**Review of proposed policies adapted from A Place to Grow and Provincial Policy Statement to form a new Provincial Planning Policy Instrument**

**Feedback – Integrate Agrivoltaics into A Place to Grow and Provincial Policy Statement**

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The proposed new Provincial Planning Statement, therefore, will serve as the main go-to policy legislation which will derive major development in Ontario, and it is imperative to set the priorities straight from the outset to ensure sustainable growth in the province. We suggest revisiting the following sections/clauses of the preliminary draft:

1. **Generate an appropriate housing supply**

“Require municipalities to permit more housing on farms, including residential lot creation subject to criteria, additional residential units and housing for farm workers”

**In addition to housing, agrivoltaics – colocation of solar photovoltaic systems on agricultural land without adverse implication on farmland or crop yield – should be permitted**. The technology improves the land use effectiveness as renewable electrical energy is generated along with primary food production. Several studies have indicated enhanced crop yield when photovoltaic panels are deployed on farmland. The crops include corn/maize [1-5] and wheat [2-4], two of the top three farm produces in Ontario. Similarly, tomatoes [6] and lettuce [7,8] have also shown enhanced yield which are the most widely harvested greenhouse plantation in the province. It has been shown in *Agrivoltaics in Ontario Canada – Policy and Promise* [9] that employing agrivoltaics in Ontario could result in increased yield of corn, wheat and peppers.

1. **Make land available for development**

**We suggest to specifically include agrivoltaics as a technology that can be employed on agricultural lands and Greater Golden Horseshoe region**. The technology is being widely employed in Europe [10,11], Asia [12] and the U.S [13]. To ensure proper use of the technology, standard definitions for agrivoltaic project types and sizes, that could be aligned with appropriate land use parameters should be drafted. Similarly, guidelines and standards shall be developed that must be met to employ solar photovoltaic systems on farmland. These should include module coverage ratios, types of racking systems and requirements and limitations for field structures, as well as required minimum thresholds for crop production due to the use of agrivoltaics. In this regard, Germany has already developed an agrivoltaics standard 91434:2021-05 which states the following related to minimum crop yield:

*“It shall be ensured that the yield from the crop(s) on the total project area after construction of the agrivoltaic system is at least 66 % of the reference yield.”* [14].

In France, The French Standardization Association (AFNOR), in their publication “Agrivoltaic Project Label: Standards for the Labeling of Class A Crop Projects” suggested a minimum crop yield of 80% [15]. In Italy, “Guidelines for The Design, Construction and Operation of Agrovoltaic Plants” states that the at least 70% of the total area on which agrivoltaics is deployed shall be dedicated for agricultural activities [16]. Japan sets the minimum yield requirement for an agrivoltaic project as 80% when compared with the reference yield [17].

1. **Balance housing with resources**

“Require municipalities to designate specialty crop areas and prime agricultural areas, eliminating the requirement to use the provincially-mapped Agricultural System”

**Considering the requirements of development on prime agricultural area in Ontario [18], agrivoltaics should be considered an agricultural use or agricultural-related use due to its positive impact on agricultural production and solar photovoltaic electricity production so that the technology can be employed on prime agricultural land**. Alternatively, solar photovoltaic infrastructure may be employed on agricultural land using the on-farm diversified criteria. This clause, however, allows development only if the area is limited. This limited area requirement seems inappropriate in the agrivoltaic context. Since agrivoltaics has proved to improve crop production, benefits farm and energy economics, reduces environmental impact, the area for which agrivoltaics is utilized should be maximized instead of restricting it. Moreover, standards and guidelines should be developed to avoid any misuse of farmland.

“Require municipalities to protect specialty crop areas and maintain minimum separation distances between livestock operations and houses, and promote an agricultural systems approach to support the agri-food network”

**The Ontario Agri-food network will greatly benefit from widespread application of agrivoltaics.** The technology has proven to provide several benefits including plant protection from excess solar energy [19], plant protection from excess wind [20], plant protection from hail [6,21,22], prevention of soil erosion [23], ensuring agricultural employment as well as provision of local food [24- 27].

Agrivoltaics go beyond traditional solar technology by permitting the use of farmland beneath (or next to) the solar arrays. This characteristic makes it possible for farmers to increase their income while also promoting rural economic growth by producing environmentally friendly electricity from sunlight. Solar photovoltaic technology is also extremely labor intensive per MW compared to other energy generation technologies, so this also provides local jobs in both the solar sector (e.g. manufacturing in Heliene plant in Sault Ste. Marie, and deployment throughout Ontario) as well as continued farming and food processing jobs. Consequently, the growth of agrivoltaics will align with the economic, social, and environmental objectives of provincial land-use policies, without sacrificing the quality of agricultural land for future generations.

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