RSE

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REAL SIMULATION ENTERPRISES

Wind Turbines & Solar projects – Start to end Solutions

Mission, Vision & Values

Mission

To help customers to achieve their business objectives by providing engineering solutions, best-in-class engineering field and services.

Vision

To become a complete solution provider and most cost effective service provider for each and every customer with whom we work.

Values

- High quality deliverables
- Passion with Excellence
- Learning and sharing
- Respect for individual

About Us

Real Simulation Enterprises (RSE) is driven by dynamic, creative and innovative people who has done Masters from India's top institutes like I.I.T and Government Engineering College

Team has wide domain expertise and has worked with various Fortune 500 companies at overseas as well as in India.

RSE helps wind turbine component manufacturers & IPPs to stay agile and respond better to changing market conditions by providing complete business solutions and ensuring faster results.

We bring personalized services / solutions to our clients as per their requirement.

We have tie-up with other companies on strategic basis to provide complete solution to our valuable clients.

Key Management team

1. **Mrs. Pallavi S. Sarpate – BE (GECA, Aurangabad)**

Has rich experience in handling enterprises. Working as a Managing Director for more than 21+ years. Proprietor of the company. Policy decision making and business strategy planning.

2. Mr. Shankar K. Sarpate – M. Tech –Mechanical from IIT Madras

Ex. DRDO Scientist (RCMA(AA)) with more than 27+ years of experience in India's top R & D organizations. Visited Europe many times for technical discussion with the clients. Policy decision making. Business strategy planning. Companies worked: Jyoti Ltd, Atco R & D, HAL Nashik, DRDO (RCMA(AA)), Suzlon Energy Ltd, Siemens Gamesa. Presently working as Head - Operations

https://www.linkedin.com/in/shankar-k-sarpate-b2a0a516/

3. Mrs. Manjusha A. Bhosale, ME (Electricals)

Engineering Graduate from Government Engineering College, Aurangabad, Maharashtra with 21 Years of experience as Asst. Professor in Engineering college. Presently heading the Real Simulation Enterprises, UK Branch as Country Manager – UK

4. Mr. Chandrakant Khirade, CA

International sales & high value negotiations expert working in our UK office. Total experience of 23+ years.

5. Ms. Tanisha S. Sarpate, B.Des (Pursuing)

Works on report finalization, technical overview & documentations. Working as a trainee Engineer.

Presently we are a team of 5 & planning to expand to 10 in near future.

WRA / Site Assessment

- **Wind Data Collection:** We support you to collect high-quality wind speed, direction & other required parameters using state-of-the-art meteorological equipment.
- **Wind Data Analysis:** We analyze the wind speed, Turbulence intensity, Wind shear, temperature distribution using advanced in-house software (EaseWRA). We predict the wind rose based on the data.
- **Site Suitability Assessment:** Our experts assess the terrain, land use, and roughness length to determine the most suitable sites for wind turbine installation.
- **Energy Production Estimation:** We provide accurate energy yield predictions based on site-specific wind conditions and turbine characteristics & considering the losses. Probability exceedance.
- **Customized Reports:** Our detailed reports include wind resource maps, seasonal variations, and recommendations for optimizing turbine placement.

Other expertise's

- **RCA:** Based on the information provided, extracted from the structural analysis (if required), SCADA data analysis, turbulence intensity analysis, gust analysis, we correlate the failure & using standard practices, we perform RCA studies. Recently we had completed the RCA study for foundation bolts failure for one of the IPP customers.
- **Wind turbine performance enhancement:** We analyze the wind speed, Turbulence intensity, Wind shear, temperature distribution, vibration sensors, pitch angles for the underperforming wind turbines & correlate with the best performing turbine. The problem diagnoses will be treated to get the better performance of the turbines.
- **Initial pitch setting detection:** We had developed a methodology to find out the initial pitch error detection with the SCADA data for a year duration.
- **Turbine health monitoring software:** We have developed a software for wind turbine health monitoring. This is under testing phase and will be released within 3 months of time.
- **Gust Analysis:** Based on the SCADA data, we perform gust analysis.

Solar Projects

1. Feasibility

- Site Assessment
- Financial Analysis
- Permits & regulations
- Energy yield estimation
- Grid connection assessment.

2. EPC

- Design & Engineering
- Procurement
- Construction
- Testing & commissioning

3. O&M

- Performance monitoring
- Regular inspection
- Cleaning & repairs
- Data analysis & reporting
- Upgrade & Retrofits

Solar Projects

4. Investment Analysis
5. Dis-investment support
6. Existing loads analysis
7. PVSyst Analysis
8. Tendering process
9. PPA process

WRA / Site Assessment

We are using an EaseWRA software for WRA analysis. We offer following services:

1. Wind mast data analysis
2. AEP calculations with losses consideration
3. Uncertainty analysis
4. Micrositing analysis
5. Wind rose & energy rose calculations
6. Terrain influence (losses)
7. Probability of Exceedance

Other wind domain related services:

1. Big data analysis
2. RCA for any problem related to the wind turbines
3. Wind turbine blade repair procedure validation & witnessing the repair work
4. Loads validation for tower height increase
5. Loads validation for GEARBOX / main bearing
6. Wind turbine performance enhancement through the operational data analysis

Testimony Projects -1

Blade repair design verification & verification of application of repair :

a. Blade repair verification
   - Analyze the repair procedure provided by the customer and authenticate the procedure as structurally equivalent to the original blade
   - Provide additional quality checks apart from mentioned in the repair procedure which may deem fit for execution of the repair
   - Authenticate the repair specification and provide clearance to the repair procedure provided by the customer

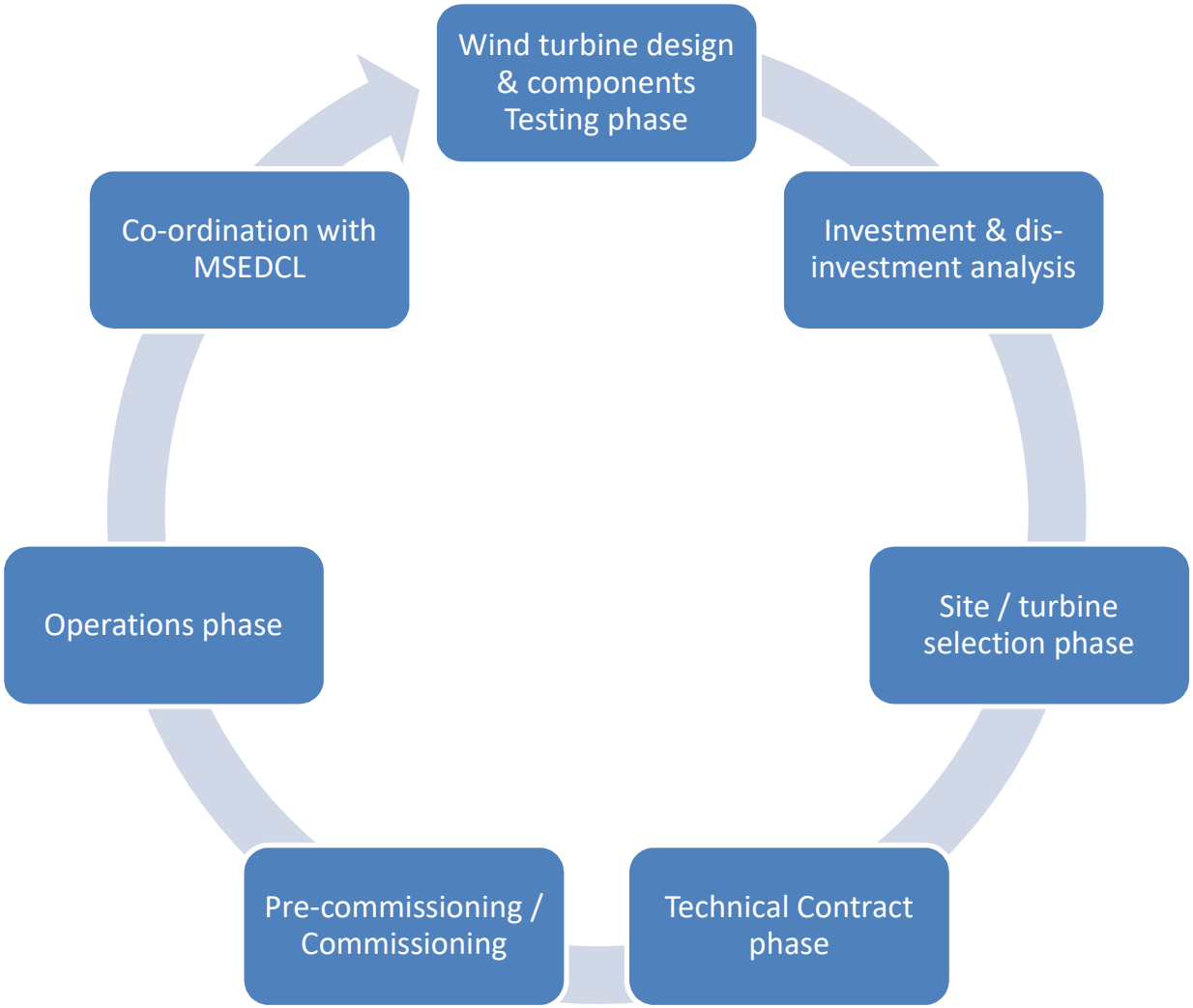
b. Verification of application of repair
   - Blade expert person witness the repair when it is executed
   - Audit the repair process as per the guidelines mentioned in the repair procedure
   - Authenticate the repair is performed as per the prescribed guidelines
   - Certify the repair execute will sustain for the design lifetime of the blade

c. Blade repair design documentations
   - Required design document arrangement
   - Standards to be used during the process of project execution

Projects Completed

- Wind Turbine Blade repair process validation
- Wind Turbine Blade repair implementation certification
- RCA for wind turbine foundation bold failure & rectification of the broken bold with almost same initial strength
- Wind Turbine hub & Blade Pitch bearing visual & UT inspection for insurance claim
- Wind Turbine main shaft bearing Borescopy inspection
- Solar I&C work off loading. Two projects of 10MW AC / 13MW DC each. Total 20MW AC / 26MW DC
- Solar I&C work facilitation. 30MW AC / 42MW DC

Our involvement – Various phases



Summary

Summary: Expertise Available with RSE, Pune		
Sr. No.	Areas of support	Details
1	Investment & dis-investment analysis	a. Justification for the investment b. Financial analysis c. Participation in technical negotiations d. Commercial negotiation / justification for the offer
2	Site / turbine selection phase	a. WRA support b. Review of the WRA reports / brief WRA analysis c. Soil analysis review d. Turbine design checking if design parameters are available e. Turbine selection / Extreme / Fatigue loads review f. Review of the assumption made for the WRA studies
3	Technical Contract phase	a. Complete review of the technical documents of the turbines / solar projects b. Participation in the technical discussions & negotiations with the OEM c. Justification of the commercial offers based on the investment analysis
4	Pre-commissioning / Commissioning	a. Study & analyse any technical deviation in the activity / document b. Precommissioning & commissioning documents review c. Interpretation of any activities in the documents d. Updates of the procedures if required in concurrence from the certifying agency
5	Operations phase	a. RCA for any failure machines / components b. Blade Repair procedure validation & implementation, if required c. Tower issues resolution d. Wind Turbine Performance analysis e. Power curve validation f. Wind turbine vibrations analysis g. Performance enhancement of the underperforming turbines h. SCADA data analysis & use insight for performance enhancement i. Technical due diligence j. Initial blade pitch error estimation, if required k. Wind turbine repair certification co-ordination with certification bodies like DNV, TUV l. Wind turbine gearbox / bearing life estimation based on the SCADA data
6	Co-ordination with MSEDCL	a. As I know MSEDCL people & my friends are working there. This relations can be utilized for getting approvals / permissions

Customers

We are registered vendor with following corporates:

1. Tata power
2. L&T
3. Essar power
4. Envision Energy
5. Greenko
6. Mahindra
7. DRDO

3-4 more clients are under process of vendor registration.

Various registrations

1.Registration No	: 1931 0003 1331 7522
2. GST No.	: 27BIHPS3509L1ZT
3. MSME Udyog Aadhaar Registration	: MH26E0028001
4. ISO:9001 2015	: 1457/QMS/0218
5. Importer – Exporter Code	: IEC - BIHPS3509L
6. DRDO, HEMRL Registration	: HEMRL/MMD/REGN/MEA/39
7. Tata Power	: 180004715

Thank You

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