NRG Systems’ solar solutions provide the data you need to successfully plan and operate your utility-scale photovoltaic project.

**Complete Package**
From purpose-built, configurable hardware and software to installation and maintenance support, we deliver consistent results around the world.

**Unrivaled Ease-of-Use**
Integrated systems designed and tested to work together for predictable, repeatable performance.

**Bankable Solutions**
Count on our products as well as our company to deliver dependable results, even in uncertain times.
NRG Systems’ solar solutions apply to pre-construction assessment through post-construction operational monitoring and are designed to transition seamlessly between the two.

Our Systems Revolve Around You.

- Data Services
- Long-Term Support via Technical Services Team
- Professional Installation & Maintenance
- Global Logistics Capabilities
- SRM Design and Configuration Services
- Standardized, Integrated Measurement Systems
- Rapid & Thorough Project Bidding Support

YOUR PROJECT

Our Systems Revolve Around You.
NRG Systems’ Solar Resource Assessment (SRA) System systematically collects “ground truth” meteorological data at a prospective solar energy production site. Our complete and integrated measurement solution captures all relevant conditions so users can lower the uncertainty of AEP estimates associated with utility-scale photovoltaic projects.

NRG Systems’ Solar Resource Monitoring (SRM) System helps operators monitor and optimize the output from their utility-scale PV plant. Whether the project is tracking or fixed, mono- or bifacial, we help users detect inefficiencies at the module, string, and system-wide levels so they can launch real-time maintenance and build long-term, preventative maintenance and cleaning programs.

**Solar Measurement Systems**

**SYSTEM ANATOMY**

1. **Data Logging**
   - SymphoniePRO® 26-channel data logger

2. **Solar Irradiance**
   - Industry-leading irradiance sensors

3. **Meteorological Sensors**
   - Highly reliable, discrete sensors

4. **Tubular Tower**
   - Quick to ship, easy to install

5. **Auxiliary Power**
   - Autonomous power in any setting

6. **Soiling Measurement**
   - 35 W or full-size PV options

7. **Services**
   - Industry leading customer service

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**Data Logging**

SYMPHONIEPRO 16- OR 26-CHANNEL DATA LOGGER

- High-resolution, high-accuracy measurements
- Long-term data storage
- Supports wide range of sensor types (analog, digital, serial)
- Calculated channels for additional solar information (solar position, direct normal irradiance (DNI), albedo)
- Easily configurable – no programming required
- Modular accessories for global communications & autonomous power support (Modbus TCP, Cellular, Satellite)

**Solar Irradiance**

ACCURATELY CAPTURE THE PRIMARY MEASUREMENT OF INTEREST IN A SOLAR RESOURCE CAMPAIGN

- All irradiance components (Global, Diffuse, & Direct) supported
- Class A, B, or C pyranometer options
- System compatibility with all industry-leading sensor brands
- Output options: analog vs. serial (“smart”) sensors
- Thermopile pyranometer or PV reference cell
- Mounting flexibility for horizontal vs. plane-of-array irradiance capture
- Pyranometer heating & ventilation options

**FEATURED SENSORS**

Economical class A sensor with various output options

Innovative class A “smart” sensor with internal heat & ventilation

Captures all three irradiance components (GHI, DHI, DNI (calculated)) with low power & no moving parts

**PV Module Temperature**

ACHIEVE IEC CLASS A MEASUREMENTS USING OUR HIGH-ACCURACY 0.2 C INTERCHANGEABLE 10K NTC THERMISTOR SENSOR

- Our 0.2 C interchangeable 10K NTC Thermistor sensor ensures Class A measurements per IEC-61724-1:2017
- 4-wire configuration ensures accurate measurement regardless of cable length and enables flexible positioning on array
- Easy and repeatable installation and long-term performance via specially designed adhesive system

**Meteorological Sensors**

COST-EFFECTIVE AND INDIVIDUALLY REPLACEABLE MET SENSORS CAPTURE:

- Wind Speed
- Wind Direction
- Ambient Temperature
- Relative Humidity
- Barometric Pressure
- Precipitation

**Tower & Mounting**

FLEXIBLE SOLUTIONS FOR ALL SETTINGS

- Tubular Tower height options:
  - 2.2 m (7 ft)
  - 3 m (10 ft)
  - 10 m (33 ft)
- Temporary (guyed) or Permanent (pad-mount) base designs

**Auxiliary Remote/Uninterruptable Power Supplies**

SCALABLE, MODULAR POWER SUPPLY, SIZED BY PROJECT DEPENDING ON:

- Sensor configuration
- Project location
- Autonomy requirements
Albedo Measurement Kit

- Unobstructed horizontal albedo measurements for bifacial PV modules
- Supports full range of pyranometers
- Matte black finish eliminates shading/reflections
- Special mounting fixture supports fixed or tracking installations

Soiling Measurement Kit

- 35 W or full-size PV module options
- Fixed (tower) or tracking (array) mounting
- Clean and reference PV modules tested and paired at NRG
- $I_{sc}$ and PV (back-of-module) temperature measurements provided

Services

FOR TURNKEY MEASUREMENTS, OUR SERVICES INCLUDE:

- Pre-configuration and engineering documentation
- Equipment installation and maintenance
- Data services to streamline data delivery, processing, site monitoring, and data quality assurance

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ISO 9001: 2015 Certified
ISO 14001: 2015 Self-Certified