

## Engineering

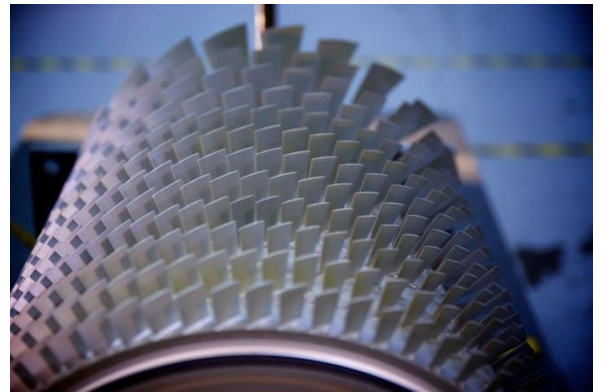
### Turbine Care Made Simple

#### Engineering Experience

We have grown and developed our Engineering Group in a structural manner to increase the engineering capability of EthosEnergy Light Turbines (EELT) LLC and the range of support we can offer our customers.

EELT has over 250 years of core experience with OEMs, ISPs and IOCs.

Skill Sets include; Six Sigma, IOC Technical Authority, degree qualified and Professional Engineers.



#### Historical Operations & Performance Data Review

Engine data and performance from original test and custom operations are gathered and reviewed. This information is provided by;

- 🔧 EELT Field Service
- 🔧 EELT Overhaul Facility
- 🔧 EELT Test Facility
- 🔧 EELT Non Destructive Testing
- 🔧 Customer Provided Information

#### Repair Capability

- 🔧 3D CAD expertise in house
- 🔧 Inspection criteria current
- 🔧 Repair scheme design and development in house
- 🔧 Repair process from design through to First Article Inspection Report
- 🔧 All repair vendors are managed via our DNV and ISO approved Management System



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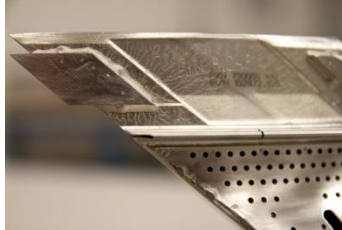
### Design Review

EELT Engineering Team includes;

- 🔧 Mechanical & Software Designers
- 🔧 FEA/CFD Specialists
- 🔧 Material Specialists
- 🔧 Inspectors
- 🔧 Supplier Quality Engineers
- 🔧 Manufacturing Engineers



Drawings and Specification for Manufacture



### Manufacturing Partners

Industrial Gas Turbine or Aero/Aero-derivative Manufacturing Partners

- 🔧 ISO 9001:2000 Approved
- 🔧 Investment Casting Houses
- 🔧 Internal/External Coating Facilities
- 🔧 Forge Masters
- 🔧 Tool Makers
- 🔧 Ceramic Core Suppliers
- 🔧 Fabricators/Metal Spinners
- 🔧 Bearing Manufacturers

### Engineering & Design Verification

In-House Process includes;

- 🔧 Aero-Thermal Models
- 🔧 Boundary Conditions
- 🔧 FEA Analysis
- 🔧 CFD Analysis
- 🔧 Feature Critically
- 🔧 Tolerance Effects
- 🔧 Manufacturing Effects
- 🔧 Factor of Safety
- 🔧 Product Life



### Material Analysis

New and run parts are analysed by EELT metallurgical laboratory focusing on;

- 🔧 Chemical Composition
- 🔧 Material Condition
- 🔧 Macro and Micro Section Review
- 🔧 Coatings and Thickness
- 🔧 Mechanical Testing: Hardness, Tensile, Creep
- 🔧 Application of approved EELT repair scheme

EthosEnergy is an Independent Service Provider (ISP) for value-add rotating equipment services and solutions to the power, oil & gas, and industrial markets. Globally, these services include facility Operations & Maintenance; design, manufacture and application of engineered components, upgrades and re-rates; repair, overhaul and optimisation of gas turbines and steam turbines, generators, compressors.

EthosEnergy's Centre of Excellence facility for Light Turbines in Houston has over 20 years of experience and is the world's leading alternative supplier of services for Solar sub-12MW gas turbines.



### EthosEnergy (Houston Production Facility)

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