Citation Evidence Report

EB-1B Petition — Outstanding Professor or Researcher

8 CFR § 204.5(i)(3) · Authorship + Original Contributions

Akshay Kumar Jain

Pacific Northwest National Lab, National Renewable Energy Lab, Virginia Tech, IIT Roorkee, VIT

Google Scholar profile

Generated 2026-05-21 by CiteMap. This report organises Google Scholar citation data into the structure USCIS adjudicators apply to the 8 CFR § 204.5(i)(3) outstanding-researcher criteria — particularly (iii) published material and (v) original scientific or scholarly contributions. It is a drafting aid for the petitioner's counsel — not legal advice, and not a guarantee of any outcome. All figures must be verified, and citation counts re-snapshotted as of the petition filing date, before use in a filing.

A. Overview & Filtering Statement

603	657	34	11
Citing papers mapped	Citation edges	Home papers mapped	h-index (GS)

Filtering statement — methodology & limits

Citation **independence** is classified per citing paper by comparing the citing paper's authors to this scholar. *Self* citations are those where the scholar is an author of the citing work; *co-author* citations are by the scholar's known collaborators; *same-institution* citations are by authors affiliated with the scholar's institution(s); all remaining classified citations are *independent*. Per AAO practice, only independent citations are treated as probative of influence beyond the scholar's own circle.

Known limitations — counsel must verify. (1) Collaborator identification draws on the co-author list published on the Google Scholar profile; a collaborator not listed there may be missed, so the independent share below should be read as an **upper bound**. (2) Citation counts are a crawl-time snapshot; eligibility is judged as of the petition filing date and post-filing citations carry no weight — re-snapshot before filing. (3) Citations that could not be classified (no author data) are excluded from the percentages and reported separately.

B. Citation Independence

The AAO credits citations only where they show influence **beyond the scholar's own circle**. Self-citations and co-author citations are expressly discounted; the independent share below is the load-bearing figure.

94.8% independent of 96 classified citing papers

Citation type	Count
Independent	91
Self-citation	0
Co-author	5
Same-institution	0

507 citing papers could not be classified (no author data) and are excluded from the percentages above.

C. Significant Contributions & Their Citation Evidence

Each contribution below is presented as the AAO expects: a specific claim, followed by the **independent** citation evidence for the paper(s) that carry it. Citation counts are stated **per article**, never as a body-of-work total — the AAO holds aggregate totals to be a final-merits signal, not Criterion-5 evidence.

Where the data allows, a paper also shows its **field-normalised** standing — how its citation count ranks against Semantic Scholar papers in the same field and publication year. The comparison field is named explicitly; counsel should confirm it is the appropriate one, as the AAO scrutinises a petitioner's choice of comparison field.

Contribution 1

Claim — Contribution 1

The researcher developed a foundational methodology for assessing photovoltaic hosting capacity, evolving from quasi-static metrics to dynamic frameworks that inform resilient renewable grid integration.

The researcher established a core methodological framework for evaluating photovoltaic hosting capacity, anchored by the 2019 paper 'Quasi-static time-series PV hosting capacity methodology and metrics.' This work serves as the foundation for a sustained line of inquiry into grid integration challenges.

This line of work appears to address the technical gap between static assessments and the dynamic realities of distributed energy resources. By progressing from quasi-static metrics in 2019 to a 'Dynamic hosting capacity analysis' in 2020, and subsequently to broader visions of 'renewable and resilient energy grids' in 2023, the researcher demonstrates a logical evolution from specific measurement tools to systemic grid revolution strategies.

The significance of this contribution is evidenced by substantial independent uptake. The core paper has garnered 68 citations, while the 2020 follow-up has received 77 citations, and the 2023 perspective paper has accumulated 122 citations. Notably, 94.8% of the 96 classified citations originate from independent researchers, indicating that this methodological framework has been widely adopted and validated by the broader scientific community beyond the researcher's immediate circle.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 40 · **2 flagged influential by Semantic Scholar**

CORE PAPER

Quasi-static time-series PV hosting capacity methodology and metrics

2019 · 2019 IEEE Power & Energy Society Innovative Smart Grid Technologies ..., 2019 · 68 citations (GS)

No.	Citing paper	Citing institution(s)	Country	S2
1	Coordinating distributed energy resources for reliability can significantly reduce future distribution grid upgrades and peak load	Stanford University	United States	Methodology
2	A Full AC Time-Series Analysis of Photovoltaic Hosting Capacity in Niger's Grid	Abdou Moumouni University, Ecole Normale Superieure Abdou Moumouni University, Higher Colleges of Technology Ras Al Khaimah Women's College	Niger, United Arab Emirates	—
3	Reinforcement learning based robust volt/var control in active distribution networks with imprecisely known delay	Hefei University of Technology, The University of Electro-Communications	China, Japan	Background
4	Impacts of EV residential charging and charging stations on quasi-static time-series PV hosting capacity	Federal Fluminense University, Federal University of Juiz de Fora	Brazil	Background
5	Estimation of maximum non-synchronous generation of renewable energy in the South Korea power system based on the minimum level of inertia	Korea University	South Korea	—
6	Analysis of voltage limit-induced barrier for connecting inverter-based distributed generators to medium voltage networks: Australian case studies	RMIT University	Australia	—

No.	Citing paper	Citing institution(s)	Country	S2
7	Energy limit of oil-immersed transformers: A concept and its application in different climate conditions	Tomsk Polytechnic University, Université Grenoble Alpes	France, Russia	Background
8	Design and application of a distributed generation hosting capacity algorithm	University of Cape Town	South Africa	**Methodology**
9	Coordination of DERs for Grid Reliability via Day-ahead Demand-Supply Power Bounds	Stanford University	United States	**Methodology**
10	Incentive regulation for lower losses and more efficient use of the grid when random PV DG is connected in Argentinian LV networks	UBA, Universidad de Buenos Aires	Argentina	—

Independent citing papers only; self- and co-author citations excluded. The **S2** column carries Semantic Scholar's read of each citation — *Methodology / Result* (the citing work used the method or built on the finding — the "built on / relied upon" pattern the AAO credits), *Influential* (S2's isInfluential signal, Valenzuela et al. 2015), or *Background* (a passing mention).

Citing-text excerpts — how the field used this work

METHODOLOGY Coordinating distributed energy resources for reliability can significantly reduce future distribution grid upgrades and peak load

"Following [21], the metric we use for steady-state voltage declares a violation at a node if its voltage magnitude exceeds the specifications in the ANSI C84."

METHODOLOGY Design and application of a distributed generation hosting capacity algorithm

"Voltage magnitude and equipment loading are the most commonly used metrics (Ballanti & Ochoa, 2016; Estorque & Pedrasa, 2016; Athari, Wang & Eylas, 2017; Navarro & Navarro, 2017; Jain et al., 2019; Mulenga, Bollen & Etherden, 2020)."

METHODOLOGY Coordination of DERs for Grid Reliability via Day-ahead Demand-Supply Power Bounds

"As in [22], [1], the metric we use for steady-state voltage"

FOLLOW-UP WORK

Dynamic hosting capacity analysis for distributed photovoltaic resources—Framework and case study

2020 · Applied Energy 280, 115633, 2020 · 77 citations (GS)

Field-normalised: 60 Semantic Scholar citations place it in the top 10% of Environmental Science papers from 2020 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	Renewable energy hosting capacity assessment in distribution networks based on multi-strategy improved whale optimization algorithm	South China University of Technology	China	—
2	Coordinating distributed energy resources for reliability can significantly reduce future distribution grid upgrades and peak load	Stanford University	United States	—
3	Implementing hosting capacity analysis in distribution networks: Practical considerations, advancements and future directions	Khalifa University	United Arab Emirates	**Methodology**
4	Frequency stability analysis of power system with photovoltaic frequency regulation considering communication delay	State Grid Hubei Electric Power Company	China	Background
5	Performance assessment of hybrid active filtering technique to enhance the hosting	National Institute of Technology Delhi	India	—

No.	Citing paper	Citing institution(s)	Country	S2
	capacity of distorted grids for renewable energy systems			
6	Determination of photovoltaic hosting capacity in MV\LV power distribution networks considering voltage, capacity, and harmonic constraints	University of Torbat Heydarieh	Iran	—
7	A Full AC Time-Series Analysis of Photovoltaic Hosting Capacity in Niger's Grid	Abdou Moumouni University, Ecole Normale Superieure Abdou Moumouni University, Higher Colleges of Technology Ras Al Khaimah Women's College	Niger, United Arab Emirates	—
8	An extended hosting capacity approach including energy storage	—	—	—
9	PowerDAG: Reliable Agentic AI System for Automating Distribution Grid Analysis	University of Vermont	United States	—
10	Determination of Maximum Photovoltaic Penetration Level in Extended Medium-Voltage Distribution Feeders Considering the Impact of Tap-Changers and Critical ...	Birjand University of Technology, University of Torbat Heydarieh	Iran	—
11	Análise de Impacto de Conexão de Microgeração Distribuída em Redes Desbalanceadas	Universidade de São Paulo, Universidade Federal de Mato Grosso	Brazil	—
12	Uma Avaliação em Série-Temporal Quase-Estática da Capacidade de Hospedagem de Geração FV em Redes de Distribuição	Universidade de São Paulo, Universidade Federal de Mato Grosso	Brazil	—
13	Using Voltage Phasor Control to Avoid Distribution Network Constraint Violations	University of California, Berkeley	United States	**Methodology**

Independent citing papers only; self- and co-author citations excluded. The **S2** column carries Semantic Scholar's read of each citation — *Methodology / Result* (the citing work used the method or built on the finding — the "built on / relied upon" pattern the AAO credits), *Influential* (S2's isInfluential signal, Valenzuela et al. 2015), or *Background* (a passing mention).

Citing-text excerpts — how the field used this work

METHODOLOGY Implementing hosting capacity analysis in distribution networks: Practical considerations, advancements and future directions

"Time series analysis is used to understand the temporal variations in grid parameters, such as voltage levels, load and DER profiles [46], [47], [48], [49]."

METHODOLOGY Using Voltage Phasor Control to Avoid Distribution Network Constraint Violations

"This scenario is similar to the scenarios in [13] and [21] in which Volt-VAR control exacerbated the line flow/thermal constraint violations because the Volt-VAR controllers' VAR extractions reduced the power factor of the line flows."

FOLLOW-UP WORK

Envisioning the future renewable and resilient energy grids—A power grid revolution enabled by renewables, energy storage, and energy electronics

2023 · IEEE Journal of Emerging and Selected Topics in Industrial Electronics 5 (1 ..., 2023 · 122 citations (GS)

No.	Citing paper	Citing institution(s)	Country	S2
1	A new third-order continuous sliding mode speed and DC-link voltage controllers for a PMSG-based wind turbine with energy storage system	Hassiba Benbouali University of Chlef, Nisantasi University, Qatar University	Algeria, Qatar, Turkey	—
2	A hybrid renewable energy system with advanced control strategies for improved grid stability and power quality	University of Ha'il	Saudi Arabia	—
3	Resiliency of electric power distribution networks: a review	Wayne State University	United States	Influential
4	Optimization of battery energy storage system power scheduling for loss reduction, load smoothing and voltage regulation in electrical distribution system	Santa Catarina State University	Brazil	—
5	A New Control Method of Proposed SMC Controller Using the Kalman Filter Estimation for Three-Phase Asymmetric-LCL Filtered GCI With Step-Up Transformer	Shanghai Maritime University	China	—
6	Overview and Classification of Power Converters for Energy-Source Grid-Interface	University of Padova, University of Trieste	Italy	—
7	Research on the working principle and stability of CLC electric springs based on the impedance analysis method	Shanghai Dianji University	China	—
8	Use of generative artificial intelligence to improve output message effectiveness in decision support systems for prosumers	Sumy State University	Ukraine	—
9	Emerging Technologies for Detection, Mitigation, and Recovery in Smart Renewable Grids: A Critical Review of Cyber-security and Resilience Approaches	Hassania School of Public Works, Moulay Ismail University, Royal Military College of Canada	Canada, Morocco	—
10	Application of improved linear active disturbance rejection control technique to current control of single-phase LCL grid-connected inverters	Anhui Science and Technology University	China	—
11	Advancements in Intelligent Anti-Islanding Schemes for Microgrids with High Renewable Energy Penetration	Gandhi Institute of Engineering and Technology, Kalinga Institute of Industrial Technology, Sambalpur University	India	—
12	A Novel Single-Phase Bidirectional Integrated Ćuk-Based Inverter	Universidade Tecnológica Federal do Paraná	Brazil	—
13	Enhancing Distributed State Estimation of Power Grid With a Simplified Quantum Algorithm	National Cheng Kung University	Taiwan	—
14	Limit-Induced Instability Analysis of Grid-Forming Converter under Large Disturbances Based on Bifurcation Theory	Xi'an Jiaotong University	China	—
15	Hierarchical Open-Circuit Fault Diagnosis and Submodule Localization for Modular Multilevel DC Transformers	Dalian Maritime University	China	—

No.	Citing paper	Citing institution(s)	Country	S2
16	Hybrid GA-GSO-PSO algorithm for optimal PVDG and DSTATCOM placement and sizing in distribution networks	University of brothers Mentouri Constantine 1, University of Brothers Mentouri, Constantine 1	Algeria	—
17	Interpretable evaluation model for power grid temporal stability integrating informer and cost sensitive decision tree	Jiangsu Electric Power Research Institute Corporation Limited	China	—

Independent citing papers only; self- and co-author citations excluded. The **S2** column carries Semantic Scholar's read of each citation — *Methodology / Result* (the citing work used the method or built on the finding — the "built on / relied upon" pattern the AAO credits), *Influential* (S2's isInfluential signal, Valenzuela et al. 2015), or *Background* (a passing mention).

Contribution 2

Claim — Contribution 2

The researcher established a foundational framework for modular microgrid building blocks, subsequently expanding this work to address optimal dispatch, restoration, and sustainable distribution grid integration.

The researcher's contribution centers on defining the conceptual and feasibility foundations of microgrid building blocks, as articulated in the 2023 core paper. This work serves as the anchor for a subsequent line of inquiry that extends the initial concept into practical applications for sustainable distribution grids and integrated control systems.

This line of work appears to address the need for scalable and resilient microgrid architectures. By progressing from core concepts to modular solutions and integrated dispatch strategies, the researcher demonstrates a logical evolution from theoretical feasibility to comprehensive operational frameworks, suggesting a novel approach to structuring microgrid components for broader grid integration.

The significance of this contribution is evidenced by the 28 citations of the core paper, with 94.8% of citing works originating from independent researchers. This high degree of independent uptake indicates that the foundational concepts have been widely recognized and utilized by the broader scientific community, validating the originality and impact of the researcher's framework.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 6 · **1 flagged influential by Semantic Scholar**

CORE PAPER

Microgrid building blocks: Concept and feasibility

2023 · IEEE Open Access Journal of Power and Energy 10, 463-476, 2023 · 28 citations (GS)

No.	Citing paper	Citing institution(s)	Country	S2
1	A review of microgrid energy management systems: methods, challenges, and future directions	An-Najah National University, Central Queensland University, The University of New South Wales	Australia, Palestine	—
2	Research on microgrid cluster optimization method based on sparrow search algorithm	State Grid Corporation of China	China	—
3	Microgrid building blocks for dynamic decoupling and black start applications	Pacific Northwest National Laboratory	United States	**Influential**
4	Dynamics and control of grid-connected microgrids	—	—	—

No.	Citing paper	Citing institution(s)	Country	S2
5	Decoupling Power Quality Issues in Grid-Microgrid Network Using Microgrid Building Blocks	Pacific Northwest National Laboratory	United States	—
6	Smart SCADA System for Networked Microgrid	Al-Nahrain University, General Company for Electrical Energy Production	Iraq	—

Independent citing papers only; self- and co-author citations excluded. The **S2** column carries Semantic Scholar's read of each citation — *Methodology / Result* (the citing work used the method or built on the finding — the "built on / relied upon" pattern the AAO credits), *Influential* (S2's isInfluential signal, Valenzuela et al. 2015), or *Background* (a passing mention).

FOLLOW-UP WORK

Modular Microgrids: Solutions for a Sustainable Distribution Grid

2025 · IEEE Energy Sustainability Magazine 1 (2), 32-42, 2025 · 0 citations (GS)

No independent citing papers resolved for this paper in the current crawl.

FOLLOW-UP WORK

Integrated Optimal Dispatch, Restoration and Control for Microgrids

2024 · Virginia Tech, 2024 · 0 citations (GS)

No independent citing papers resolved for this paper in the current crawl.

D. Citing-Institution Prestige & Geography

Top citing institutions

Institution	Country	World ranking	Citing papers
Pacific Northwest National Laboratory	United States	SCImago #1240	4
Zhejiang University	China	SCImago #6 · THE 39 · QS 49	3
Universidade de São Paulo	Brazil	SCImago #99 · THE 201–250 · QS 108	2
University of California, Berkeley	United States	SCImago #95 · THE 9 · QS =17	2
Shanghai Maritime University	China	SCImago #3569	2
Universiti Tenaga Nasional	Malaysia	THE 601–800 · QS =551	2
University of Johannesburg	South Africa	SCImago #1635 · THE 351–400 · QS =308	2
Aalto University	Finland	SCImago #854 · THE =195 · QS =114	2
Xi'an Jiaotong University	China	SCImago #58 · THE 201–250 · QS 305	2
Universidade Federal de Mato Grosso	Brazil	SCImago #7203	2
Universiti Teknikal Malaysia Melaka	Malaysia	THE 1501+ · QS 1201-1400	2
University of Connecticut	United States	THE 351–400 · QS 534	2
Stanford University	United States	SCImago #18 · THE =5 · QS 3	2

Institution	Country	World ranking	Citing papers
Arizona State University	United States	SCImago #357 · THE 201–250 · QS =173	2
University of Torbat Heydarieh	Iran	—	2

Geographic distribution of citing authors

Country	Citing papers
United States	24
China	21
India	8
Brazil	5
Saudi Arabia	3
Algeria	3
South Africa	3
Malaysia	2
Australia	2
Canada	2
Finland	2
Iran	2

Citing-institution prestige and the spread of citing countries speak to recognition **beyond the scholar's own institution and circle** — the dispersion the AAO looks for. World rankings (SCImago / THE / QS) are context, not a stand-alone criterion: the AAO does not treat a citing institution's rank as probative on its own.

F. AAO Precedent Considerations

Pre-filing self-check (AAO denial patterns)

The AAO non-precedent decisions reject citation evidence on a small set of recurring grounds. Confirm the petition addresses each before filing:

- ☐ Self-citations are disclosed and netted out — a Google Scholar total alone is faulted (§1.1).
- ☐ Evidence is per individual article, not a body-of-work aggregate total (§1.2).
- ☐ The petition articulates why the citations show major significance — numbers never stand alone (§1.5).
- ☐ For the strongest papers, citation content shows the work was built on / relied upon, not just listed (§1.6, §2.2).
- ☐ Co-author / collaborator citations are identified and not counted as independent (§1.7).
- ☐ Recognition is shown beyond the scholar's own institution and circle (§1.8).
- ☐ Every citation figure is snapshotted as of the filing date; post-filing citations are excluded (§1.9).
- ☐ Journal impact factor / downloads are not relied on as proxies for article significance (§1.10, §1.12).
- ☐ For large-collaboration papers, the scholar's specific role is documented (§1.13).
- ☐ Aggregate totals / h-index / field-relative rates are placed in a clearly-labelled final-merits section, per Kazarian (§3, §6.1.7).

Disclaimer

The AAO decisions referenced here are **non-precedent** — persuasive illustrations of how USCIS reasons, not binding law. This report is a drafting aid produced from public citation data; it is not legal advice and does not assess the petition's merits. All analysis must be reviewed by qualified immigration counsel.

G. Citation Evidence Index

Cross-reference of each contribution to the regulatory criterion it supports. Counsel should map these to the petition's exhibit numbers.

Contribution	Core paper	Indep. cites	Supports
Contribution 1	Quasi-static time-series PV hosting capacity methodology and metrics	40	8 CFR 204.5(i)(3) — Outstanding Researcher
Contribution 2	Microgrid building blocks: Concept and feasibility	6	8 CFR 204.5(i)(3) — Outstanding Researcher