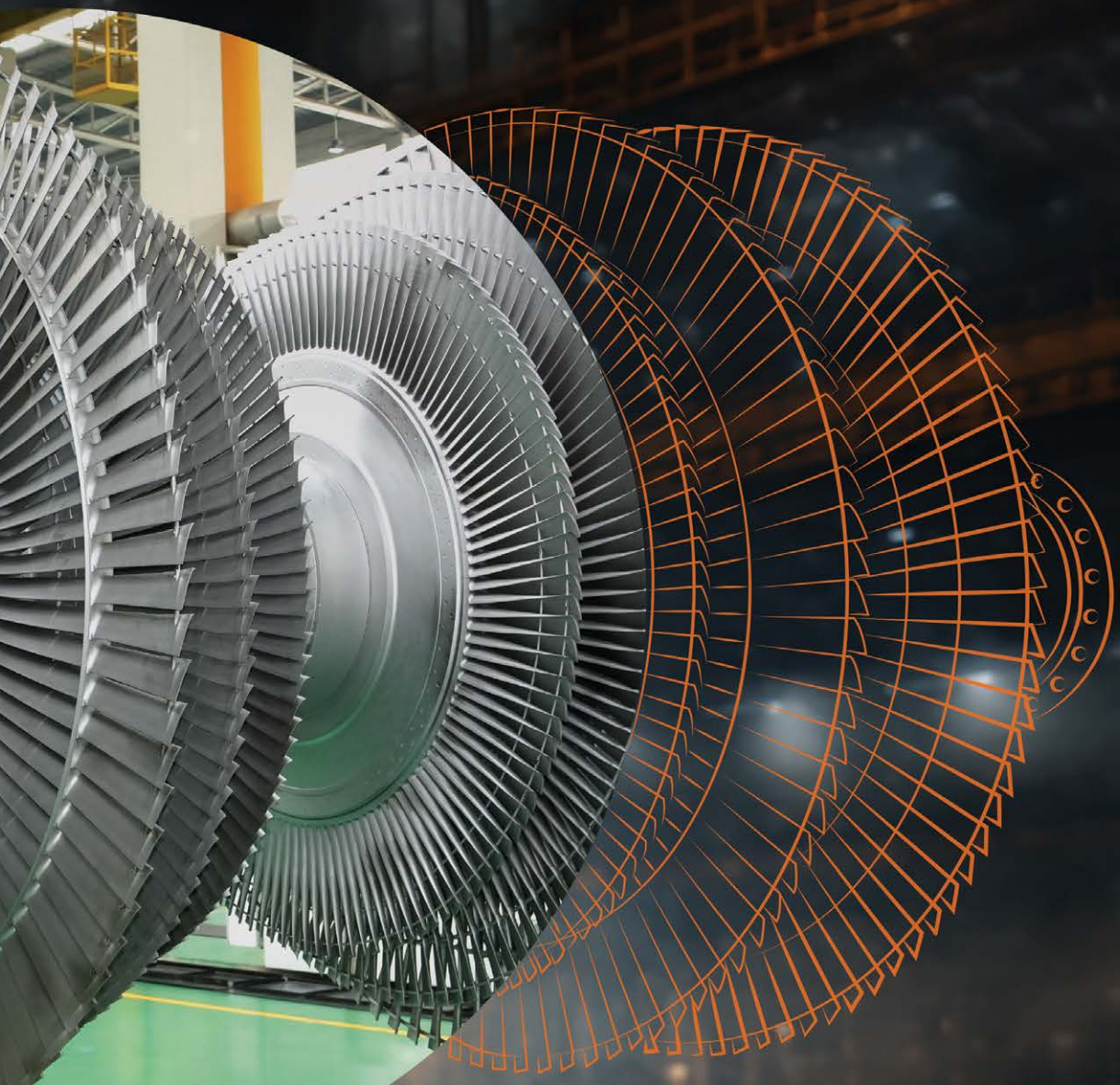
REFURB™

Triveni TURBINES



MULTIBRAND
REFURBISHMENT SERVICES

ANY age make turbine

Trust us to bring it to life

UP TO 1000 MW



A JOURNEY DRIVEN BY PURPOSE AND POWERED BY PRECISION

Established in 1968, Triveni Turbine Limited (TTL) has evolved into a globally recognized leader in industrial heat and power solutions and decentralized, sustainable energy systems. With more than five decades of engineering excellence, TTL delivers high-efficiency, reliable, and customized steam turbine solutions that help industries optimize energy use, enhance operational performance, and advance sustainability goals.

Today, the company has installed over 6,000 steam turbines globally across 80+ countries, serving 22+ industries including industrial heat and power applications. Backed by an annual manufacturing capacity of 350+ turbines, Triveni Turbines continues to strengthen its global footprint while supporting customers with innovative and efficient energy solutions.

The company is also playing a pivotal role in the transition to cleaner energy, with nearly 80-85% of its business coming from thermal renewable fuel applications, reflecting its strong commitment to greener and more sustainable growth. With a more than 30% global market share in the sub-30 MW steam turbine segment, as reported by McCoy Report, Triveni Turbines remains committed to delivering precision-driven solutions that power industries worldwide while contributing to a more sustainable energy future.

CERTIFIED FOR GLOBAL EXCELLENCE



BUSINESS SEGMENTS AT A GLANCE

TRIVENI TURBINE LTD. (TTL)

PRODUCT & SERVICES DIVISION

Design, Supply, Installation of Steam Turbines for power and drive applications up to 100 MW range

Contract Manufacturing ST up to 800 MW

24/7 customer service

Quick response in the delivery of spares

Complete Turnkey and Lifecycle Management of supplied machines

MULTIBRAND SERVICES

REFURB™

Life extension services of up to 1000 MW Steam Turbines

Any age, Any make Turbines (GE, Siemens, Chinese & Russian makes, Toshiba etc)

MRO - Repair & Maintenance, OEM

Re-engineering & Supply of Spare Parts

High-Speed Vacuum Balancing

ENERGY TRANSITION PRODUCT SOLUTIONS

Heat Pumps

ORC Systems

Steam Compressors

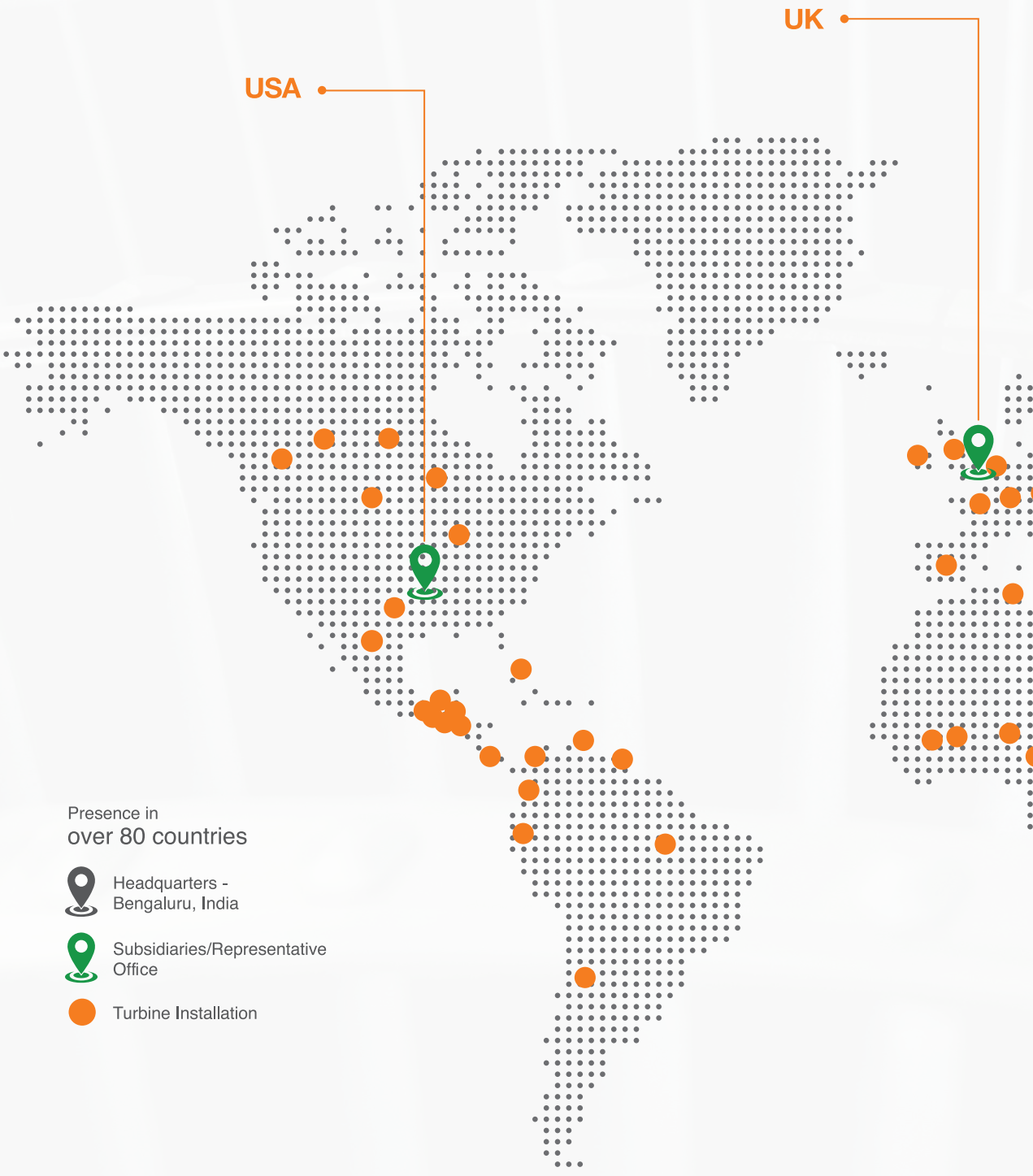
Energy Storage Systems

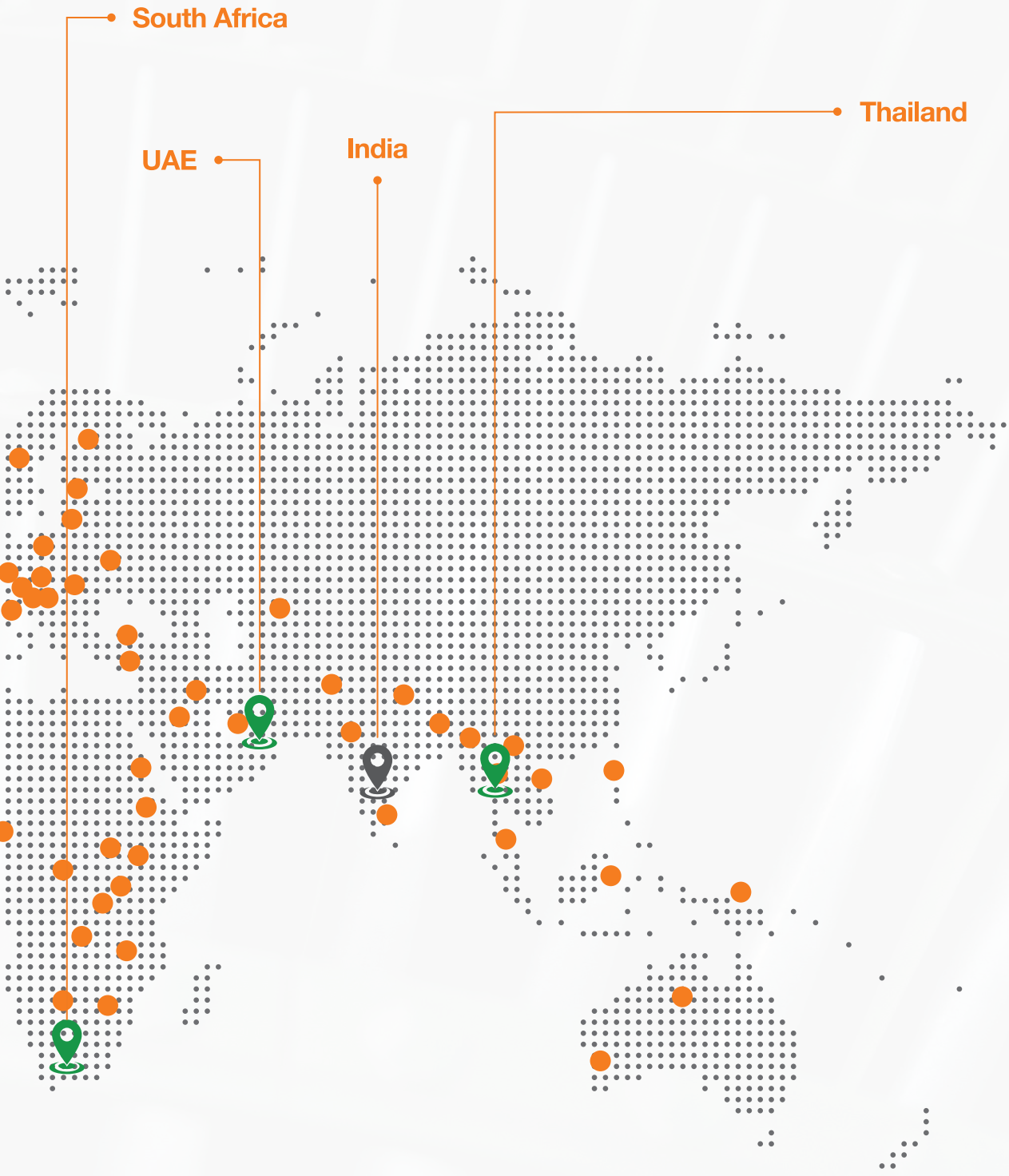
Oil Systems

CO_2 based Turbines

GLOBAL PRESENCE.
LOCAL COMMITMENT.

With a footprint across more than 80 countries, Triveni Turbines delivers worldwide service backed by global scale. Supported by our state-of-the-art facilities in Peenya and Sompura, Bengaluru along with our global centres in the USA and South Africa, we offer customer-specific solutions strengthened by strategically placed offices and strong on-ground teams that ensure continuous engagement and lasting partnerships.




South Africa
UAE
India
Thailand

REVERSE THE CLOCK ON AGEING TURBINES

As one of the leading names as an OEM in the energy sector, Triveni Turbines supports the global power generation industry through it's niche multibrand refurbishment business specializing in the re-engineering and repair of rotating equipment of **'Any age, Any make'** across the world. Our extensive refurbishment services include efficiency enhancements, advanced 3D scanning and proactive turbine overhauls, health checks, condition assessments and spare parts supply.



YOUR OLD TURBINE ACROSS ALL BRANDS DESERVES A SECOND CHANCE

Choosing the right turbine for your plant is a complex task requiring extensive time, efforts and resources, and when after years of prolonged service, the efficiency declines due to wear and tear. It instantly hampers the overall productivity and ROI of the plant. Now, replacement is often considered the obvious solution for renewed and better functioning, ***but is it the only one?***

Our six decades of expertise as OEM in the power generation sector has led us to firmly believe that why replace when you can ***REFURB***™. In fact, sometimes the issue is just in one part or equipment of the turbine, not the whole turbine, and refurbishment can not only put back new life into your old turbine but also increase its efficiency as per updated requirement. Thus, making refurbishment the better alternative over replacement.



REVIVE YOUR PLANT'S EFFICIENCY WITH RIGHT REFURBISHMENT SERVICES

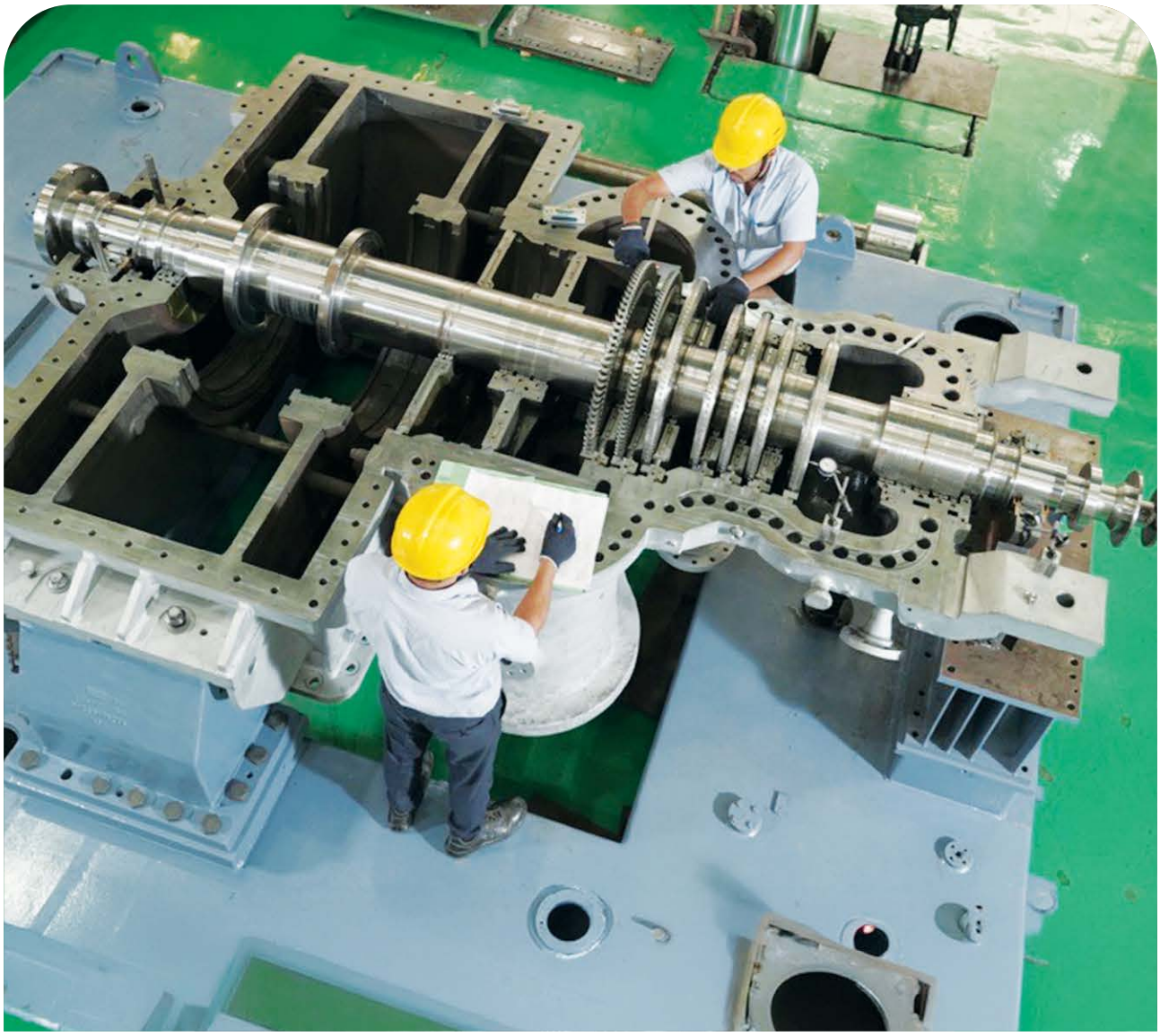
Advantages of *REFURB*™

Up to 15% improvement in efficiency

Increased ROI within 2 years of operations

100,000+ hrs of extended turbine life

Increased span between two overhauls



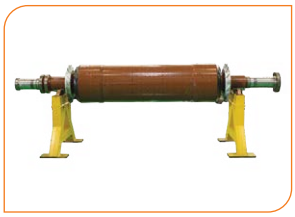
UPGRADING PERFORMANCE


Industrial Steam Turbines

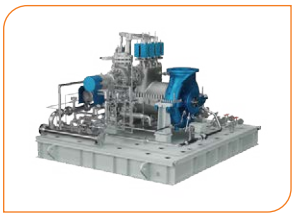

Utility Steam Turbines

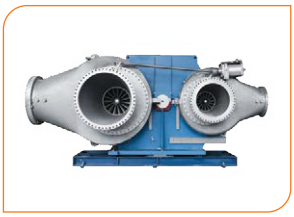

Gas Turbines


Compressors

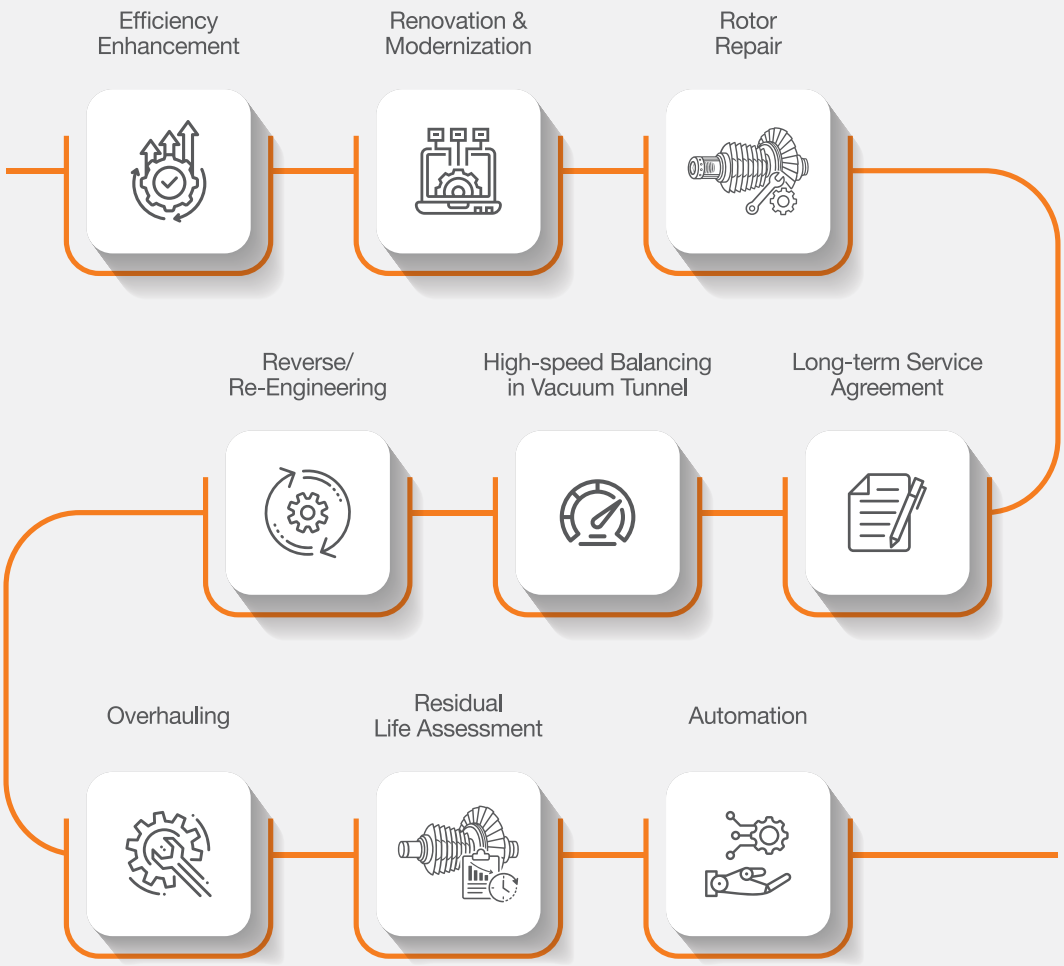

Generators


Geothermal Turbines


API Turbines


Gas Expander

OUR PORTFOLIO INCLUDES



BRINGING TURBINES BACK TO LIFE
WITH BEST-IN-CLASS MACHINERY



BLADE MACHINING CENTER



TNT BLADE MANUFACTURING



5 AXIS ROTOR MACHINING



HIGH SPEED BALANCING MACHINE



REVERSE/RE-ENGINEERING

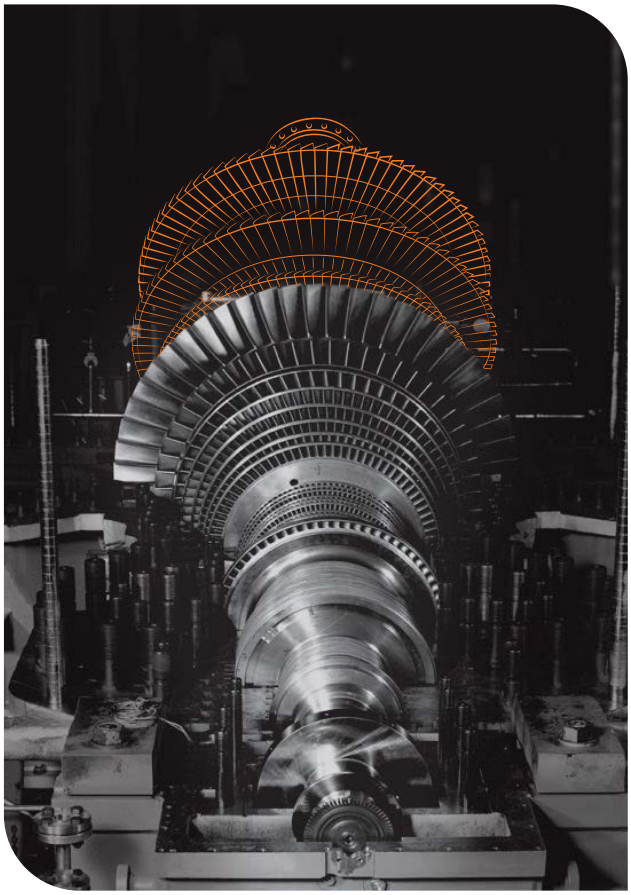


UTILITY TURBINES

Enhancing the life of turbine

Up to 1000 MW across all brands

- Supply of fully bladed rotor & Stator components.
- High-Speed Balancing
- Modernization of control system
- Supply of spare parts
- Health assessment
- Overhauling





COMPRESSORS

We offer a complete parts solution for high-tech, performance-critical centrifugal and axial compressors.

We offer cost-effective choices that are in accordance with operating requirements..

Spare Parts Supply

High-Speed Balancing

Field Commissioning





EXTENDING THE LIFE OF GEOTHERMAL TURBINES

With proven expertise in Geothermal refurbishment, we have successfully executed complex restoration and upgrade projects across New Zealand, the Philippines, and the USA.

Our solutions have helped extend equipment life, enhance operational reliability, and restore critical Geothermal assets to peak performance.

These successful projects stand as a testament to our technical excellence, global capabilities, and commitment to delivering value in the Geothermal industry.

PHILIPPINES

OEM: Japanese make

Power Rating: 20 MW

Scope: Supply of fully bladed and balanced rotor.

NEW ZEALAND

OEM: US Make

Power Rating: 45 MW

Scope: Efficiency enhancement of existing turbine and supply of modified steam path rotor, stator (Diaphragms) and related auxiliaries.

USA

OEM: Japanese Make

Power Rating: 35 MW

Scope: Supply of blades for last stage blades.

PHILIPPINES

OEM: Japanese Make

Power Rating: 77.5 MW

Scope: Supply of blades for 6^{th} and 7^{th} stage blades for dual flow rotor.



MODERNIZATION

Make: Europe | **Country:** Egypt | **Capacity:** 12 MW

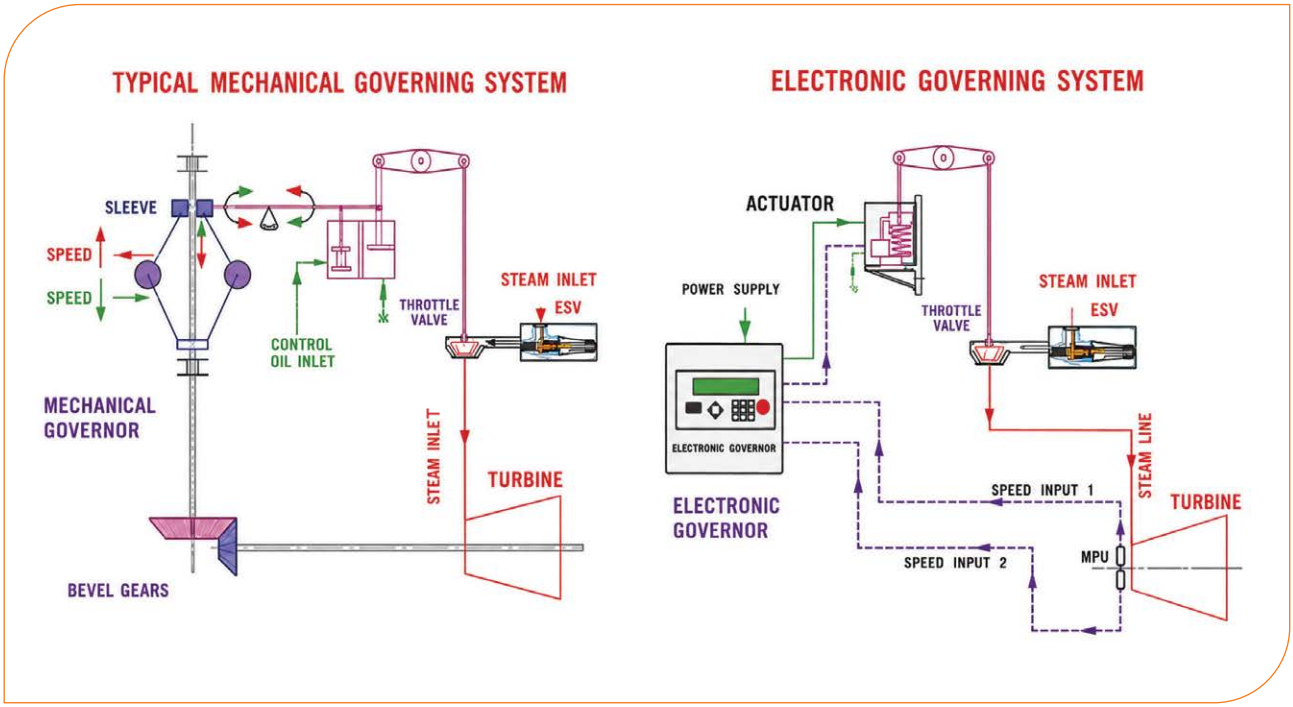


ORIGINAL DESIGN



MODIFIED DESIGN

MODERNIZATION BY CONVERTING MECHANICAL GOVERNING SYSTEM TO ELECTRONIC GOVERNING SYSTEM BY RE-ENGINEERING.





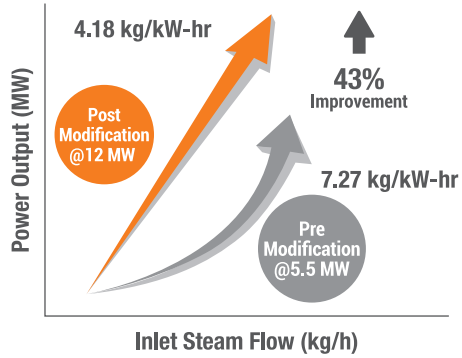
CASE STUDIES

TURBINE
EFFICIENCY ENHANCEMENT

1

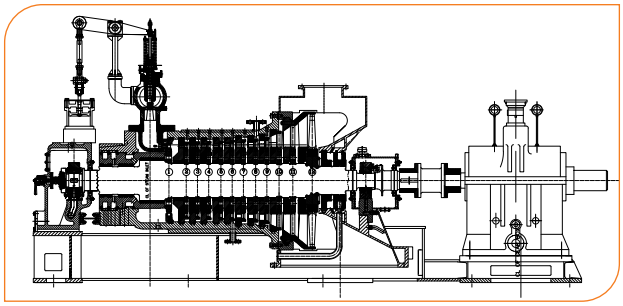
Make: Chinese
Description: Conversion of Impulse to Reaction

Sector: Waste to Energy

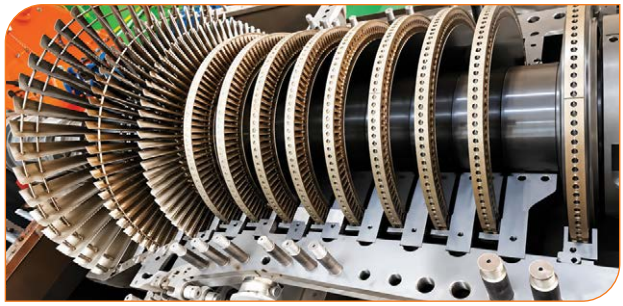




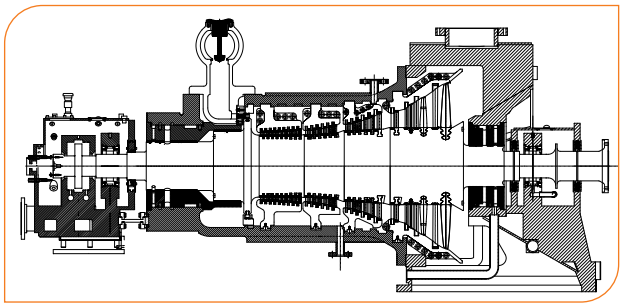
	Inlet			Bleed-1			Bleed-2			Exhaust		
	P	T	F	P	T	F	P	T	F	P	T	F
OEM	65	450	40.00	-	-	-	-	-	-	0.08	-	-
Triveni	65	450	50.25	6.00	-	4.11	1.29	-	4.28	0.81	-	41.86



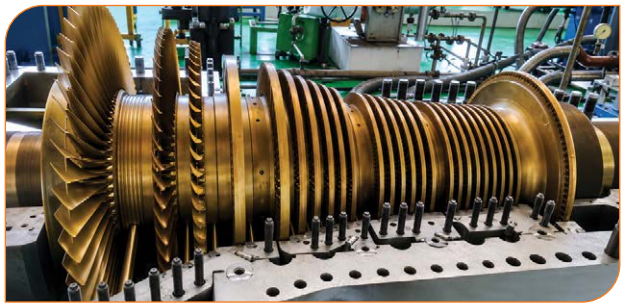
OEM LAYOUT



OEM DESIGN (IMPULSE – 12 STAGES)



TRIVENI LAYOUT

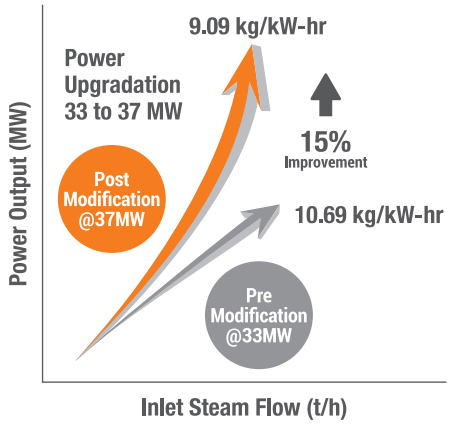


TRIVENI DESIGN (REACTION – 26 STAGES)

P: Pressure in Bar.A | **T:** Temperature in Deg.C | **F:** Flow in Tons/hr

2 Make: European
Description: Power Upgradation

Sector: Oil & Gas

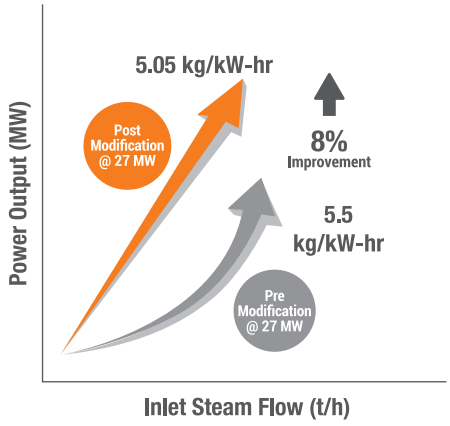




	Inlet			Ext. 1		Ext. 2		Exhaust	
	P	T	F	P	F	P	F	P	F
OEM	106	505	352.75	41.00	158.10	12.00	164.68	0.08	29.97
Triveni	103	505	354.70	41.00	140.00	12.00	154.00	0.11	60.70

3 Make: Japanese
Description: Efficiency Enhancement

Sector: Chemical



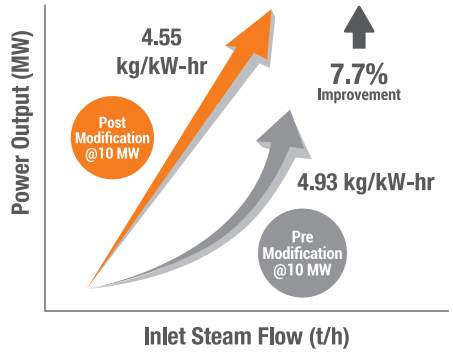


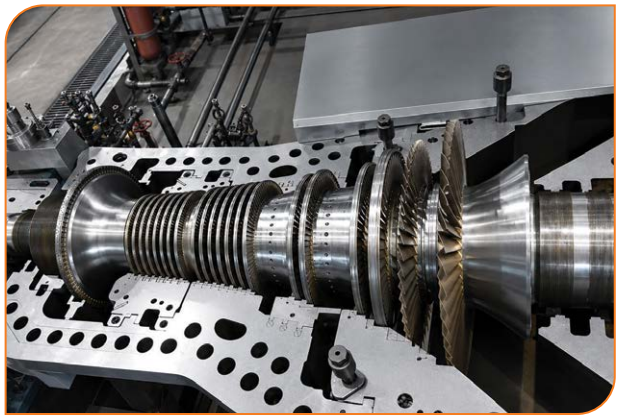
	Inlet			Extraction		Exhaust	
	P	T	F	P	F	P	F
OEM	70	485	121.00	16.00	35.00	0.11	86.00
Triveni	70	485	111.00	16.00	35.00	0.11	76.00

P: Pressure in Bar.A | **T:** Temperature in Deg.C | **F:** Flow in Tons/hr

4 Make: India
Description: Deration of 24 MW to 10MW

Sector: Steel



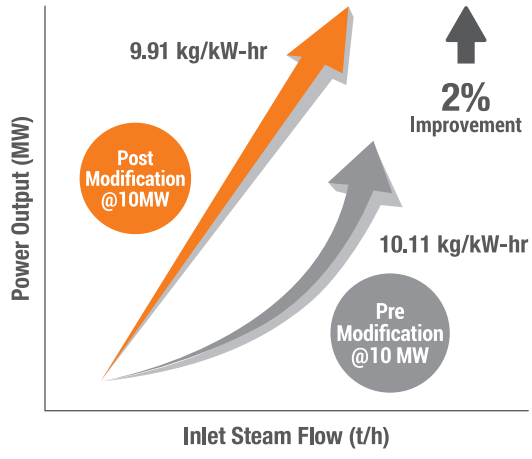


	Inlet			Bleed-1			Bleed-2			Exhaust		
	P	T	F	P	T	F	P	T	F	P	T	F
OEM	64	485	50.00	3	-	3.00	1.20	-	1.50	0.18	-	44.50
Triveni	64	485	40.14	-	-	-	3.84	-	4.34	0.18	-	35.80

5 Make: Japanese
Description: Revamping and Efficiency Enhancement

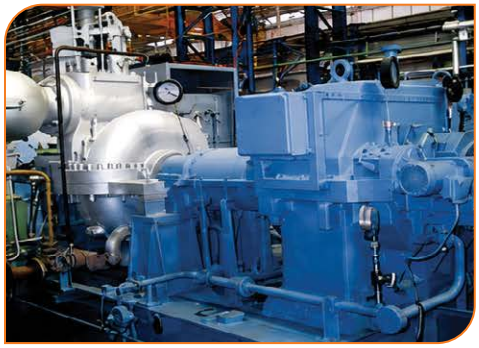
During operation customer could not go beyond 6.6 MW

Sector: Sugar





BEFORE



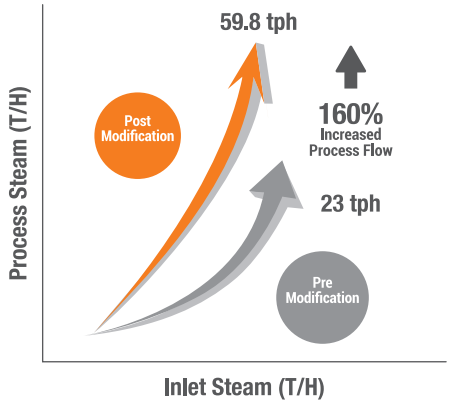
AFTER

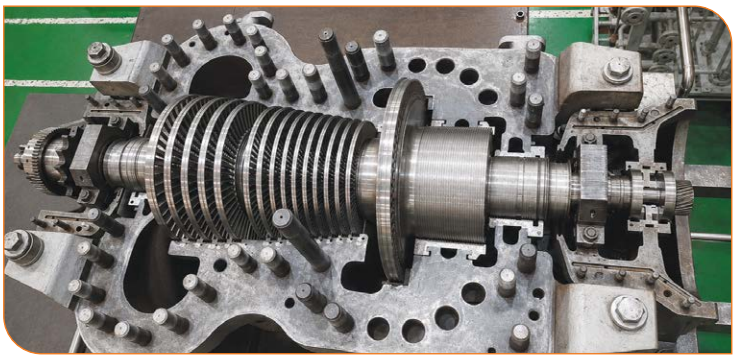
	Inlet			Exhaust		
	P	T	F	P	T	F
OEM	21	350	101.10	1.50	-	101.10
Triveni	22	350	99.10	1.50	-	99.10

P: Pressure in Bar.A | **T:** Temperature in Deg.C | **F:** Flow in Tons/hr

CONDENSING TO BACK PRESSURE

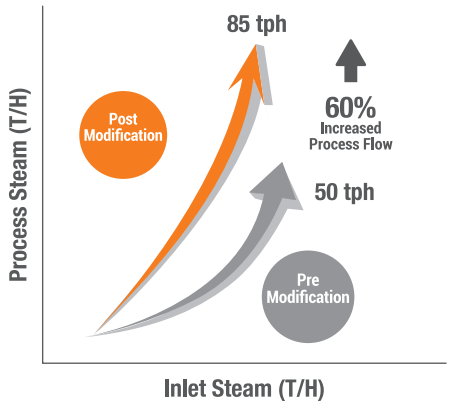
1 Make: Chinese
Description: 9 MW, Modification and Conversion to BP





	Inlet			Bleed			Extraction		
	P	T	F	P	T	F	P	T	F
OEM	87	515	48.00	3.00	130.00	23.00	0.10	42.00	25.00
Triveni	87	515	59.80	3.00	130.00	59.80	-	-	-

2 Make: European
Description: Modification and Conversion to Back Pressure





OEM ROTOR WITH 17 STAGES (CONDENSING DESIGN)



TRIVENI ROTOR WITH 9 STAGES (BACK PRESSURE DESIGN)

	Inlet			Bleed			Extraction			Exhaust		
	P	T	F	P	T	F	P	T	F	P	T	F
OEM	35	435	112.00	13.00	-	50.00	1.20	-	40.00	0.10	-	22.00
Triveni	35	445	112.00	13.00	-	85.00	5.00	-	12.00	-	-	-

P: Pressure in Bar.A | **T:** Temperature in Deg.C | **F:** Flow in Tons/hr

EFFICIENCY IMPROVEMENT / MODIFICATION JOBS ON NON-TRIVENI TURBINES

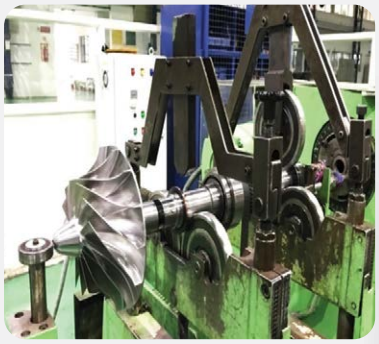
Advantages

- Reuse old / existing assets
- Minimum downtime at site, existing asset continues to produce power till replacement
- No modification in the deck foundation
- Extension of life of asset
- Faster ROI / Payback period
- Lower carbon footprint & environment friendly

Reuse of assets — Minimum downtime — Better performance



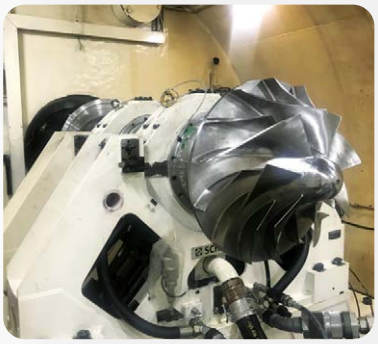
IMPELLERS



Reverse engineering of damaged Impeller at site



Final Inspection of New Impeller



Final Assembly of the Impeller with new pinion shaft and Balancing setup

Challenges

3D Scanning & Model Reconstruction of a Damaged Impeller

A damaged impeller was scanned using a **3D laser scanner** to capture its precise geometry and generate a digital 3D model for manufacturing a new impeller. Following the scan, data from the remaining vanes was analysed and used to reconstruct the manufacturing model, with the geometries superimposed to arrive at the final model.



GLOBAL NETWORK

INDIA

Triveni Turbine Limited
12-A, Peenya Industrial Area,
Bengaluru - 560 058, Karnataka, India.
Phone: +91 80 22164000, Fax: +91 80 22164100

Triveni Turbine Limited
Plot No. 491, Sompura 2nd Stage,
KIADB Sompura Industrial Area, Nelamangala Taluk,
Bengaluru Rural - 562 123
www.triveniturbines.com
mktg@triveniturbines.com

UNITED KINGDOM

Triveni Turbines Europe Private Limited
7th Floor, York House,
23 Kingsway London,
United Kingdom.
Phone: +44 203 872 7310,
Fax: +44 203 872 7311
mktg@triveniturbines.com

UAE

Triveni Turbines FZCO
Unit No: 4502-016,
Mazaya Business Avenue BB2,
Jumeirah Lakes Towers, Dubai,
United Arab Emirates.
Tel: +971-4567 0751
mktg@triveniturbines.com



THAILAND

Triveni Turbines FZCO, 571 RSU Tower, Unit 903,
9th Floor, Sukhumvit 31 Road, Klong Ton Nua,
Wattana, Bangkok 10110, Thailand
Phone: +66 2 117 9575,
Fax: +66 2 662 3416
mktg@triveniturbines.com

SOUTH AFRICA

Triveni Turbines Africa (Pty) Ltd.
252 Vonkprop Street Samcor Park
Pretoria, Gauteng, 0184 South Africa.
Phone: +27 12 804 2638
www.triveniturbines.co.za
africa@triveniturbines.com
mktg@triveniturbines.com

USA

Triveni Turbines Americas Inc,
11927 A FM 529, Houston,
Texas, 77041
Phone: +1 832 8507990
www.triveniturbines.us
americas@triveniturbines.com
mktg@triveniturbines.com





Triveni Turbines
Corporate Film

Website

© Copyright 2026 Triveni Turbine Ltd.

All rights reserved. No part of this brochure may be reproduced, copied, translated, adapted and so on or stored in a retrieval system, tapes, discs, microfilms and so on or transmitted in any form or by any means of electronic, mechanical, photocopies, recording or otherwise, without the written permission of Triveni Turbine Limited