Designing a new model to assess the local economic impacts of large-scale solar development: a state-of-the-art of recent studies across the U.S. and the need for best practices

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In the case of large-scale solar facilities (LSS), some practices associated with economic impact assessment have become methodologically outdated. This is particularly true when researchers or consultants attempt to estimate local impacts at the county or city level using local input-output multipliers in three key ways. First, as the regional scale decreases and the underlying input-output tables cover smaller geographical regions, the models produced are more sensitive to the use of national data and rely on strong assumptions in estimating the local consumption of inputs, the local provision of labor and commuting flows, the leakage of capital to other regions, or the local fiscal policy and its complementary effects on local government expenditures. Secondly, most studies have simply neglected the impact of trade-offs with other land-intensive activities (like agriculture or forestry) that support the economic base of many rural economies. Finally, since solar development is still a relatively new technology in a phase of rapid expansion, national production technology data might not accurately reflect the impacts of the operation phase and instead overestimate the need for labor and other

inputs primarily used in the construction phase. Unfortunately, many of the aspects above are absent from studies that use standardized applications of IMPLAN, REMI, or other top-down regional input-output models.

Given this, we start by summarizing the recent literature that addresses the local economic impact of solar development and highlight how they have been overestimating the impacts both at the state and local levels, with the impacts of solar sometimes representing almost 10% of the total employment of some US states or local counties. Next, we highlight the potential methodological aspects that lead to these results and suggest different ways to improve the estimations and the data sources that can be used for this purpose. For example, in the case of IMPLAN, one particular aspect is that the coefficient of employment per unit of output is significantly outdated and ignores the differences between the construction and operation phases. Finally, we will list several areas where best practices should be implemented to increase the accuracy of local impact assessments.

Regarding regional policy, our goal is that this work will open avenues in the debate on how local economic impact studies can effectively inform localities of the economic benefits associated with solar investment and instill trust and confidence to strengthen the solar transition process.