What is a Utility-Scale Solar Installation?

• Most utility-scale solar operations (> 1 acre) are erected as ground-mounted arrays on open land.

• Ground-mounted systems are made of a metal racking structure which supports solar panels (modules) and is anchored to the ground.

• Modules are wired together in a series to create individual arrays.

• The arrays feed electricity to inverters and transformers on a centrally located electrical pad which ties into the electrical grid.

Types of Ground-Mounted Systems

• Arrays may be fixed in tilt and orientation (fixed-mount); or

• Have mechanical parts allowing it to track the sun adjusting its tilt and orientation (trackers).

Foundation Types and Installation

Ground Screws/Helical Piles/Driven Piles

• Installed with small machinery (track excavator, mini-excavator, skid steer).

• Less site disturbance, no soil cuttings.

• Load bearing immediately.

• Limited use in gravel and rock.

• Avoids concrete.

• Removable, reusable.
**Foundation Types and Installation (Cont’d)**

**Ballasts**
- Non-penetrating foundations, racking attached directly to an above grade footing, block or basket.
- Concrete can be precast or cast into basins onsite.
- Rocks maybe used to fill basins.
- Typically used on landfills.
- Used on relatively flat sites.

**Concrete Piers**
- Posts suspended in holes 1-1.5’ wide at ~6-8’ depth.
- Appropriate for steep grades (30-40% slope).
- Used in corrosive soils with high pH.
- Involves more equipment onsite for boring and pouring concrete.
- Considerable soil cuttings.

**Trenching for Electrical Conduit**
- Wiring modules together is done above-ground with wires secured beneath modules.
- Each string of modules wired together feeds an inverter attached to the racking system.
- Inverters are connected to a central equipment pad through underground electrical conduits.
- Typical depth of conduit is 30-48” for large scale projects.
- Connections from the equipment pad to the grid are above ground.

For additional information on Agrivoltaics please see our factsheet at: [http://www.maine.gov/dacf/ard/resources/docs/dual-use-factsheet.pdf](http://www.maine.gov/dacf/ard/resources/docs/dual-use-factsheet.pdf)