**SPEA V401 – Financial and Cost-Benefit Analysis**

**Spring 2024**

**Assignment #3**

**Due Sunday, 2/25 11:59pm  
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Description of Proposed Green Energy Project for Indiana

The Federal Government would provide the following matching grant structure: If the State Government provides the In-State Utility Company with a $30 million green energy subsidy to help operate the wind farm, the Federal Government will provide subsidies in the amount of $5 million to In-State Farmers willing to allow wind turbines to be built on their land and $13 million to the In-State Utility Company to help build the wind farm. In order to help finance the project, the State will also charge a $25 million green energy tax to In-State Residents.

Because the land on which the windmills are built could no longer be used for farming, the In-State Farmers will incur a productivity loss from displaced farm production in the amount of $3.75 million.

The In-State Utility Company would be responsible for the capital costs for construction of the windmills and connection to the electric grid. In total, this would amount to $16 million; however, half of this would go to Out of State Wind Turbine Manufacturers and half to In State Equipment suppliers. The opportunity cost to the Out of State Wind Turbine Manufacturers of providing these turbines is $8 million and the opportunity cost of the In State Equipment suppliers of providing equipment for the project is $8 million. To build the wind farm, the Utility Company would have to hire away some In-State Displaced Construction Workers from other projects. The In-State Displaced Construction Workers would receive $16 million in wages from the Utility Company, but would be giving up other work valued at $12 million that they would have done had they not been hired away to work on the wind farm project. These workers would also have to pay $1.2 million in additional income taxes to the Federal Government and $0.8 million in additional income taxes to the State Government.

The State Government would pay $10 million to In-State Training Suppliers to retrain In-State New Operational Employees to operate the wind farm. Providing this training would displace other projects valued at $8.6 million that would have been performed by the In-State Training Suppliers. The educational benefits from this training alone would be worth $3.4 million to the In-State New Operational Employees. In addition, these employees would be paid $7 million by the Utility Company to work on the wind farm (though these employees would have to pay $0.8 million in taxes to the Federal Government and $0.4 million in taxes to the State Government). The In-state New Operational Employees would, however, be losing free time while training and working, and they value that time at $4.5 million.

When the wind farm is up and running, the project would lead to decreased pollution due to the shift to green energy. The environmental benefits are expected to be valued at $47 million, and these benefits would be split by the In-State Residents ($35 million) and Out of State Residents ($12 million) who are downwind from the project. **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

The state of Indiana is considering undertaking a green energy project in the northern part of the state. This project would be a joint federal-state project that consists of two parts. The first part is the construction of an additional windmill farm financed partially by a federal green energy grant. The windmills would be built, owned, and operated by an *out-of-state* utility company. The second part would be a program to train local unemployed workers to operate the windmills, which would be financed by the state government. The baseline against which this project is being compared is a “no-build” alternative.

The attached description contains data on estimated values of benefits, costs and transfers for this project.

You are an analyst for the Indiana Office of Energy Development, and have been asked to analyze the data and make a recommendation of whether or not this project should be included in next year’s budget request.

Answer the following questions:

1. What are the inputs and outputs for this project?
2. For this part, using an excel spreadsheet, construct the boundary headers for a Kaldor-Hicks Tableau that includes every stakeholder mentioned in the project description (hint: they are capitalized). In the column at the left of the tableau, list every benefit, cost, and transfer category indicated in the project description. Then, fill in this table with the benefit, costs and transfer amounts.Be sure that the net benefits are included in the bottom right-most cell entry in the tableau. I have uploaded a template to Canvas that you can start with. ***Note, this template does not necessarily have the correct numbers of rows or columns.***

Label this tableau “Cost-Benefit Analysis of Windmill Project: Federal Accounting Domain”

1. What are the net benefits from a federal accounting domain perspective?
2. From the federal accounting domain perspective, should this project be implemented? Why or why not?
3. For this part, make a copy of the table made above, and alter it so that it only includes stakeholders within the state.

Label this tableau “Cost-Benefit Analysis of Windmill Project: State Accounting Domain”

1. What are the net benefits from a state accounting domain perspective?
2. Is the net-benefit from the state accounting perspective different than for the national perspective and, if so, what accounts for the difference?
3. For this part, make a copy of your first table, and delete all columns other than State Government and Federal Government. Then, delete any rows that contain no entries.

Label this Tableau “Fiscal Impact of Windmill Project”

1. What is the fiscal impact of the project, i.e. the net effect on the budget (state and federal)?
2. Assume it is only politically feasible to implement the project if all stakeholders in the STATE ACCOUNDTING DOMAIN are no worse off with the project than under the status quo and there is no negative state fiscal impact.
   1. Can the currently described project be implemented under these criteria? Why or why not?
   2. If not, is it possible to introduce a set of transfers that would make it feasible under these criteria? If so, describe an example of a transfer scheme that would satisfy these criteria. **Be specific: who would have to pay/receive money under you transfer scheme and how much?** It may help to create a new version of the first KH Tableau, with these transfers.