

## Purdue Farm Policy Study Group Meeting Summary

December 14, 2021

The following members were in attendance: Ty Brown, Pete Clark, Sarah Delbecq, Otto Doering, Ken Foster, Bill Gelfius, David Hardin, John Hardin, Levi Huffman, Bryan Kirkpatrick, Lisa Koester, Jayson Lusk, Marshall Martin, Tom McKinney, David Miers, Doug Mills, Doug Morehouse, John Nidlinger, Steve Pitoud, Om Sharma, Rita Sharma, Mike Shuter, Mark Townsend, Rick Ward

Virtual Attendees: Joe Kelsay, Ken Rulon, Danita Rodibaugh, others

Zoom Recording: See <https://www.youtube.com/watch?v=HMrMqj2wzUY>.

NOTE: The website address for this group (and documents below) will change in February. Please visit <https://purdue.ag/fpsg> to access the following documents after that time.

### Agenda Items

#### *1. Student Attendees*

Four Purdue College of Agriculture students with interests in farm and policy issues were invited and attended the meeting. They were Makinzie France, Savannah Bordner, Austin Berenda, and Claire Nguyen. The plan, unless the group suggests otherwise, is to continue inviting a few students to attend our meetings. Academic schedules may create difficulties due to students' summer employment activities in July and conflict with final exams in December.

We continue to seek increased diversity in the membership of the group across age, ethnicity, gender, and types of farming enterprises. Please forward names and contact information to Ken Foster ([kfoster@purdue.edu](mailto:kfoster@purdue.edu)) if you would like nominate an individual for membership.

A few moments of silence were taken to memorialize Kaye Whitehead and her influence on communities and Indiana's agriculture.

#### *2. Solar Energy: New Threat or Opportunity for Farmland Preservation? [Link to slides](#)*

Dr. Sarah Mills of the University of Michigan shared her insights concerning renewable energy, local policy, and economic development specifically related to farmland preservation. Her research has shown that farms with wind turbines on their property invest significantly more in their farm businesses even relative to those who also receive neighbor payments and even after controlling for other factors that would contribute to greater investment. In addition, those farms with wind turbines are more likely to have succession plans for continuance of farming in the family.

Dr. Mills also discussed some of the reasons why we observe different responses to renewable energy in different local environments. Her research on this topic suggests that the primary reason why some communities reject wind energy projects while others embrace them has to do with the primary reason why people live in those communities. She has published a paper entitled "[Farmers vs. lakers: Agriculture, amenity, and community in predicting opposition to US wind energy development](#)" which is also posted on the PFPSG website for your reading. Counties with more natural amenities display greater contention with regard to wind project proposals while in areas with greater agricultural intensity there is generally less contention about such projects. This research leads to a couple of policy

conclusion. If the community goal is for substantial residential development or growth of tourism, then wind energy may not be the right option. If the community goal is focused on agricultural production, then wind energy may actually enhance the sustainability of agriculture and private investment in agricultural production while generating additional local economic activity. Dr. Mills conclusion is that wind energy is a farmland preservation tool.

Dr. Mills presentation was focused primarily on large scale solar energy farms rather than agri-voltaic farm-based system that integrate agricultural production with solar panels for local energy production. These are measured in hundreds to thousands of acres in size. These large solar farms are expected to increase in number in coming years as demand for renewable energy grows and solar technologies become more efficient. Currently, the average size solar farm in Indiana is just under 4 megawatts which equates to approximately 20 to 30 acres while the average size under construction is 26 megawatts. In the current MISO and PJM application pools for grid access, there are 14,700 and 26,100 megawatts respectively for Indiana with average projected sizes of 161 and 199 megawatts (around 1,000 to 2,000 acres). Not all will be built. This growth is driven by the changing economics of solar energy production.

Dr. Mills pointed out that various views exist as to what "farmland preservation" means and what exactly is or should be preserved. Namely, things like an urban boundary, rural vistas, habitats, land for food production, and farm livelihoods. Solar projects are typically multi-decade project so they do contribute to reducing dense housing but not to some of the other aspects. Solar also does not demand much in terms of services but depending on the property tax system may contribute to government tax revenues. Large solar farms almost surely disturb the rural vista but may contribute to habitat for wildlife and pollinators. In the shorter run (25 to 30 years) large solar farms do not preserve land in food production. Longer term the land could be remediated back to agriculture, but this may depend on zoning policies and land use policies that are put in place for the solar farms. Dr. Mills used the examples of a local zoning board that required water run-off controls that involved construction of large retention ponds using the available top soil such that return to agriculture in the food was almost precluded or certainly would not be as productive thus less likely to happen. Local policy makers need to determine whether they see the solar farm as a short or long-term land use and set requirements accordingly. That is, if they view the land returning to agriculture some day then they should not institute policies that make that difficult or implausible.

Dr. Mills highlighted the complexity of the farm livelihood issue. On one hand, the opportunities presented by solar energy projects can be quite lucrative and greater than the returns from farming. They provide a livelihood to a farmland owner that could be used to leverage farming elsewhere. The alternate concern, however, is related to the health of the local farm economy. Dr. Mills spoke about the tipping point when insufficient agricultural production is taking place in a community to support the local farm input suppliers and thus costs of production for remaining producers become increasingly prohibitive. Dr. Mills hypothesized that because solar uses a larger share of a farmer's land, their use of the lease payments will be more toward "retirement" or basic income than reinvested in their farms, contrary to the case for wind.

Another indicator that Dr. Mills suggested keeping an eye on is whether the solar developers lease or buy the land. If they purchase the land, then one should assume this is a permanent land use change.

Dr. Mills final admonition is that whatever farmland preservation and land use policies a community enacts, they should be consistent in their application and not aimed at particular land uses. She used the

example of energy project vs. golf courses and suggests that such projects should be treated equitably by policies.

Dr. Mills provided a couple of other related papers that you can find at these [links](#):

- Farmers vs. lakers: Agriculture, amenity, and community in predicting opposition to United States wind energy development, Douglas Bessette and Sarah Mills ([PDF](#))
- Wind Energy and Rural Community Sustainability, Sarah Mills ([PDF](#))
- Exploring landowners' post-construction changes in perceptions of wind energy in Michigan, Sarah Mills, Douglas Bessette, Hannah Smith ([PDF](#))

*3. An examination of the community level dynamics related to the introduction of wind energy in Indiana*  
[Link to slides](#) (PowerPoint will download)

Dr. Russell Hillberry, Purdue Professor in Agricultural Economics, presented information from a recent study of the impacts of Indiana's wind energy projects. The complete paper and additional information are available at <https://cdext.purdue.edu/collaborative-projects/wind-energy/>. The primary goal of the study was to understand the dynamics within Indiana counties that lead to a decision to support or oppose utility-scale wind generation.

Dr. Hillberry first presented an overview of the broad lessons derived from the study. They were that: 1. Technology is such that wind energy is now viable in many of Indiana's counties, 2. Counties have begun using their planning authorities to block new projects in some areas, and 3. There are sizeable economic benefits to landowners, project employees, and county governments.

Dr. Hillberry provided the following table of information about Indiana's existing utility-scale wind farms.

| Project name                    | County          | Nameplate Capacity (MW) | Turbine count | Year online | Hub Height (m) |
|---------------------------------|-----------------|-------------------------|---------------|-------------|----------------|
| Benton County Wind Farm         | Benton          | 130.5                   | 87            | 2008        | 80             |
| Fowler Ridge                    | Benton          | 301.3                   | 162           | 2009        | 80             |
| Fowler Ridge                    | Benton          | 99                      | 60            | 2009        | 80             |
| Fowler Ridge                    | Benton          | 200                     | 133           | 2009        | 80             |
| Hoosier                         | Benton          | 106                     | 53            | 2009        | 80             |
| Meadow Lake Wind Farm           | White           | 199.65                  | 121           | 2009        | 80             |
| Meadow Lake Wind Farm           | White           | 98.7                    | 47            | 2010        | 80             |
| Meadow Lake Wind Farm           | White           | 99                      | 66            | 2010        | 80             |
| Meadow Lake Wind Farm           | White           | 103.5                   | 69            | 2010        | 80             |
| Wildcat I                       | Madison, Tipton | 202.5                   | 125           | 2012        | 100            |
| Headwaters                      | Randolph        | 200                     | 100           | 2014        | 95             |
| Amazon Wind Farm (Fowler Ridge) | Benton          | 149.5                   | 65            | 2015        | 80             |
| Bluff Point                     | Jay, Randolph   | 119.7                   | 57            | 2017        | 94             |
| Meadow Lake Wind Farm           | White           | 100                     | 50            | 2017        | 95             |
| Meadow Lake Wind Farm           | White           | 200.4                   | 61            | 2018        | 105            |
| Jordan Creek Wind Farm          | Warren          | 402                     | 150           | 2020        | 89, 80         |
| Rosewater                       | White           | 103                     | 26            | 2020        | 105            |
| Bitter Ridge                    | Jay             | 147                     | 52            | 2020        | 89             |
| Headwaters II                   | Randolph        | 191                     | 53            | 2021        | 105            |

Recent projects have involved taller towers. Dr. Hillberry presented information about the wind power generation potential in Indiana at different elevations that showed that there is substantially more

opportunity with the taller towers. These taller towers make a much larger share of the state feasible for wind energy production.

With the new technology of taller towers, local policies have emerged as the primary constraint to expanded wind energy in Indiana. These have taken the form of set-back restrictions, height restrictions, and noise restrictions in most cases. A map of county-level restrictions in Indiana can be viewed at <https://insideclimatenews.org/news/30032021/indiana-wind-energy/>.

Dr. Hillberry and his coauthors used an econometric approach to measure county-level economic impacts from wind power and posited a set of potential avenues for such impacts including lease payments to land owners, wind industry employment, taxes and other payments to local governments, and other avenues such as increased retail spending. Lease payments in Benton and White Counties range between \$6,000 and \$12,000 per turbine, turbine technicians earn approximately \$60,000 per year and in 2019 the wind industry paid \$492 per citizen in Benton County and \$94 per citizen in White County (totals respectively were \$4.3 million and \$2.3 million). White County had fewer turbine and a larger population in 2019. Dr. Hillberry provided evidence from Benton and White Counties that suggests the tax revenue benefits are targeted toward areas most affected by the turbines through lower property tax rates for residents in those townships. This redistribution of the benefits may explain why research in the US has shown no property value impacts on home prices near wind turbines.

Dr. Hillberry briefly discussed results of another paper co-authored with Claire Nguyen using a general equilibrium model to evaluate the resource rents earned by wind energy companies in Benton and White Counties. You could think of these rents as excess profit in the sense that they are in excess of what would be needed for the company to break even. These rents include subsidies provided to wind energy companies. The wind in this case is the community resource under examination and the question is how much of the “value” of the wind in energy production is being retained by the energy companies as opposed to being paid back to the community in the forms of leases, wages to workers, and local taxes. In other words, could taxes be higher to generate greater local value and/or leases be higher without risking the projects. The estimated rent retained by the power companies is \$4.86 per MWh and \$1 per MWh for landowners. These value total \$16.4 million and \$9.8 million dollars for Benton and White counties respectively. Thus, the policy question for local officials is whether additional taxes should be assessed to retain some of the rents at the local level to either offset existing cost of services or provide new amenities to local residents? If so, then how much given that the model suggests the projects would take place regardless of the tax levied, and would imposing additional taxes or other redistribution approaches lead to greater approval of wind projects? The “good neighbor” payments that are increasingly common with wind projects which provide payments to neighbors who do not have turbine leases is a form of sharing the resource rents undertaken by the power generating company.

#### *4. Ag Econ Graduate Program Update - Spotlight on MS-MJ Program [Link to slides](#)*

Dr. Nicole Widmar, Professor and Associate Head of Agricultural Economics at Purdue, provided a summary of activities and changes that have taken place in the department’s graduate programs with an emphasis on the new MS-MJ program being jointly offered with the McKinney Law School at IU. The department has greatly expanded graduate student opportunities over recent years.

The traditional in-residence MS and PhD programs still account for the majority of graduate students (68 currently) and continue to be research-based with thesis and dissertation requirements in addition to course work. Many of these students gain experience in teaching and outreach as well as other professional development.

The MS-MBA degrees are a professional master program operated jointly with IU's Kelley School of Business (42 current students). Students are required to have post-bachelorette employment experience before being admitted to this program and most of the students continue working full time while studying for these degrees. The majority of instruction takes place virtually, but there are short residency requirements each year of the two-year program. Successful students receive both the MS degree in Ag Econ from Purdue and an MBA degree from IU. Special tuition at about the MBA program level has regularly been approved for this program and a significant share of that tuition returns to the department.

The Professional Masters in International Agribusiness (PMIA) has been around for about a decade but enrollment has been spotty. This is a non-research degree with no thesis requirement with the benefit to the department that a large share of tuition returns to the department. At present, it is undergoing redesign with plan to deliver a virtual option and embed some existing college Certificate Programs to broaden interest. Only a few students are currently enrolled.

In the last year a joint MJ-MS program was finalized. It is a collaboration between Purdue Ag Econ and IU's McKinney School of Law. The Ag Econ portion will be delivered virtually, and the IU portion will be hybrid (some virtual and some in-residence). Like the MS-MBA program, students will receive a degree from both universities. From Purdue, they will receive the MS in Ag Econ and from IU they will receive an MJ degree. An important aspect is that the MJ degree is not a JD degree. Students are not qualified to take the Bar Exam nor to practice law. It is anticipated that employers would be interested in people with this background to deal with compliance issues that require understanding legal frameworks, critically think about their implications for a firm or organization, and undertake relevant data analytics. No students are currently enrolled. In her presentation Dr. Widmar provided details of curricular requirements at both universities related to these degrees.

The MS-MBA, MJ-MS, and PMIA all use the same virtual 21 credits of courses in Ag Econ. The department is exploring opportunities to further leverage the investment in these online courses to partner with other programs at Purdue.

##### *5. Future Topics and December Meeting Date*

The following topics were suggested for future meetings.

- Local Planning – Values and Goals
- Political Tribalism and its impacts and amelioration
- Land Values
- Macroeconomic policy impacts
- Farm implications of changing nutrition and food product trends
- Supply Chain alternatives and consequences

- Agriculture adaptation

If you have thoughts on these or other topics of interest, then please forward those to Ken Foster ([kfoster@purdue.edu](mailto:kfoster@purdue.edu)).

The next meeting of the Purdue Farm Policy Study Group will be **July 12, 2022** at the Beck Ag Center and the tentative date for **December** is set for the **6th**.

*5. Adjournment at 3 pm*

Respectfully Submitted,



Ken Foster  
Professor – Agricultural Economics  
Executive Secretary – Purdue Farm Policy Study Group