# Appendix 5-C

# Equipment Technical and Safety Manuals

BOVIET SOLAR USA

Advancing the Power of the Sun

# 144 Cell Mono 525-545W

## BVM7612M(S)-HC

**0~+5W**
Power Tolerance

**21.0%**
Maximum Efficiency

**525-545W**
Power Output Range

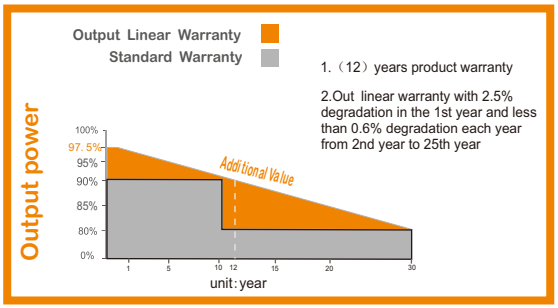
44.65 x 90.08 Inches
Silver Frame / White Backsheet

### High Quality and Reliable Modules

- Withstand up to 5400 Pa snow load and 2400 Pa wind load
- 2 EL inspections per cell/module for defect-free consistency
- High salt and ammonia resistance certified
- 0~+5 W guaranteed positive tolerance
- Rugged design for long-term durability; passed extended reliability tests

### Warranty

- 12-year product warranty
- 25-year linear power output warranty




### Comprehensive Certificates for Products and Management

- UL 61730, IEC 61215, IEC 61730, CEC listed, MCS and CE
- ISO 9001 for Quality Management Systems
- ISO 14001 for Environmental Management Systems
- OHSAS 18001 Occupational Health and Safety Systems

Listed in Bloomberg New Energy Finance's tier 1 list as of 4Q 2020

TÜVRheinland · Intertek · MCS · GO solar CALIFORNIA · 2019 TOP PERFORMER PVEL DNV·GL PV MODULE RELIABILITY SCORECARD


2107 N 1st Street Suite 550 San Jose, CA 95131
**BOVIETSOLARUSA.COM ◆ 877.253.2858 ◆ SALES@BOVIETSOLARUSA.COM**

## Electrical Characteristics STC

| | BVM7612M-525-H-HC | BVM7612M-530-H-HC | BVM7612M-535-H-HC | BVM7612M-540-H-HC | BVM7612M-545-H-HC |
|---|---|---|---|---|---|
| Maximum Power (Pmax) | 525W | 530W | 535W | 540W | 545W |
| Maximum Power Current (Imp) | 12.60A | 12.66A | 12.71A | 12.76A | 12.82A |
| Maximum Power Voltage (Vmp) | 41.74V | 41.94V | 42.17V | 42.40V | 42.58V |
| Short Circuit Current (Isc) | 13.37A | 13.43A | 13.48A | 13.55A | 13.72A |
| Open Circuit Voltage (Voc) | 49.52V | 49.71V | 49.80V | 49.89V | 49.98V |
| Module Efficiency | 20.2% | 20.4% | 20.6% | 20.8% | 21.0% |
| Power Tolerance | 0~+5W | 0~+5W | 0~+5W | 0~+5W | 0~+5W |

STC: AM1.5, Irradiance 1000W/㎡, 25°C

## Electrical Characteristics NOCT

| | BVM7612M-525-H-HC | BVM7612M-530-H-HC | BVM7612M-535-H-HC | BVM7612M-540-H | BVM7612M-545-H-HC |
|---|---|---|---|---|---|
| Maximum Power (Pmax) | 413W | 417W | 421W | 425W | 429W |
| Maximum Power Current (Imp) | 10.08A | 10.16A | 10.24A | 10.32A | 10.40A |
| Maximum Power Voltage (Vmp) | 41.05V | 41.1V | 41.15V | 41.20V | 41.25V |
| Short Circuit Current (Isc) | 10.68A | 10.71A | 10.74A | 10.81A | 10.86A |
| Open Circuit Voltage (Voc) | 48.64V | 49.0V | 49.46V | 49.45V | 49.68V |

NOCT: AM1.5, Irradiance 800W/㎡, 20°C, Wind speed 1m/s

## Mechanical Characteristics

| | |
|---|---|
| Solar Cell | Monocrystalline 7.17 x 3.585 inch, 144 (6 x 24) pcs. in series |
| Glass | High transparency, low iron, AR coated tempered glass3.2mm(0.13 inch) |
| Frame | Anodized aluminum alloy |
| Junction Box | Ip68 rated, with 3 bypass diode |
| Output Cable | 4 mm² (EU)/12 AWG (US), 39.38 inch |
| Connector | MC4 compatible |
| Dimension | 90.08x 44.65 x 1.38 inch |
| Weight | 63.72 lb |

## Thermal Characteristics

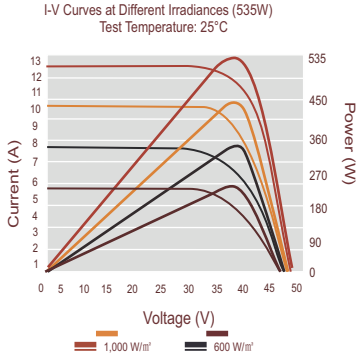
| | |
|---|---|
| Pmax Temperature Coefficient | -0.37%/K |
| Voc Temperature Coefficient | -0.30%/K |
| Isc Temperature Coefficient | +0.06%/K |
| NOCT | 113±35.6°F |

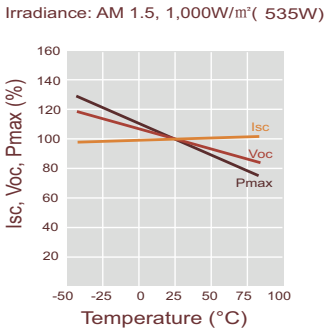
## Maximum Ratings

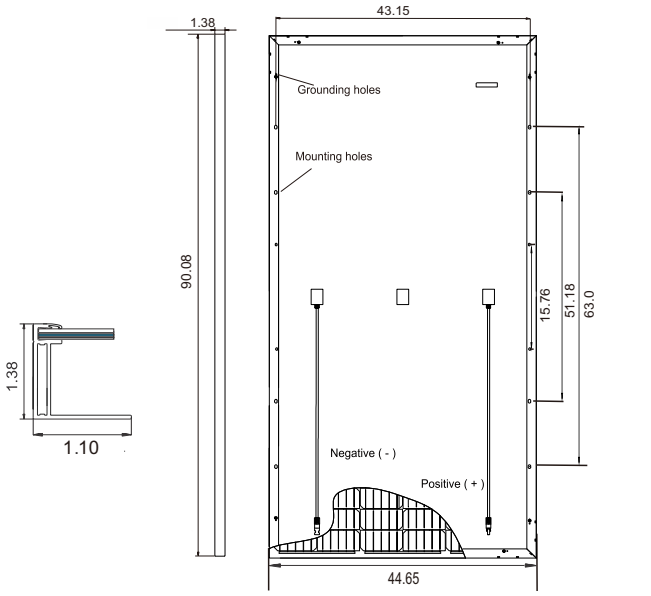
| | |
|---|---|
| Operating Temperature | -40°F~185°F |
| Maximum Series Fuse Rating | 30A |
| Maximum System Voltage | 1000/1500V DC |

## Packing Information

| | |
|---|---|
| Pieces per pallet | 30 |
| Pallets per container (40HQ) | 20 |
| Pieces per container (40HQ) | 600 |
| Pallet weight/size | 2000 lb/ 90.47 x 43.31 x 49.30 inch |



NEXTracker
A Flex Company

# NEXTracker NX Horizon™ Operations and Maintenance Manual

MKT-0000005 Rev. D

# NEXTracker NX Horizon™ Operations and Maintenance Manual

MKT-0000005 Rev. D

# Contents



## Figure

# 1.0 Introduction

Thank you for choosing NEXTracker.

As an innovative leader in the solar industry, NEXTracker strives to provide the best possible product and ongoing service for all our customers. In order to continually improve our product and organization, we welcome your comments and feedback. Please contact us by any of the following methods:

*Website:* www.nextracker.com
*Email:* customerservice@nextracker.com
*Phone:* +1-510.770.2500
*Fax:* +1-510.793.8388
*Address:* 6200 Paseo Padre Parkway, Fremont, CA 94555 USA

## 1.1 About this Manual

This manual provides operating and maintenance instructions for the NEXTracker NX Horizon™ single-axis horizontal tracker.

NEXTracker recommends reading this document in its entirety before performing any operations or maintenance activities on the product. Failure to comply with these instructions may void the NEXTracker limited warranty and may result in property damage, personal injury, and/or loss of life.

NEXTracker reserves the right to make changes to the product and the recommendations in this manual without notice. Technical data and design standards may vary from country to country. In the case of doubt (such as that resulting from translation errors), the English version of this manual applies. No liability is accepted for printing or other errors in this manual.

## 1.2 Intended Use

The NEXTracker NX Horizon may be used only for photovoltaic (PV) module applications. It is not intended for any use other than that designed and specified per project by the Engineer of Record. If put to another use without prior approval from NEXTracker, it will be deemed a case of misuse. If the system is converted or otherwise modified without the knowledge of NEXTracker, all liability is rendered null and void.

⚠ **CRITICAL:** If NEXTracker NX Horizon is not used as intended, its safe operation cannot be guaranteed.

Responsibility for any injury to persons and/or damage to property, which results from improper use of the equipment, rests with the owner-user of the equipment and not with the manufacturer.

# 2.0 Safety

This section addresses general safety precautions necessary to perform operations and maintenance activities on the product. Electrical work in particular must be performed by a licensed and qualified electrician. Failure to comply with these and other warnings in this document may result in bodily injury and/or loss of life.

## 2.1 General Safety

⚠ **CRITICAL:** All electrical work must be performed by a licensed and qualified electrician. All other work must be performed by a qualified professional; failure to do so may result in bodily injury and/or loss of life.

Observe the following precautions to maintain your safety:

- Use the system only when in good working conditions.
- Perform regular checks to ensure all safety devices are working properly. Follow all maintenance and repair instructions.
- Always treat all components as live components!
- Ensure all personnel, tools, and other objects are clear of the trackers before startup.
- Do not enter the fenced area around the system unless accompanied by a second person. Entering this area alone is NOT permitted.
- Leave the site immediately during storms.
- Cordon off the working area before carrying out any maintenance or repair work.
- Before installing your system, contact local authorities to determine the necessary permit, installation, and inspection requirements.
- Ensure all installations are performed in compliance with local, regional, national, and international statutory regulations, guidelines, norms, and code requirements.
- Do not operate on controllers (SPC, NCU, or Weather Station) when temperature is at or below −4°F (−20°C).

## 2.2 Before Beginning

Read all instructions before performing any work or operating the system. This includes instructions in this manual and all other system documentation. Ensure all placards, safety signs, and warning notices are installed on the system and remain in place in a legible condition. Follow all label warnings and instructions.

## 2.3 Protective Gear and Equipment

Authorized personnel must wear the required personal protective equipment (PPE) associated for each task during installation, operation, service and maintenance of the tracking system. NEXTracker recommends the following PPE: hard hat, safety glasses, steel-toed boots, high visibility/reflective clothing, and all other electrical PPE required by OSHA for any given task.

## 2.4 Personnel

Only qualified and authorized personnel should perform any work, service, or repair to the system. All personnel working on or near the system should be qualified and have a basic working knowledge of mechanical and electrical systems.

Ensure that all personnel performing any work or maintenance on the system receive training and instructions addressing all potential hazards, occupational safety, and environmental protection and system operations pertaining to all aspects of the system.

## 2.5 Lockout/Servicing

It is imperative that all personnel operating or servicing the NEXTracker system be familiar with the hazardous electrical energy contained within the system. Failure to do so may result in bodily injury and/or loss of life.

NEXTracker requires all personnel performing work or service on the system to follow the OSHA standard for The Control of Hazardous Energy (Lockout/Tagout), Title 29 Code of Federal Regulations (CFR) Part 1910.147.

Each NEXTracker system varies depending on site conditions, electrical layout, and local building code requirements. The project's General Contractor must develop, document, implement, and enforce energy control procedures on a per-project basis that address all potential hazardous energy within the system. Personnel must use only lockout/tagout (LOTO) devices authorized for the particular equipment or machinery and ensure that they are durable, standardized, and substantial. In addition, LOTO devices must identify the individual users. The project's General Contractor must establish a policy that permits only the employee who applied the LOTO device to remove it; and provide effective training as mandated for all employees covered by the standard.

## 2.6 Hazards

Safety stop functionality varies from project to project depending on the installed disconnects and/or other features. Please consult with the project's General Contractor for details on how safety stops are implemented for each project.

## 2.7 Lifting and Moving

All personnel associated with lifting and rigging of equipment must be trained to understand and recognize the hazards associated with the assigned task and qualified to perform the assigned work. Personnel should be familiar with the correct rigging techniques and equipment—for example, slings, shackles, hooks, hoist, and blocks. In addition, personnel should be aware of the weight of the load and understand the rated capacities of the crane and any rigging gear.

# 3.0 System Description

Each NEXTracker layout is custom on a per-project basis. This makes site layouts unique, but all NEXTracker systems use similar unique, if not identical, electrical systems and respective control electronics. This section provides a system overview of the electrical components, how they work, and how to operate them.

## 3.1 Standard Electrical Components and Features

- **Tracker motor:** One 24-V DC motor per row.
- **Tracker actuator**: One slewing drive per row.
- **Self-Powered Controller (SPC):** Provides the autonomous tracking capability; one SPC per tracker row.
- **Network Control Unit (NCU):** Allows remote connection and provides the control for safety conditions to all trackers in its network; one NCU per 100 SPCs.
- **Weather Station:** Installed at the edge of sites for accurate weather data that is communicated to the NCU. Weather Stations can use an anemometer, snow sensor, or act as a repeater station.
- **Anemometer:** Mounted at the Weather Station to register wind speeds on site.
- **Wind stow:** During a high wind alarm, when the user-configured threshold is reached, the tracker moves to a user-configured high-wind-safe position.

## 3.2 Optional Electrical Components and Features

- **Snow sensor (optional):** Mounted at weather station to measure snow depth and/or accumulation rate, which also serves as flood sensor; communicates with NCU.
- **Snow stow:** During a snow alarm when the user-configured threshold is reached, the tracker moves to a user-configured snow-safe position.
- **Circuit breaker:** Surge protection is site and customer dependent.

# 4.0 Operations

This section provides an overview of NEXTracker controller functionality which provides the majority of system operational controls. See MKT-000016, Modbus and Network Technical Description, for Modbus protocols for the NEXTracker controller system. Maintenance information can be found in Section 5.0.

## 4.1 Self-Powered Controller

Each row of the NEXTracker NX Horizon is operated by the Self-Powered Controller (SPC). The SPC controls tracker movement throughout the day and relays informational data to the Network Control Unit. Communication is wireless, using the ZigBee protocol. ZigBee is an extremely robust industrial communications standard based on IEEE 802.15. ZigBee devices form a mesh network by passing data to each other rather than from a central point. This creates massive redundancy and alleviates the reliability concerns associated with centralized systems.

The SPC features a lithium ion battery that provides three days of standby power with an expected life of ten years.

## 4.2 Network Control Unit

The NEXTracker Network Control Unit (NCU) is the central gateway between the tracker network and the SCADA system that can monitor and control the field of trackers. The NCU communicates with the Weather Station, which provides the capability of detecting site events such as high wind, snow, or flood conditions with the support of onsite sensors. The NCU registers alarms if winds, snow accumulating rates, or flood levels reach certain preset thresholds, and it directs the trackers to a safe position.

## 4.3 Weather Station

The weather station sends real-time information to the Network Control Unit (NCU). In the case of high wind events, the NCU receives this information from the Weather Station; in seconds all the appropriate SPCs receive the signal to stow. The ZigBee mesh network allows all rows that are able to stow quickly and independently. Because the weather station is integrated with the SPC, a weather station can either be attached to a functional tracker row or a standalone station.

The Weather Station uses the same lithium ion battery as the SPC, providing three days of standby power with an expected life of ten years.

# 5.0 Maintenance

Appropriate maintenance is necessary to ensure the functionality and performance over time of the NEXTracker system. In order to maintain maximum system uptime, follow the recommended system maintenance schedule, provided next.

## 5.1 General Maintenance Schedule/Guidelines

### 5.1.1 Daily

- Monitor fault conditions on a daily basis. See section 6 for control systems troubleshooting information.

### 5.1.2 Yearly

- Inspect module table for proper alignment and check a sample of module rail fasteners for proper connection.
- Test wind stow function by triggering the wind sensor. Repeat for snow and flood sensors, if installed (see Section 5.2.3).
- Inspect bearing housing assemblies for misalignment due to settling of piers; adjust position if necessary.
- Inspect all electrical enclosures for cracking, pests, and damage from any other source.
- Check a sample of 10% of torqued connections on the row for proper torque value. Re-tighten any fasteners if necessary. See the project specific installation manual for torque details.
- Visually inspect system components for normal operation and alignment.
- Visually inspect for corrosion on any fasteners or load bearing structures. Contact NEXTracker for further instructions if high corrosion areas are found.

### 5.1.4 As Needed

- Groom any vegetation growth over 12 in. high.

**NOTE:** Vegetation management and cleaning is not tracker-specific and varies depending on time of year, environment, and geographical factors at the site. See Section 5.2.2, Cleaning Stow Mode.

- Remove dust, dirt, debris, and other materials that affect the glass transparency of solar modules.
- Remove any snow build up covering Weather Station panel.
- Replace battery when it has reached its expected life according to manufacturer specifications (see Section 5.2.1). Battery status and battery wattage can monitored from the NCU.

# 5.2 Maintenance Specifications

## 5.2.1 SPC and Weather Station/Repeater Battery Replacement

Replacement instructions for self-powered controller battery is product specific. Refer to the NEXTracker provided battery replacement instructions for the site specific product.

## 5.2.2 Cleaning Stow Mode

Stowing the tracker rows in the cleaning mode stow position is done through the NCU or SCADA setup by following instruction presented in MKT-000016, Modbus and Network Technical Description.

Using the NCU to stow the tracker, switch the mode from AUTO to MANUAL, wait 2 to 3 minutes, then turn CLEANING to ON, as shown in Figure 5-1.

Once cleaning is complete, turn CLEANING to OFF, then switch the mode back to AUTO (see Figure 5-1).

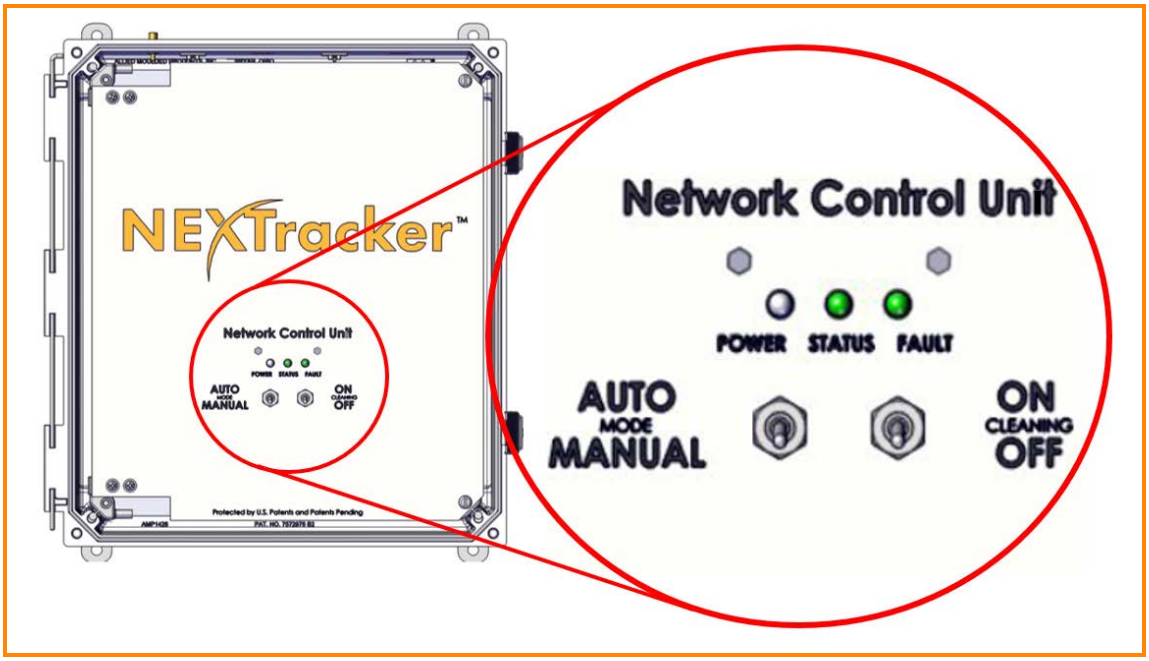



Figure 5-1. Leave the tracker in MANUAL and CLEANING modes OFF until commissioning is complete.

### 5.2.3 Sensor and Safety Stow Testing Procedure

Sensor tests are completed by simulating weather events. If working properly, the rows should stow to the proper weather stow position. Network Modbus is set up using MKT-000016, Modbus and Network Technical Description. Refer to the document for further clarification.

- **Wind Stow Testing.** Weather condition fault testing is completed through a simulated wind event. Using a leaf blower or air compressor, target the wind sensor with the simulated wind device. Wind events are triggered only by east–west wind direction so the airflow must originate from the east–west direction. The simulated wind speed must be greater than 40 mph to trigger a wind event. Trackers will return to normal operation once the simulated wind event has ended.

- **Snow/Flood Stow Maintenance and Testing**. The sensor lens is to be kept clean from dirt and other debris. Vegetation growth below the sensor will be kept to within 6 in. of the ground. After a snow or flooding event, an operator must review the conditions of the entire field and visually inspect the snow/flood sensor. Correct any and all items that may interfere with the functionality of the system.

  Snow and flood fault testing is completed through a simulated event. Place an object (a piece of cardboard or wood, for example) that will interrupt the path of the sensor above the stow threshold. To return trackers to normal operation, the snow/flood fault will need to be cleared.

  NEXTracker recommends increased inspection rate during snow or flood seasons.

# 6.0 Controller Troubleshooting

## 6.1 Field Alarm System

Field alarms occur within a single system. These alarms are activated by a fault arising.

The actions below list possible alarms and their respective responses:

- Motor stall alarm
  - Use 24-V power supply to manually exercise gears of slew drive
- Inclinometer fault
  - Power cycle the SPC
- Battery over temp
  - Contact NEXTracker
- SPC over temp
  - Contact NEXTracker
- PV over voltage
  - Contact NEXTracker
- Battery over voltage
  - Contact NEXTracker
- Motor over voltage
  - Contact NEXTracker
- Calibration error
  - Contact NEXTracker
- Firmware error
  - Contact NEXTracker
- Software error
  - Contact NEXTracker

## 6.2 Communication Error

Communication errors involve issues regarding the controllers communicating with other controllers or lack thereof.

Possible errors:

- SPC to NCU communication errors
  - Check PAN ID set incorrectly or not set
    - Verify PAN ID of NCU
    - Verify serial number is set correctly
- Verify unique PAN ID if using multiple NCUs on site
  - Verify PAN ID of SPCs that are not communicating
- NCU, SPC, or Weather Station/Repeater frozen
  - Power cycle the affected controllers
- NCU sending wrong clock
  - Update time and date to the correct time
- Check that antennas are installed and properly connected

## 6.3 Tracker in Wrong Position

A tracker in the wrong position will be discovered through SCADA monitoring or through visual inspection of the field.

- Check for fault/warning
- Tracker tracking wrong position
  - Verify latitude
  - Verify longitude
  - Verify elevation
  - Verify time
  - Verify date
  - Verify auto mode
  - Verify no faults present
  - Verify proper backtracking settings

# 7.0 Key Definitions

| Term | Definition |
|---|---|
| ESD | Electrostatic discharge. |
| LOTO | Lockout/tagout. |
| Network Technical Description | NEXTracker document MKT-000016, Modbus and Network Technical Description, which is used to set up the Modbus. |
| NCU | Network Control Unit. |
| PPE | Personal protective equipment. |
| PV | Photovoltaic. |
| SCADA | Supervisory control and data acquisition system for remote monitoring and control that operates with coded signals over communication channels. |
| SPC | Self-Powered Controller. |
| ZigBee | Wireless communication technology. |

# 8.0 Revisions for this Manual

| Revision | Notes | Effective Date |
|---|---|---|
| A | Initial release. | 08/26/2015 |
| B | Updated system description with accurate controller information; updated operations to describe controller specifications; updated maintenance timeline and included additional specifications for controller maintenance. | 11/18/2015 |
| C | All figures and tables given a caption and a text reference; new format applied to report; more detailed “Contents” page; cover art that is unique for this manual; back cover; added section “6.0, Troubleshooting”; added weather sensor testing; minor editorial changes. | 09/23/2016 |
| D | Updated torque inspection, corrosion inspection, and weather station check | 2/15/2017 |

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NEXTracker
A Flex Company

# NX HORIZON
## SELF-POWERED TRACKER

## THE MOST ADVANCED AND RELIABLE TRACKER ON THE MARKET

In our mission to make solar a mainstream energy source, NEXTracker has engineered the most intelligent and flexible tracking technology available today: the NX Horizon™ self-powered tracker.

NX Horizon brings self-contained motor power and control to each row, eliminating power wiring and trenching and enabling advanced energy yield optimization. With a balanced mechanical design and highly configurable, independent rows, NX Horizon improves reliability and design flexibility while lowering O&M costs. By offering more powerful systems at a greater value, NEXTracker is accelerating deployment of renewable energy worldwide.

### NX HORIZON KEY FEATURES AND BENEFITS INCLUDE:

**SELF-POWERED SYSTEM WITH SMART PERFORMANCE COMMUNICATION ARCHITECTURE:**
Self-contained units on each row include a dedicated PV panel to provide power to the controller which drives the motor and hosts intelligent control electronics to position each tracker row for maximum yield.

**INDEPENDENT BALANCED ROWS WITH 120 DEGREE ROTATIONAL RANGE:**
Each NX Horizon row has its own controlled motor and a wide rotational range that delivers up to 2% more energy than typical linked row trackers.

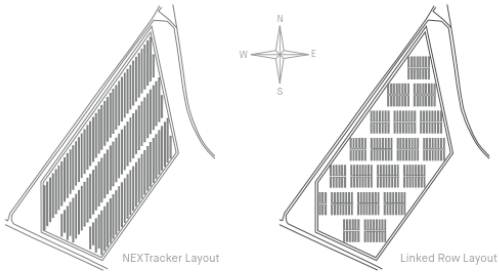
**FAST AND SIMPLE INSTALLATION:**
With less steel, no drive shafts, extra cabling, or welding required, NX Horizon allows for quick and easy installation. We also offer our PowerworX™ Academy to share hands-on best practices to ensure the highest quality installation and reliability for the life of the plant.

**LOWEST LONG-TERM O+M COSTS:**
NX Horizon's elegant design, independent rows, and smart, data-driven Digital O&M™ capability contribute to the lowest long-term ownership costs for our customers.

| GENERAL | |
|---|---|
| **Tracking Technology** | Horizontal single-axis balanced-mass tracker |
| **Tracking Range** | 120° (± 60°) |
| **Drive System** | One slew gear, 24 VDC motor and self-powered controller w/ dedicated solar panel per row |
| **DC Capacity** | 23-35kWp per tracker row, depending on panel type. Row length up to 90 panels. |
| **System Voltage** | 1,000 volt or 1,500 volt |
| **Safety Stowing** | Automated wind and snow stowing with self-contained backup power |
| **Torsional Limiter** | Included at each foundation/bearing for additional wind and snow load protection |
| **Principal Materials** | Galvanized and stainless steel |
| **Compliance** | Grounding/bonding: UL2703; structural design: ASCE7-10, T racker: UL 3703 |
| **Typical Dimensions** | Height 1.4 m/4.5 ft, Width 2.0 m/6.4 ft, Length 85 m/283 ft |
| **Module Frame Bonding** | Integrated bonding to foundation pier. No additional copper wiring required |

## SITE CONDITIONS

The innovative NX Horizon is so flexible that we are able to build almost anywhere with minimum grading. While linked row systems need to pay attention to both north-south and east-west slopes, NX Horizon offers complete freedom in east-west slope tolerance. In the north-south direction, NEXTracker's unique design accommodates a generous 15% grade.

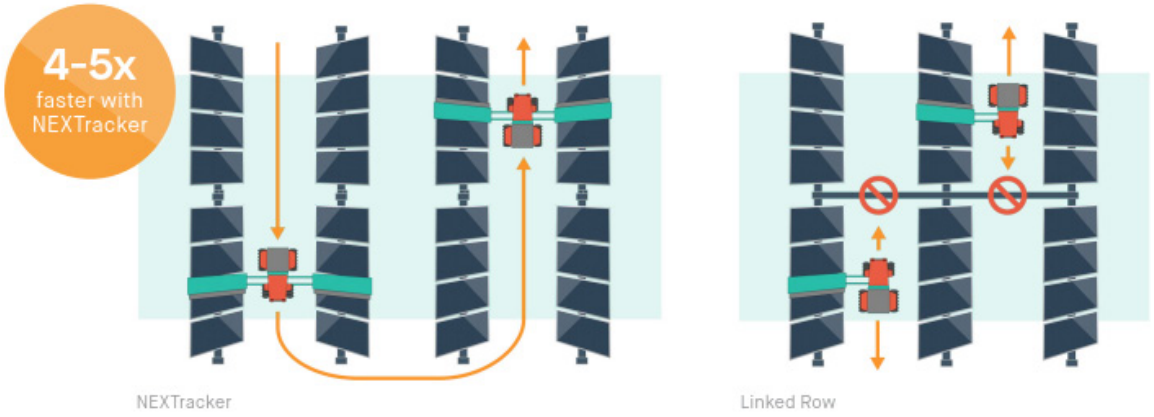



| | |
|---|---|
| **Power Consumption** | Self-powered, no grid power required |
| **Ground Coverage Ratio** | No limitation. Typical range 33%-50% depending on site conditions |
| **Foundations** | I-beam and C-channel options |
| **Maximum Site Slope** | 15% (8 degrees) North-South; Unlimited East-West |
| **Maximum Wind Speed** | Configurable up to 140 mph ASCE7-10 |
| **Flood Clearance** | 1.2m/4ft clearance for tracker electrical & controls standard. Increased array heights available |

## INSTALLATION & O&M

NX Horizon's efficient structural design uses less steel than conventional trackers, with fewer parts and quicker installation. You won't need drive shafts or extra cabling to power the tracker, speeding the process up even further. NX Horizon is self-grounded, so you won't have to pay costs and labor for installing grounding washers, braided straps, bare copper wire, and grounding rods. Furthermore, zero welding is required. Our patented fasteners make mounting the panels quick and easy. The fasteners are designed to hold their tensile strength indefinitely, so you won't have to waste time and money checking and re-torquing these connections.

Once installed, the tracker is easy to service. Because the rows are not linked with a drive shaft, maintenance vehicles can drive through the arrays freely. Plus, module cleaning and vegetation management becomes quick and effortless.




| | |
|---|---|
| **Installation Method** | Rapid field installation of pre-manufactured components.<br>No welding, cutting or drilling |
| **Module Attachment** | Shared mounting rails with integrated module frame grounding.<br>Rails pre align to locating holes in torque tubes |
| **Structural Connections** | Vibration proof, permanent swaged fasteners. No re-torquing required |
| **Commissioning Process** | Automated commissioning with NEXTracker CX rapid system commissioning tool |
| **Array Pivots** | All metal, no lubrication required |
| **Motor & Slew Drive** | Fully sealed, lubricated for life. No annual maintenance |
| **Scheduled Maintenance** | Limited to annual inspections |

## CONTROL/MONITORING

As soon as the wireless controller is plugged in, tracking begins. Each controller has an integrated inclinometer, and can measure each row individually, sending its data through a wireless mesh network.

Each state-of-the-art NEXTracker row features real time data collection so you'll always know that it's working properly. You can review your entire portfolio, identify issues at a glance with flag alerts, and drill down to individual rows to see alert status, and a wide range of operational parameters. No other tracker technology offers this level of visibility. We know it's crucial for you to be able know about issues right when and where they happen, so you can react immediately. Use our NEXTracker monitoring tools to understand how your asset is performing at all times, from anywhere in the world.

| | |
|---|---|
| **Tracker Control** | 1 self-powered controller, DC motor and slew drive per tracker row |
| **Communications** | Wireless ZigBee© mesh network; no communication wiring required |
| **Weather Monitoring** | Wind measurement standard, snow and flood optional |
| **Solar Tracking Method** | Astronomical GPS based algorithm |
| **Communications Architecture** | One network control unit (NCU) per 100 trackers |
| **SCADA Interface** | Dedicated tracker system SCADA with HMI on dedicated industrial computer |
| **Optimized Backtracking** | Yes |

## SERVICE & WARRANTY

Exemplary customer service is tightly woven into NEXTracker's company DNA. We have 30 years of experience with boots on the ground, and we know how to best help you speed installation, lower project costs, insure proper maintenance, and answer every question you might have. We've got you covered with our on-site tech advisors and our PowerworX training. Customer service is value — one that we've always carried in our DNA, and always will.

| | |
|---|---|
| **Comprehensive Warranty** | 10 years on structural components; 5 years on drive and control systems. Extended terms available |
| **Design Services** | Site plan, topography review, detailed mechanical/structural sheet set (P.E. stamped) |
| **Training** | Regularly scheduled PowerworX Academy |
| **On-site tech advisors** | Standard |

NEXTracker™
A Flex Company

## MAXIMIZE YOUR ENERGY GENERATION AND INVESTMENT WITH NX HORIZON

Email us today for a quote: salesteam@nextracker.com

6200 Paseo Padre Pkwy Fremont, CA 94555

MKT-000060

# TECHNICAL CHARACTERISTICS HEM

| REFERENCE | | FS3350M |
|---|---|---|
| OUTPUT | AC Output Power(kVA/kW) @50°C [1] | 3350 |
| | AC Output Power(kVA/kW) @40°C [1] | 3465 |
| | Operating Grid Voltage(VAC) [2] | 34.5kV ±10% |
| | Operating Grid Frequency(Hz) | 50Hz/60Hz |
| | Current Harmonic Distortion (THDi) | < 3% per IEEE519 |
| | Power Factor (cosine phi) [3] | 0.5 leading … 0.5 lagging adjustable / Reactive Power injection at night |
| INPUT | MPPt @full power (VDC) | 891V-1310V |
| | Maximum DC voltage | 1500V |
| | Number of inputs [2] | Up to 36 |
| | Max. DC continuous current (A) | 3970 |
| | Max. DC short circuit current (A) | 6000 |
| EFFICIENCY & AUXILIARY SUPPLY | Max. Efficiency PAC, nom (η) | 98% including MV transformer (preliminary) |
| | Max. Power Consumption (KVA) | 20 |
| CABINET | Dimensions [WxDxH] (ft) | 21.7 x 7 x 7 |
| | Dimensions [WxDxH] (m) | 6.6 x 2.2 x 2.2 |
| | Weight (lb) | 30865 |
| | Weight (kg) | 14000 |
| | Type of ventilation | Forced air cooling |
| ENVIRONMENT | Degree of protection | NEMA3R - IP54 |
| | Permissible Ambient Temperature | -35°C to +60°C / >50°C Active Power derating |
| | Relative Humidity | 4% to 100% non condensing |
| | Max. Altitude (above sea level) [4] | 2000m |
| | Noise level [5] | < 79 dBA |
| CONTROL INTERFACE | Interface | Graphic Display |
| | Communication protocol | Modbus TCP |
| | Plant Controller Communication | Optional |
| | Keyed ON/OFF switch | Standard |
| PROTECTIONS | Ground Fault Protection | GFDI and Isolation monitoring device |
| | General AC Protection | MV Switchgear (configurable) |
| | General DC Protection | Fuses |
| | Overvoltage Protection | AC, DC Inverter and auxiliary supply type 2 |
| CERTIFICATIONS | Safety | UL1741, CSA 22.2 No.107.1-01, UL62109-1, IEC62109-1, IEC62109-2 |
| | Compliance | NEC 2014 / NEC 2017 (optional) |
| | Utility interconnect | IEEE 1547.1-2005 / UL1741SA-Sept. 2016 |

[1] Values at 1.00•Vac nom and cos Φ= 1.
Consult Power Electronics for derating curves.
[2] Consult Power Electronics for other configurations.
[3] Consult P-Q charts available: $Q(kVAr)=\sqrt{(S(kVA)^2-P(kW)^2)}$.
[4] Consult Power Electronics for other altitudes.
[5] Readings taken 1 meter from the back of the unit.

# TECHNICAL CHARACTERISTICS HEM

| REFERENCE | | FS3430M |
|---|---|---|
| OUTPUT | AC Output Power(kVA/kW) @50°C [1] | 3430 |
| | AC Output Power(kVA/kW) @40°C [1] | 3550 |
| | Operating Grid Voltage(VAC) [2] | 34.5kV ±10% |
| | Operating Grid Frequency(Hz) | 50Hz/60Hz |
| | Current Harmonic Distortion (THDi) | < 3% per IEEE519 |
| | Power Factor (cosine phi) [3] | 0.5 leading … 0.5 lagging adjustable / Reactive Power injection at night |
| INPUT | MPPt @full power (VDC) | 913V-1310V |
| | Maximum DC voltage | 1500V |
| | Number of inputs [2] | Up to 36 |
| | Max. DC continuous current (A) | 3970 |
| | Max. DC short circuit current (A) | 6000 |
| EFFICIENCY & AUXILIARY SUPPLY | Max. Efficiency PAC, nom (η) | 98% including MV transformer (preliminary) |
| | Max. Power Consumption (KVA) | 20 |
| CABINET | Dimensions [WxDxH] (ft) | 21.7 x 7 x 7 |
| | Dimensions [WxDxH] (m) | 6.6 x 2.2 x 2.2 |
| | Weight (lb) | 30865 |
| | Weight (kg) | 14000 |
| | Type of ventilation | Forced air cooling |
| ENVIRONMENT | Degree of protection | NEMA3R - IP54 |
| | Permissible Ambient Temperature | -35°C to +60°C / >50°C Active Power derating |
| | Relative Humidity | 4% to 100% non condensing |
| | Max. Altitude (above sea level) [4] | 2000m |
| | Noise level [5] | < 79 dBA |
| CONTROL INTERFACE | Interface | Graphic Display |
| | Communication protocol | Modbus TCP |
| | Plant Controller Communication | Optional |
| | Keyed ON/OFF switch | Standard |
| PROTECTIONS | Ground Fault Protection | GFDI and Isolation monitoring device |
| | General AC Protection | MV Switchgear (configurable) |
| | General DC Protection | Fuses |
| | Overvoltage Protection | AC, DC Inverter and auxiliary supply type 2 |
| CERTIFICATIONS | Safety | UL1741, CSA 22.2 No.107.1-01, UL62109-1, IEC62109-1, IEC62109-2 |
| | Compliance | NEC 2014 / NEC 2017 (optional) |
| | Utility interconnect | IEEE 1547.1-2005 / UL1741SA-Sept. 2016 |

[1] Values at 1.00•Vac nom and cos Φ= 1.
Consult Power Electronics for derating curves.
[2] Consult Power Electronics for other configurations.
[3] Consult P-Q charts available: $Q(kVAr)=\sqrt{(S(kVA)^2-P(kW)^2)}$.
[4] Consult Power Electronics for other altitudes.
[5] Readings taken 1 meter from the back of the unit.

# TECHNICAL CHARACTERISTICS HEM

| REFERENCE | | FS3510M |
|---|---|---|
| **OUTPUT** | AC Output Power(kVA/kW) @50°C [1] | 3510 |
| | AC Output Power(kVA/kW) @40°C [1] | 3630 |
| | Operating Grid Voltage(VAC) [2] | 34.5kV ±10% |
| | Operating Grid Frequency(Hz) | 50Hz/60Hz |
| | Current Harmonic Distortion (THDi) | < 3% per IEEE519 |
| | Power Factor (cosine phi) [3] | 0.5 leading … 0.5 lagging adjustable / Reactive Power injection at night |
| **INPUT** | MPPt @full power (VDC) | 934V-1310V |
| | Maximum DC voltage | 1500V |
| | Number of inputs [2] | Up to 36 |
| | Max. DC continuous current (A) | 3970 |
| | Max. DC short circuit current (A) | 6000 |
| **EFFICIENCY & AUXILIARY SUPPLY** | Max. Efficiency PAC, nom (η) | 98% including MV transformer (preliminary) |
| | Max. Power Consumption (KVA) | 20 |
| **CABINET** | Dimensions [WxDxH] (ft) | 21.7 x 7 x 7 |
| | Dimensions [WxDxH] (m) | 6.6 x 2.2 x 2.2 |
| | Weight (lb) | 30865 |
| | Weight (kg) | 14000 |
| | Type of ventilation | Forced air cooling |
| **ENVIRONMENT** | Degree of protection | NEMA3R - IP54 |
| | Permissible Ambient Temperature | -35°C to +60°C / >50°C Active Power derating |
| | Relative Humidity | 4% to 100% non condensing |
| | Max. Altitude (above sea level) [4] | 2000m |
| | Noise level [5] | < 79 dBA |
| **CONTROL INTERFACE** | Interface | Graphic Display |
| | Communication protocol | Modbus TCP |
| | Plant Controller Communication | Optional |
| | Keyed ON/OFF switch | Standard |
| **PROTECTIONS** | Ground Fault Protection | GFDI and Isolation monitoring device |
| | General AC Protection | MV Switchgear (configurable) |
| | General DC Protection | Fuses |
| | Overvoltage Protection | AC, DC Inverter and auxiliary supply type 2 |
| **CERTIFICATIONS** | Safety | UL1741, CSA 22.2 No.107.1-01, UL62109-1, IEC62109-1, IEC62109-2 |
| | Compliance | NEC 2014 / NEC 2017 (optional) |
| | Utility interconnect | IEEE 1547.1-2005 / UL1741SA-Sept. 2016 |

[1] Values at 1.00•Vac nom and cos Φ= 1.
Consult Power Electronics for derating curves.
[2] Consult Power Electronics for other configurations.
[3] Consult P-Q charts available: $Q(kVAr)=\sqrt{(S(kVA)^2-P(kW)^2)}$.
[4] Consult Power Electronics for other altitudes.
[5] Readings taken 1 meter from the back of the unit.

# TECHNICAL CHARACTERISTICS HEM

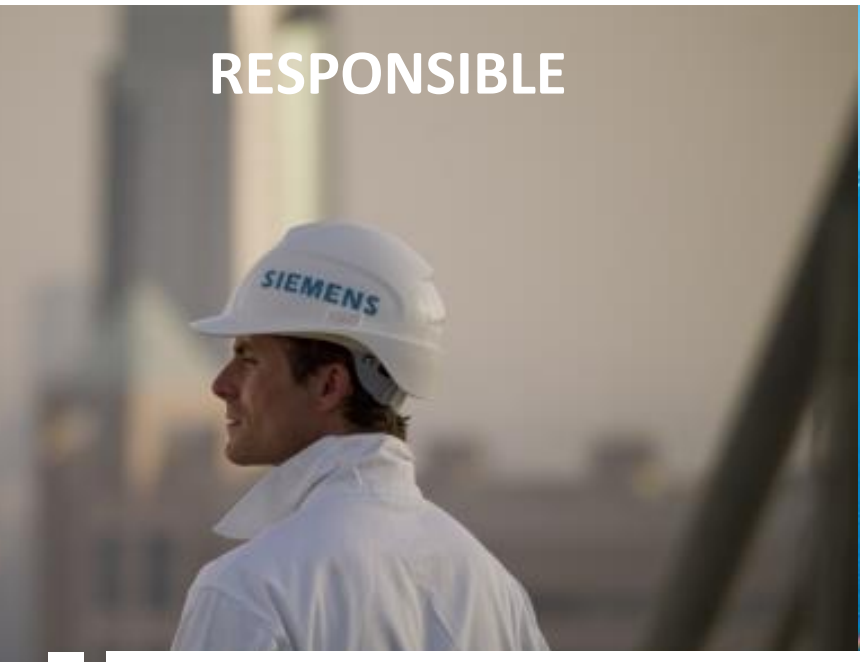
| REFERENCE | | FS3190M |
|---|---|---|
| OUTPUT | AC Output Power(kVA/kW) @50°C [1] | 3190 |
| | AC Output Power(kVA/kW) @40°C [1] | 3300 |
| | Operating Grid Voltage(VAC) [2] | 34.5kV ±10% |
| | Operating Grid Frequency(Hz) | 50Hz/60Hz |
| | Current Harmonic Distortion (THDi) | < 3% per IEEE519 |
| | Power Factor (cosine phi) [3] | 0.5 leading … 0.5 lagging adjustable / Reactive Power injection at night |
| INPUT | MPPt @full power (VDC) | 849V-1310V |
| | Maximum DC voltage | 1500V |
| | Number of inputs [2] | Up to 36 |
| | Max. DC continuous current (A) | 3970 |
| | Max. DC short circuit current (A) | 6000 |
| EFFICIENCY & AUXILIARY SUPPLY | Max. Efficiency PAC, nom (η) | 98% including MV transformer (preliminary) |
| | Max. Power Consumption (KVA) | 20 |
| CABINET | Dimensions [WxDxH] (ft) | 21.7 x 7 x 7 |
| | Dimensions [WxDxH] (m) | 6.6 x 2.2 x 2.2 |
| | Weight (lb) | 30865 |
| | Weight (kg) | 14000 |
| | Type of ventilation | Forced air cooling |
| ENVIRONMENT | Degree of protection | NEMA3R - IP54 |
| | Permissible Ambient Temperature | -35°C to +60°C / >50°C Active Power derating |
| | Relative Humidity | 4% to 100% non condensing |
| | Max. Altitude (above sea level) [4] | 2000m |
| | Noise level [5] | < 79 dBA |
| CONTROL INTERFACE | Interface | Graphic Display |
| | Communication protocol | Modbus TCP |
| | Plant Controller Communication | Optional |
| | Keyed ON/OFF switch | Standard |
| PROTECTIONS | Ground Fault Protection | GFDI and Isolation monitoring device |
| | General AC Protection | MV Switchgear (configurable) |
| | General DC Protection | Fuses |
| | Overvoltage Protection | AC, DC Inverter and auxiliary supply type 2 |
| CERTIFICATIONS | Safety | UL1741, CSA 22.2 No.107.1-01, UL62109-1, IEC62109-1, IEC62109-2 |
| | Compliance | NEC 2014 / NEC 2017 (optional) |
| | Utility interconnect | IEEE 1547.1-2005 / UL1741SA-Sept. 2016 |

[1] Values at 1.00•Vac nom and cos Φ= 1.
Consult Power Electronics for derating curves.
[2] Consult Power Electronics for other configurations.
[3] Consult P-Q charts available: $Q(kVAr)=\sqrt{(S(kVA)^2-P(kW)^2)}$.
[4] Consult Power Electronics for other altitudes.
[5] Readings taken 1 meter from the back of the unit.

# TECHNICAL CHARACTERISTICS HEM

| REFERENCE | | FS3270M |
|---|---|---|
| **OUTPUT** | AC Output Power(kVA/kW) @50°C [1] | 3270 |
| | AC Output Power(kVA/kW) @40°C [1] | 3380 |
| | Operating Grid Voltage(VAC) [2] | 34.5kV ±10% |
| | Operating Grid Frequency(Hz) | 50Hz/60Hz |
| | Current Harmonic Distortion (THDi) | < 3% per IEEE519 |
| | Power Factor (cosine phi) [3] | 0.5 leading … 0.5 lagging adjustable / Reactive Power injection at night |
| **INPUT** | MPPt @full power (VDC) | 870V-1310V |
| | Maximum DC voltage | 1500V |
| | Number of inputs [2] | Up to 36 |
| | Max. DC continuous current (A) | 3970 |
| | Max. DC short circuit current (A) | 6000 |
| **EFFICIENCY & AUXILIARY SUPPLY** | Max. Efficiency PAC, nom (η) | 98% including MV transformer (preliminary) |
| | Max. Power Consumption (KVA) | 20 |
| **CABINET** | Dimensions [WxDxH] (ft) | 21.7 x 7 x 7 |
| | Dimensions [WxDxH] (m) | 6.6 x 2.2 x 2.2 |
| | Weight (lb) | 30865 |
| | Weight (kg) | 14000 |
| | Type of ventilation | Forced air cooling |
| **ENVIRONMENT** | Degree of protection | NEMA3R - IP54 |
| | Permissible Ambient Temperature | -35°C to +60°C / >50°C Active Power derating |
| | Relative Humidity | 4% to 100% non condensing |
| | Max. Altitude (above sea level) [4] | 2000m |
| | Noise level [5] | < 79 dBA |
| **CONTROL INTERFACE** | Interface | Graphic Display |
| | Communication protocol | Modbus TCP |
| | Plant Controller Communication | Optional |
| | Keyed ON/OFF switch | Standard |
| **PROTECTIONS** | Ground Fault Protection | GFDI and Isolation monitoring device |
| | General AC Protection | MV Switchgear (configurable) |
| | General DC Protection | Fuses |
| | Overvoltage Protection | AC, DC Inverter and auxiliary supply type 2 |
| **CERTIFICATIONS** | Safety | UL1741, CSA 22.2 No.107.1-01, UL62109-1, IEC62109-1, IEC62109-2 |
| | Compliance | NEC 2014 / NEC 2017 (optional) |
| | Utility interconnect | IEEE 1547.1-2005 / UL1741SA-Sept. 2016 |

[1] Values at 1.00•Vac nom and cos Φ= 1.
Consult Power Electronics for derating curves.
[2] Consult Power Electronics for other configurations.
[3] Consult P-Q charts available: $Q(kVAr)=\sqrt{(S(kVA)^2-P(kW)^2)}$.
[4] Consult Power Electronics for other altitudes.
[5] Readings taken 1 meter from the back of the unit.



# Sensformer™ PROPOSAL

**Proposal #: 20-485, Rev. 0**
Cypress Creek – Bear Ridge
September 14, 2020

SIEMENS

SIEMENS

To: **Cypress Creek Renewables (CCR)**

Attention: **Matthew Leslie - Procurement**

Subject: **Bear Ridge**
**SIEMENS Proposal 20-485, Rev. 0**

Dear Matthew,

Siemens Energy, Inc. ("Seller") is glad to present the attached Sensformer™ Proposal covering 1 x 67/89/112 MVA – 115-34.5-13.8 kV three-phase Generator Step Up in accordance with Cypress Creek's ("Buyer") request for quotation ("RFQ"), with the exceptions and/or clarifications as stated on this Proposal and attached documents.

The attached Proposal material fully describes our offering, but if you have any questions, please do not hesitate to contact Bill Dooley at (602) 284-8776, Ricardo Montoya at (984) 789-7501 or Maggi DeMillion at (919) 389-6096.

Regards,

**SIEMENS ENERGY, INC.**

**Tony Zito**
**Manager of Business Development**
Siemens Energy, Inc.
4601 Six Forks Road, Suite 500
Raleigh, NC 27609

**Andrea Arterbury**
**Financial Controller**

c.c. Maggi DeMillion / Paloma Nicolosi / Bill Dooley

**For more information, check our transformer tool and find out more about our products, the plants worldwide, reference customers, applications and more.**

**http://www.energy.siemens.com/hq/en/power-transmission/transformers/**

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PROPOSAL INDEX

# TABLE OF CONTENTS



Attachments

- 180709_Sensformer_HardwareTerms_V 1.1_EN
- 2020 Transformer Supply Agreement between Siemens Energy, Inc & Cypress Creek Energy Renewables Development, LLC
- 180410_4Pager-Sensformer_FINAL
- Bear Ridge_Preliminary Outline

SIEMENS

SECTION 1

# PROPOSAL SUMMARY

**1.1 Pricing & Delivery:**

**A Sensformer™ is a Siemens Transformer that is digital data enabled, offering monitoring and increased reliability benefits to customers.** The Sensformer™ functionalities are given in 180410_4Pager-Sensformer_FINAL (Brochure) of this offer.

**ITEM 1:** Sensformer™
1 x three-phase Generator Step Up
67/89/112 MVA, ONAN/ONAF/ONAF - 65ºC rise,
115-34.5-13.8 kV, with DETC

| | Description | Price (USD) |
|---|---|---|
| **Main Sensformer™ Prices (net each unit)** | | |
| 1 | Sensformer™ | [redacted] |
| 2 | Oil supply for the first filling | Included in 1 |
| 3 | Transportation (EXW Factory to the US Border) | Included in 1 |
| 4 | Technical Assistance (Up to 7 days per unit) Required to validate warranty | Included in 1 |
| 5 | Extended warranty (60/66 months) | Included in 1 |
| 6 | Taxes | Not Included |
| | **TOTAL per unit** | [redacted] |

---

| | Optional Prices - not included in the Sensformer™ Price (net each) | |
|---|---|---|
| 7 | Handling in (offload and place the unit on a temporary pad at the storage facility in Texas) | [redacted] |
| 8 | Monthly Storage Fee at storage **facility in Texas** | [redacted] |
| 9 | Dress, Test, & Oil filling | [redacted] |
| 10 | Handling fee for moving the unit to storage at **factory** | [redacted] |
| 11 | Monthly Storage Fee at the **factory** | [redacted] |
| 12 | Hot oil circulation for ambient temp < 10 °C **First Day** | [redacted] |
| 13 | Hot oil circulation for ambient temp < 10 °C **Add. Day** | [redacted] |
| 14 | Receiving inspection if performed before mobilization of crew to the job site | [redacted] |
| 15 | Spare Bushing HV | [redacted] |
| 16 | Spare Bushing LV | [redacted] |
| 17 | Spare Bushing TV | [redacted] |
| 18 | Spare Bushing HVN | [redacted] |
| 19 | Spare Bushing LVN | [redacted] |

| | | |
|---|---|---|
| 20 | Set of Gaskets | [redacted] |
| 21 | Design review meeting at Customer Facility | [redacted] |

**Estimated Schedule**

| | |
|---|---|
| Approval Drawings | 10 to 12 weeks ARO |
| Design Review (*) | 12 weeks ARO |
| DDP Delivery (**) | 11-12 months ARO |
| Dress, Test & Oil filling | Up to 10 days/unit |

ARO: After Receipt of Order / ARAD: After Receipt of Approval Drawings

(*) upon customer request

(**) Subject to the acceptance of the exception stated on this proposal "The *procure process of the main components shall be without restrictions and may occur prior to approval drawings*"

## 1.2 Other Optional Prices

| Site Assistance Rates for Additional Days for 2021 | Price (USD) |
|---|---|
| Working days (Per 10 hr day - TSE Level 1) | [redacted] |
| Working days overtime (Per hour) | [redacted] |
| Saturdays (Per 10 hr day) | [redacted] |
| Sundays & Holidays (Per 10 hr day) | [redacted] |
| Premium overtime (Per hour incl after 10 on Sat.) | [redacted] |
| Travel time (Per hour) | [redacted] (Not to exceed [redacted]) |

Travel, living and incidental expenses not included in hourly rates to be billed at cost, plus [redacted]

## 1.3 General Information for All Units:

**Terms & Conditions**

| | |
|---|---|
| Validity Period | Until September 18, 2020. |
| Price Policy | Firm |
| Terms & Conditions | Siemens Energy, Inc. ("Seller") would like to propose using the Terms and Conditions already agreed with Cypress Creek Renewables Development, LLC. ("Buyer") "*2020 Transformer Supply Agreement between Siemens Energy, Inc & Cypress Creek Energy" ("Agreement") as supplemented and amended by the Sensformer™ Hardware Terms (collectively, the "Terms and Conditions"). The Agreement and the Sensformer™ Hardware Terms are attached as Annexes* |

*"180709_Sensformer_HardwareTerms_V 1.1_EN" and "180410_4Pager-Sensformer_FINAL" to this proposal.*

**Shipping**

| | |
|---|---|
| Origin of Equipment | Guanajuato, México |
| Delivery INCOTERM 2020 | DDP US Border |
| Delivery Location | TBD |
| Delivery Method | Train/Truck |

**Specification**

| | |
|---|---|
| Valid Standard | IEEE C57.12.00 |
| Documents considered in order of precedence | 1. This Offer<br>2. EXHIBIT J-2-0 - GSU Transformer Technical Spec_2020.07.17 |

SIEMENS

SECTION 2

# PROPOSAL TERMS & CONDITIONS

## 2.1 Terms of Pricing

2.1.1 Prices are firm for the quoted delivery.

2.1.2 Unless stated in writing by Siemens, Siemens' quoted price excludes charges for taxes, excises, fees, or other government charges related to the Siemens Products and Services except that Siemens' quoted price includes customs, duties, and tariffs that are in force as of the date of this proposal but excludes any increases to customs, duties, and tariffs after the date of this proposal. Buyer will pay the excluded amounts or reimburse Siemens. If Buyer claims a tax or other exemption or direct payment permit, Buyer will provide a valid exemption certificate or permit and indemnify, defend and hold Siemens harmless from any taxes, costs and penalties arising from same. Increases, changes (including in application), adjustments or surcharges which may be incurred are for Buyer's account.

2.1.3 Prices quoted are based on the quantities stated in the proposal and are subject to change for change in Sensformer™ quantities.

2.1.4 No change will be made to the scope of Siemens Products and Services unless Buyer and Siemens agree in writing to the change and any resulting price, schedule or other contractual modifications. If any change to, or change in the application of, any law, rule, regulation, order, code, standard or requirement after the date of this proposal impacts Siemens' obligations, performance, or cost under this Agreement, such change shall be for Buyer's account and Siemens shall be entitled to a change order for an equitable adjustment in the price and time of performance.

2.1.5 Spare parts prices are valid only if ordered and delivered together with the Sensformer™;

2.1.6 Site service is offered as an option and unless specifically noted, prices do not include: Any site specific or Buyer required access and/or safety training, any additional or special and/or site-specific safety, PPE, or environmental requirements, local Sales or Use tax, any required insurance additional to Siemens insurances - Requested changes to work scope or delays outside the control of Siemens shall be billed in accordance with Siemens rates. Any additional insurance coverage will be paid by Buyer – See appendix A for detailed information about scope and terms;

2.1.7 Any agreement arising from this proposal is subject to credit check and may require either a parent guarantee or a project specific letter of credit.

2.1.8 Prices do not include cost for bonds, or other forms of security or guarantees.

2.1.9 **Export/Import Compliance:** Buyer acknowledges that Siemens is required to comply with applicable export/import laws and regulations relating to the sale, export, import, transfer,

assignment, disposal and use of the Products and information provided in the performance of the Services, including any export/import license requirements. Buyer agrees that such goods or information shall not at any time directly or indirectly be used, exported, imported, sold, transferred, assigned or otherwise disposed of in a manner which will result in non-compliance with any export/import laws and regulations. Siemens' continuing performance hereunder is conditioned on compliance with such export/import laws and regulations at all times.

2.1.10 The worldwide outbreak of the coronavirus disease ("COVID-19"), affects or is likely to affect usual business activities and/or the execution of work under this offer. As the impacts from COVID-19 are unknown and unknowable at this time, Siemens commitments regarding the scope contemplated hereunder including procurement lead-time, delivery date, resources, and schedule are provided without consideration of such potential impacts from COVID-19. Siemens is closely monitoring the development of COVID-19 and its associated impacts, and will endeavor to inform the customer of the impacts that COVID-19 has or may have on Siemens' manufacturing, supply chain, operations, logistics, and personnel relating to Siemens' scope of supply contemplated hereunder. If required to overcome the consequences directly or indirectly caused by COVID-19, Siemens shall be entitled to relief of its obligations in schedule, price, or any other reasonably required adjustment of this offer. In the event equipment delivery is contemplated hereunder, Siemens shall be entitled to postpone or provide partial deliveries to the extent Siemens' ability to supply or deliver is impacted by COVID-19

## 2.2 Payment

| Milestone | Description | Date | Payment Amount | Cumulative Payment |
|---|---|---|---|---|
| 1 | Contract Execution | September 15, 2020 | [redacted] | [redacted] |
| 2 | Complete 2020 Work | December 31, 2020 | [redacted] | [redacted] |
| 3 | 14 Month Milestone | October 1, 2021 | [redacted] | [redacted] |
| 4 | Final Materials Procurement | April 1, 2022 | [redacted] | [redacted] |
| 5 | Start of Winding Manufacturing | | - | [redacted] |
| 6 | Start of Core and Coil Assembly | | - | [redacted] |
| 7 | Completion of Core, Coil, and Tank | | - | [redacted] |
| 8 | Completion of FAT | December 15, 2022 | [redacted] | [redacted] |
| 9 | Delivery of unit | | [redacted] | [redacted] |

In case units cannot be delivered because of reasons not attributable to Siemens Energy, the balance will be due no later than three (3) months after shipment from the factory.

Invoice balances left unpaid after this period shall be subject to additional late payment interest charges. Late payment interest charges shall be calculated on a simple interest basis at a rate of [redacted] per month or part thereof for each month after the allowed payment period.

### 2.3 Proposal Validity Period

Any offer made hereunder will remain in effect for the number of days stated in Section 1 "Terms & Conditions", unless changed in the interim upon written notice from Company. If a PO is not received within the proposal validity, Siemens reserves the right to modify prices and conditions.

### 2.4 Confidential Information

This proposal, including all of its attachments, exhibits, appendices, etc. ("Proposal"), is provided "as-is" for your evaluation of Siemens Energy, Inc. as the provider of work discussed therein and contains information that is confidential to and solely owned by Siemens. Your acceptance, viewing or storage of this Proposal is an acknowledgment of a confidential relationship between you and Siemens. We require that this Proposal be returned or destroyed when no longer required for the purpose identified herein. This Proposal and any information obtained from this Proposal may not be re-produced, transmitted, disclosed or otherwise used, in whole or in part, without the prior written authorization of Siemens.

The above terms supersede any click-wrap or other terms not expressly set forth in a signed agreement between the parties covering the Proposal. All such click-wrap or other terms are expressly rejected by Siemens.

### 2.5 Changes in law

If applicable laws, rules and regulations, engineering standards and codes of practice, and decisions or guidance issued by courts or public authorities are amended or added to after the date of Contract signature, Siemens shall be entitled to an adjustment of the Contract, including inter alia an adjustment of the Contract Price to reflect any additional costs to be incurred by Siemens, the time schedules and scope of Works, as necessary in order to compensate for any adverse effects or additional requirements deriving from such changes.

### 2.6 Other terms

This proposal and contract is based upon the Siemens' interpretation of the plans and specifications and it is subject to correction for errors in such plans or specifications. Equipment referenced in the plans or specifications but not in this proposal and contract is not included.

This document constitutes a Proposal of a contract and, when accepted by Customer, shall be included as part of the Contract. This Proposal is expressly limited to the terms contained herein. Siemens hereby objects to and rejects any additional or different terms contained in Customer's request for proposal, specification, purchase order or any other oral or written communication from Buyer. Neither Siemens' employees nor its agents are authorized to grant oral warranties or otherwise add to or to modify the terms hereof orally.

Prior to proceeding with any work, Siemens Energy, Inc. requires a formal and complete purchase order. Prior to acceptance, the purchase order must be correct with respect to the agreed upon prices, scope of supply, terms of payment, delivery dates and destinations and must not contain terms and conditions not agreed upon. Failure to submit an acceptable purchase order may result in non-acceptance of the order. The quoted delivery dates are based upon receipt of an acceptable purchase order.

The Contract shall become effective after fulfillment of the following preconditions:

**Purchase Order Requirements**

In the event a purchase order is generated based on the scope of supply described in this proposal, the purchase order must have the following information included to be considered "clean" and eliminate delays during the order entry process.

1. The customer's Purchase Order must be made payable to:

   **Siemens Energy, Inc.** 4601 Six Forks Road, Suite 500 Raleigh, NC 27609

2. The Purchase Order Net Price must match the Proposal Price as outlined in the Proposal summary.
3. The Purchase Order Payment Terms must match those outlined in the conditions of sale.
4. The Purchase Order Shipping Terms must match the Quoted Shipping Terms in the proposal.
5. If the purchase order is based on Siemens Energy, Inc. Commercial Terms and Conditions, this must be indicated on the Purchase Order. If terms have been negotiated, the agreed terms, a statement must be clearly defined on the PO and agreement attached to the PO.
6. The correct proposal/revision number/date sent should be referenced on the Purchase Order.

**For first time Sensformer™ purchases, please provide a tax certificate and W-9 form prior to submitting a purchase order so not to impede the order entry process. Please note, tax forms should have Siemens Energy, Inc. as the vendor.**

## 3.1 Performance Data

| RATING | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Type | GSU Wind Farm | Class | H Winding | | X Winding | | Y Winding | |
| Phase | 3 | | Wye | | Wye | | Delta | |
| Hertz | 60 | | 115 | kV | 34.5 | kV | 13.8 | kV |
| Rise (deg.C.) | 65 | ONAN | 67000 | kVA | 67000 | KvA | | KvA |
| Insulating Liquid | Mineral Oil | ONAF | 89000 | kVA | 89000 | kVA | | kVA |
| Operating Altitude | 3300 ft. | ONAF | 112000 | kVA | 112000 | kVA | Buried | kVA |

| ADDITIONAL TAP VOLTAGES | |
|---|---|
| H Winding: | +2 /-2x2.5% de-energized taps |
| X Winding: | |
| Y Winding: | |

| PERFORMANCE BASED ON LOADING OF | | | | DIELECTRIC TEST (kV) | | | |
|---|---|---|---|---|---|---|---|
| H Winding | 115 | kV | 67000 | kVA | Applied Voltage (To other windings and ground) | H Winding | 34 |
| X Winding | 34.5 | kV | 67000 | kVA | | X Winding | 34 |
| Y Winding | 13.8 | kV | | kVA | | Y Winding | 34 |
| | | kV | | kVA | Induced Voltage | Line to Line | ANSI |
| | | kV | | kVA | | Line to Ground | ANSI |

| INSULATION LEVEL (kV) | | |
|---|---|---|
| ITEMS | Basic Lightning Impulse Insulation Level | Low Frequency Voltage Insulation Level |
| H Line | 450 | 34 |
| H Neutral | 110 | 34 |
| X Line | 200 | 34 |
| X Neutral | 110 | 34 |
| Y Line | 110 | 34 |
| Y Neutral | n/a | n/a |

| PERFORMANCE DATA | | | Based On 20 deg. C reference temperature (no load loss)<br>Based On 85 deg. C reference temperature (load loss) | | |
|---|---|---|---|---|---|
| | Losses and Exciting Current | | | Regulating @ 67000 kVA | |
| Excitation | % Ex I | No Load (kW) * | Total Loss (KW) * | Power Factor | % Regulation |
| 115-34.5-13.8 kV | 0.00 | 54 | 267 | 1 | 0.68 |
| 110 % | | | | 0.8 | 5.57 |

| AUXILIARY LOSESS | | | |
|---|---|---|---|
| Transformer kVA | | Class | Watts Aux. Loss |
| 67000 | kVA | ONAN | 0 |
| 89000 | kVA | ONAF | 6000 |
| 112000 | kVA | ONAF | 12000 |
| Average sound Level | 79/81/82 | dB * | |

| PERCENT IMPEDANCE VOLTS | | | | | |
|---|---|---|---|---|---|
| % IZ | Between | kVA | %IZo | Between | kVA |
| 8.5 | H-X * | 67000 | | H-X | 67000 |
| | H-Y | | | H-Y | |
| | Y-X | | | Y-X | |

| EFFICIENCIES | | at 1.0 Pf. & 67000 kVA base | | |
|---|---|---|---|---|
| % Load | 100 % | 75 % | 50 % | 25 % |
| % Eff. | 99.60 | 99.66 | 99.68 | 99.60 |

| MECHANICAL DATA<br>Not For Construction Purposes | |
|---|---|
| Dimensions (Approx.) | |
| Height (A) | in |
| Width (B) | in |
| Depth (C) | in |
| Over Cover (D) | in |
| Untaking (E) | in |
| | *excluding slings |
| Masses (Approx.) | |
| Core and Coil | 114000 lbs |
| Tank and Fittings | 58000 lbs |
| Liquid | 61000 lbs |
| Total Mass | 233000 lbs |
| Shipping Mass | 141000 lbs |

**Sensformer™ Scope Details**

### 3.1.1 Electrical and Mechanical Details

a) Windings and insulation
   - All winding and lead material is copper with thermally upgraded insulation.
   - Circular type core and winding construction.

b) Tank and general arrangement:
   - Oil preservation: Liquid preservation with Conservator Tank
   - Lifting hook-up rings, lifting lugs on the cover and jacking pads
   - Stainless steel grounding pads
   - Removable radiators standard steel with Siemens galvanized unpainted.
   - Drain and sampling valves
   - Gaskets in Nitrile, o-ring type

c) Control Cabinet and Wiring with NEMA 3R protection (located in segment 2 or 4)

d) Tap changers

- DETC: E.B. ELECTROCAST INCORPORATION, hv OC 1000 1050 KV. BIL 1000 AMPS. 5 POS

### 3.1.2 Accessories

a) HV/LV/H0/X0 Bushings: ABB or Pcore

b) Liquid level gauge

c) Liquid temperature gauge

d) Winding temperature gauge

e) Pressure relief device

f) Rapid pressure rise relay

g) Gas accumulator relay Buchholz relay

h) Fans – Krenz

i) Surge arresters HV/LV
   - HV: Ohio Brass Arresters, 314070-3001, TYPE PVN, 90 kV, MCOV70 kV
   - LV: Ohio Brass Arresters, 314022-3001, TYPE PVN, 27 kV, MCOV22 kV

j) Current transformers: per technical specification.

### 3.1.3 Monitoring Device

k) SEL-241421ACC913C851130

l) SEL-2533-012130XC2X0

The monitoring devices are the proposed by Siemens, different devices could be provided an additional cost.

### 3.1.4 Excluded items

Unless specifically noted, prices do not include:

a) Monitoring system and any remote command;

b) Parallelism panel;

c) Enclosures;

d) Grounding resistors/ Earthing material/ grounding disconnecter (if any)

e) Connections, grounding cables;

f) Fire protection or Fire Fighting Equipment

g) Busbar system and all accessories related with and/or any other special device;

h) Anchor bolts or other anchoring system;

i) Training;

j) Airway tickets for design review, meetings and inspections;

k) Remote supervisory indications;

l) Special tools for erection, maintenance, operation and supervision;

m) Rails, housing and civil work;

n) Padlocks respectively Padlock system;

o) Site Tests i.e. SFRA test;

p) Special steel radiator;

q) Safety equipment e.g. Latchway system;

## 3.2 Technical Clarification/Exception

### 3.2.1 General

a) The unit will be designed per applicable ANSI, ASTM and IEEE standards except that internal and external hardware will be metric except for points of Buyer connection such as bushing and arrester terminals, ground pads, vacuum connection, and oil handling connections, all of which will have ANSI standards threads;

b) A design review at Siemens factory has been considered as optional price (provided under Section 1, under Optional Prices). **Unless specified, travel costs (transport, lodging, etc.) are not included**.

c) Seismic Calculation has not been considered in our proposal;

d) Mineral Oil will be Nynas/Ergon type II or equivalent;

e) Standard tests according to C57.12.00 and C57.12.90.

f) The conduit system will be rigid aluminum or galvanized steel tube with galvanized steel threaded fittings. Short lengths of flexible cable may be used to connect fans, gauges, current transformers, control cabinet, etc. to the conduit system;

g) Tests on components like bushings, supervisory equipment, current transformers etc. are already performed at the sub-suppliers factory and will not be repeated. Test reports of all components will be provided.

h) Tests to be executed at the factory and witnessed by the Purchaser will be performed according to the applicable technical standards. We reserve the right to perform the tests during the night, weekends or holidays depending on the test field necessities. Sensformer™ test will be performed with the available test oil in the factory;

i) The color of the parts can differ from the specified color of the Sensformer™-tank: e.g.: parts in stainless-steel, oil-headers of coolers, heat exchanger bundles, coolers if hot dip galvanized, pumps, fans, switch boxes, controls and instruments, ladders, scaffolding, platforms;

j) The wires on the units are laid in flexible conduits fastened to steel bars (on tank vertical walls) and steel angles (on the tank cover) by means of fastening strips. The oil-tight conduit provides proper mechanical and sunlight protection for the wires;

k) Only the following are submitted as guarantees: no-load loss, load loss on nominal tap, impedance, sound level and temperature rise. Any other values, such as efficiency and regulation, are for the Purchaser's information only.

l) An exact duplicate of the transformer offered in this proposal has not been subjected to short circuit testing. Our short circuit strength design can be confirmed by calculation only. Short circuit test is not included on the scope of this proposal.

m) The transformer shall be equipped with a conservator type oil preservation system and silica gel breather.

n) Bushing type tests are not included in the price. Bushing type tests are done by the original manufacturer upon design changes. These reports are available upon request. Quality control tests are done as a matter of routine and these reports are available upon request. It should be noted that the bushings will experience all the type tests that have been requested for the transformer.

o) If bushing type tests are required for this order, they would be at an additional charge and may affect delivery.

p) The transformer shall be equipped with a tertiary winding which is not suitable for external loading. The tertiary winding shall not be given a direct impulse test.

q) No lightning arrestor type tests are included in the price. Lightning arrestor type tests are done by the original manufacturer upon design changes. These reports are available upon request. Quality control tests are done as a matter of routine and these reports are available upon request.

r) Since the radiators are specified to be galvanized on this unit, there is no necessity to paint them. If, however, the client requires them to be painted, we cannot guarantee the paint adhesion or aesthetic appearance of the radiators.

s) This transformer shall be designed to withstand the seismic conditions specified. If the Purchaser requires a full report showing the engineering details, this would be at an additional cost.

t) The transformer(s) offered in this proposal shall be tested at an altitude of 7000 feet. We Reserve the right to correct the results of the temperature rise in accordance with ANSI C57-12.90 clause 11.6 from the altitude of the test station to the altitude of the installation of the transformer.

SECTION 4

# SCHEDULE INFORMATION

### 4.1 Delivery Time

The delivery time indicated in Section 1 of this Proposal is/are an estimate and subject to prior sale. If a different delivery is required, Siemens Proposal will be revised and modifications (if any) will be notified to Buyer prior to acceptance. Unless otherwise stated, Delivery dates are approximate only and are not guaranteed. This has to be reviewed if LD's are negotiated and agreed upon.

Note that additional days are required to complete dress, test and oil filling.

### 4.2 Drawings and documents

Drawings will be provided according to Section 1 "Estimated Schedule".

The approved and/or marked up drawings shall be returned to SIEMENS within 15 (fifteen) calendar days from date they were sent to the Buyer. Delaying their return may result in a later delivery date, which shall not be subject to any applicable liquidated damages.

Changes requested in Sensformer™ delivery dates may cause changes in the drawing submittal schedule.

Drawings lead times are subject to confirmation in the event of an order.

SECTION 5

# DELIVERY AND SITE ASSISTANCE

## 5.1 Shipping and Delivery Locations

Shipping and delivery location will be in accordance with Section 1 “Shipping”.

The Sensformers™ will be manufactured at a Siemens plant which is certified in accordance with ISO 9001, ISO 14001 and OHSAS 18001.

Siemens Sensformers™ have set up own quality procedures and documents complying with above mentioned Standards. Different procedures and/or documents might be agreed upon. Charges may apply.

In case of order we reserve the right to manufacture the offered equipment in any of our Siemens plants or Siemens joint venture plants.

If final destination(s) is/are not available at the time the Proposal is prepared, prices are subject to change once we are able to obtain freight rates for exact locations.

## 5.2 Delivery Method

### 5.2.1 Partial Shipments

Siemens may make partial shipments and shall select method of transportation and route, unless terms of delivery are *FCA Factory* and Customer specifies the method and route and is to pay the freight costs in addition to the price. The equipment will be shipped as loose cargo. Arresters will be shipped directly from their supplier to the Buyer.

### 5.2.2 Transportation restrictions

Unit(s) will be shipped as completely assembled as possible. Nevertheless, due to transportation restrictions, parts might be removed for shipping, such as bushings, radiators, fans, conservators, accessories and others. These parts will be shipped by truck to jobsite.

Sensformers™ will be transported dry air filled (without oil).

**DDP NRS:** if delivery terms of *DDP NRS* are offered, Sensformer™ will be delivered in the nearest rail siding accessible for dimensional loads. Removal from rail, transportation to jobsite is not included.

**DDP Jobsite:** if delivery terms of *DDP jobsite* are offered, delivery pricing and terms assume unobstructed and suitable access to the delivery site, and that no unusual circumstances, conditions or difficulties exist on or near the delivery site (including, but not limited to, insufficient roads, impassable conditions,

unstable soil, or extreme grade) that would prevent delivery to the site or increase the time, cost or difficulty of such delivery. Seller shall be provided with free access to the Buyer's designated site for delivery and unloading of the equipment on the pad, without obstructions such as fencing, walls, structures, overhead lines, insufficiently compacted soil (necessitating matting), oil containment pits or dikes around pad, load limits due to underground facilities or soil conditions, debris, etc. The Buyer shall be responsible for payment of any additional costs resulting from circumstances, conditions or difficulties of the nature described above.

### 5.2.3 Offloading

Unless otherwise clearly stated in Section 1 offloading from truck to pad is not included in the main price of Sensformer™(s) and it can be offered as an option.

### 5.2.4 Spare Parts

Spare parts are suitably packed for long term storage in well ventilated rain protected area. Storing guidelines of sub-suppliers have to be considered.

### 5.2.5 Oil delivery

Oil will be shipped by tanker truck directly from its supplier to the Buyer. A maximum of 2 hours shall be allowed for commencing offloading of the oil either into the Sensformer™ or into storage tanks. Any additional time required for offloading in excess of 2 hours shall be considered as demurrage costs and will be charged to the Buyer.

### 5.2.6 Delivery Inspection

Siemens is providing an impact recorder to ensure the integrity of your unit during transit. Please note that the impact recorder remains the property of Siemens and must be returned (courier-collect) immediately after the unit's arrival at site. Failure to do so will result in a surcharge of [redacted] per impact recorder.

A Siemens factory/field technical assistant will perform routine warranty inspection on the Sensformer™ either upon site arrival of the Sensformers™ or right before dress and test. The inspection will validate warranty and verify that no physical damage has occurred to the Sensformer™ during transit.

### 5.2.7 Storage

This Proposal considers delivery of the unit(s) right after factory acceptance tests. If storage is needed, either at the Siemens facilities or elsewhere, Siemens reserves the right to change the terms and conditions of this Proposal. Charges will apply.

### 5.2.8 Site Assistance

Unless otherwise stated in Section 1, the Sensformer™ price includes technical assistance (Required to validate warranty) after delivery pursuant to the scope below:

a) A technical advisor to provide directions only during assembly and pre-startup testing at 10 hours a day, for the duration specified under Section 1;
b) Travel costs such as one round trip, accommodations and rental car for the duration specified under Section 1;

Any additional trips to the jobsite or any extension of this time allowance beyond Siemens' fault would be at an extra charge to Buyer, according to prices of Section 1.

Tools, Arrangements and Equipment for Sensformer™ assembly as per attached list must be available locally. No further special tools are required.

If Buyer chooses to subcontract a non-Siemens supplier for any of the site work, the subcontractor must follow the Siemens guidelines included in the instruction book and have prior proven experience in power Sensformer™ assembly.

Note: For warranty obligations it is mandatory that the Sensformer™ has been installed by Siemens Transformers, or has been installed under the technical field assistance of an engineer approved by Siemens Transformers.

SIEMENS

SECTION 6

# CONTRACT TERMS & CONDITIONS

**6.1** Siemens Energy, Inc. ("Seller") would like to propose using the attached Terms and Conditions already agreed with Cypress Creek Renewables Development, LLC. ("Buyer") "*2020 Transformer Supply Agreement between Siemens Energy, Inc & Cypress Creek Energy" ("Agreement") as supplemented and amended by the Sensformer™ Hardware Terms (collectively, the "Terms and Conditions"). The Agreement and the Sensformer™ Hardware Terms are attached as Annexes "180709_Sensformer_HardwareTerms_V 1.1_EN" and "180410_4Pager-Sensformer_FINAL" to this proposal.*

**ASSIGNMENT.** Neither party may assign all or part of this Agreement, or any rights or obligations under this Agreement, without the prior written consent of the other; however, either party may assign all or part of this Agreement, or any rights or obligations under this Agreement, without the prior written consent of the other, to any parent, wholly owned subsidiary, affiliate, or successor organization to any parent, wholly owned subsidiary, or affiliate (whether as a result of reorganization, restructuring, or sale of substantially all of a party's equity or assets). Buyer shall not, in any event, assign this Agreement or part of this Agreement to a competitor of Siemens, an entity or person in litigation or arbitration with Siemens, or an entity or person lacking the financial capability to satisfy Buyer's obligations. Any assignee expressly assumes the performance of any obligation assigned. Siemens may grant a security interest in this Agreement and/or assign proceeds of this Agreement without Buyer's consent.

SIEMENS

SECTION 7

# CANCELLATION SCHEDULE

### 7.1 Cancellation Schedule

In case of Buyer's decision to cancel the project, Buyer will be liable to cancellation charge in accordance with the schedule below:

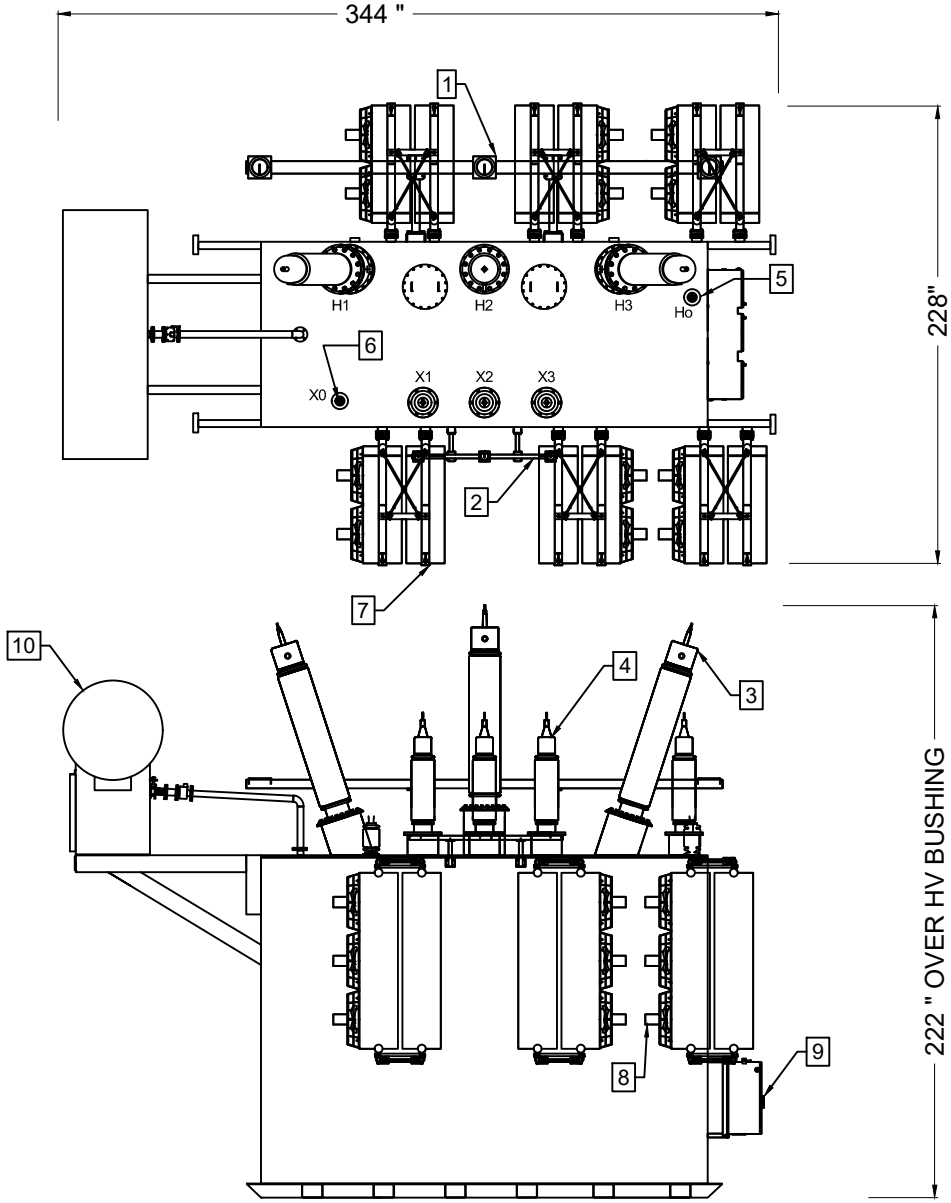
| Milestone | Description | Date | Termination Penalty |
|---|---|---|---|
| 1 | Contract Execution | September 15, 2020 | [redacted] |
| 2 | Complete 2020 Work | December 31, 2020 | [redacted] |
| 3 | 14 Month Milestone | October 1, 2021 | [redacted] |
| 4 | Final Materials Procurement | April 1, 2022 | [redacted] |
| 5 | Start of Winding Manufacturing | | [redacted] |
| 6 | Start of Core and Coil Assembly | | [redacted] |
| 7 | Completion of Core, Coil, and Tank | | [redacted] |
| 8 | Completion of FAT | December 15, 2022 | [redacted] |
| 9 | Delivery of unit | | [redacted] |

### 7.2 Clarification Notes

**Note 1:** Percentage is related to the Sensformer™ price excluding transportation. Cancellation is not allowed after the unit has shipped;

**Note 2:** ARO – After Receipt of Order;

**Note 3:** Plus cost of hedging cancellation of the currency on the remaining unpaid balance, in case it applies.




TRANSFORMER DESCRIPTION:

MANUFACTURED PER ANSI C57.12.00
CONSERVATOR TANK PRESERVATION SYSTEM

[1] HV LIGHTNING ARRESTERS SUPPORT
[2] LV LIGHTNING ARRESTERS SUPPORT
[3] HV COVER MOUNTED BUSHINGS
[4] LV COVER MOUNTED BUSHINGS
[5] H0 COVER MOUNTED BUSHING
[6] X0 COVER MOUNTED BUSHING
[7] DETACHABLE RADIATORS
[8] FORCED AIR COOLING FANS
[9] CONTROL CABINET
[10] CONSERVATOR TANK

NOTES:

- SURGE ARRESTERS ARE NOT SHOWN IN THIS SKETCH.
- WEIGHTS, DIMENSIONS AND OUTLINE ARRANGEMENT ARE ONLY APPROXIMATE AND MAY BE SUBJECT TO CHANGE AT THE TIME OF DESIGN. THIS DRAWING IS NOT FOR CONSTRUCTION PURPOSES.

| |
|---|
| PRELIMINARY DATA |
| CUSTOMER: Cypress Creek-Bear Ridge |
| TYPE: ONAN / ONAF / ONAF |
| MVA: 67/ 89/ 112 |
| VOLTAGE 115 KV Y +/- 2 x 2.5 % 450KV / 110 KV BIL |
| 34.5 KV Y 200 KV BIL, TV 110 kV BIL |
| |
| 1000 MASL / SEISMIC ZONE 1 / YNynd1 |
| RISE: 65 °C RISE 40°C / 30°C MAX TEMP / AVG TEMP |
| # PHASES: 3 Hz: 60 |
| August 2020 |
| DWG: US-20-485 REV. 0 José B. |