

## Frequently Asked Questions

### **What is solar energy and how does it work?**

Solar energy is a renewable resource that uses sunlight to generate electricity through the photovoltaic effect. With exposure to sunlight, the electrons in the solar photovoltaic cells (which contain semi-conductor material) are excited into a higher state of energy, allowing them to act as charge carriers for electric current. The energy produced is direct current (DC) which is then collected and converted into alternating current (AC) electricity by inverters. From the inverters, the electricity voltage is stepped up via transformers to match the local distribution voltage. It is then metered and transferred into the local distribution system for regular use.

### **What are the benefits of solar energy?**

There is an abundance and continuous amount of sunlight reaching the earth's surface, almost 6000 times more than the current power consumed by humans. It makes sense to harness this energy. The burning of fossil fuels for energy (e.g. coal, oil and gas) creates pollution that impacts human health and contributes to climate change. Solar energy does not produce any pollution or greenhouse gases during operation. Furthermore, grid-connected solar electricity can be used locally, thus reducing transmission/distribution losses from other sources. Compared to fossil and nuclear energy sources very little research money has been invested in the development of solar cells, so there is huge potential for this energy source. The price of PV modules has already fall drastically (~60% since 2008) and as prices decline, subsidies will end. The generation of power from the Marsh Hill Solar Farm will displace approximately 10 MW of electricity that otherwise may have been generated by fossil fuel burning or non-renewable power plants. As a result the energy generated will not contribute to climate change or emissions-related health impacts.

### **What is the Feed-in Tariff (FIT) Program?**

It is a government-run program administered by the Ontario Power Authority that provides standardized program rules, prices and contracts in order to stimulate development. The FIT Program is designed to give developers and their lenders the confidence needed to undertake projects and to enable Ontario to build a reliable and sustainable electricity system. Ontario's program draws on lessons learned from similar programs that exist in other countries such as Germany, Spain and Denmark.

### **Why is the government investing in this program? Won't it affect my hydro rates?**

This is part of the "Green Energy" initiative to provide cleaner air in the province, do our part in fighting climate change and create jobs in the province. There has been a lot of talk about increasing hydro rates. The fact is that Ontario has an ageing electrical infrastructure and many of the generating stations now need to be refurbished or replaced, and electrical transmission to be upgraded. The Ontario government has decided to shut down its coal plants for environmental and health reasons. Ontario is also currently starting to refurbish its nuclear plants and will continue to do so for the next 10 years. It has contracted many new natural gas plants. HST has also now been added to hydro bills. All of these increase costs. The Marsh Hill project and other renewable projects will not have an appreciable impact on hydro rates. Regardless, the fact is that new generation is needed, and hydro rates will increase in all scenarios as the generation is replaced. Many people don't realize that existing energy sources (fossil fuel, hydro and nuclear) are heavily subsidized already and that providing subsidies to the clean energy sector is not only on par with this but helps promote the health of Ontarians and the planet.

### **Is Solray Canadian?**

Yes, Solray is 100% Canadian and their office is in Toronto.

### **Why was the project name changed?**

The original FIT contract was for a site near Epsom. Solray elected to switch to a new location on Cragg Road with approval from the OPA and has changed the name of the project to reduce confusion with regard to location.

### **Will you employ local people?**

We hope to hire as many local people as possible where they are appropriately qualified for the construction and maintenance of the project. The Engineering/Procurement/Construction Contractor will be ultimately responsible for hiring people.

### **Will the facility be loud? What will the ambient noise be like?**

During operation, noise generated at the facility will be limited to the inverter units and step-up transformers. The noise will be no louder than the ambient (surrounding) noise levels at night and noise mitigation measures will be employed to ensure that the noise levels meet MOE-regulated limits.

### **Will there be brownouts if it has been cloudy for many days and the panels can't recharge?**

While power generation will be less on cloudy days some power will be generated. The electrical grid does not depend upon one source of power so if the panels produce less electricity, another generation source will be on line to fill the void. The system does not operate with batteries that recharge, it is connected directly to the grid.

### **Can the solar panels handle harsh weather like hail? What about dust deposition from the quarries in the area?**

The panels are built to withstand harsh weather. They will be periodically cleaned with water.

### **How will you prevent vandalism of the equipment?**

We plan to be good neighbours in the community and hope that vandalism is a non-issue. However, there will be a security fence around the perimeter of the project location, security cameras and lighting as needed, as well as panel-level monitoring so when an issue arises a remote alarm is tripped.

### **Why is this permitted in the Greenbelt?**

Utility uses are permitted in the Greenbelt as they serve the greater public good.

### **Why are you allowed to take agricultural land out of production? How do you choose where to put a solar farm?**

Many factors are considered in the placement of a solar farm. The facility must be situated in an area with connection capacity to a 44 kV line and with access to a local transformer (these are determined by the OPA). The distance from the solar farm to the grid is also critical as energy is lost the further it must be transported. The solar farm requires between 80 – 100 acres of land, the topography must be relatively flat and free of sensitive natural and cultural heritage features. Constructability is also taken into account (such as type of foundation, proximity to bedrock and the water table). Under the original FIT program rules solar contracts could be awarded on agricultural land under certain conditions. The Ontario government has now changed this rule on a go-forward basis.

### **This area has many gravel pits that haven't been rehabilitated. Why don't you build solar farms in them?**

In addition to the above factors which are considered in situating a solar farm, gravel pits can provide difficulty with regard to shading of the panels (depending on their depth) and pose drainage issues. Additionally, it is more difficult to set foundations in a gravel pit and these areas experience more dust, which is detrimental to the panels' ability to generate power. We will continue to consider gravel pits for future projects.

### **Will additional fill be needed to prepare the land?**

Some grading of the site may be required to facilitate construction but it is unlikely that fill will be required. Excess soil during grading can be used to infill low-lying areas if appropriate. Should fill be required it will consist of native deposits.

### **How will you ensure that the soil fertility is maintained and that we don't lose topsoil?**

Once construction and site cleanup are complete the project location will be seeded with low-growing native and non-invasive vegetation such as grass or alfalfa. The vegetation will prevent soil mobilization, manage weed growth and ensure that nutrients are maintained. During construction a number of erosion and sediment control measures will be in place to minimize the potential for topsoil loss.

### **How will the project affect water flow and runoff on adjacent lands?**

Water bodies will not be directly affected by the project as there are none within the project location. The operation of the facility does not require the taking of groundwater or surface water. A preliminary Stormwater Management Plan has been developed to manage runoff and ensure that off-site drainage patterns are maintained and that any potential effects from runoff on adjacent lands will be mitigated. A detailed Plan will be developed prior to construction and will include erosion and sediment control measures and best management practices.

### **What about fires at the project location?**

Fires at the project location are extremely unlikely. Solray will work with the local fire department to develop a fire prevention plan and Emergency Response Plan for the project location that includes all phases of the project. However, given the nature of the property (grass under the panels) it is unlikely that any fires would have the combustible material to spread rapidly.

**What can you do to reduce the visibility of the solar farm?**

The solar farm is set back from Cragg Road and after the temporary construction laydown area is rehabilitated (before operation of the solar farm) visibility from the road should be minimal. Some landscaping and tree planting may be undertaken to reduce visibility in other areas.

**How can we be sure that the project will be decommissioned at the end of its life?**

We are required to decommission the project by the Ministry of the Environment and the Renewable Energy Approval being sought includes commitments to decommissioning as a condition of approval. Also, because the foundations and racking for the project will be made out of steel, the scrap value of decommissioning is higher than the cost, so it would be illogical for the owner of a solar project to abandon it as it is economically valuable to decommission the project.