True North Consulting has developed software products supporting industry-related needs in both the Engineering Programs and Plant Thermal Performance areas. True North Consulting and Endevor aligned skill sets to provide web-based engineering programs software using the Engage® platform.

**Engineering Programs Software Suite**

The True North Consulting | Endevor web-based Engineering Programs Software Suite EP-Plus® runs on the Endevor Engage® platform and includes electronic import of the client's test history and custom configuration. The software contains, for example, links to the Program documents that allows for data entry and trend analysis, assists with outage scope identification and has user configurable reports that are fully compliant with guidance and regulatory requirements.

**Areas of Expertise**

**ASME OM Code Programs**
- Inservice Testing
- Check Valves (APP II - CMP)
- Motor Operated Valves (APP III/OMN-1)
- Air Operated Valves (OMN-12)
- Snubber Programs (ISTD)
- Relief Valve Programs

**ASME Section XI Programs**
- Inservice Inspection (Conventional /Risk Informed)
- Pressure Testing Program Services
- Containment Inspection (IWE / IWL)
- Repair/Replacement

**General Programs**
- Flow Accelerated Corrosion (FAC)
- Buried Piping
- Heat Exchanger/99-13
- Welding Programs
- Containment Integrity - Appendix J
- Equipment Qualification
- Boric Acid Control
- Surveillance Testing

**Power Services**

True North offers a complete line of power related engineering and project management services with strong emphasis on plant systems/equipment upgrades, and station power uprates. Services offered include:

- **Specialty Services**
  - Engineering Liaison Services (Utility/OEM Interface)
  - Multi-Discipline Contractor Oversight
  - Problem Resolution/Operational Expertise
  - Manufacturing Facility Oversight

- **Turn-Key Project Services**
  - Multi-Disciplined Project Management
  - Project Plan & Integrated Cost/Schedule Development
  - Cost Benefit Analysis
  - Project Controls (cost/schedule)
  - Technical Specification/Bid Specification Development
  - Contract Negotiation/Bid Evaluation
  - Design Coordination/Oversight
  - Integrated Test Plan Development & Test Services
  - Implementation Oversight
  - Technical Support

- **Multi-Discipline Engineering Support**
  Assembling project teams staffed with specific discipline requirements and scope-related experience, we are comfortable with all phases of the engineering support life cycle. Examples of areas in which we have specific expertise are listed below:

**Major Plant Initiatives**
- Power Uprate (Stretch and EPU)
- License Renewal
- Plant Life Extension
- Station Security System Upgrades
- Outage Optimization
- Power Train Equipment Replacement and Upgrades
  - HP/LP Turbines
  - Main Generator/Excitation Equipment
  - Turbine Generator Support Systems

**Software Performance Suite**

TP-Plus+ is a thermal performance engineering tool kit consisting of several powerful and unique calculation modules for use in the electric power industry to simplify and provide time-saving convenient methods of tracking thermal performance.

- **Available modules:**
  - Cycle Isolation Module (CIM)
  - Secondary Leakage Analysis
  - Thermal Systems Monitor (TSM)
  - Cooling Tower Analysis

**Thermal Performance Monitoring**

The True North Consulting Thermal Performance group is focused on maximizing commercial advantage through increased efficiencies, increased reliability, and optimization of the power/fuel ratios. True North uses various tools combined with leading edge industry expertise to analyze a power plants total ability to produce electricity reliably and efficiently. Our services range from plant assessment and modeling at the component or system level, to development or upgrade of an entire Thermal Performance Program. Thermal Performance Training is also offered, typically twice per year from our corporate offices, but can be tailored to meet specific site requirements as well.

**Program Assessment/Development**
- Thermal Performance Modeling
- Power Calculation Evaluation
- Secondary Valve Leakage
- Plant/Component Evaluations
- MWe Improvement Recommendations
- Monitoring Practices
- Instrument Modifications
- Procedural Support/Development
- PTC-6 Testing Support

**Heat Balance Analysis**
- Power Uprate Turbine Cycle Evaluation
- Model Development & Improvements
- Plant Condition Evaluation
- Plant Modification Studies
- Environmental Heat Rejection Studies
- Megawatt Loss Evaluations
- Steam Generator Replacement Studies
- Turbine Retrofit Evaluations
- Primary Temperature Changes
- Major Component Warranty Validations

**Thermal Component Analysis**
- Feed-water Heaters
- Turbines
- Cooling Towers
- Pumps
- Condensers
- Moisture Separators/Re-heaters

**Operational Monitoring**
- Develop/Enhance On-line Monitoring Capability
- Provide TP-Plus+ Software to Evaluate Performance
- Provide Remote Monitoring of Plant Performance
True North Consulting is headquartered in Montrose, Colorado with satellite offices in Nebraska, Louisiana, New Jersey, and Alabama. Address and contact information for our offices are listed below:

**Corporate Office**
Primary Contact--Donald R. Horn  
150 Merchant Drive  
Montrose, Colorado 81401  
970-252-1832 (telephone)  
970-252-1837 (fax)  
drh@tnorthconsulting.com

**Engineering Programs**
Primary Contact--Ronald C. Lippy  
402-493-9562 (telephone)  
402-490-5848 (cell)  
rcl@tnorthconsulting.com

**Software Services**
Primary Contact--Jeffrey Neyhard  
315-430-7218 (cell)  
jan@tnorthconsulting.com

**Power Services**
Primary Contact--Ray Moore Sr.  
302-740-5205 (telephone)  
rtm@tnorthconsulting.com

**Thermal Performance**
Primary Contact--Frank D. Todd  
970-984-2753 (telephone)  
609-202-7598 (cell)  
fdt@tnorthconsulting.com

Information in this brochure is the property of True North Consulting, LLC

---

**COMPANY PROFILE**

True North Consulting is an Engineering Services company specializing in support for the electric power industry. Founded in 1999, True North has provided engineering-based consulting services to the majority of US utilities and to several abroad. Our services cover a wide spectrum within the power generation sector ranging from Engineering Programs related services in the nuclear power industry to plant Thermal Performance issues across the entire generation continuum. Additional areas of expertise include a complete array of Power Services associated with secondary plant equipment and a highly experienced Information Technology staff supporting our line of customized software products.

It is our goal and ongoing commitment to optimize these services with respect to cost, technical adequacy, and overall value to our clients. Towards this goal we continue to refine and update our staff and services through incorporation of technology and experience-based advancements.

Presented in this brochure is an overview of services offered by True North Consulting along with general information concerning our office locations and contact information.

We sincerely hope this provides a clear representation of our company and how True North Consulting might benefit performance at your facility.