KINGSTON SOLAR LP



KINGSTON SOLAR LP SOL-LUCE KINGSTON SOLAR PV ENERGY PROJECT

DRAFT DECOMMISSIONING PLAN REPORT

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1.0 INTRODUCTION

1.1 Project Overview

Kingston Solar LP (hereinafter referred to as the "Proponent") proposes to develop a solar facility with a maximum name plate capacity of approximately 100 MW AC (megawatts of alternating current) in Eastern Ontario located in the City of Kingston and Loyalist Township (Figure 1-1 and Figure 1-2). The renewable energy facility is to be known as the "Sol-luce Kingston Solar PV Energy Project" (hereinafter referred to as "the Project") and will be rated as a Class 3 Solar Facility. The Project will require a Renewable Energy Approval (REA) as per Ontario Regulation *O.Reg.* 359/09 under Part V.0.1 of the *Ontario Environmental Protection Act*.

This Draft *Decommissioning Plan Report* provides an overview of the proposed project including location, components, activities and potential negative environmental effects.

The development of the Project will help the Province of Ontario meet its goal of increasing the proportion of electricity generated from renewable sources. If approved, this facility would use photovoltaic (PV) technology to convert solar energy into electricity. Power generated by the Project will be fed into the provincial grid via a substation located adjacent to the Hydro One Networks Inc. (HONI) transmission line which crosses the study area.

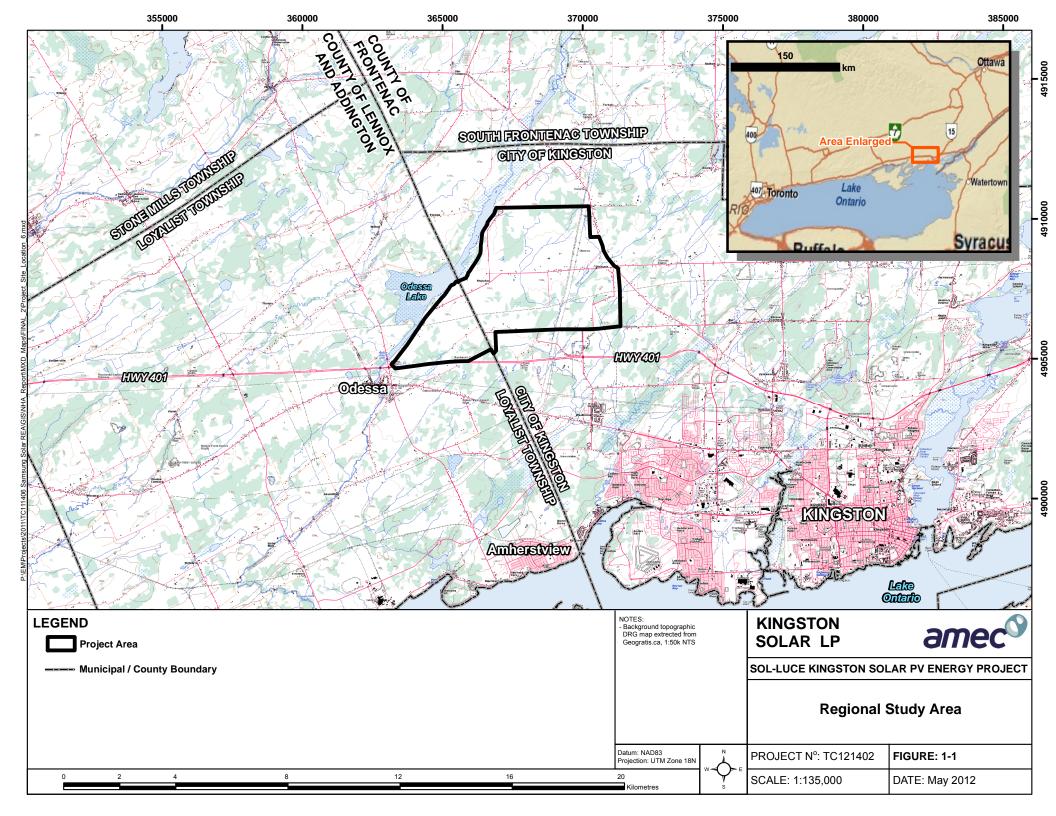
The Project will consist of:

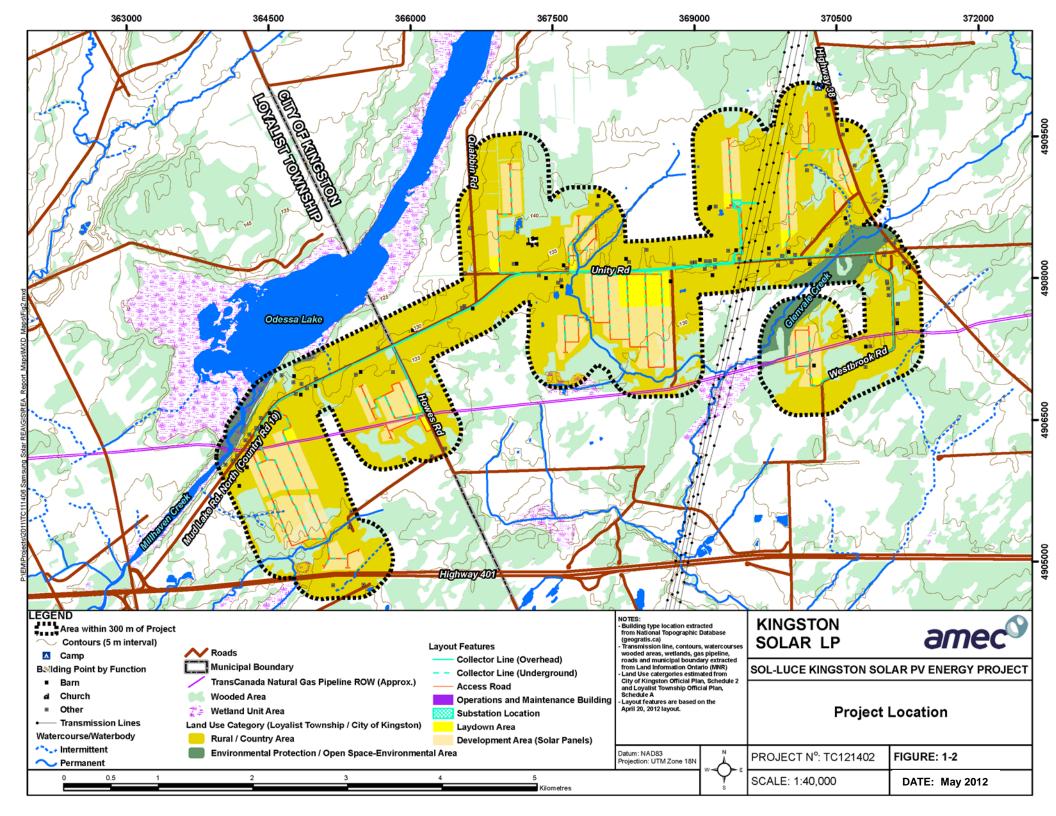
- Multiple sites consisting of arrays of Photovoltaic (PV) panels, with the cumulative capacity to generate up to 100 MW of power located as shown in Figure 1-2;
- Arrays mounted to aluminum or galvanized steel racking anchored to the ground or foundations;
- PV arrays grouped in blocks of approximately 1 MW and connected to an inverter station to convert the incoming power from direct current (DC) to alternating current (AC);
- A transformer at the inverter station that will transform the outgoing AC power to 34.5 kilovolts (kV);
- Underground and/or overhead collector lines to transmit power from the Project to the substation via the municipal road right-of-way. The collector line is estimated to be approximately 33 km in length;
- Transformers to transform the power to 230 kV for interconnection to the adjacent HONI transmission line;
- A maintenance and control building to be located at the substation site for operations and maintenance use; and,
- Security fencing around Project site.

The Proponent will provide design, construction, operation, and decommissioning of the Project. The proposed schedule is to commence construction in early 2013 with completion by 2014. The lifespan of the Project is 20 years with possibility of extension, following which the Project will be decommissioned.



The Proponent retained AMEC Environment & Infrastructure, a Division of AMEC Americas Limited (AMEC) to assist in the preparation of studies and reports in support of a Renewable Energy Approval (REA) application for the Project. This Draft *Decommissioning Plan Report* has been prepared in accordance with Item 3, Table 1 of O.Reg. 359/09 and the Ministry of the Environment's (MOE's) "Technical Guide to Renewable Energy Approvals – Chapter 7: Guidance for Preparing the Decommissioning Plan Report" (MOE 2011, 2012 (Draft)).







1.2 Contact Information

Kingston Solar LP (the "Proponent"), is coordinating and managing the approvals process for the Project. The proponent would be pleased to receive any comments, concerns or questions about the project or this draft *Decommissioning Plan Report* and is committed to public consultation throughout the REA process. Contact information for Kingston Solar LP is as follows:

Company Name: Kingston Solar LP

Company Address: 55 Standish Court, 9th Floor

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AMEC is the consultant responsible for the preparation of REA-related reports for the Project. The contact at AMEC is:

Full Name of Company: AMEC Environment & Infrastructure,

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1.3 Purpose of the Report

The purpose of the Draft *Decommissioning Plan Report* (hereinafter referred to as the "Report") is to provide the public, Aboriginal communities, municipalities, and regulatory agencies with an understanding of the closure plan for the Project at the end of its useful life, and to describe how the Proponent proposes to restore the Project Location to an acceptable condition for its intended use.



2.0 DETERMINING THE PROBABLE FUTURE USE FOR THE FACILITY

Although it is not possible to accurately predict the most probable land use at the time of decommissioning the facility, it is likely that the area will maintain its rural nature predominantly consisting of agricultural and rural residential land uses. The general area has also been designated as aggregate bedrock reserve in the Kingston Official Plan and portions of the Project area designated as agricultural.

Given that the Project area is currently rural, this Draft *Decommissioning Plan Report* has conservatively assumed that the future site uses will be agricultural. It should be noted that there is potential for the future land use to change prior to actual decommissioning.

This Report will be updated in advance of decommissioning to represent the applicable conditions and regulatory requirements in effect at that time.



3.0 DECOMMISSIONING OF FACILITY AFTER CEASING OPERATION

It is anticipated that the Project would have a lifetime of at least 20 years, which can be extended with proper maintenance, component replacement and repowering. For this section of the Report, it is assumed that the Project will be decommissioned after the 20-year power purchase agreement with the Ontario Power Authority ends. Following the term of the contract, a decision will be made regarding whether to extend the life of the facility or to decommission. Decommissioning would entail the removal of facility components and restoring the land to an acceptable condition for its intended use.

3.1 General Environmental Protection During Decommissioning

During all decommissioning and restoration activities, general environmental protection and mitigation measures would need to be implemented. Many activities during decommissioning will be comparable to the construction phase. As such, general mitigation measures and best management practices as appropriate, including erosion and sediment control, air quality and noise mitigation, and contingency plans for unexpected finds and spills, are provided in the Draft Construction Plan Report.

3.2 Pre-Dismantling Activities

Prior to any dismantling or removal of equipment, staging areas will be delineated at suitable locations within the Project and at the substation property.

All work to decommission collector lines along municipal roads will be conducted within the boundaries of the road allowance.

3.3 Procedures for Dismantling and Demolishing

3.3.1 Above-ground Structure Decommissioning

Solar Panels and Racks

Each PV panel/module used in the Project will be disconnected from the site electrical system and unbolted and removed from the mounting rack. After removal of the panels, they will be shipped off site for recycling or disposal.

The fixed racks that support the PV panels will be disassembled and removed from the site. The steel racking components can be reused or recycled for future use. The posts or anchors for securing the racks to the ground surface will be removed from the ground and recycled.

Inverters and transformers will be removed from their concrete foundations and shipped off site for reuse or disposal. The concrete pads that supported the inverters and transformers will be removed from the site and recycled.



Municipal Road Allowance

Overhead collector lines and poles within the municipal road allowance will be removed if necessary. In areas where the overhead collector lines are strung on shared-use poles, only the lines will be removed, per the shared-use agreement that will be developed with other users. The power lines removed will be salvaged for reuse or recycled. If the utility poles are removed these will be reused or disposed depending on condition.

Substation

All above ground structures and electrical equipment will be removed. The interconnection to the HONI transmission lines will be removed in accordance with HONI requirements, unless otherwise required by HONI. Steel and scrap metal will be recycled. Electrical equipment will be reused where possible or recycled.

Operation and Maintenance Building

The operation and maintenance building will be demolished, and all building materials removed from the site by truck. The building's concrete vaults and foundations will be removed with concrete recycled off-site by a concrete recycler or crushed on-site and used as fill material.

Access Roads

All access roads, including any geotextile material beneath the roads and granular material, will be removed from the site. The exception to removal of the access road or their related material will be upon specific request from the landowner to leave all or a portion of these facilities in place for future use by the landowner.

Watercourse Crossings

Culverts will be removed if requested by the landowner and approved by the Municipality, Cataraqui Region Conservation Authority and/or Department of Fisheries and Oceans.

Fencing

The safety fencing will be removed and recycled or re-used.

3.3.2 Below-ground Structure Decommissioning

Electrical Collector Lines

Underground collector lines on the solar sites would remain in place, with both ends that come to the surface excavated and removed to approximately 1 m below grade, in consultation with the landowner and in accordance with the land lease agreements. Otherwise these collector lines will be removed and the cabling reused or recycled.



Underground collector lines installed on the road allowances will be removed, if required by the agreements with the Municipality.

Foundations

Concrete foundations on the solar sites, the substation site or operations and maintenance building will be removed and crushed off-site by a concrete recycler or crushed on-site and used as fill material in accordance with the landowner's requirements.

Grounding grids at the substation site will be removed and recycled.

All granular and geotextile materials will be removed from the site by dump truck.

Stormwater Management Systems

Stormwater management systems at the substation site will be decommissioned in accordance with local and/or provincial requirements at the time, as appropriate. The pond area will be backfilled using clean fill and imported topsoil and reseeded as required in consultation with the landowner.

3.4 Site Restoration Plan

During the decommissioning phase the Project area will be restored to the extent possible to pre-operation conditions. At the time of decommissioning, this Site Restoration Plan should be updated as necessary based on the standards and best practices at the time of decommissioning, and in consultation with landowners and the appropriate regulatory and government bodies and the Cataraqui Region Conservation Authority.

3.4.1 Agricultural Lands

Areas that would require excavations during decommissioning of the facility are described in Section 3.3. Subsoil or clean fill will be added as necessary. Areas that may have become compacted due to facility operation or decommissioning activities will be de-compacted using chisel ploughing and/or sub-soiling, as determined by an agricultural advisor.

Any agricultural tile drains damaged during decommissioning, will be repaired by a drainage tile contractor. After repair, the landowner will be invited to inspect and approve the repair. Topsoil will be added to similar depth as surrounding areas, where necessary. Imported topsoil added to agricultural areas will be of the same or similar soil type and texture as pre-construction conditions and/or adjacent lands and will be selected with input from the landowner. Nutrients will be added as necessary based on analysis of the topsoil and input from the landowner.

All areas will be restored appropriately in consultation with the landowner.



3.4.2 Areas Not in Agricultural Production

In the event that the Project site is no longer under agricultural production, the subsoil will be restored and de-compacted, and topsoil added, as described in Section 3.4.2.

After the termination of the lease agreement with the property owners, the Proponent will remove all equipment, including fencing, and any foundations to a depth of four feet, and repair any damage caused by the removal of equipment. The lands will be restored to the original condition as at the commencement of the construction.

3.4.3 Municipal Road Allowances

Where Project infrastructure has been removed, disturbed areas will be seeded with quick growing native species to prevent topsoil erosion; the seed mixture will be determined at that time in consultation with the Municipality. Erosion and sediment control measures will be left in place until seed is fully established, as determined by an environmental advisor.

If any underground collector lines require removal, the area will be rehabilitated to pre-existing conditions as appropriate in consultation with the Municipality.

3.4.4 Watercourses

Any proposed decommissioning works within or near watercourses will be discussed with the Ministry of Natural Resources, Cataraqui Region Conservation Authority and/or Fisheries and Oceans Canada, as necessary, to determine any applicable guidelines, permitting, site-specific mitigation and/or remediation plans. It is envisioned that the same mitigation and monitoring measures implemented during construction will be used for the decommissioning of the Project. These are described in detail in the Draft *Construction Plan Report*. In particular, erosion and sediment control measures will be used, and all re-fuelling will be conducted away from any watercourse and wetlands.

3.4.5 Site Contamination

During the construction and operation of the Project, environmental management practices will be in effect, such as secure containment of potential hazardous materials, to minimize the potential for spills. Spills are the unintended discharge of material to air, land or water. The most common decommissioning spill scenarios include the release of sediments to watercourses, and release of hazardous materials (e.g., chemicals, gases, petroleum hydrocarbons) from containers or vehicles. As there is limited handling or storage of fuels or chemicals during the construction or operations phases of the Project, the potential for site contamination is very low. The Project should not, therefore, result in any long term decommissioning issues that will be detrimental to future land uses.

As part of the decommissioning phase of this site, an Environmental Site Assessment will be completed to evaluate any potential impacts identified from a review of site operational and



historical records. The Environmental Site Assessment would follow the protocols of O.Reg. 153/04 – Records of Site Condition, Part XV.1 of the *Environmental Protection Act* (O.Reg. 153/04) as amended or other applicable regulation that is in place at the time of the decommissioning of the Project. This would include the completion of a Phase I Environmental Site Assessment to identify potential impacts to soil and groundwater and a Phase II subsurface investigation as required, investigating any identified potential issues. Rehabilitation measures for any contaminated soil or groundwater will be determined at the time of decommissioning, and would follow regulations and best practices in place at the time of decommissioning.

3.5 Managing Excess Materials and Waste

Prior to embarking on the dismantling and demolition of the Project, the Proponent would complete a waste audit of the materials to be handled and prepare a waste reduction work plan in accordance with A Guide to Waste Audits and Waste Reduction Work Plans For Construction & Demolition Projects, as required under Ontario Regulation 102/94 (O.Reg. 102/94), as amended or other applicable regulation that is in place at the time. All wastes will be managed in accordance with Ontario Regulation 347, General - Waste Management (O.Reg. 347) and with reference to Ontario Provincial Standard Specification 180 - General Specification For The Management of Excess Materials (OPSS 180), or relevant regulations and specifications in effect at that time.

Typical waste materials and modes of disposal, recycling or reuse are presented in Table 3-1 below:

Table 3-1: Typical Facility Decommissioning Waste Materials and Modes of Disposal

Component	Mode of Disposal
PV modules/panels	Reuse or recycle
Steel racks, mounts and structures	Salvage for reuse or recycle for scrap
Concrete foundations	Crush and recycle as granular material
Electrical Cabling	Recycle for scrap
Transformers, inverters and switchgear	Salvage for reuse or recycle for scrap
Granular materials (roads)	Reuse or dispose in municipal landfill
Oils/lubricants	Recycle through licensed reprocessing company
Hazardous materials	Dispose through licensed hauler
Geotextile material	Dispose in municipal landfill
Miscellaneous non-recyclable materials	Dispose in municipal landfill



4.0 DECOMMISSIONING DURING CONSTRUCTION (ABANDONMENT OF PROJECT)

The Ministry of the Environment's (MOE's) "Technical Guide to Renewable Energy Approvals – Chapter 7: Guidance for Preparing the Decommissioning Plan Report" (MOE 2011) requests Proponents to consider decommissioning should the Project be abandoned during construction.

If the Proponent cannot successfully complete the construction of the Project, the rights to the Project may be sold to allow it to be constructed by the purchasing developer. In the event that a delay occurs in the purchasing of the Project by another developer, the Proponent will be responsible for interim environmental protection. In the event that the site has been cleared and/or excavated in preparation for installation of Project infrastructure, appropriate environmental protection measures will be implemented to prevent topsoil erosion and/or watercourse sedimentation. The extent of environmental protection measures required will be dependent on the progress made at the time of Project abandonment, and will be determined through site inspections by qualified specialists. Possible measures would include, as appropriate, erosion and sediment control fencing, filling excavated areas, replacement of topsoil and/or reseeding and re-vegetation.

In the event that the Project is not purchased by another developer, the Proponent will be responsible for decommissioning of the Project. In such a case, the decommissioning process to be followed and the mitigation measures to be implemented will be the same as those detailed in Section 3.0 for decommissioning of the facility after ceasing operation of the Project.

4.1 Procedures for Dismantling and Demolishing

Equipment dismantling and removal will be performed according to the activities completed and components installed at the time of Project abandonment. The procedures and related activities as outlined in Section 3.3 will be the same activities implemented if the Project were to be abandoned prior to commencing operations.

4.2 Site Restoration

Site restoration will be determined according to site development at the time of Project abandonment and the procedures and related activities as outlined in Section 3.4 will be the same activities if the Project were to be cancelled.

4.3 Management of Waste and Excess Materials

Management of waste and excess material will be determined by activities completed and components installed to data at the time of abandonment. Therefore, the plan and related activities as outlined in Section 3.5 will be the same activities if the Project were to be abandoned prior to commencing operations.



5.0 EMERGENCY RESPONSE AND COMMUNICATIONS PLANS

The Project's Emergency Response and Communications Plan is described in the Draft *Design* and *Operations Report*. The plan will be implemented though all phases of the Project including decommissioning. The same procedures will be followed if the Project were to be abandoned.

Given the low risk involved in decommissioning of the Facility, it is not anticipated that emergency situations (e.g., fire, spills, etc.) will take place. The Proponent will update the detailed Emergency Response and Communications Plan, prior to the start of decommissioning to cover local conditions or regulatory requirements in effect at that time. The plan will be prepared in consultation with the municipal and provincial authorities and include notification of appropriate emergency personnel, including the local fire, police and medical agencies.



6.0 MONITORING

Follow-up monitoring for one year after site restoration will be conducted, to allow for the Project area to experience seasonal changes and help determine if additional restoration is required, as determined by an environmental advisor. A monitoring plan will be prepared prior to decommissioning.

For agricultural land, potential soil problem areas including trench subsidence, soil erosion and/ or stoniness will be noted. For municipal road allowances, a review should occur of the establishment of re-vegetation. Additional monitoring activities may also be conducted, depending upon the site conditions at the time of decommissioning. If negative impacts are noted during monitoring activities, appropriate remediation measures will be implemented as necessary, and additional follow-up monitoring will be conducted, as determined by an environmental advisor.



7.0 OTHER CONSIDERATIONS

7.1 Public, Municipal and Aboriginal Community Notification

Prior to decommissioning, the Proponent would consult with interested parties regarding the details of decommissioning and would amend this Draft *Decommissioning Report* to meet regulatory requirements in effect at that time.

7.2 Other Approvals

Following the updating of this Draft *Decommissioning Report*, the Proponent would obtain all necessary approvals in effect at the time from appropriate government and regulatory bodies. Currently, existing permits and approvals, which may be required at the time of decommissioning, are provided in the following table (Table 7-1).

Table 7-1: Potential Decommissioning Permits and Approvals

Permit / Approval	Administering Agency	Rationale
Municipal		
Building Permit	Municipalities	Compliance with building codes
Road Cut Permit	Municipalities	May be required for works to municipal roads
Work within the road allowance	Municipalities	Required for works in road allowances
Provincial		
Development, Interference with Wetlands, and Alterations to Shorelines and Watercourses Permit	Cataraqui Region Conservation Authority	May be required if working within floodplains, water crossings, river or stream valleys, hazardous lands and within or adjacent to wetlands. Projects requiring review, Fisheries Act authorization and/or assessment under the Canadian Environmental Assessment Act are forwarded to the Department of Fisheries and Oceans
Record of Site Condition	MOE	For change of property use and/or ownership
Notice of Project	Ministry of Labour	Notify the Ministry of Labour before decommissioning begins



8.0 CLOSURE

AMEC has completed this report for the exclusive use of the Proponent for specific application to the Sol-luce Kingston Solar PV Energy Project. The work has been completed using generally accepted practices and with reference to *Technical Guide to Renewable Energy Approvals – Chapter 7: Guidance for Preparing the Decommissioning Plan Report* (MOE 2011, 2012 (Draft)).

Sincerely,

AMEC Environment & Infrastructure a Division of AMEC Americas Limited

DRAFT DRAFT

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9.0 REFERENCES

- Ontario Ministry of Environment. 2012 (draft). Technical Guide to Renewable Energy Approvals Chapter 7: Guidance for Preparing the Decommissioning Plan Report as part of an application for a Renewable Energy Approvals (REA) under O.Reg. 359/09. Draft for Public Comment.
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