

## **Activity Description**

The Photovoltaic (PV) Plants in Greece are constructed in areas that the weed growth is a continuous process that has to be managed by the Operation & Maintenance teams. The weed height varies during the seasons of a calendar year but also among the years. It is a process totally dependent by the environmental conditions. That is why the management of the weed growth is an activity with changing requirements and consequently of changing operating cost.

The challenges that have to be met in order to have the best results are the following:

- 1) Maintain a maximum height of weed in order not to cause:
  - a. Shadowing of the PV panels and consequently production inefficiencies;
  - b. Acceleration of the dirt pollution of the PV panels leading to production inefficiencies;
  - c. Increase of humidity in the Plant that accelerates the ageing of the equipment;
  - d. Acceleration of fire caused by electrical faults at DC field of the Plant;
  - e. Loss of the advantage to repel a fire coming from neighboring areas;
  - f. Creation of an unfavorable working environment for O&M teams;
  - g. Creation of Safety risks due to the loss of good visual contact with the terrain and the creation of a favorable habitat of snakes.
- 2) Maintain the necessary flora of the area in order to:
  - a. Comply with the obligations coming from the Environmental Permits;
  - b. Having enough flora to maintain a cool micro climate that is necessary for the operation of the PV panels during summer period;
  - c. Avoid increased dust levels during the whole.
- 3) Minimize the Operating cost for weed management activity.
- 4) Perform the activity with an environmental friendly manner (the use of chemical products of destroying the flora are forbidden).
- 5) Avoid during the activity to endanger the integrity of the rest of the equipment;
  - a. The weed cutting may cause damages of PV panels, metal structures and cables;
  - b. Dust levels should by maintained the lowest possible.

## **Adopted Solution**

In 2016 it was decided by EGPH in collaboration with a Service Provider to test an alternative weed management solution. This is to use sheep in order to maintain the flora of the PV plants in an adequate level.

In order to accommodate this solution the following were performed:

- 1) A technical and legal agreement between the two parties;
- 2) Safety issues were studied and proper procedures were adopted;
- 3) Quality standards were set.

## **The aforementioned solution**

- Decreases the Damages of PV panels
- Decreases the Predefined Operating Cost &
- Avoids the Production Losses

### **The Adopted Solution's Non-Financial Benefits**

The benefits of the weed management by the use of sheep are towards EGP but also the local community and are summarized as following:

- a. Minimizes the acceleration of fire caused by electrical faults at DC field of the Plant;
- b. Creation of a favorable working environment for O&M teams;
- c. Daily presence of personnel in the PV plants insures a continuous visual check and a fast detection of non-electrical incidents;
- d. The local small sheep breeding enterprises have a secure and continuous area of grazing for their animals;
- e. EGP provides a solution to the local communities to the problem of lack of areas for grazing of livestock and the continuous disputes between farmers and stock breeders;
- f. EGP strengthens the relationships with local community through the continuous contact with locals during this process;
- g. The activity becomes a best practice example for other PV plant owners all over Greece and also to O&M providers.

### **The Environmental Impact**

The environmental impact of the specific activity is multifaceted and is summarized as follows

- a. The continuous low height of weed makes the PV plant a fire-fighting zone in order to repel a fire coming from neighboring areas;
- b. It is avoided the impact that the weed waste disposal has to the organized waste disposal areas. It is estimated that it is avoided the disposal of 2.000m<sup>3</sup> of weed within 2017;
- c. It is avoided a large amount of damaged panels that should be disposed. A decrease of 70% is recorded currently;
- d. They are saved fuels that were needed for the mechanical cutting means;
- e. No chemical herbicides are used that cause the pollution of the land and the water resources.

## The Adopted Solution in "Pictures"











