MTS Technologies, Inc.
Management and Technical Services

- Founded in July 1991
- Minority/veteran-owned
- Dedicated staff of experienced management and technical professionals
- Strategically located throughout the U.S.
- Solid history and past performance
Energy Sector Support Areas

Disaster Management and Recovery

Energy Assurance and Reliability

Systems Analysis and Integration

Training, Simulation, and Scenario Planning
Use Data Systems to:

– Effectively manage power and energy systems

– Monitor and correlate power and energy availability and demand

– Optimize power and energy availability using alternative energy technologies

– Accrue Benefits for Enhanced Power and Energy
Energy Needs Differ
Energy Supply Differs
Energy Needs and Supply

• Monitor generation
• Optimize
  – fuel use
  – availability
  – reliability
  – risk
• Correlate
  – traditional (gensets)
  – alternative (fuel cell)
  – renewables (solar, wind, fuels)
Monitoring and Correlation

- Comprehensive Monitoring
- 24x7x365 Alert Notification

Source: Profile Systems, LLC
Monitoring and Correlation

Source: Profile Systems, Inc. / Purdue University - Calumet

MTS Technologies, Inc.
### Energy Use per Day

<table>
<thead>
<tr>
<th>Day</th>
<th>kWh-hrs</th>
<th>% Tot</th>
<th>Cum %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mon</td>
<td>127,587</td>
<td>13.8%</td>
<td>13.8%</td>
</tr>
<tr>
<td>Tue</td>
<td>164,746</td>
<td>17.9%</td>
<td>31.7%</td>
</tr>
<tr>
<td>Wed</td>
<td>129,599</td>
<td>14.1%</td>
<td>45.8%</td>
</tr>
<tr>
<td>Thur</td>
<td>131,054</td>
<td>14.2%</td>
<td>60.0%</td>
</tr>
<tr>
<td>Fri</td>
<td>126,926</td>
<td>13.8%</td>
<td>73.8%</td>
</tr>
<tr>
<td>Sat</td>
<td>124,347</td>
<td>13.5%</td>
<td>87.3%</td>
</tr>
<tr>
<td>Sun</td>
<td>117,381</td>
<td>12.7%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Total</td>
<td>921,640</td>
<td>100.0%</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

### Energy Use per 6-Hour Period

<table>
<thead>
<tr>
<th>Period</th>
<th>kWh-hrs (000)</th>
<th>Mon</th>
<th>Tue</th>
<th>Wed</th>
<th>Thur</th>
<th>Fri</th>
<th>Sat</th>
<th>Sun</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 - 6 am</td>
<td></td>
<td>13.6%</td>
<td>14.0%</td>
<td>13.9%</td>
<td>13.9%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 - 12 am</td>
<td></td>
<td>17.6%</td>
<td>17.8%</td>
<td>18.1%</td>
<td>17.9%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12 - 6 pm</td>
<td></td>
<td>14.3%</td>
<td>13.4%</td>
<td>14.1%</td>
<td>14.5%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 - 12 pm</td>
<td></td>
<td>14.5%</td>
<td>14.3%</td>
<td>14.3%</td>
<td>13.7%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: U of Miami
Monitoring and Correlation

Actual Tactical Operations Center (TOC) Load Profile

Source: CERL - ERDC
Benefits of Effective Power and Energy Management

Measurement and Verification Results

<table>
<thead>
<tr>
<th>App</th>
<th>Energy Area 1</th>
<th>Energy Area 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>App 1</td>
<td>10%</td>
<td>15%</td>
</tr>
<tr>
<td>App 2</td>
<td>50%</td>
<td>40%</td>
</tr>
<tr>
<td>App 3</td>
<td>30%</td>
<td>25%</td>
</tr>
<tr>
<td>App 4</td>
<td>20%</td>
<td>15%</td>
</tr>
</tbody>
</table>

Source: Profile Systems, LLC
Optimize Generation Alternatives

- Fuel storage
- Fuel availability
- ‘Local’ resources
Benefits of Effective Energy Data Management

- Enhanced Awareness
- Improved Reliability / Assurance
- Improved Logistics
- Reduced Maintenance
- Archived Supply / Use Data
  - Events
  - Trends
- Reduced Costs
Discussion