



*Your Connection to the Sun*

# **ANALYSIS OF THE COSTS AND BENEFITS OF LOCAL IMPACTS OF SOLAR VS. ALTERNATE LAND USES**

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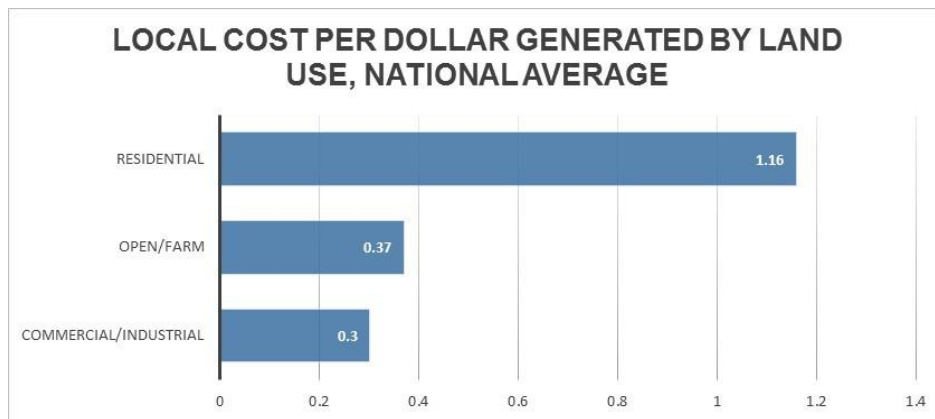
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## Why We Care

When determining whether a new use is right for the County, it is helpful to compare alternate land uses to see how they compare from a local cost-benefit perspective. Rural communities across the country have analyzed these impacts through Cost of Community Services (COCS) studies. These studies, often undertaken by the American Farmland Trust, but also by academics, such as Dorfman<sup>1</sup> (2008) and DeBour<sup>2</sup> (2010), take an exhaustive look at county revenues and expenses and determine how much the county spends for each land use type - dollar for dollar.

## Current Use

In a 2016<sup>3</sup>, The American Farmland Trust and the USDA jointly published the results of over 100 COCS studies from across the US.



In every instance, residential use was a net loss to the local community. On average, the county spends \$1.16 for every \$1.00 returned from residential use. We note that Orange County allows for residential subdivision by right, as long as the subdivision is over 2 acres. Currently, a residential developer could buy the subject property, divide it into over 100 lots, and develop housing (at a net loss to the county) without a publicly accessible review process and presumably without the input of the Planning Commission nor the Board of Supervisors.

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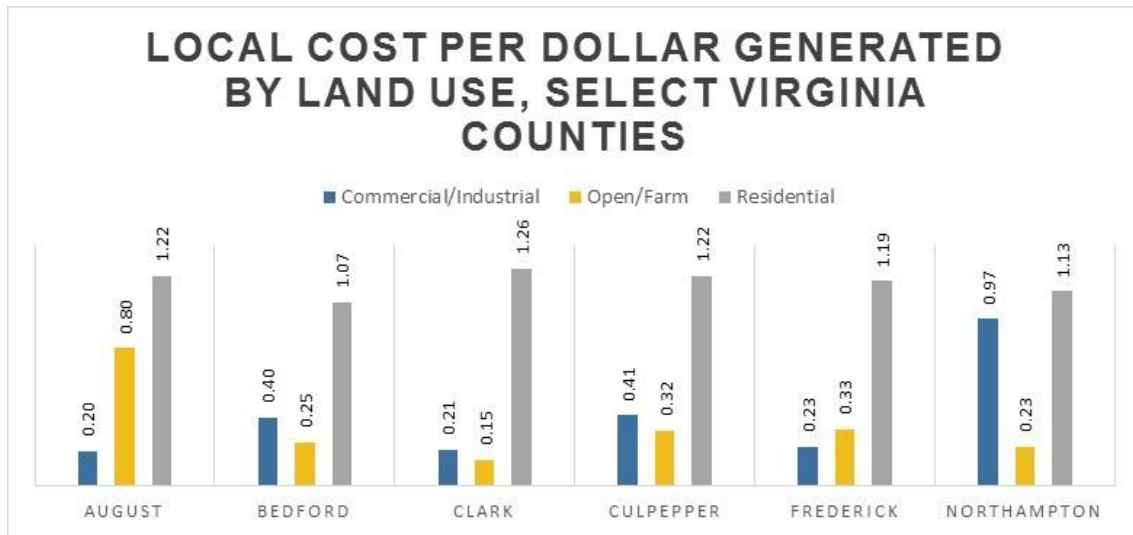
<sup>1</sup>Dorfman, Jeffrey H. "The Financial Impacts of Land Uses on Local Government", Department of Agriculture and Applied Economics, University of Georgia,  
Link: <http://landuse.uga.edu/Documents/cocsrep.pdf>

<sup>2</sup> DeBoer, Larry "A Cost of Community Services Study for Indiana Counties and School Corporations", Department of Agricultural, Economics Purdue University  
Link: <https://www.agecon.purdue.edu/crd/localgov/Essays/COCS%20paper%200910.pdf>

<sup>3</sup> Cost of Community Services Studies, The Farmland Informational Trust and the USDA, 2016

Link: [http://conservationtools-production.s3.amazonaws.com/library\\_item\\_files/352/1464/Cost\\_of\\_Community\\_Services\\_Studies\\_AFT\\_FIC\\_201609.pdf?AWSAccessKeyId=AKIAIQFJLILYGVDR4AMQ&Expires=1502398434&Signature=NpzEGouZo48BdXsHkERWwrKxgEI%3D](http://conservationtools-production.s3.amazonaws.com/library_item_files/352/1464/Cost_of_Community_Services_Studies_AFT_FIC_201609.pdf?AWSAccessKeyId=AKIAIQFJLILYGVDR4AMQ&Expires=1502398434&Signature=NpzEGouZo48BdXsHkERWwrKxgEI%3D)

The remaining uses, commercial/industrial and open/farm, are sources of revenue for the county in all cases. With the national average, the commercial/industrial use costs the county slightly less than open/farm land. In individual studies, these two sometimes switch, depending on the county. This can be demonstrated on a more regional scale by looking at the six COCS studies done for counties in Virginia, including one for Orange County's neighbor, Culpeper County.



Each of these potential land uses have their own financial scale of magnitude. For example, according to the Culpeper County COCS Study<sup>4</sup>, in 2002, 73% of county revenue was generated by residential land use, while commercial land use added 25% and farm/open land use added only about 2%. However, Residential land accounted for 89% of county expenses, while commercial added only 11% percent and open/farm added about 1%. Proportionately, residential land generated the largest amount of revenue, but cost the county an even larger amount. Commercial/industrial land use generated a significant, yet smaller amount of revenue and cost the county a lesser amount. Open/farm contributed the least amount of revenue but also cost the least.

## Solar Use

While these studies did not consider solar as a potential land use, solar would behave much like commercial/industrial in revenue, but behave more like farm/open land in costs to the county. In other words, solar provides the county with significant revenues, while imposing negligible costs. Solar's benefit-to-cost ratio should provide a significantly greater return than alternative uses.

Appendix 1-A of the Culpeper report demonstrates that Machinery and Tools (M&T) taxes comprise most of revenues from Commercial/Industrial uses. In this sense, large utility solar development would generate revenues that mirror commercial use, as projects over 20 MWac

<sup>4</sup> Cost of Community Services Study, Culpeper County, Virginia, The American Farmland Trust. March 2003. Link: [http://www.farmlandinfo.org/sites/default/files/COCS\\_Final\\_1.PDF](http://www.farmlandinfo.org/sites/default/files/COCS_Final_1.PDF)

are subject to M&T taxes. As previously demonstrated, the Madison Solar Project will create a meaningful amount of M&T taxes each year. In contrast, Orange County exempts agricultural equipment owned by a business from M&T taxes. Finally, Orange County allows agricultural operations to be placed into land use valuation which results in a significantly reduced assessment and resulting county revenues.

Conversely, solar development is passive and would require arguably less – certainly not more – county services than agricultural or forestry land uses. As seen in Appendix A-5 of the Culpeper report, other commercial uses start to cost the county with public safety costs, such as fire and rescue, sheriff, and other emergency services. With solar's passive energy generation and secure premises, such services will rarely if ever be required. Additional significant commercial costs include financial strain on the local health and welfare department and special funds such as welfare to work, airport fund, and county capital, services which a solar project will not require once constructed due to lack of personnel.

## Conclusion

Numerous academic and other experts have studied the benefits and costs to counties resulting from various forms of land use. These studies demonstrate that uses resulting in little demand on services while generating real and personal property tax provide for significantly more attractive net fiscal benefit to the county. In each study reviewed, residential use results in significantly greater costs than revenues, on average sixteen percent. When compared to agricultural uses solar results in similar and potentially less demand on county services and resources while generating significantly more tax than these uses due agricultural land's use valuation and exemption from M&T taxes. Hence, we conclude that solar would provide a significantly greater net financial benefit than other realistic land uses for this property.