbine blade manufacturer globally

LM Wind Power “Service Center of Excellence” in New Orleans, Louisiana

- The NOLA site was started by Blade Dynamics LLC in 2010
- Acquired by GE in 2015, and integrated in LM Wind Power in 2017.
- The site currently employs approximately 25 LM Wind Power employees, mostly blade and composite engineers.
- Over the last decade, GE and LM Wind Power have hired and trained dozens of engineers who have been involved in the design and testing of several wind turbine blades.
- To name a few, some of the technologies developed here till date are,

2012- First 49 meter fully modular blade manufactured and structurally tested (1 static, 1 fatigue)

- State of the art pre-infused M30 root bushing subassemblies
- Carbon prepreg modular spar with composite joint
- Fully containerize-able skins
- Designed for manufacture



2014- 78 meter fully modular blade manufactured

- M36 root bushings w/ “in house” trace heated carbon fiber clamshell mould
- In house convection heated carbon fiber tooling for spar-caps
- 300mm carbon prepreg modular spar-caps
- Jointed tip with composite joint

2015- 56.9 fully modular blade (GE blade)

- Redesigned 56.9 with all modular technology (GE + BD)

2017- ABC Blade

- “All Best Combined”
- LM + GE + BD design fusion of all technologies
- Fully modular, flatback TE lightweight
- Project suspended

2019- LECO

- Designed at NOLA from white paper
- Tested as coupon/ sub article, then WT19 tip full static and fatigue
- Prototype blade set built (62.2 w/ 12m LECO) @ Grand Forks in 2020, currently in service in Lockett wind Farm in TX
- Deployed in CHE site on 107P2 (30m LECO w/ integrated/ co-infused LEP)

- This wealth of knowledge on new technology development have prepared the site for its next phase, focused on technology application and ensuring that wind turbines operate reliably for more than 20 years.



- The current team is focused on four main areas:
 - Develop services solutions for productivity improvements (repairs, monitoring, life extension, etc.).
 - Train technicians, both in classroom and hands-on, for the application of these new solutions.
 - Develop a world-class service engineering team that can support field technicians whenever there is an issue with the fleet, or carrying out modifications and upgrades.
 - Support GE Renewable Energy with RCAs whenever there is an issue with a LM Wind Power blade.
 - Remote monitoring and performance evaluation of LM blades, Non destructive testing (UT/Laser), Drones...
- Operating and maintaining wind turbines is a growing sector across the globe and particularly in the US, given the amount of wind power installed capacity existing and planned.
- While a blade can be produced in a factory in 24 hours, ensuring that they run reliably for over 20 years is a major task and therefore the NOLA site is instrumental to our success in the US.

GE and LM Wind Power have pioneered the offshore wind segment in the country with its first commercial scale project, Block Island. The pioneering wind farm has been operating since 2016 generated approximately 300 construction jobs and further reduced electric costs by 40% on Block island generating approximately 125GWh of clean energy a year.

- In addition to its focus in services and technology application, the site continues to work on developing advanced manufacturing technologies together with GE Vernova team. In particular, the site is involved in a research program funded by the Department of Energy to design and manufacture 3D printed wind turbine blade tips.



NOLA site collaborates with Tulane University to train composite engineers that can then join the LM Wind Power's team.

