Department Requested Action

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In Control: Plan Commission **File Type:** MOTION

Title/Name/Summary
Solar Panel Installation - 17606 Karli Lane - Rao Residence

History
QUICKFACTS

Project
Solar Panel Installation - 17606 Karli Lane - Rao Residence
2018-0700 / AR-18-00566

Petitioner
Ailey Solar Electric
Dorian Breuer, Co-Owner

Purpose
The purpose of this petition is to install and maintain a 21.24 kW solar array as part of an mounted solar panel system at a single-family residence located at 17606 Karli Lane.

Requested Actions: Appearance Review (Environmental Clean Technology)

Project Attributes
Address: 17606 Karli Lane

P.I.N.(s): 27-31-200-010-0000

Parcel Size: 0.33 Acres; 14,394 SF
Building Size: 4,194 SF

Comprehensive Plan Planning District: Grasslands Planning District
Comprehensive Land Designation: Single Family Residential
Existing Zoning: R-3 Residential District
Existing Land Use: Single Family Home

Subdivision: Orland Woods III

Surrounding Land Use:
North: R-3 Residential District - Single Family Home

South: R-3 Residential District - Single Family Home
East: R-3 Residential District - Single Family Home
West: OS Open Space District - Conservation Area

Preliminary Engineering: A structural engineering report was submitted with this petition, which concluded that the roof structure can safely support the weight of the proposed solar panels.

PLANNING OVERVIEW AND BACKGROUND

Section 6-314.C of the Land Development Code requires that the petitioner seeking a renewable energy or environmental clean technology system first obtain an Environmental Clean Technology (ECT) review from the Plan Commission. Subsequent to such a review, this project will follow the standard development review process. A review will next take place at the Development Services and Planning Committee and then a final review and decision from the Village Board of Trustees.

PROJECT DESCRIPTION & CONTEXT

The petitioner is proposing to install and maintain 21.24 kW grid interactive solar arrays, comprised of twenty (59) photovoltaic (PV) solar panels at a single family home located in the Orland Woods III. The solar panels will be located on the east, south and west facing gabled rooftops of a single-family residence located at 17606 Karli Lane. Energy captured by the proposed solar panels will be used for general household purposes, providing an overall general reduction in electricity costs for the homeowner. The solar panel system also includes a “SunPower Invisimount” racking system, inverters and other electrical service components.

The petitioner does not request any variances for this project.

The recommendation motion includes the following conditions:
1. That all building code related items shall be met;
2. That all building permits shall be obtained prior to construction;
3. That all utility systems related to the solar energy system shall not be visible from any adjacent street and from neighboring residential properties;
4. That additional screening of any utility conduits and systems related to the solar energy system may be required after installation has been completed, as determined by the Development Services Department.

Overall, the project conforms to the Village’s Comprehensive Plan, Land Development Code and policies for this area.

SITE PLAN

The petitioner submitted a plan set (“Plan and Construction Set”) prepared by Ailey Solar Electric., dated September 28, 2018 and last revised October 22, 2018, detailing the location, dimensions and materials to be used for the installation of the proposed solar panels. The solar panels (collectively referred to as an array) will be located on the west, south and east-facing roofs of a single family house.

The proposal is for a 21.24 kW, grid-tied photovoltaic (PV) installation, comprised of (59) fifty-nine "360W SunPower X22-360-D-AC Modules (panels) arranged in seven (7) groupings. The array will be supported by a flush mounted racking system, which is a low-profile system that connects to roof rafters with structural screws. The racking system has a specialized splice that allows the racking to be grounded rail to rail which reduces the time to ground the entire system, the amount of ground lugs and the amount of copper.

The solar panel modules come equipped with a factory integrated microinverter with a double locking AC connector. All ground-level utilities are shown on the rear western facing facade of the structure which does not face any adajcent residential structures. The property to the west is a conservation area. All utility systems must be screened from view from neighboring properties and from the street. Additional screening may be required after installation is complete to ensure adequate screening has been provided.

DETAILED PLANNING DISCUSSION

Section 6-314.E.1 of the Land Development Code permits the installation of solar panels on residential rooftops via an Environmental Clean Technology review provided that:

1. Solar panels do not increase the visual height of the building;
2. Solar panels do not extend beyond the edge of the parapet or roof; and
3. Solar panels are in line with the plane of the roof and shall not be attached to chimneys.
4. That no more than seventy-five percent (75%) of a residential rooftop may be covered by PV collectors or arrays.
5. Solar panels shall be placed such that concentrated solar radiation or glare shall not be directed onto nearby properties, roadways or public right-of-ways.

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The arrays are located on west, south and east facing rooftops to maximize solar reception, and do not extend beyond the edge of the parapet or roof. The arrays will be in line with the plane of the roof, are not attached to any chimneys and will not increase the visual height of the building. The proposed array is approximately 1,035 SF in area while the rooftop is approximately 4,467 square feet, equaling 23.17% rooftop coverage.

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As there is a neighboring property with an existing single family home directly adjacent to and in line with the proposed solar panels, the petitioner and contractor were asked to provide assurance that “concentrated solar radiation or glare shall not be directed onto nearby these properties”.

The petitioner subsequently provided the Village with a written statement and a graphic analysis supported by data from the project contractor stating that in their professional experience, none of the solar arrays being planned for Dr. Shah’s property should pose a solar reflection or glare risk to any of the neighbors. For additional assurance, they included a number of documents:

- A scale plan drawing showing the expected direction of reflected sunlight on the Summer Solstice (the highest point in the year the sun will appear);

- A scale plan drawing showing the expected direction of reflected sunlight on the Winter Solstice (the lowest point in the year the sun will appear).

As there are no panels proposed on the north elevation of the home, the neighboring property with the most direct view of the array is to the south; the array would be approximately 15-feet from this property's main house. The provided scaled drawings showing the expected direction of reflected sunlight on the summer solstice (highest point in the year of that the sun appears) and winter solstice (lowest point in the year of that the sun appears) were provided by the petitioner's contractor. The drawings suggest that while solar panels will face the neighboring property, the height and angle at which they will be installed will preclude any direct solar reflection or glare on to the adjacent house.

The plan set submitted by the petitioner indicate that all of the Environmental Clean Technology review criteria for this project has been met.

Overall, the project conforms to the Village's Comprehensive Plan, Land Development Code and policies for this area.

Land Use / Compatibility
The proposed land use is compatible with the R-3 Residential District and the Comprehensive Plan vision for this property. As a component of sustainability and stewardship, one of the goals of the Village's Comprehensive Plan is to reduce the dependence on non-renewable resources by "support(ing) private and public infrastructure upgrades that meet local energy demand using renewable sources (wind, solar, biomass/fuel, geothermal, fuel cells etc.)." The proposed project supports this and other sustainability goals of the Comprehensive Plan.

Lot Coverage
No change to lot coverage has been proposed.

Mechanicals/Utility Conduits
All utility systems related to the solar energy system shall not be visible from the street and from neighboring residential properties. Additional screening may be required, as determined by the Development Services Department.

Recommended Action/Motion

I move to accept as findings of fact of this Plan Commission the findings of fact set forth in this staff report, dated November 13, 2018,

And

I move to recommend to the Village Board to approve the Environmental Clean Technology review for a roof-mounted solar energy system at 17606 Karli Lane as depicted on the plan set "Plan and Construction Set" prepared by Ailey Solar Electric, dated September 28, 2018 and last revised October 22, 2018, subject to the following conditions:

1. That all building code related items shall be met;
2. That all building permits shall be obtained prior to construction;
3. That all utility systems related to the solar energy system shall not be visible from any adjacent street and from neighboring residential properties;
4. That additional screening of any utility conduits and systems related to the solar energy system may be required after installation has been completed, as determined by the Development Services Department.