

## ABW: SOLAR DEVELOPMENT ASSET

- ✔ **Operational target: late 2011 - early 2012**
- ✔ **Project ownership**
  - 10 % - **Alterra Power Corp**
  - 90 % - **GE Energy Financial Services**
- ✔ **Forecast annual energy production 80,700 MWh**
- ✔ **20 year Energy Purchase Agreement (EPA)**

The ABW facility comprises three sites along the southwestern border of Ontario, Canada. Located on the Niagara Peninsula, Canada's most southern extent of land, the projects are less than 100 km south of Toronto at the northern extremity.

The ABW Project is comprised of three solar photovoltaic (PV) electricity generating facilities being developed in Ontario by a wholly-owned indirect subsidiary of First Solar, Inc. The Anherstburg Facility is 10 megawatt (MW) alternating current (AC) and the Belmont and Walpole Facilities are each 20MW AC, for a Project aggregate size of 50MW AC, with a total energy production output of 80,700 MWh/a.

In addition to an equity contribution of approximately \$6 million, Alterra Power will serve as the projects' managing partner. First Solar will develop the facilities; provide engineering, procurement and construction services as well as operations and maintenance services under long-term contracts.

### What is Solar Power?

Solar power cells convert sunlight into electricity, using the energy of photons to create an electrical current within a solar panel. Solar power panels are made from specially treated semiconductor materials, composed mostly of silicon atoms. The panels, or photovoltaic modules, are built with two sheets of silicon designed to take advantage of the photons bombarding the earth. One sheet is constructed of silicon atoms that have "extra" electrons wandering freely within the layer. The other sheet has "missing" electrons, or "holes" that attract free electrons. The two layers are separated by an electrical field, created by the interaction of atoms from both sides.

When a photon of sunlight strikes an atom in either layer, it knocks loose an electron. In the "holes" layer, these free electrons easily cross through the electrical field and into the "extras" layer. But this movement of electrons is one-way; "extra" layer electrons aren't able to cross the electrical field into the "holes" layer. As a result, an excess of free electrons build up in the "extras" layer.

A metal wire attached to the "extras" layer gives the excess electrons somewhere to go. This circuit ultimately leads back to the "holes" layer, depositing free electrons where they can begin the process again. Before returning to the "holes" layer, the electrons are harvested for their electrical power.

