

Assessment aims to maximize greenhouse gas reductions from bioenergy

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A study reported in the journal *Energy* used a new method, never before applied to the energy sector, to assess the "sustainability index" of various sources of energy, both conventional and renewable.

The study, led by a research team at the University of Coruña, Spain, has been selected as the winning entry for Elsevier's monthly Atlas Award.

The [new model](#) used by the researchers is based on the MIVES method (which stands for Modelo Integrado de Valor para una Evaluación Sostenible or Integrated Value Model for Sustainability Assessment). This model seeks to generate a 360 degree view of each [energy](#) source and includes parameters such as costs, from obtaining the fuel to operating the plant; environmental impacts, such as global warming, ozone depletion, and noise; and social dimensions, such as jobs, population displacement and visual impact.

"The mistake is sometimes made of associating [sustainability](#) solely with caring for or respecting the environment," said author Juan José Cartelle Barros. "Sustainable development is something more. It covers aspects related to the economy, society and the environment. Thus, it is time to think about electricity generation in a broad sense, covering all three pillars in depth."

With the exception of biomass fuels, this new model shows renewable energies consistently come out on top. The authors' analyses found that renewable energies have a sustainability index between 0.39 and 0.80,

with 0 being the lowest relative contribution to sustainability and 1 being highest. By comparison, the sustainability indices of conventional power plants ranged from 0.29 to 0.57.

Co-authors of the study include Manuel Lara-Coira, María Pilar de la Cruz-López and Alfredo del Caño-Gochi. The work was funded by the Spanish Ministry of Science and Innovation.

The full story and interview with the authors are available at <https://www.elsevier.com/atlas/story/technology/its-electric>

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