

Frequently Asked Questions

Samsung

1. What incentives has Samsung received from the government?

Samsung signed the Green Energy Investment Agreement (GEIA) with the Government of Ontario in January 2010. This Agreement commits Samsung and our partners to generate 2,500 megawatts of electricity, construct four manufacturing facilities and create 16,000 direct and indirect jobs. Due to Samsung's proven ability to manage projects of this scale and complexity, we have been able to secure partnerships with Siemens, CS Wind and SMA Solar Technology – the Agreement included an “Economic Development Adder” (EDA). This amount was re-negotiated in August 2011 to a total maximum value of \$110 million, payable over 20 years. This EDA will only be paid if all conditions under the contract are met.

2. What is Samsung's agreement with the Ontario government?

On January 21, 2010, Ontario Premier Dalton McGuinty and Ontario Minister of Energy and Infrastructure, Brad Duguid were joined by Samsung C&T President and CEO Sung-ha Chi to officially announce and sign the Green Energy Investment Agreement (GEIA) to develop and build the Ontario Alternative Energy Cluster, deemed to be the largest of its kind in the world. According to the terms, Samsung C&T will establish and operate a series of wind and solar power clusters over the next several years. The entire project will have a combined power-generating capacity of 2,500 megawatts – enough to power 600,000 Ontario homes – by 2016, increasing dramatically the amount of renewable power generated in Ontario and providing clean energy for generations to come.

Under the terms of the GEIA, Samsung and its partners will invest \$7 billion in new investment in Ontario to create 16,000 direct and indirect jobs, create four new manufacturing facilities to produce wind towers (Windsor) and blades (Tillsonburg), as well as solar modules (London) and inverters (Toronto) for their projects in Ontario. These facilities will also export Ontario-made products around the world.

3. Is Samsung from North or South Korea?

Samsung is from South Korea.

4. Why was a Canadian company not awarded the project?

As announced by Premier McGuinty and the Ontario government on January 21, 2010, the opportunity to discuss similar projects or investment agreements existed for other companies including Canadian firms. We will not speculate as to why the government did not choose a Canadian company, however, it is worth noting that in 2008 and 2009, when the GEIA was being negotiated, the world including Canada was facing a financial crisis. Many municipalities in Ontario were reporting unemployment rates above 15%. Faced with credit crunch, negative economic outlook, and uncertainties, it would have been a daunting and difficult task for any large company to commit a \$7 billion dollars investment into an industry and a jurisdiction to create up to 16,000 jobs and establish manufacturing facilities while developing and permitting world class wind and solar facilities.

5. How financially stable is Samsung to build such a project?

Samsung is a global conglomerate with over \$343 billion (2011) in assets. We have been in operations for over 70 years. Currently we have over 100 offices worldwide.

6. Samsung makes great flat-screen TV and semiconductors. But clean energy?

Leading the world in high-tech electronics is one of the many things Samsung does. Since the company began in 1938, we have brought advanced technology and product excellence to fields as diverse as resource development, textiles, plastics, finance, and construction – even fashion. Increasingly, we have shifted our focus to alternative energy in line with global aspirations for a greener world.

Samsung is comprised of many companies, one of which is Samsung C&T, which is building and operating the wind and solar power cluster here in Ontario. In a world that is constantly evolving, our company mission remains constant: To create superior products and services, thereby contributing to a better global society. This vision has helped Samsung C&T emerge as a leading player in the new and alternative energy sector, offering solutions to customers worldwide through a network of over 100 offices in 44 countries, with renewable energy projects in countries including the United States, Italy and Australia.

Solar Energy

7. What is solar energy?

Solar energy is heat, light and other radiation emitted from the sun. It is responsible for providing the necessary energy to power almost all natural processes on earth, including wind.

For more interesting facts about solar energy, visit www.cansia.ca

8. How powerful is the sun?

If you took all the energy generated by man and planet earth in a day, it only amounts to 1/10,000th of the sun's energy as it hits the earth.

9. When was solar power first used as an energy source?

The ancient Greeks and Native Indians built their houses into hillsides to take advantage of heat storage from the sun. Romans were the first to build glass windows to trap the warmth of the sun. It wasn't until 1776 that the first solar collector was built. The actual silicon photovoltaic cell was invented by Bell laboratories in 1954.

10. How is solar power collected?

Solar energy is collected by silicon photovoltaic cells. When the photons from the sun beat down on the PV cells, they knock electrons out of the silicon. These negatively charged electrons are then trapped in magnetic fields, then harvested by tiny wires in the silicon that, when connected to a circuit, form an electric current.

11. Do you have to live in a hot country to harness solar energy?

No. So long as there is a good amount of sunshine per day you can generate solar power.

12. Where in Canada is the largest single solar farm currently in operation?

In Sarnia, Ontario. It covers 950 acres (385 ha) and can produce up to 80 megawatt enough to power 12,000 homes

13. Which province in Canada has the most useable hours of sunshine a year?

Saskatchewan

14. Where is the world's largest solar market?

Germany followed by Spain.

15. What is a solar photovoltaic (PV) system and how do solar panels work?

A solar photovoltaic (PV) system uses the energy from the sun to produce electricity. This technology uses semiconductors to generate the electricity. Energy from the sun, in the form of photons, bumps the semiconductor's electrons out of orbit creating a flow of electricity called direct current (DC) electricity.

Semiconductors are used to make solar cells. The solar cells are connected together in a framed panel to create a solar module. The cells are protected on top by a clear sheet of tempered glass or a laminated layer of plastic and, on the bottom, by a layer of material to strengthen it. Then all the components are framed in aluminum.

The electricity generated from solar PV systems can be used to power a number of commercial and residential electrical devices or can be fed back into the provincial electricity grid.

Southern Ontario is especially well situated for using this technology. There is plenty of sunlight in the summer and the winter to create electricity and the temperature range in southern Ontario allows the technology to work efficiently.

For more information check out the Ontario government's website <http://www.mei.gov.on.ca/en/energy/renewable/>

General

16. What exactly will Samsung C&T be doing in Ontario?

In a nutshell, Samsung will be using its expertise to oversee the entire renewable energy cluster project including site preparation, the manufacturing of renewable energy components and equipment, operation, maintenance, construction and project financing. A project on this scale requires a company with the necessary experience in delivering renewable energy projects on ambitious timetables, and one that is able to develop partnerships with other leading renewable energy companies. On both counts, Samsung has, and will continue to deliver. More project details can be found under our Projects: <http://www.samsungrenewableenergy.ca/our-projects>.

17. What is Samsung C&T's involvement in the solar energy portion of the project?

Samsung C&T will be overseeing the construction and operation of solar power clusters over a 20 year period that will generate up to 500 megawatts of energy. We will facilitate all project operations, procuring equipment and assist with financing requirements. Samsung will also create new jobs by bringing local manufacturing facilities for solar modules and inverters with proven industry partners.

18. What are the objectives and potential challenges?

There has been a recent flurry of interest in solar energy in Ontario. Everyone from homeowners to farmers to shopping centres are installing panels on their roofs to take advantage of the province's Feed-In-Tariff (FIT) program. This grass roots approach can only help large-scale projects like ours phase out coal power plants by 2014 and make Ontario a new solar hotbed. FIT have the added advantage of making the market more predictable and attractive to investors, as does the easy access to the growing U.S. market. Already, large global suppliers of solar equipment are establishing operations in Ontario. We will do our best to help to spur the growth of domestic suppliers.

19. What does the project entail?

In brief, this project involves establishing wind and solar power generation in strategic locations throughout Ontario. Samsung C&T will oversee the entire project, and has signed contracts with some of the world's leading renewable energy companies to construct plants; they will provide the renewable energy equipment required to meet the terms of our Agreement. Samsung C&T will also secure land for the construction of the clean energy clusters. Once the clusters are established, the Ontario Power Authority will purchase the clean power that will be generated.

20. Where is this all happening?

There will be multiple phases of the project that will be built throughout Ontario in communities such as Chatham-Kent, Haldimand, Kincardine, Kingston, Loyalist, and Ashfield-Colborne-Wawanosh. More project details can be found on our website under our Projects: <http://www.samsungrenewableenergy.ca/our-projects>.

21. Did someone say 'new jobs'?

Over the next six years, we expect the Alternative Energy Cluster project to generate approximately 16,000 jobs, thus revitalizing Ontario's economy while providing opportunity to communities hard hit by the global recession. Additionally there are domestic content guidelines that Samsung C&T, along with our partners, must follow. Those guidelines require us to use Ontario-sourced materials and expertise, including Ontario steel in the construction of the wind towers.

22. How long will the project go on for?

The first two phases the project is scheduled to be constructed by 2014 and will include 200 megawatts (MW) of solar electricity generation, and 870 MW of wind generation. Each subsequent phase will build 500 MW of renewable energy over the next five to six years. Each phase will have an operational life of twenty years.

23. What permits or approvals does Samsung need to develop the solar facility?

Samsung will require various permits and approvals for the project, including:

- Renewable Energy Approval (REA) from the Ministry of the Environment (MOE) – it is an environmental approval of all Project works and activities.
- Where necessary, Species at Risk (SAR) permits from the Ministry of Natural Resources (MNR).
- Connection Approval System Impact Assessment from the Independent Electricity System Operator – it is required to register with IESO and meet requirements for grid connection.
- Generator License from the Ontario Energy Board – it provides Samsung with a permission to operate.
- Customer Impact Assessment from Hydro One Networks – it assesses the effects of grid connection.
- Certificate of Inspection from the Electrical Safety Authority.
- Notice of Project Construction from the Ministry of Labour – it is required to meet labour codes and regulation.
- Interference with Wetlands, and Alterations to Shorelines Permit from the Conservation Authority – it is required for development of works within floodplains such as water crossings.
- Work permit/ agreement for municipal Right of Way, Building Permit, and Entrance Permit are required from the municipality – these are required for work within road allowance and use of road allowance for power lines; to meet local and provincial codes; and acquire permission to connect to municipal roads.

24. How much do I pay as a taxpayer?

Samsung and our partners are investing \$7 billion in Ontario – an unprecedented investment in Ontario's future, thanks to the Green Energy Act which was a signal to the world that the province was open for business and took seriously the need to create jobs in a new industry. Samsung is proud to partner with the government to deliver 2,500 megawatts of clean power – enough to power 600,000 Ontario homes. Samsung has not yet received one cent from the Government, in fact as of today Samsung and its partners have invested over \$200 million and we will only begin to recoup a portion of our investment once we begin producing power. Under the contracts signed with the Ontario Power Authority (OPA), we expect the initial phases of our renewable energy facilities to reach commercial operation in 2014. Samsung and our partners are assuming all the risk and liability for the possible cost-overruns of our projects and taxpayers are not on the hook for the construction of our wind and solar projects.

25. What are the domestic content rules for the project?

Domestic content rules are outlined in the Feed-In-Tariff (FIT) Program. Domestic content is an integral part of the *Green Energy and Green Economy Act, 2009*. The Ontario Power Authority is responsible for implementing this Program.

Developers will be required to have a certain percentage of their project costs come from Ontario goods and labour at the time they reach commercial operation. For larger solar Photovoltaic (PV) projects (greater than 10 kilowatt), the requirement is 60%.

When designated activities (such as manufacturing, labour, consulting) are done in Ontario, the developer receives a qualifying percentage towards the requirement.

26. How are First Nations and Métis made aware of the project?

The Ministry of the Environment identified a list of the potentially impacted Aboriginal communities. Samsung has contacted all of these communities to determine how they wish to be involved in the Project and provided copies of the Project Description.

27. How big will the solar facility be and how much power will it produce each year?

Samsung's proposed solar facility is 100 megawatt (subject to REA approval). It will cover approximately 800 acres and generate 120 gigawatt hour per year.

28. Will the solar facility include wind turbines?

No wind turbines are considered to be included within the solar facility.

29. Will Samsung consider expansion of the solar facility in the future?

Currently, Samsung is not considering future expansion; however, if in the future this need arises, Samsung will inform the community.

30. How many tons of greenhouse gas will be offset each year as a result of the solar facility?

Approximately 800 tons per megawatt (MW) is offset each year. For this 100 MW solar facility, Samsung anticipates that between 80,000 and 90,000 tons of greenhouse gas will be offset annually.

31. What are solar setbacks?

Setbacks are distances that the solar panels will be placed away from specific features such as roads or water bodies. Samsung is working with Ontario Ministries of the Environment, Natural Resources, and Tourism, Culture and Sport to ensure that regulated setbacks are identified and incorporated into the planning process. Setbacks for properties may be determined with individual landowners on a property-specific basis.

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32. How many houses will be powered on a daily, weekly, monthly or yearly?

The power generated from the project will be delivered to the grid, so it will be distributed to all users, not just homes. On an annualized basis, an average home uses 10,000 to 12,000 kilowatt hours of power. Considering the solar array is expected to generate 120 gigawatt hours of power in an average year, this is equivalent to the total power used by 10,000 to 12,000 homes.

33. How do we get more information about the project?

Additional information about the Project is available on the website. To keep up-to-date on the Project, please join our mailing list.

E-mail: solucekingston@samsungrenewableenergy.ca

Website: www.samsungrenewableenergy.ca/low/pages/projects_kingston.php

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Consultation

34. Can you please provide the details of consultation plans for local residents?

Samsung held open houses with the community on August 30 (Loyalist Township) and August 31 (City of Kingston), 2011 to provide an opportunity for the community to learn more about the proposed solar development project. The session also provided an opportunity for the community to ask questions of the project team. A website (www.samsungrenewableenergy.ca) and email address (solucekingston@samsungrenewableenergy.ca) have also been setup to provide additional information.

An Interim Community Session has been scheduled for April 17, 2012 at the INVISTA Centre in Kingston from 3:00 – 8:00 pm. This session will be advertised in local newspapers and individuals on the mailing list will receive notices. To be added to the mailing list, please send your contact details to the email address above.

Another set of open houses will be conducted in the late summer or early fall (2012).

35. What information will Samsung be presenting at the upcoming open house on April 17, 2012? Will it include a discussion with local residents about setbacks?

The April 17th Interim Community Session will provide short formal presentations on the status of the project and provide additional information through posters. Technical experts such as biologists, hydrogeologists, and construction will be on hand to help answer questions related to the Renewable Energy Approvals process and related studies. As well, roundtable discussions on specific topics such as groundwater, plants and animals, and construction will provide an opportunity for the community to engage with the project team and the technical experts. Setbacks outside of existing regulations will not be discussed at this session. Samsung may discuss separately with individual landowners on a property-specific basis.

36. Will Samsung be responding to the recommendations made at the Rural Affairs meeting?

Samsung was pleased to accept the invitation by the City of Kingston's Rural Affairs Committee to attend the February 28th session. We took the opportunity to listen to the questions and concerns identified by the community and have recently issued a "What We Heard" letter to the Committee and individuals on our mailing list. As with all comments and recommendations received, the project team evaluates them as part of the ongoing studies. Many of the questions raised on February 28th will be addressed at the April 17th Interim Community Session; however, due to the fact that some studies are ongoing, Samsung will not be able to answer other questions until those studies are complete.

37. When will residents hear about when the proposed meeting in March/April will occur?

An Interim Community Session has been scheduled for April 17, 2012 at the INVISTA Centre in Kingston from 3:00 – 8:00 pm. This session will be advertised in local newspapers and individuals on the mailing list will receive notices. To be added to the mailing list please, send your contact details to the project email address (solucekingston@samsungrenewableenergy.ca).

38. Will Samsung be installing new poles or using existing poles for hydro lines?

Samsung intends on routing collector (co-locate) lines through the existing distribution poles, where possible. Within individual properties Samsung intends to route the cables underground where possible.

39. How do we know when the project team will be in the area?

There are professionals in the project boundary area conducting field work. The dates will be weather dependant and often on an as needed basis. Our consultants usually have signs attached to the side of their vehicles that are easily identifiable.

40. What is Samsung's current position regarding setbacks?

Setbacks are regulated by the Province of Ontario and are listed in Ontario's Regulation 359/09. Setbacks to all natural and heritage features such as Provincially Significant Wetlands apply for solar projects. Additionally a Noise Study Report is required, by the Ministry of the Environment, to ensure that the transformers associated with the solar panels are located in strategic areas. Under this regulation, there are no setbacks to features such as public roads, property lines.

41. Could you please provide us with more information?

Additional information about the Project is available on the website. To keep up-to-date on the Project, please join our mailing list.

E-mail: solucekingston@samsungrenewableenergy.ca

Website: www.samsungrenewableenergy.ca/low/pages/projects_kingston.php

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Agriculture and Other Land Uses

42. Will agricultural land be used? If so, what are the effects on agriculture?

Samsung is currently following the guidelines established on the Feed-In-Tariff (FIT) rules. These guidelines clearly state that any solar project with a Contract Capacity greater than 100 kW cannot be located (built) in Canadian Land Inventory (CLI) Class 1 Lands, CLI Class 2 Lands or CLI Class 3 Lands that have not been designated on the Website as Class 3 Available Lands. Therefore Samsung or any other proponent is not allowed to build in prime agricultural lands.

There is an opportunity for soil investigations to be conducted to confirm the classification of soil and where applicable seek re-classification from the Ontario Power Authority. Samsung or any other proponent is not allowed to build in prime agricultural lands.

43. What are the effects on soil quality once the solar panels are removed?

Based on the types of soil in the Project area and the proposed construction, minimal impact on soil quality is anticipated (i.e., compaction).

44. Why not use rooftops instead of agricultural land for the solar facility?

In the Project area, there is not enough rooftop space to produce 100 megawatts. Only a very limited number of buildings in Ontario have sufficient structural capacity to be considered for rooftop solar development.

Visual Impact of the Project

45. How will Samsung address the visual impacts of the project? Will there be visual screening (e.g. fencing, panels, trees, and berms) from roads and homes? Will there be berms? If yes, how high will they be and where will the soil come from to create them?

As part of the planning process, Samsung will be evaluating mitigation measures for potential visual impacts and the scope of visual screening may be established as the detail design progresses.

46. Can you provide more details about setback distances and adequate buffering between neighboring property lines and panel installations?

Samsung is currently evaluating setback distances and buffering on a property specific basis. However, setbacks to all natural and heritage features such as provincially Significant Wetlands are regulated by the Province of Ontario and are listed in Ontario Regulation 359/09. Additionally, a Noise Study Report is required by the Ministry of the Environment, to ensure that the transformers associated with the solar panels are located in strategic areas. Setbacks to features such as public roads, property lines are not regulated. Samsung may work with individual landowners on a property-specific basis to determine setbacks.

Health

47. Is there a risk or impact to human health?

Potential impacts to human health and safety are minimal and generally related to construction activities such as noise, vibration and dust. The levels of noise, vibration, dust and emissions during the construction phase are expected to be minimal, localized and temporary in nature. Mitigation measures for these potential impacts will be part of the construction plan and health and safety plan.

48. What are the effects of electromagnetic fields (EMFs) on human health due to the proximity of high voltage cables that carry high impedance (Amperage)?

Electromagnetic fields or EMFs are invisible fields that surround electrical equipment, power

cords, and power lines. You cannot see or feel EMFs; however, every time you use electricity – either from power lines or appliances (e.g., television, computer, coffee maker, hair dryer, monitors, cellphones, microwaves) – you are exposed to EMFs at extremely low frequencies. These forces are strongest when you are close to the source. As you move away from the source, the strength of the fields fades rapidly. When you are indoors at home, the magnetic fields from high voltage power lines and transformer boxes are weaker than those from household electrical appliances.

Research has shown that EMFs from electrical devices and power lines can cause weak electric currents to flow through the human body. However, these currents are much smaller than those produced naturally by your brain, nerves and heart, and are not associated with any known health risks.

When all of the studies are evaluated together, the evidence suggesting that EMFs may contribute to an increased risk of cancer is very weak.

49. What are the noise impacts from construction and operation of the facility including, but not limited to, impacts from transformers?

Sound levels from the Project operations were modeled using an industry standard and Ministry of the Environment (MOE) accepted noise modeling program which simulate the sound levels from the inverters and the sub-station transformers. The predicted sound levels from the inverters based on manufacturer's data were determined to not exceed the MOE guideline limits at the points of reception (i.e., nearest residences).

Construction noise will primarily come from mobile equipment. Work hours are planned to occur between 7:00 AM and 7:00 PM.

50. What are the construction and operational impacts related to any use of chemicals (e.g., detergents, cleaning chemicals, and herbicides) to prevent vegetation shading of panels?

Appropriate environmentally-friendly vegetation control methods will be used by local contractors as administered by the operations and maintenance contractor. There is no cleaning regime for the panels (i.e., naturally through rainwater).

51. What air quality impacts can be expected during construction and operation? What plans are there for dust control during construction and operation of the facility?

Dust control during construction will primarily come from applying dust suppressants (mostly water) in work areas that are subject to dusting. There will be efforts to minimize bare earth exposure by revegetating as quickly as possible. Operation of a solar array does not impact air quality.

52. What are the local benefits of the project?

Local benefits that may be realized as a result of this Project include:

- Employment including direct (engineering, construction, suppliers, and service providers) and indirect (accommodations, restaurants, and retail).
- Income to property owners where leases have been established.
- New property and sales tax revenues for the local tax base.
- Environmental benefits through the reduction of greenhouse gas emissions.

53. Will property insurance or property taxes change?

As identified in the lease agreements, Samsung will cover the incremental taxes for landowners where these agreements exist. Property taxes are controlled by the municipality, but Samsung does not anticipate any property tax increase for non-participating landowners.

There is no existing evidence of an effect of solar facilities on property insurance. Property insurance is regulated by the insurance industry.

54. What are the impacts on property values from solar development? And, what will Samsung do to assure no property value loss due to the Solar Installation?

Landowners (lessor) that have lease agreements with Samsung (lessee) will be compensated. The increase in revenue per acre for the lessor could potentially result in an increase in property value. The solar facility may be designed to minimize any potential visual effects on nearby landowners and thus any potential impact to property values.

With regards to a property being within visual distance of the solar facility and the potential effects to property values, there is no available evidence to date (via systematic reviews of property value impacts) which links the location of a solar facility within impacts on property value.

55. What jobs will be sourced locally?

Where possible, Samsung will be sourcing jobs locally. Some of the direct jobs will include ploughing, construction, operation and maintenance. Local indirect jobs are anticipated due to an increase in work in the area.

56. How many jobs will be created for the Project?

The 100 megawatt solar facility project is expected to create the employment of approximately 100 people on a monthly basis during the construction phase and 5-10 people during the operation and maintenance phase; however, the accurate number and types of position is not known at this time and will be assessed as part of the planning process. For instance, the construction report for the Renewable Energy Approval will address the estimated number of jobs to be created, but more accurate figure of employment can be estimated after the detailed engineering stage.

57. Who owns that land that the project is being constructed on?

Samsung has entered into lease agreements with various landowners throughout the Project area. Samsung has an option to purchase less than 5% of the total properties required for the solar facility.

58. Will Samsung guarantee home owners value on their properties? If not, why not considering Samsung has previously stated that property values will not decline...if Samsung is so confident of this statement, why not guarantee our property values?

The solar facility will be designed to minimize any potential visual effects on nearby landowners and thus any potential impact to property values. With regards to a property being within a visual distance of the solar facility and the potential effects to property values, there is no available evidence-to-date (via systematic reviews of property values impacts) which links the location of the solar facility with impacts on property value. Landowners (lessor) that have lease agreements with Samsung (lessee) will be compensated. The increase in revenue per acre for the lessor could potentially result in an increase in property value.

59. What will Samsung do for the loss of amenity for neighboring properties including landscape impacts and destruction of views?

As part of the planning process, Samsung will be evaluating mitigation measures for potential visual impacts and the scope of visual screening may be established as the detail design progresses.

Surface and Ground Water Resources**60. What are the effects of construction and operation of the project on the quality and quantity of groundwater resources (e.g., impacts from post hole drilling on groundwater aquifers and well water in the surrounding properties)? What will Samsung do to assure no water loss or water contamination?**

No water loss is expected during the construction or operation phases. It is very unlikely that anything more than minimal dewatering will be required during construction. If water is taken for dewatering during construction, it can be allowed to soak back into the ground close to the point of taking to prevent a net water loss.

In terms of construction, this facility does not require any new or unusual construction techniques. Larger excavations into bedrock or near the bedrock are likely typical in the area for the construction of house basements. The construction of post holes will be similar to those created for the installation of telephone poles.

After construction is complete, no water taking is expected at the facility, with the possible exception of a small water well at the Operations and Maintenance Building to supply water for employee washrooms.

These corrective measures would follow the Ministry of the Environment (MOE) guidelines on addressing groundwater water interference. As per s.13 of the Environmental Protection Act, all spills that could potentially have an adverse environmental effect, are outside the normal course of events, or are in excess of the prescribed regulatory levels would be reported to the MOE's Spills Action Centre and clean up measures will be implemented immediately.

61. In the draft report it is stated that: "Aquifers can be susceptible to land use impacts depending on the type and thickness of the overburden and/or shallow depth to groundwater. Dewatering of aquifers is not anticipated as part of the project". If dewatering does happen what is Samsung's plan?

The necessary precautions will be taken to avoid the potential impacts on groundwater levels; however, in the event that well water quality or quantity is disturbed as a result of construction, corrective measures would follow the Ministry of the Environment guidelines on addressing groundwater water interference. The subsurface work at the site is primarily limited to post hole construction, and no dewatering is anticipated.

(please refer to page 13 Environmental Components/Potential Effects in the draft Project Description Report (July 2011) to view the quoted text above)

62. How will the installation and disturbance of existing soil (i.e., holes in the ground for the racking systems) impact the natural water filtration through the multiple soil passages (layers) to the wells?

The shallow post holes required for the solar panels will be backfilled around the posts with concrete grout where open spaces around the posts are created. As such no open conduit will be created through the soil layers.

63. What are the potential effects of the storm water runoff during construction and operation (i.e., impacts on surface water resources, erosion, flooding, etc.)?

No significant impact on erosion or flooding due to the solar panel is anticipated; however, a stormwater management plan will be submitted as part of the regulatory requirements.

Erosion and sedimentation control measures will contain excavated soils on site and prevent related sediment from entering watercourses. Standard techniques will be used to control runoff (e.g. temporary ponds and silt fences).

After construction, water and snow will run off the solar panels and fall on to the ground, where it is expected to soak into the ground. During large storm events, some surface runoff will occur, however the net storm runoff is expected to be similar to pre construction due to the limited impermeable cover created on the ground. Vegetated areas disturbed during construction will be re-vegetated as soon as conditions allow, to prevent erosion and to restore habitat functions. Erosion and sediment control measures will not be removed until vegetation has been re-established to a sufficient degree (or surface soils stabilized using other measures) so as to provide adequate erosion protection to disturbed work areas and help retain water onsite. Tilling of compacted soils may also occur if necessary to assist water infiltration.

Erosion and sediment control measures will include the application of structures such as:

- Runoff Controls – diversion berms, cross trenches, chutes, check dams, interceptor swales;
- Erosion Control – diversion ditch and dispersion aprons, gravel sheeting, mulch, erosion control blankets; and
- Sediment Control – sediment fence, straw bale barriers, filter berms, sediment traps, settling ponds.

64. The Cataraqui Region Conservation Authority has classified the entire area as having a "highly vulnerable aquifer". How will Samsung ensure the safety and integrity of ground water wells within the project area?

The entire CRCA watershed is classified as being underlain by a highly vulnerable area (<http://www.cleanwatercataraqui.ca/publications/draftSourceProtectionPlan/ScheduleA.pdf>). The classification of the area as being underlain by a highly vulnerable aquifer will be based on the presence of limited to no overburden cover over the bedrock. The construction of the facilities does not require any unusual or special techniques, and will comply with best management practices and regulations that cover all construction activities. The construction of the facility will not involve the permanent removal of soil and vegetative cover from the site, and the vulnerability of the aquifer is expected to be unchanged following construction.

The necessary precautions will be taken to avoid the potential impacts on groundwater levels; however, in the event that well water quality or quantity is disturbed as a result of construction, corrective measures would follow the Ministry of the Environment guidelines on addressing groundwater water interference. The subsurface work at the site is primarily limited to post hole construction and no dewatering is anticipated.

65. Which local companies and/or experts has Samsung consulted with in their studies regarding local wildlife, wells in the area, our vulnerable aquifer?

AMEC Environment & Infrastructure (AMEC) has been retained by Samsung to conduct studies related to local wildlife and to review potential impacts on the local aquifer. As part of these studies, AMEC has consulted with the Ministry of Natural Resources and Cataraqui Region Conservation Authority with respect to wildlife, fisheries, surface water, and groundwater. As well, Samsung has retained third-party expertise to peer review findings related to local wildlife and habitat.

Biology

66. Is there a risk or impact to the environment and wildlife?

Samsung and its consultant have completed baseline studies in the area to identify any potential risks or impacts to the environment and wildlife. Samsung, through its consultant (AMEC), is currently conducting field work and generating reports that are an integral part of the application for the Renewable Energy Approval (REA). The REA is a lengthy and comprehensive process which takes into account multiple critical items that are reviewed by several ministries and the final approval is adjudicated by the Ministry of the Environment. The studies involve an assessment of items such as, Species at Risk (SAR), wildlife corridors, significant wetlands. We work in conjunction with the ministries to eliminate, minimize and/or mitigate for identified risks or impacts.

67. Is Samsung proposing to remove all trees and forested areas? And, what specific considerations is Samsung giving to mitigate the effects this will have on ground water?

Tree removal within the project footprint will be minimal as the vast majority of the selected properties for the project are open fields with little to no vegetation. In addition, there is limited forest in the Project area and therefore removal will largely include minor hedgerows and regrowth areas. No riparian buffer areas will be removed and no changes in groundwater patterns are expected as a result of tree removal.

68. Are natural heritage/environmental impact assessments being completed prior to ploughing archaeological resources to protect habitat from being lost?

Natural heritage and environment impact studies on the fields that were to be ploughed were completed prior to the ploughing. The findings of the studies were reviewed with Ministry of Natural Resources who then provided conditions under which the ploughing could occur.

69. What microclimatological effects can be expected due to removal of tree cover and the natural cooling it provides (e.g., creation of local heat sinks, regional implications, etc.).

Since minimal to no vegetation removal is required it will not have a significant impact on tree covered areas and is not expected to measurably affect local or regional climate.

70. What are the plans for permanent ground cover within the project footprint (e.g., gravel/grass/wildflowers)?

Permanent ground cover will be accomplished with seeding or by gravel on permanent maintenance roads.

71. Could you please address the following ecological concern:

- a. Assessment of existing habitats within the project footprint including a minimum four season ecological assessment of significant woodlands, effects on nesting and grazing, potential disruption of wildlife movements including but not limited to impacts on threatened, endangered and species at risk. Additional examples would be deer, coyotes, and wolves, will not have the ability to travel freely throughout the property boundary due to the fences that will be put in place.**

A full habitat assessment has been conducted for all natural areas occurring within the Project Location (where the project components will occur) and 120 metres beyond. All habitat features outlined by the Ministry of Natural Resources (MNR) as requiring assessment including habitat of species at risk were included in this assessment. Among the habitat types assessed was the availability of suitable habitat linkages and animal corridors.

The Study Area is laterally bisected by Unity Road which acts as the most disruptive feature within it. The Study Area is further bounded by Highway 401 to the south which will limit movement of most species to lands closer to Lake Ontario. No habitat linkages were found within the Study Area that met the MNR definition of "significant animal movement corridors". Significant animal movement corridors are areas of natural habitat that link two significant wildlife habitat features. In southern Ontario, only corridors for deer and amphibians are considered significant.

Panel placement within the Project Location occurs such that large breaks occur between blocks of panels. Within these breaks occur areas of forest and/or regenerating agricultural lands (shrublands/grasslands) which may be used by any wildlife occurring in the local area. As a result, no physical impediments will be constructed that disrupt wildlife movement across Unity Road.

72. Could you please address the following ecological concern:

- a. Potential habitat destruction to adjacent lands during the construction period.**

All areas of direct impact from project activities are addressed in the Natural Heritage Assessment. In many cases, fencelines of agricultural fields already bound natural habitat features and will result in no loss of habitat. Due to the fragmented or checkered nature of agricultural fields being separated by hedgerows and patchwork of varying land uses, constriction of grassland or shrubland habitat will be minimal. Habitat features occurring within leased properties may experience the removal edge habitat.

73. Could you please address the following ecological concern:

- a. **Potential loss of habitat for the endangered Loggerhead Shrike which is known to breed in the area, including consideration of adequate acreage required for breeding habitat.**

Eastern Loggerhead Shrikes prefer pasture or other grasslands with scattered low trees or shrubs. This species lives in fields or alvars with short grass (15-35 centimetres). Territory size for the prairie subspecies averages 13.4 hectares (ha) and can be as small as 6.5 ha (COSEWIC, 2004). This species builds its nest in short trees (most commonly hawthorn and red cedar) and perches atop these short trees while hunting for prey. Spiny tree species such as hawthorns are used to impale prey items (mice, small birds, frogs, and large insects), though barbed wire is also used.

Loggerhead Shrike habitat areas have been provided by Ministry of Natural Resources. This identified habitat will not be developed for this project and project components including panels, fences, roads, underground transmission lines, inverter stations, or buildings will occur greater than 120 metres (m) away. No additional potential shrike habitat was identified by AMEC to occur within 120 m of the Project location.

The protection of Loggerhead Shrike habitat has also lead to the protection of high quality grassland bird habitat.

74. Could you please address the following ecological concern:

- a. **Potential impacts on Alvar habitat.**

Alvar habitat can be defined as areas of shallow soils (15 centimetre or less) occurring over limestone with areas of exposed limestone bedrock (Lee et al, 1998). In addition to sparse soil, alvars display sparse vegetation and host special plant communities. In Ontario, alvar-indicating plant species included Prairie Smoke, Early Buttercup, Indian Paintbrush and Balsam Ragwort.

Areas of shallow soils and exposed bedrock were observed within the Study Area, though such areas were not accompanied by the presence of rare vegetation. It was determined by AMEC biologists that such areas should be classified as bedrock meadow rather than alvar. Areas of bedrock meadow were dominated by agricultural plant species, reflecting their recent use as agricultural land or the agricultural influences of adjacent lands. Given the absence of rare vegetation communities in the Study Area, no alvar habitat was recorded within the Study Area.

75. Will there be an Arborist's report including detailed tree inventories listing species and numbers for consideration of compensatory plantings by the City of Kingston arborist in accordance with the requirements of the Tree Bylaw?

Samsung will work with the City of Kingston, Loyalist Township and Cataraqui Region Conservation Authority to identify appropriate mitigation plantings to meet the requirements of municipal tree bylaws.

76. Has Samsung studied the riparian buffers? Has Samsung consulted with local experts? Who?

Only one riparian corridor falls within 120 metres of the project. A 30 metre buffer has been proposed for this area. Aside from the Ministry of Natural Resources and the Cataraqui Region Conservation Authority, we have consulted with the Kingston Naturalist Society, local landowners, and the local loggerhead shrike naturalist.

77. Due to the loss of riparian buffers in the area, Mud Lake and surrounding water channels develop algae blooms, how will Samsung address this?

These areas will not be affected by the project as they are not within the project footprint nor is it expected to affect local hydrological patterns. Algae blooms occur naturally and the annual pattern of these blooms is not expected to change as a result of the project.

78. Could you please provide information regarding Solar Farm Site/Landscaping (Topsoil Replacement)?

During site preparation, topsoil will be removed and temporarily stockpiled on-site. The topsoil will be then be re-placed and reused to the extent possible onsite in areas disturbed by construction but not required for access roads.

79. Have any endangered species been within the project footprint?

Samsung has been working closely with the Ministry of Natural Resources (MNR) to identified endangered species within the draft proposed project area and mitigate where there are constraints. MNR restricts proponents from disclosing the endangered species and their locations identified in the studies to ensure their safety.

80. What date did Samsung complete their ecological study?

The study began in January 2011 and is ongoing.

81. Can you provide details about the follow-up environmental monitoring and audit programs?

The *Endangered Species Act* Permit currently being prepared will detail post-construction monitoring requirements for Species at Risk. Further follow-up environmental monitoring may be required following regulatory review of the Renewable Energy Approval reports.

Archaeological and Cultural Heritage

82. Why do you need to plough the fields? When will this be done?

The REA process requires proponents to undertake an archaeological investigation of the project lands. In order to determine whether there are artifacts beneath the soil, fields need to be ploughed to expose the sub-soil. Archaeologists then walk over the fields and look for artifacts that may indicate past occupation of the lands. The first round of ploughing was conducted in October and November of 2011. A second round of ploughing will occur (weather

permitting) throughout Spring 2012.

Construction – Planning & Design

83. Why did Samsung choose this location?

This location was selected by Samsung based on multiple factors, including:

- a) On solar radiation data.
- b) Proximity to the transmission line.
- c) Available capacity on Hydro One's transmission system.
- d) Readily available Canadian Land Inventory Class 4 to 7 lands.
- e) Landowners willing to participate in this project.

84. Are the solar panels fixed and how high are they?

The proposed solar facility involves a fixed tilt installation. Each rack is typically constructed of footings and panels, where the entire unit stands approximately two metres above ground surface

85. How does the power get from the project to the grid?

Samsung intends on routing collector (co-locate) lines through the existing distribution poles, where possible. Within individual properties Samsung intends to route the cables underground where possible. Collector lines will be routed to a substation and connected to the 230 kilovolt (kV) transmission line through a tab overhead (cable) located within the Hydro One corridor.

86. Are new transmission lines required? And will transmission lines be overhead or underground?

Samsung intends on routing collector (co-locate) lines through the existing distribution poles, where possible. Within individual properties Samsung intends to route the cables underground where possible. Collector lines will be routed to a substation and connected to the 230 kilovolt (kV) transmission line through a tab overhead (cable) located within the Hydro One corridor.

87. What is the communication and fault setup scheme?

There will be supervisory control and data acquisition (SCADA) to ensure communications of faults and a relay protection scheme will be set up in conjunction with Hydro One requirements.

88. Who are the module and inverter manufacturer?

Samsung has partner with SMA Solar Technology which is a worldwide market leader for solar inverters. These inverters will be manufactured in Toronto, Ontario. The solar module (panel) company has not been chosen yet. We anticipate that a panel manufacturer will be chosen by the end of the second quarter of 2012. Once an agreement is executed, the panel company is expected to set up a manufacturing facility in London, Ontario.

89. How deep will the rack posts be? And how deep will the holes be to support the racking system in place?

The depth of the rack posts will depend on the geotechnical study and equipment selection. This will be determined during detailed design.

The rack foundations must be founded on or in bedrock. With the exception of one test hole, the results from the sub-surface investigation showed that the bedrock is located less than 2 meters below the surface. Consequently, it is expected that the vast majority of rack foundations will be less than 2 meters below the existing grade.

90. How will Samsung mitigate for any risks or impacts?

Samsung is currently conducting baseline studies to identify any risks or impacts. Risks or impacts identified during the studies or identified by stakeholders will be assessed and efforts will be made to eliminate, minimize and/or mitigate them.

91. Will blasting be required due to the bedrock?

It is anticipated that drilling will be the method used.

92. Does the solar facility require battery backups? Explain in detail.

Solar facilities do not require battery backup. When the solar facility is not operating, electricity on Ontario's grid is provided by other sources such as wind, hydro, natural gas, nuclear and biomass.

93. How will SRE mitigate inverter or transformer leaking?

For the transformers at the substation, a "double containment system" will be implemented. In addition to the "first stage" of containment, namely the transformer enclosures (conservator, tank, etc.), a "second stage" of containment will be in the form of a transformer containment pit system. The containment pit around the transformer will be sized to hold a volume of water in the amount of the transformer oil held in the unit plus fire suppression water plus stormwater runoff.

Drainage from the transformer pit would be removed by either manually or automatically operating a sump pump to discharge the liquid. In either case, an oil/grease sensor would be mounted on the pump to detect any oil/grease in the liquid. If oil/grease is detected, the liquid would be removed from site via a licensed waste hauler and the source of the leakage would be identified. If no oil/grease is detected in the liquid, discharge would be via the stormwater collection system.

Inverters are enclosed in a housing which will contain any unexpected leaks from the inverters.

Construction - Construction

94. Who will build the solar facility and how long will construction take?

Samsung will work with a Construction Contractor once the designs are finalized and approvals are received. The construction schedule is currently estimated to be 1 ½ years.

95. How much and what types traffic will there be during construction and operation?

Trucks and combination vehicles would include ready-mix concrete trucks, dump trucks, flat-bed semis, and low-bed combinations (for construction equipment).

Traffic will be evaluated as part of the construction and operation planning process.

96. Does the public get to see all applications and final construction plans before they are sent in for assessment? Explain when and where?

Samsung will hold one open house in each of the municipalities, subsequent to the submission of the applications. The open houses will provide an overview of the supporting documentation for the applications including project layout, construction techniques, operations, and measures to be taken to address comments received from the public and environmental protection measures that will be implemented during construction and operation of the facility. The reports and plans submitted as part of the Renewable Energy Approval application will be available on the project website.

97. What are the anticipated traffic impacts during construction including but not limited to impacts from construction trucks and damage to roads.

Construction would occur mostly in the fair weather months of 2013 and 2014. The overall impact of construction traffic will be minimal. There will be a transportation plan developed for the project that will minimize the impact of the added traffic. Special delivery routes and times will be imposed for incoming trucks.

Roadway conditions will be assessed prior to construction and after construction is complete. A ny road repair required as a result of the work would be corrected.

98. What are the planned hours of operation during construction? Is it possible that construction will be undertaken 24 hours a day, 7 days a week?

Normal work hours for contractors will be limited to 7:00 AM – 7:00 PM, Monday through Friday. Hours outside of this window would need to be justified and approved prior to performing. Special provisions would need to be implemented during these off-hour work periods to minimize noise and other possible disturbances to the residents in the area.

99. Where will Samsung route their vehicles during construction? Will most of the traffic run along the 401 and on service roads to avoid local roads?

During construction, Samsung will make use of the existing infrastructure in the area for transportation purposes. This includes but is not limited to Highway 401.

Construction - Operations

100. Do we have enough sunlight to get the power? What if it is cloudy or snowy? Do they work in the winter?

Yes, Natural Resources Canada has an existing solar map and Samsung has conducted additional research. The solar radiation mapping is based annual data and not the day-to-day fluctuations. Even during the winter season, the solar facility still generates the electricity. In fact cold temperatures during the winter months naturally cool the panels which provides for a more efficient operation. However, if it is cloudy or snowy, there are limited amounts of generation to occur.

(<http://atlas.nrcan.gc.ca/site/english/maps/archives/5thedition/environment/climate/mcr4076>)

101. What are the effects of weather, such as snow, rain, ice, hail or lightning?

Solar panels are designed to withstand various types of weather. Depending on the manufacturer, the solar panels are designed to withstand specific weather conditions (including hail, ice, rain, snow, etc.). The solar panels will be installed on a tilt to maximize power generation; moreover this tilt naturally assists with ice, snow, or water removal.

102. Who will own the solar facility? Who will operate and maintain it?

Samsung Renewable Energy, through its subsidiary Kingston Solar LP, will own the solar installation. The operations and maintenance contractor for the solar facility has not been determined

103. What are the warranties on the structures?

Warranties on the solar panels and structure will be covered by the Engineering Procurement Construction Management (EPCM) contractor.

104. What happens when project life ends?

Samsung is in the process of preparing a decommissioning plan as part of the REA process. After 20 years, Samsung will decide whether to continue operating the Project. This depends upon several factors including but not limited to power purchase agreements as well as the operations and maintenance costs. Alternatively, Samsung will fully decommission the Project which will involve removal and clean up of the project site and restoration of the lands to their original conditions.

105. What happens if the solar facility trips out?

There will be no impact to residents and businesses if the solar facility trips out since power to the main electricity grid is fed by multiple sources.

106. Will there be a glare from the panels?

The anti-reflection coating (AR coating) applied to the solar panels, any glare is minimized. Mitigation for glare is part of the solar facility design process.

107. Will the panels be washed? Where will the water come from and how will it be treated?

It is anticipated that the rain and snow would generally be sufficient for cleaning the solar panels; however, depending on the quantity and frequency of rain and snow at the Project sites, the modules may require periodic cleaning. If required, water trucks would bring water to the project site to supply the water. No chemical cleaning would be used.

108. Does the City of Kingston have a bond in case SRE goes bankrupt? If not, why is Samsung not providing one? (i.e.: who will be responsible for decommissioning the Solar Facility in case SRE goes bankrupt?)

Samsung is not required to have a decommissioning bond. As mandated by the Ministry of the Environment, Samsung will be submitting a decommissioning plan as part of the Renewable Energy Approval process.

109. Could you please provide the details of the decommissioning plans to rehabilitate the land when the project is abandoned?

Decommissioning activities would include removal of all fencing, equipment, supports, foundations, above ground cabling and underground cabling with 1 metre of the final surface, poles (except those with other services on them), and maintenance road improvements. Landowners would be able to retain maintenance roads if requested.

110. During operation and maintenance, who will be responsible for the facility? What types of response mechanisms are in place for emergencies? How will emergency vehicles access the facility?

The operation and maintenance team will be in charge of monitoring the facility for the lifetime of the facility (20 years) and will determine appropriate emergency response plans in consultation with emergency service providers in the City of Kingston and Loyalist Township.