



Punita Mishra

The Social Economic and Environmental Impacts Of Renewable Energy Expansion In Bhiwani Haryana

Research Scholar- shri JYT University, Jhunjhunu, (Rajasthan) India.

Received-22.07.2022, Revised-28.07.2022, Accepted-03.08.2022 E-mail: punitamishra@gmail.com

Abstract: *When designing policy instruments for more sustainable energy futures, therefore, the main goal is to generate the lowest possible adverse socio-economic and environmental impacts ensuring a certain degree of economic efficiency. We use a Choice Experiment to quantify peoples' preferences over these multiple impacts of renewable energy in Bhiwani Haryana We find that landscape, wildlife and air pollution impacts are all significant for both urban and rural respondents. Only rural respondents, however, value job creation. We also show the differences in the welfare gain associated with alternative renewable energy investments between rural and urban households. Renewable energy investment is mainly driven by factors other than the need for rural diversification. Renewable energy technologies contribute to mitigate climate change and, when locally produced, decrease the national dependence of imported energy and increase (local) employment. There are as well security reasons that bring policy maker increasingly assign high priority to renewable being lee prone to terrorist attach than.*

Key Words: esigning policy instruments, sustainable energy, environmental impacts, efficiency, climate.

Introduction- Investments in renewable energy, solar and biomass base. However, such investments are associated with a range of environmental impacts which might be detrimental to other economic activities, such as those based on nature tourism. When designing policy instruments for more sustainable energy futures, therefore, the main goal is to generate the lowest possible adverse socio-economic and environmental impacts ensuring a certain degree of economic efficiency. We use a Choice Experiment to quantify peoples' preferences over these multiple impacts of renewable energy.

We located that landscape, wildlife and air pollution impacts are all significant for both urban and rural respondents. Only rural respondents, however, value job creation. We also show the differences in the welfare gain associated with alternative renewable energy investments between rural and urban households.

Promotion of renewable energies in India government of India confirmed its commitment to reduce carbon emission by 60% by 2050. To accomplish this goal the government declared that by 2010, 10% of the India electric energy needs will be supplied by clean renewable energy sources. The government has also expressed an ambition to double this supply by 2020. To contribute to this commitment, Action certificates (ROC). The represent renewable energy electricity that has been produced and sold into the electric grid.. India has an annual manufacturing capacity of over 9.5 GW for wind turbines. During 2013, India installed 1.729 GW of new wind power capacity. Tamil Nadu, Karnataka, Maharashtra, Rajasthan, and Gujarat are the leading states for wind power capacity.

In 2011, the Centre for Wind Energy Technology revised India's wind power potential to 102,778 MW at 80 m height and at 2% land availability. This was a significant upward revision from the earlier estimate of approximately 49,130 MW at 50 m height and at 2% land availability. This has created a huge demand for renewable electricity supplies, motivating a dramatic expansion in the number of proposed projects. Methodology Renewable energy investment is mainly driven by factors other than the need for rural diversification. Renewable energy technologies contribute to mitigate climate change and, when locally produced, decrease the national dependence of imported energy and increase (local) employment. There are as well security reasons that bring policy maker increasingly assign high priority to renewable being lee prone to terrorist attach than, say, nuclear power stations or oil supply infrastructures Choice Experiment (CE) analysis is an economic valuation method which is particularly well suited for investigating the impacts of environmental changes and the costs or benefits imposed on people. The



essential concept underlying CEs is that any good can be described in terms of its attributes, or characteristics, and the levels of these attributes or characteristic take. A renewable energy project, for example, can be described in terms of the potential impacts on the environment, the effect on local economies and the consequent change in electricity prices. This study does not restrict the investigation to a specific technology but includes hydro, on-shore and off-shore wind power and biomass combustion as the main renewable energy alternatives being currently promoted in rural areas. Furthermore, differences in preferences between urban and rural residents are explicitly studied, with the objective of identifying positive and negative impacts from specified environmental attributes that may be affected by expansion of renewable energy projects into rural areas.

We consider the following attributes: landscape visual impact, effects on wildlife, air pollution, effects on electricity prices and on local employment; a random parameter logit model specification was used to include in the estimation respondents' taste heterogeneity. Results Overall, high landscape impacts considerably detracts utility to an alternative. Also, the effect of renewable energy projects which may have on wildlife is very important, and projects that may cause slight harm to wildlife are less likely to be chosen.

People care a lot about the effect projects can have on air pollution. Interestingly, the jobs attribute is not a significant determinant of choice: that is, generally there are other more important issues than jobs which motivate people to support renewable energy projects. Heterogeneity arises from different values being held by respondents about the potential impacts of renewable energy projects. Considering landscape impacts, for example, there are individuals who firmly believe that wind mills are "beautiful and gracefully", whilst others believe that they destroy the quality of the landscape. Focusing on the urban and rural sub-sample models we observe that preferences do differ between the two groups. Urban residents prefer projects that have low or no landscape impact (in spite of the existence of heterogeneity in this attribute), do not harm wildlife and do not generate air pollution. According to the MNRE, 500 million tons (MT) of agricultural and agro-industrial residues are generated annually in the country, of which about 120–150 MT per year could be surplus for power generation.⁷ Biomass power generation from agriculture and agro-industrial residues is estimated at about 17 000 MW. Creation of new permanent jobs is not a concern for urban respondents. Rural residents can be inferred to have greater support for renewable energy projects by having more significant coefficients which are positive in value and a smaller negative coefficient on the price attribute. Interestingly, rural respondents are very influenced by projects that create new permanent jobs, unlike the urban sample. This reflects the perception that main renewable energy projects will be constructed and maintained in rural areas.

From a policymaker's perspective, deriving welfare estimates of different renewable energy investments is the most useful aspect of choice experiments for use in benefit-cost analysis. The following four different energy project scenarios were considered as the outcome of the implementation of specific renewable energy technologies. Biomass Power Plant – 25MW, emissions stack height up to 40 meters, portions of building up to 30 meters, fuelled by energy crops. Scenario Biomass Power Plant Attribute Levels: Landscape Low None High Moderate Wildlife None Improve Air Pollution Increase None Increase Employment +2 +5 +4 +1 +70 The whole sample places the greatest value on offshore wind farms, with the major determinant the welfare change being the absence of air pollution and landscape impacts. Urban residents show a positive willingness to pay for only the large offshore wind farm, whilst they show negative welfare for all other types of renewable energy projects. Rural respondent's welfare estimates are rather different and reveal a positive willing to pay for all the renewable projects proposed.

Conclusions- Scottish citizens generally support the expansion of renewable energy projects, in spite of the existence of heterogeneous preferences in regards to the potential costs and benefits of these projects. In terms of ranking renewable energy projects, the whole sample population would prefer large off-shore wind farm projects, followed by small on-shore wind farm projects. We also find important differences between urban and rural responses



in this choice experiment. The urban group shows a significant positive willingness to pay only for the large offshore wind farm project, whilst the rural sample stated a much higher willingness to pay for all the renewable project alternatives.

REFERENCES

1. CEMNRE. (2015, August 10). Physical Progress (Achievements). Retrieved from MNRE: <http://mnre.gov.in/mission-and-vision-2/achievements/PIB>. (2015).
2. Press Information Bureau. Retrieved from <http://pib.nic.in/newsite/PrintRelease.aspx?relid=124495>
3. RE-Invest 2015. (n.d.). Investors Guide. Retrieved from http://www.re-invest.in/Document/original/15.RE-Invest_2015_Investors_Guide.pdf TERI. (2014-15). TEDDY. New Delhi: TERI.
4. The Climate Group. (2015). the business case for off-grid in India.
