

[Back](#)

Biofuel production in Latin America: A review for Argentina, Brazil, Mexico, Chile, Costa Rica and Colombia

[Energy Reports](#) • [Review](#) • [Open Access](#) • 2024 • DOI: 10.1016/j.egyr.2023.10.060

[Vega, Lina Patricia](#) ; [Bautista, Karen Tatiana](#); [Campos, Heliana](#); [Daza, Sebastian](#); [Vargas, Guillermo](#)

Universidad Santo Tomas, Tunja, Colombia

[Show all information](#)

24 79th percentile

Citations

1.40

FWCI

[View PDF](#)

[Full text](#)

[Export](#)

[Save to list](#)

[Document](#)

[Impact](#)

[Cited by \(24\)](#)

[References \(79\)](#)

[Similar documents](#)

Abstract

Natural resources deterioration, as well as greenhouse gas (GHG) emissions are a critical global problem, derived mainly from the use of fossil fuels. In recent years, several Latin American countries have sought alternatives to replace fuels with biofuels. In this regard, this article aims to make a bibliographic review focused on the analysis of the current situation of biofuel production and research development in Argentina, Brazil, Mexico, Chile, Costa Rica and Colombia. For this, seventy-seven investigations extracted in the last ten years from the databases ResearchGate, ScienceDirect, MDPI, Academic Google, Scopus, ScienceDirect, EBSCO and Elsevier were analyzed. Also, and for the same period, a bibliometric analysis of 355 investigations of the Web of Science database was carried out. The article presents the production figures, technologies, advances and challenges for the production of biofuels in these countries. Brazil stands out as a leader in the region and stands out worldwide in the generation of clean energy through the implementation of a biofuels policy and its incorporation into the transport sector. From this review, it is possible to know the state of production and research on biofuels in these countries and the challenges they face in achieving advances that do not reflect the comparative advantages they have due to the availability of raw materials for their production. © 2023 The Authors

Author keywords

Biodiesel; Bioethanol; Biofuels; Biogas; Energy production; First generation biofuel; Renewable energy; Second generation biofuel; Sustainability

Indexed keywords

Engineering controlled terms

Biodiesel; Biogas; Deterioration; Fossil fuels; Gas emissions; Greenhouse gases

Engineering uncontrolled terms

Argentina; Bio-ethanols; Biofuel production; Costa Rica; Energy productions; First generation biofuel; Me-xico; Renewable energies; Second generation; Second generation biofuel

Engineering main heading

Bioethanol

Funding details

Details about financial support for research, including funding sources and grant numbers as provided in academic publications.

Funding sponsor	Funding number	Acronym
Universidad Santo Tomas		
Funding text This article was not funded, but the authors thank the Universidad Santo Tomas for the support for the use of databases for the realization of this article.		
Corresponding authors		
Corresponding author	L.P. Vega	
Affiliation	Universidad Santo Tomas, Colombia	
Email address	lina.vegag@usantoto.edu.co	

© Copyright 2023 Elsevier B.V., All rights reserved.

Abstract

Author keywords

Indexed keywords

Funding details

Corresponding authors

About Scopus

[What is Scopus](#)

[Content coverage](#)

[Scopus blog](#)

[Scopus API](#)

[Privacy matters](#)

Language

[日本語版を表示する](#)

[查看简体中文版本](#)

[查看繁體中文版本](#)

[Просмотр версии на русском языке](#)

Customer Service

[Help](#)

[Tutorials](#)

[Contact us](#)

ELSEVIER

[Terms and conditions](#) ↗ [Privacy policy](#) ↗

All content on this site: Copyright © 2025 [Elsevier B.V.](#) ↗, its licensors, and contributors.

All rights are reserved, including those for text and data mining, AI training, and similar technologies. For all open access content, the relevant licensing terms apply.





[Back](#)

Biofuel production in Latin America: Argentina, Brazil, Mexico, and Colombia

[Energy Reports](#) • [Review](#) • [Open Access](#) • 2024
[Vega, Lina Patricia](#) ; [Bautista, Karen Tatiana](#); [Campos, Heliana](#); [Daza, Sebastian](#); [Vargas, Guillermo](#)
Universidad Santo Tomas, Tunja, Colombia

[Show all information](#)

24 79th percentile
Citations

1.40
FWCI

[View PDF](#) [Full text](#) [Export](#) [Share](#)

[Document](#) [Impact](#) [Cited by \(24\)](#) [References](#)

Detailed information



Open access	Gold
DOI	10.1016/j.egyr.2023.10.060
EID	2-s2.0-85179131323
Original language	English
Publication date	June 2024
PubMed ID	
Source type	Journal
ISSN	23524847
Publisher	Elsevier Ltd
Publication year	2024
Source title	Energy Reports
Volume	11
Pages	28 - 38

Authors (5)

[Vega, Lina Patricia](#)

[Bautista, Karen Tatiana](#)

[Campos, Heliana](#)

[Daza, Sebastian](#)

[Vargas, Guillermo](#)

Author affiliation (1)

Universidad Santo Tomas, Tunja, Colombia

[Back](#)

Performance estimation technique for solar-wind hybrid systems: A machine learning approach

[Alexandria Engineering Journal](#) • Article • Open Access • 2024 • DOI: 10.1016/j.aej.2023.12.029

[Salazar-Caceres, Fabian](#)^a; [Ramirez-Murillo, Harrynson](#)^a; [Torres-Pinzón, Carlos Andrés](#)^b ;
[Camargo-Martínez, Martha Patricia](#)^a

^a Universidad de La Salle, Bogotá, Colombia

[Show all information](#)

3 61th percentile

Citations

0.64

FWCI

[View PDF](#)

[Full text](#)

[Export](#)

[Save to list](#)

[Document](#)

[Impact](#)

[Cited by \(3\)](#)

[References \(53\)](#)

[Similar documents](#)

Abstract

This study introduces a novel method to assess solar-wind hybrid energy systems, utilizing data analysis for key metrics (Performance Yields Y_R , Capacity Factor CF, and Performance Ratio PR), focused on their uncertainties estimation. Employing a bootstrapped-based K-means algorithm on features from a local weather station in Universidad de La Salle, Bogotá, the approach evaluates the technical feasibility of a photovoltaic system on the campus. It discusses the clustering algorithm advantages, emphasizing its suitability for modeling continuous processes in renewable energy systems. The hypothesis assumes independence and identically distributed centroid coordinates, aligning with large-scale energy system characteristics. Methods include data normalization, feature selection, statistical calculations, bootstrapping, and Probability Density Functions (PDF) estimation through a Maximum Likelihood Estimator (MLE) to assess uncertainties. Results suggest the unfeasibility of a wind energy system due to technological constraints. The study evaluates system flexibility, and design considerations, providing valuable decision-making insights. The conclusion highlights the potential use for accurate estimations, enhancing the system reliability. © 2023 The Author(s)

Author keywords

Bootstrap method; Clustering analysis; Hybrid power systems; Machine learning; Probability density function; Solar power generation; Wind power generation

Indexed keywords

Engineering controlled terms

Hybrid systems; K-means clustering; Machine learning; Maximum likelihood estimation; Power generation; Probability density function; Solar energy; Solar energy conversion; Uncertainty analysis; Wind power

Engineering uncontrolled terms

Bootstrap method; Clustering analysis; Energy systems; Hybrid power; Hybrid power system; Machine-learning; Performance estimation; Solar/wind; Wind hybrids; Wind power generation

Engineering main heading

Solar power generation

Funding details

Details about financial support for research, including funding sources and grant numbers as provided in academic publications.

Funding sponsor	Funding number	Acronym
Universidad Santo Tomás	BOG-2023-AI015, IELE221-211	
Vicerrectoría de Investigación y Transferencia		
Universidad de La Salle		
See opportunities 		

Funding text

This research was funded by Vicerrectoría de Investigación y Transferencia (VRIT), at Universidad de La Salle , Bogotá, Colombia and Universidad Santo Tomás , under institutional codes IELE221-211 and BOG-2023-AI015 , respectively. The APC was funded by Universidad Santo Tomás , Bogotá D.C., Colombia.

Corresponding authors

Corresponding author	C.A. Torres-Pinzón
Affiliation	Universidad Santo Tomás, Electronic Engineering Faculty, Bogotá D.C., Colombia
Email address	carlostorresp@usta.edu.co

© Copyright 2024 Elsevier B.V., All rights reserved.

Abstract
Author keywords
Indexed keywords
Funding details
Corresponding authors

About Scopus

[What is Scopus](#)

[Content coverage](#)

[Scopus blog](#)

[Scopus API](#)

[Privacy matters](#)

Language

[日本語版を表示する](#)

[查看简体中文版本](#)

[查看繁體中文版本](#)

[Просмотр версии на русском языке](#)

Customer Service

[Help](#)

[Tutorials](#)

[Contact us](#)

ELSEVIER

[Terms and conditions](#) ↗ [Privacy policy](#) ↗

All content on this site: Copyright © 2025 [Elsevier B.V.](#) ↗, its licensors, and contributors.

All rights are reserved, including those for text and data mining, AI training, and similar technologies. For all open access content, the relevant licensing terms apply.





[Back](#)

Performance estimation t systems: A machine learni

[Alexandria Engineering Journal](#) • Article • [Open access](#)
[Salazar-Caceres, Fabian](#)^a; [Ramirez-Murillo, Harry](#)
[Camargo-Martínez, Martha Patricia](#)^a

^a Universidad de La Salle, Bogotá, Colombia

[Show all information](#)

3 61th percentile
Citations

0.64
FWCI

[View PDF](#) [Full text](#) [Export](#) [Share](#)

[Document](#) [Impact](#) [Cited by \(3\)](#) [References](#)

Detailed information

Open access	Open access
DOI	10.1016/j.aej.2023.12.029
EID	2-s2.0-85181055424
Original language	English
Publication date	January 2024
PubMed ID	
Source type	Journal
ISSN	11100168
Publisher	Elsevier B.V.
Publication year	2024
Source title	Alexandria Engineering Journal
Volume	87
Pages	175 - 185

Authors (4)

[Salazar-Caceres, Fabian](#)^a

[Ramirez-Murillo, Harrynson](#)^a

[Torres-Pinzón, Carlos Andrés](#)^b

[Camargo-Martínez, Martha Patricia](#)^a

Author affiliations (2)

^a Universidad de La Salle, Bogotá, Colombia

^b Universidad Santo Tomás, Electronic Engineering
Faculty, Bogotá D.C., Colombia