CLAIMS

1. A system for generating electricity from solar energy comprising:

a plurality of pairs of vertically-oriented photovoltaic modules, each pair of the plurality including:

a first vertically-oriented bifacial photovoltaic module

a second vertically-oriented bifacial photovoltaic module positioned a horizontal distance form the first bifacial photovoltaic module; and

a macro-textured structure positioned between the first and second bifacial photovoltaic modules, the macro-textured structure including a plurality of protruding features each having respective reflective surfaces that reflect, diffuse and scatter incident solar radiation at various angles toward the first and second bifacial photovoltaic modules,

wherein the protruding features are operative to reflect light incoming within a range of 0 to 10 degree of vertical toward the first and second bifacial photovoltaic modules.

2. The system of claim 1, further comprising:

a plurality of drainage holes positioned between adjacent protruding features on the macro-textured surface, the drainage holes adapted to remove dust and moisture from the macro-textured structure.

3. The system of claim 1, wherein each of the plurality of protruding features of the macro-textured structure is covered with a reflective coating layer.

4. The system of claim 1, wherein a portion of the plurality of protruding features is pyramidal in shape.

5. The system of claim 1, wherein a portion of the plurality of protruding features is dome-shaped.

6. The system of claim 1, wherein the plurality of protruding features has a variety of shapes.

7. The system of claim 1, wherein the plurality of protruding features form a regular, periodic pattern on the surface of the macro-textured structure.

8. An apparatus for improving the midday energy yield of a solar energy facility including a series of vertically-oriented bifacial photovoltaic modules, the apparatus comprising:

a macro-textured structure adapted to be positioned between adjacent module of a the series of bifacial photovoltaic modules, the macro-textured structure having surface including a plurality of protruding features having reflective surfaces that are operative to reflect light incoming within a range of 0 to 10 degree of vertical toward the first and second bifacial photovoltaic modules; and

a plurality of drainage holes positioned between adjacent protruding features on the macro-textured surface, the drainage holes adapted to remove dust and moisture from the macro-textured structure.

9. The apparatus of claim 8, wherein the plurality of protruding features of the macro-textured structure is covered with a reflective coating layer.

10. The apparatus of claim 8, wherein a portion of the plurality of protruding features is pyramidal in shape.

11. The apparatus of claim 8, wherein a portion of the plurality of protruding features is dome-shaped.

12. The apparatus of claim 8, wherein the plurality of protruding features has a variety of shapes.

13. The apparatus of claim 8, wherein the plurality of protruding features forms a regular, periodic pattern on the surface of the macro-textured structure.

14. The apparatus of claim 8, wherein the plurality of protruding features forms a non-periodic pattern on the surface of the macro-textured structure.

15. The apparatus of claim 8, wherein the plurality of protruding features have varying height profiles, with protruding features near the center of the macro-textured structure having a greater height than protruding features near the periphery of the macro-textured structure.