



Decommissioning Report – St. Clair - Moore

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Executive Summary

First Solar proposes to construct a 20 megawatt (MW) solar farm in the Geographic Township of Moore, County of Lambton, Ontario, approximately 5 km east of the St. Clair River. The proposed 20MW farm will deliver enough clean electricity to power approximately 20,000 homes.

The St. Clair - Moore Solar Farm is proposed to be constructed on a tract of land located at the intersection of King's Highway 40 and Rokeby Line that is approximately 120.2 hectares in area. The site is bordered by the Canadian National Railroad track on the North and West, Rokeby Line to the South, and King's Highway 40 to the East. It abuts industrial and agricultural properties.

The majority of the existing site is devoted to agriculture with the primary crop being soybeans. There are existing agricultural buildings on the site. A woodland exists in the northern area of the site. The wooded area will be protected during construction and will remain onsite.

The proposed solar farm consists of approximately 60 hectares of solar arrays, mounted on fixed steel supports and arrayed in long rows. Each array will be connected to a small shelter that houses electric current conversion equipment and switches. The electric power from the converter shelters will be run via underground cable to electric utility interconnect equipment at the edge of the arrays, and from that to the electricity distribution line. A 31 meter high antenna tower will provide remote monitoring capability of the solar farm by the electric utility.

The facility will be surrounded by a 2.1 meter high security fence and will have access at one location from Rokeby Line through a secured gate.

To be consistent with First Solar's core value of environmental responsibility, the planning and designing of the solar farm has been conducted with a conscious effort to minimize any negative environmental impact. Studies and assessments of the existing animal and plant populations, the terrain and water drainage requirements, and surrounding residences have been undertaken. Terrain modifications and ground disturbances will be kept to the minimum extent practical in order to maintain existing water drainage patterns. Soil erosion and sediment control measures will be employed during construction. There will be no addition of paved surfaces, and only a minimal addition of gravel for site access roads.

At the end of construction, the entire facility except for the internal gravel access roads will be planted with grass. The perimeter of the site will be landscaped to reduce visibility of the solar farm from adjacent roadways and properties where necessary. Because of the long term ground cover and plantings in conjunction with reduced tillage, the value of the site as wildlife habitat will improve. First Solar will also consider future cropland leases for sections of the property outside of the array areas. The solar farm will be a passive facility with no emissions to the atmosphere, and minimal light and noise impacts. Any potential noise generated is required to be below Ministry of Environment (MOE) noise limits. After construction is complete, the site will not create any water demand. Once in operation, traffic to the solar farm will be extremely light, with less than one trip per day anticipated.

Project Waste Mitigation & Decommission

The Project has a minimum expected lifetime of 30 years or more, with an opportunity for a lifetime of 50 years or more with equipment replacement and repowering.

First Solar is committed to improving the global environment. Therefore, as manufacturer and supplier of the PV modules to the Project as well as their installer, First Solar has established policies and procedures to maximize recycling and minimize waste during the Project's construction, subsequent operation, and eventual decommissioning.

PV Module Collection and Recycling

In line with the environmental philosophy of extended producer responsibility, First Solar has developed and implemented a comprehensive "Module Collection and Recycling Program" to promote the collection and recycling of modules and to minimize the potential for modules to be disposed of as municipal waste. Under this program First Solar provides packing materials, transportation and recycling services at no additional cost. The program enables substantially all components of the modules, including the glass and the encapsulated semiconductor material, to be collected and recycled into new solar modules or other products.

Some key elements of First Solar's Module Collection and Recycling Program include:

- **Funding:** With the sale of each module, First Solar sets aside sufficient funds for the estimated future cost of collection and recycling in a restricted investment account controlled by a third-party under a trust arrangement;
- **Registration:** The site location of each module installation is registered with First Solar;
- **Notice:** Individual modules are labeled with web site and telephone contact information in six languages, along with the information that the module owner is able to return the product free of charge;
- **Collection:** First Solar manages the logistics of collecting the modules and provides packaging and transportation to the recycling center. The module owners only requirement is to dismantle and package the modules in accordance with First Solar's instructions;
- **Recycling:** All recycling processes are monitored to ensure compliance with applicable regulatory requirements regarding occupational health & safety, recycling, waste management, etc.
- **Improvement:** The program, including the financing structure, is audited annually by an independent third party to ensure it is achieving its goals and to identify areas for continuous improvement.

Managing the product life cycle, from raw material sourcing through end- of- life collection and recycling, enables First Solar to create a sustainable product life cycle that strives to provide the most environmental benefits.

Project Construction

During construction of the Project, the only waste produced will be typical construction waste, such as miscellaneous packaging materials. Any First Solar modules damaged or broken during construction will be returned to First Solar's manufacturing facility in Perrysburg, Ohio (USA) to be recycled into new modules or other products. Other construction waste will be removed in accordance with applicable local requirements, at a minimum, but First Solar's goal is to recycle 100% of all construction debris and will work with local subcontractors and waste firms to segregate material to be recycled.

The project uses substantially, the existing topography, so import or export of fill material at the site during construction is minimal.

In the event that construction activities cease prior to facility completion and commissioning, with no expectation of construction re-start, the installed components will be removed and recycled, and the site restored in accordance with the below Facility Dismantling and Site Restoration procedure in accordance with all applicable codes and regulations.

Facility Dismantling and Site Restoration

The Project consists of numerous recyclable materials, including glass, semiconductor material, steel, and wiring. When the Project reaches the end of its operational life, the component parts can be dismantled and recycled. As part of its product offering and as indicated above, First Solar has a prefunded "Module Collection and Recycling Program" for all of its solar modules. All waste resulting from the decommissioning of the facility will be transported by a certified and licensed contractor and taken to a landfill/recycling facility in accordance with all Ministry regulations.

Although a subsequent owner of the facility might follow its own procedures for decommissioning, this is First Solar's suggested procedure to clear away the power facilities and restore the site for re-use.

1. The Project components will be dismantled and removed using minimal- impact conventional construction equipment and recycled or disposed of safely. All components shall be removed from the site using experienced local subcontractors.
2. The facility shall be disconnected from the utility power grid.
3. Individual PV modules shall be disconnected from the site electrical system.
4. Individual PV modules shall be unbolted and removed from the support frames and carefully packaged for collection by First Solar for return to a First Solar recycling facility for recycling and material re-use.
5. Site aboveground and underground electrical interconnection, transmission, and distribution cables shall be removed and recycled off-site by an approved recycling facility.
6. PV Module support steel and support posts shall be removed and recycled off-site by an approved metals recycler. There are no concrete foundations used in the installation of the support steel.

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7. Electrical and electronic devices, including inverters, transformers, panels, support structures, lighting fixtures, and their protective shelters shall be recycled off-site by an approved recycler.
 8. The electrical shelters underground support concrete vaults and foundations shall be removed with the concrete recycled off-site by a concrete re-cycler or crushed on-site and used as fill material.
 9. Fencing shall be removed and will be recycled off-site by an approved metals recycler.
 10. Gravel roads shall be removed; filter fabric will need to be bundled and disposed of in accordance with all applicable regulations. These areas will need to be backfilled and restored to meet existing grade. This material can come from the long-term berm/stockpile.
 11. Soil erosion and sedimentation control measures will be re-implemented during the decommissioning period and until the site is stabilized.

The St. Clair – Moore site was in agricultural use (grain crops) prior to the project's inception. After facility decommissioning and dismantling, the Project Site could be converted to other uses in accordance with applicable land use regulations in effect at the time of decommissioning. There are no permanent changes to the site and it can be restored to its original condition including re-vegetation with crop species. Allowing the fields to go fallow in conjunction with the planting and maintaining of short and tall grasses on the site during its operating period will have maintained the nutrient quality of the soil. In 2009 First Solar removed a former 1 MWac solar farm in Sarnia with no adverse impacts to the environment.

For restoration of the site to a vegetation-covered state, depressions remaining from removed shelter vaults and foundations shall be filled and leveled. The entire site should be replanted with the desired plant cover to control weed growth, pending re-purposing of the entire site for its pre-facility use or other uses.

At the time of decommissioning the facility, particularly if the land is expected to revert to prior agricultural use, a Record of Site Condition (O. Reg 153/04) may be required to be filed with the Ministry of Environment. All local permits related to decommissioning shall be obtained where required.