What are the benefits of a VBR gas turbine control system retrofit?

- Fully open & accessible gas turbine control systems
- Enables data driven condition based maintenance on GT engines
- Multiple available choices for hardware & software
- Supports extension of service intervals and the total life of GT engines
- Full factory testing with a tailor-made digital GT engine model
- Very cost effective compared to OEM or other third party retrofit alternatives
- Plug & play installation & commissioning onsite
- Supported by education & training for the onsite operation & maintenance staff
- Integrated advanced predictive health monitoring capabilities
- Exceed any project management requirements

VBR gas turbine control system retrofit capabilities

<table>
<thead>
<tr>
<th>Gas turbines supported for VBR controls retrofits</th>
<th>GT control systems suited for VBR controls retrofits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GE:</strong> LM6000, LM2500/+, LM1600 (SAC &amp; DLE)</td>
<td>Woodward NetCon, Micronet</td>
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<tr>
<td><strong>Nuovo Pignone:</strong> PGT25/+ (SAC &amp; DLE)</td>
<td>Speedtronic Mk4, Mk5, Mk6, Mk6e</td>
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<tr>
<td><strong>GE:</strong> Frame 6B, Frame 7E, Frame 9E (SAC &amp; DLN)</td>
<td>Allen-Bradley</td>
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<td><strong>Rolls-Royce:</strong> Avon, RB-211, Spey</td>
<td>Turbotronix</td>
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<td><strong>Siemens:</strong> SGT-100, SGT-200, SGT-400, SGT-600, SGT-700</td>
<td>Rustronic</td>
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<td><strong>Solar:</strong> Centaur, Mars, Saturn</td>
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<td><strong>Ruston:</strong> Cyclone, Tornado, Typhoon</td>
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<td><strong>Alstom:</strong> GT10/8</td>
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</tbody>
</table>

To learn more about cost effective high quality GT control system retrofits & technical audits contact VBR at controls@vbr-turbinepartners.com or by phone +31 88 010 9050
VBR gas turbine control system references

Reference list VBR control system retrofits & projects

Control system retrofit references

Offshore:
- LM1600
  - LM 1600 compressor drives
- LM2500
  - LM 2500 compressor drives
  - CPU and receiver upgrades with entirely new software

Onshore:
- LM1600
  - LM 1600 generator drives
- LM2500
  - LM 2500 generator drives

Control system project references

- Technical audits
  - LM 6000 PD engines (compressor & generator drive)
  - LM 2500 DLE engines (compressor & generator drive)
  (Technical audit: full in-depth assessment of all C&I related topics as jittering, grounding, earth faults, calibrations & mapping combined with a full in-depth assessment of the entire control system.)
- HMI upgrades on
  - LM 1600
  - LM 2500 SAC & DLE
  - LM 6000 PC & PD
- Software modifications on all type of engines and control systems

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Independent ISO 9001/2015 certified O&M improvement experts for GE LM gas turbines, auxiliaries & packages LM1600 | LM2500 (+) | LM5000 | LM6000

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