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This document contains a list of publications classified as a) journal papers, b) conference proceedings, c) books and book chapters, and d) feature articles, op-eds, and scientific letters. Additionally, it includes a selected list of oral presentations and poster presentations.

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## **Journal Papers**

### **a. Published or in press**

<a href="#">Citations (Google Scholar):</a>	569
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Average impact factor of journals at the time of publication:	10.03

The impact factor included in each record corresponds to the one reported by Clarivate's Journal Citation Report (JCR) for the year the paper was published. For articles where JCR results are not yet available, the value corresponds to the most recent available impact factor.

[P23]. Li, M., Ma, Q., Shan, R., Abdulla, A., [Virguez, E.](#), Gao, S., & Patino-Echeverri, D. (2024). Renewable energy quality trilemma and coincident wind and solar droughts. *Communications Earth & Environment*, 5, 661. (Research Paper; ISSN: 2662-4435). Impact Factor: 8.09. <https://doi.org/10.1038/s43247-024-01850-5>

[P22]. Ruggles, T.\*, [Virguez, E.](#)\*+, Reich, N., Dowling, J., Bloomfield, H., Antonini, E., Davis, S., Lewis, N., & Caldeira, K. (2024). Planning reliable wind- and solar-based electricity systems. *Advances in Applied Energy*, 15, 100185. (Research Paper; ISSN: 2666-7924). Impact Factor: 13.05. <https://doi.org/10.1016/j.adapen.2024.100185>

\* Equally-contributing first authors; + Corresponding author.

[P21]. Covelli, D.<sup>β</sup>, [Virguez, E.](#), Caldeira, K., & Lewis, N. (2024). Oahu as a case study for island electricity systems relying on wind and solar generation instead of imported petroleum fuels.

*Applied Energy*, 375, 124054. (Research Paper; ISSN: 0306-2619). Impact Factor: 10.12. <https://doi.org/10.1016/j.apenergy.2024.124054>  
<sup>‡</sup> Graduate student mentee (California Institute of Technology).

- [P20]. Kumar, A. <sup>‡</sup>, Ruggles, T., & Virguez, E. <sup>+</sup> (2024). Disproportionate energy disruptions afflicted rural Hispanic households during winter storm Uri. *Environmental Research: Energy*, 1 (3), 033003 (Perspective Paper; ISSN: 2753-3751). Impact Factor: Pending. <https://doi.org/10.10188/2753-3751/ad6a1d>  
<sup>+</sup> Corresponding author; <sup>‡</sup> Graduate student mentee (Washington University in St. Louis).
- [P19]. Li, A.\*<sup>‡</sup>, Virguez, E.\*<sup>+</sup>, Dowling, J.\*, Ruggles, T., Wongel, A., Reich, N., Lewis, N., & Caldeira, K. (2024). The influence of regional geophysical resource variability on the value of single- and multi-storage technology portfolios. *Environmental Science & Technology (ES&T)*, 58 (30). (Research Paper; ISSN: 1520-5851). Impact Factor: 10.82. <https://doi.org/10.1021/acs.est.3c10188>  
\* Equally-contributing first authors; <sup>+</sup> Corresponding-author; <sup>‡</sup> Undergraduate student mentee (California Institute of Technology).
- [P18]. Dowling, J.<sup>‡</sup>, Ruggles, T., Virguez, E., Reich, N., Ifkovitz, Z., Davis, S., Li, A., Kennedy, K., Rinaldi, K., Duan, L., S., Caldeira, K., & Lewis, N. (2024). Opportunities and constraints of hydrogen energy storage systems. *Environmental Research: Energy*, 1 (3), 035004 (Research Paper; ISSN: 2753-3751). Impact Factor: Pending. <https://doi.org/10.1088/2753-3751/ad58e5>  
<sup>‡</sup> Graduate student mentee (California Institute of Technology).
- [P17]. Antonini, E., Virguez, E., Ashfaq, S., Duan, L., Ruggles, T., & Caldeira, K. (2024). Identification of reliable locations for wind power generation through a global analysis of wind droughts. *Communications Earth & Environment*, 5 (1), 103. (Research Paper; ISSN: 2662-4435). Impact Factor: 8.09. <https://doi.org/10.1038/s43247-024-01260-7>
- [P16]. Li, M., Shan, R., Abdulla, A., Virguez, E., & Gao, S. (2024). The role of dispatchability in China's power system decarbonization. *Energy & Environmental Science*, 17 (6), 2193-2205. (Research Paper; ISSN: 1754-5692). Impact Factor: 32.36. <https://doi.org/10.1039/d3ee04293f>
- [P15]. Virguez, E.<sup>+</sup>, Leon, L.<sup>‡</sup>, & Freese, L. (2024). The climate sciences need representation from the Global South. *One Earth*, 7, 3. (Perspective Paper; ISSN: 2590-3330). Impact Factor: 15.07. <https://doi.org/10.1016/j.oneear.2024.01.016>  
<sup>+</sup> Corresponding author. <sup>‡</sup> Graduate student mentee (Universidad de los Andes).
- [P14]. Zuming, L., Li, M., Virguez, E., & Xie, X. (2024). Low-carbon transition pathways of power systems for the Guangdong-Hongkong-Macau region in China. *Energy & Environmental Science*, 17, 307 (Research Paper; ISSN: 1754-5692). Impact Factor: 32.36. <https://doi.org/10.1039/d3ee02181e>
- [P13]. Schmitt, R., Virguez, E., Ashfaq, S., & Caldeira, K. (2023). Move up or move over: Mapping opportunities for climate adaptation in Pakistan's Indus plains. *Environmental Research Letters*, 18, 114024 (Research Paper; ISSN: 1748-9326). Impact Factor: 5.85. <https://doi.org/10.1088/1748-9326/acfc59>
- [P12]. Wang, Y., Wang, X., Virguez, E., Zheng, K., Hu, T., Mei, Y., & Wang, H. (2023). The effect of down-cascade re-regulation on alleviating the flow regime alteration induced by an up-cascade reservoir. *Water*, 15, 2166 (Research Paper; ISSN: 2073-4441). Impact Factor: 2.98. <https://doi.org/10.3390/w15122166>

- [P11]. Dioha, M., Lukuyu, J., Virguez, E., & Caldeira, K. (2022). Guiding the deployment of electric vehicles in the developing world. *Environmental Research Letters*, 17, 071001 (Perspective Paper; ISSN: 1748-9326). Impact Factor: 6.74. <https://doi.org/10.1088/1748-9326/ac765b>
- [P10]. Wang, X., Virguez, E., Mei, Y., Yao, H., & Patino-Echeverri, D. (2022). Integrating wind and photovoltaic power with dual hydro-reservoir systems. *Energy Conversion and Management*, 257, 115425 (Research Paper; ISSN: 0196-8904). Impact Factor: 10.44. <https://doi.org/10.1016/j.enconman.2022.115425>
- [P9]. Li, M., Shan, R., Virguez, E., Patino-Echeverri, D., Gao, S., & Ma, H. (2021). Energy storage reduces costs and emissions even without large penetration of renewable energy: the case of China's Southern Power Grid. *Energy Policy*, 112711. (Research Paper; ISSN: 0301-4215). Impact Factor: 7.58. <https://doi.org/10.1016/j.enpol.2021.112711>
- [P8]. Li, M., Virguez, E., Shan, R., Tian, J., Gao, S., & Patino-Echeverri, D. (2021) High-resolution data shows China's wind and solar energy resources are enough to support a 2050 decarbonized electricity system. *Applied Energy*, 306, 117796. (Research Paper; ISSN: 0306-2619). Impact Factor: 11.45. <https://doi.org/10.1016/j.apenergy.2021.117796>. **Cited >100 times.**
- [P7]. Sykora-Bodie, S., Jones, L., Hastings, Z., Barnett, M., Davis, O., Ferrari, O., Garcia, V., Hofner, A., Hunter, B., Ippolito, T., Krantz, W., Lombardi, E., Neyra, O., Perez-Figueroa, O., Raub, K., Sou, J., Virguez, E., Waters, T., & Whitten, J. (2021). Graduate student perspectives on transforming academia. *Conservation Science and Practice*, 556, 4 (1). (Perspective Paper; ISSN: 2578-4854). Impact Factor: 3.57. <http://doi.org/10.1111/csp2.556>
- [P6]. Virguez, E.<sup>+</sup>, Wang, X., & Patiño-Echeverri, D. (2021). Utility-scale photovoltaics and storage: Decarbonizing and reducing greenhouse gases abatement costs. *Applied Energy*, 282, 116120. (Research Paper; ISSN: 0306-2619). Impact Factor: 11.45. <https://doi.org/10.1016/j.apenergy.2020.116120>  
+ **Corresponding author.**
- [P5]. Wang, X., Virguez, E., Xiao, W., Mei, Y., Patino-Echeverri, D., & Wang, H. (2019). Clustering and dispatching hydro, wind and photovoltaic power resources with a multiobjective optimization of power generation fluctuations: a case study in southwestern China. *Energy*, 189, 116250. (Research Paper; ISSN: 0360-5442). Impact Factor: 6.08. <https://doi.org/10.1016/j.energy.2019.116250> **Cited >50 times.**
- [P4]. Wang, X., Virguez, E., Chen, L., Duan, K., Dong, Q., Ma, H., Mei, Y., & Wang, H. (2019). New index for runoff variability analysis in rainfall-driven rivers in the southeastern United States. *Journal of Hydrologic Engineering*, 24, (12). (Research Paper; ISSN: 1943-5584). Impact Factor: 1.59. [https://doi.org/10.1061/\(ASCE\)HE.1943-5584.0001826](https://doi.org/10.1061/(ASCE)HE.1943-5584.0001826)
- [P3]. Wang, X., Virguez, E., Kern, J., Chen, L., Mei, Y., Patino-Echeverri, D., & Wang, H. (2019). Integrating wind, photovoltaic, and large hydropower during the reservoir refill period. *Energy Conversion and Management*, 198, 11178. (Research Paper; ISSN: 0196-8904). Impact Factor: 8.21. <https://doi.org/10.1016/j.enconman.2019.111778>
- [P2]. Rodriguez, R., Virguez, E., Rodriguez, P., & Behrentz, E. (2016). Influence of driving patterns on vehicle emissions: a case study for Latin American cities. *Transportation Research Part D*, 43 (Research Paper; ISSN: 1361-9209). Impact Factor: 2.34. <https://doi.org/10.1016/j.trd.2015.12.008>. **Cited >50 times.**

[P1]. Fischer, K., Virguez, E., Sánchez-Silva, M., & Faber, M.H. (2013). On the assessment of marginal life-saving costs for risk acceptance criteria. *Structural Safety*, 44 (Research Paper; ISSN: 0167-4730). Impact Factor: 2.39. <https://doi.org/10.1016/j.strusafe.2013.05.001>

#### b. Submitted

[PS5]. Virguez, E.<sup>+</sup>, Dioha, M., Duan, L., Wongel, A., Lewis, N., & Caldeira, K. Disparities in per capita energy consumption within and between countries. **Submitted to *Joule***. Review and resubmit (major revision).

+ **Corresponding author.**

[PS4]. Chen, S., Lu, X., Hao, J., Virguez, E., Caldeira, K., & Davis, S. Choice of solar photovoltaic tracking technology involves sustainability trade-offs. **Submitted to *One Earth***. Review and resubmit (major revision).

[PS3]. Wongel, A., Freese, L., Virguez, E., Davis, S., & Caldeira, K., Economic development, air conditioning and adaptation to warming. **Submitted to *Nature Communications***. Under peer-review.

[PS2]. Carlino, A., Wongel, A., Duan, L., Virguez, E., Davis, S., Edwards, M., & Caldeira, K. Learning rate variability and implications for technology forecasts. **Submitted**. Under review.

[PS1]. Freese, L., Virguez, E., Davis, S., & Caldeira, K. Distribution of trillions of dollars in future climate damages from current emissions. **Submitted**. Under review.

#### c. In preparation

[PP9]. Leon, L.<sup>β</sup>, Sanchez, M., Davis, S., & Virguez, E.<sup>+</sup> Global climate goals depend on South America. **Intended Journal:** *Nature Climate Change* (Preparing to submit).

+ **Corresponding author;** <sup>β</sup>**Graduate student mentee (Universidad de los Andes).**

[PP8]. Virguez, E.<sup>+</sup>, Ruggles, T., Wongel, A., Freese, L., Chen, S., Dowling, J., Lewis, N., Davis, S., & Caldeira, K. Renewable energy is Republican energy. **Intended Journal:** *Proceedings of the National Academy of Sciences of the United States of America* (Preparing to submit).

+ **Corresponding author.**

[PP7]. Reich, N.<sup>β</sup>, Ruggles, T., Virguez, E., Covelli, D., Caldeira, K., & Lewis, N. Maintaining resource adequacy in renewable electricity systems during decades of weather variability. **Intended Journal:** *Environmental Science & Technology (ES&T)* (Preparing to submit).

<sup>β</sup> **Graduate student mentee (California Institute of Technology).**

[PP6]. Leon, L.<sup>β</sup>, Sanchez, M., & Virguez, E.<sup>+</sup> South America pivotal role in global energy transition: Opportunities, challenges, and pathways for transformation. **Intended Journal:** *Environmental Research: Energy* (Preparing to submit).

+ **Corresponding author;** <sup>β</sup> **Graduate student mentee (Universidad de los Andes).**

[PP5]. Virguez, E.<sup>+</sup>, Wongel, A., Freese, L., Carlino, A., Chen, S., Ruggles, T., Leon, L., Sanchez-Silva, M., Mesa, D., Lewis, N., Davis, S., & Caldeira, K. Economic development as a facilitator for addressing climate goals. **Intended Journal:** *Nature* (In preparation).

+ **Corresponding author.**

- [PP4]. [Virguez, E.](#)<sup>+</sup>, Norris, T.<sup>‡</sup>, Ruggles, T., Patino-Echeverri, D., Davis, S., & Caldeira, K. Administrative barriers for the deployment of solar and wind energy. **Intended Journal:** *Nature Energy* (In preparation).  
+ **Corresponding author;** <sup>‡</sup> **Graduate student mentee (Universidad de los Andes).**
- [PP3]. Ashfaq, S., [Virguez, E.](#), Duan, L., Antonini, E., Dioha, M., Ruggles, T., Thomas, T. & Caldeira, K. The value of conventional pumped hydroelectric storage and generation for a deeply decarbonized power system in California. **Intended Journal:** *iScience* (In preparation).
- [PP2]. [Virguez, E.](#)<sup>+</sup>. Winterization of wind power plants for continued operation under low-temperature weather events. **Intended Journal:** *Environmental Research: Energy* (In preparation).  
+ **Corresponding author.**
- [PP1]. Keeler, B., Bennett, E., Gerber, L., Mason, S., Olander, L., King, E., Rowell, K., Secord, D., Sykora-Bodie, S., Ticktin, T., & [Virguez, E.](#) The engaged university: A guide to reforming systems of reward, fostering engaged leaders, and creating campus-wide cultures of engagement. **Intended Journal:** *Nature Sustainability* (In preparation).

### **Conference Proceedings (indexed and peer-reviewed)**

- [C4]. [Virguez, E.](#) & Patiño, E. (2019). Abating carbon emissions by means of utility-scale photovoltaics and storage: The Duke Energy Progress/Carolinas case study. *FISE-IEEE/CIGRE Conference*, pp. 1-6 (Conference Paper; ISBN: 978-172814230-2).  
<https://doi.org/10.1109/fiscigre48012.2019.8985012>
- [C3]. Valenzuela, M., Espinosa, M., [Virguez, E.](#), & Behrentz, E. (2017). Uncertainty of greenhouse gas emission models: a case in Colombia's transport sector. *Transportation Research Procedia*, Volume 25, pp. 4610-4626 (Conference Paper; ISSN: 2352-1465).  
<https://doi.org/10.1016/j.trpro.2017.05.380>
- [C2]. Faber, M.H., & [Virguez-Rodríguez, E.](#) (2011). Supporting decisions on global health and life safety investments. *Applications of Statistics and Probability in Civil Engineering - Proceedings of the 11<sup>th</sup> International Conference on Applications of Statistics and Probability in Civil Engineering*, pp. 434-443 (Conference Paper – Scopus Register; ISBN: 978-0-415-66986-3).  
<https://doi.org/10.1201/b11332>
- [C1]. Fischer, K., [Virguez-Rodríguez, E.](#), Sánchez-Silva, M., & Faber, M.H. (2011). Defining guidelines for the application of the marginal life-saving costs principle for risk regulation. *Applications of Statistics and Probability in Civil Engineering - Proceedings of the 11<sup>th</sup> International Conference on Applications of Statistics and Probability in Civil Engineering*, pp. 444-451 (Conference Paper – Scopus Register; ISBN: 978-0-415-66986-3). <https://doi.org/10.1201/b11332>

### **Books and book chapters**

- [BC3]. Suresh, M., Wagon, J., Hall, T., Campos, R., Wakio, S., [Virguez, E.](#) & Sperling, J. (2024). Reframing international students' success: Institutional responsibility for international student wellbeing and belongingness. In S. Blake, & G. Pagliarulo (Eds.). *Supporting College Students of Immigrant Origin: New Insights from Research, Policy, and Practice* (pp 332-351). Cambridge: Cambridge University Press. ISBN: 978-1-00940-824-0. **Book Chapter.**
- [BC2]. Reisinger, D., Liu, Y., Valnes, S., & [Virguez, E.](#) (2021). Sustainability across the curriculum: A multilingual and intercultural approach. In M. J. De la Fuente (Ed.). *Education for Sustainable*

*Development in Foreign Language Learning: Content-Based Instruction in College Level Curricula* (pp 197-214). New York: Routledge Research in Language Education. ISBN: 978-0-36753-032-7. **Book Chapter.**

- [BC1]. Virguez, E. (2021). Embracing the value of cultural wealth from underrepresented groups. In K.L. Armstrong, L.A. Genova, J.W. Greenlee, & D.S. Samuel (Eds.). *Teaching Gradually: Practical Pedagogy and Classroom Strategies for Graduate Students by Graduate Students* (pp 190-196). Sterling, Virginia: Stylus Publishing L.L.C. ISBN: 978-1-64267-160-5. **Book Chapter.**
- [B1]. Behrentz, E., Benavides, J., Bocarejo, J., Canal, M., Espinosa, M., Rodríguez, R. ... Virguez, E. (2011). *Plan Decenal de Descontaminación del Aire para Bogotá*. Bogotá, Colombia: Secretaría Distrital de Ambiente. ISBN: 978-980-6810-45-7. **Book.**

## **Feature Articles, Op-Eds, and Scientific Letters**

### **a. Published or in press**

- [D13]. Virgüez, E. (2024). Copy-and-paste fixes can't decarbonize Global South cities (World View). *Nature Cities*, 1 492-493(8). <https://doi.org/10.1038/s44284-024-00096-8>
- [D12]. Albino, R., Brimble, M., Zdenek, C., Vandebroek, K., Masud, S., Zhang, X., Consentino, M., Gupta, A., Abdul-Ghani, R., Gerarduzzi, C., Jackson, P., Oomen, R., Servais, B., Manjunatha, A., Bulthuis, N., Romero-Molina, C., Teng, D., Kosanic, A., Dutra, D., Alekkou, D., Venturini, A., Virgüez, E., & Obasa, A. (2024). Preventing bad behavior in academia. *Science*, 385, (7). 22-24. <https://doi.org/10.1126/science.adr0734><sup>α</sup>  
**α Highlighted for the first two weeks as one of the four trending articles in Science's journals (>15,000 downloads)**
- [D11]. Singh, G., Teng, D., Turki, H., Bouchard, L., Chen, Y., Chugh, M., Wen, J., Chen, E., Bezerra, P., Wu, L., Huang, J., Wen, Q., Hartzell, C., Stroup, B., Klinger, M., Perez, E., Virgüez, E., Kirshner, S., Xu, C., & Sharma, V. (2024). Changing outdated expectations. *Science*, 383, 24-26. <https://doi.org/10.1126/science.adn4211><sup>α</sup>  
**α One of the three articles featured on the cover**
- [D10]. Bismuth, K., Sharma, V., Ross, J., Tang, H., Cao, B., Huang, J., Patel, R., Bezerra, P., Zhang, X., Wen, Q., Oda, F., Verstiuk, O., Khan, M., Virgüez, E., Zhi, Y., & Dedyo, J. (2023). Historic introductions. *Science*, 382, 28-30. <https://doi.org/10.1126/science.adk8769>
- [D9]. Heim, B., Bharani, T., Konstantinides, N., Ross, J., Srivastava, S., Elvis, X., Agarwal, D., Waiho, K., Lin, T., Virgüez, E., Strielkowski, W., & Uzonyi, A. (2023). AI in search of human help. *Science*, 381, 162-163. <https://doi.org/10.1126/science.adi8740><sup>α</sup>  
**α Highlighted in Science's weekly podcast: <https://doi.org/10.1126/science.adj7011>**
- [D8]. Amorim, C., Virgüez, E., Eker, S., Zdenek, C., Bergh, C., Gerarduzzi, C., Ge, Y., Klinger, M., Allareddy, V., Hoots, E., Henriquez, T., Waiho, K., D'Ippoliti, C., Al Harraq, A., Xu, H., Zou, J., Xia, Y., Abdul-Ghani, R., & Chugh, M. (2023). The future of scientific societies. *Science*, 380, 30-32. <https://doi.org/10.1126/science.adh8182>
- [D7]. Keeler, B., Locke, C., Bennett, E., Gerber, L., Grimm, N., Guerry, A., Hellmann, H., Kenney, M., King, E., Mason, S., Nibbelink, N., Olander, L., Posner, S., Ricketts, T., Rowell, K., Secord, D., Schively, C., Ticktin, T., Vira, B., & Virgüez, E. (2022). Guidebook for the engaged university:

best practices for reforming systems of reward, fostering engaged leadership, and promoting action-oriented scholarship. *Beyond the Academy*. [Link](#)

- [D6]. [Virgüez, E.](#) (2022). The world is changing: As an early-career scholar, I need the academy to change with it. *Inside Higher Ed*. [Link](#)
- [D5]. [Virgüez, E.](#) (2022). How I balanced my Ph.D. research with opening doors for others. *Science*, 376, 662. <https://doi.org/10.1126/science.abq8440>
- [D4]. [Virgüez, E.](#) (2022). Bring more early early-career scholars into the administrative fold. *Higher Ed Dive*. [Link](#)
- [D3]. [Virgüez, E.](#), Stantial, N., & Zhang, Y. (2019). Understanding Duke Health Insurance: An Emerging Leaders Institute project. *Duke University's Graduate School Professional Development Blog*. [Link](#)
- [D2]. [Virgüez, E.](#) (2018). Enhancing my network of mentors. *Duke University's Graduate School Professional Development Blog*. [Link](#)
- [D1]. [Virgüez, E.](#) (2018). Organizing your personal and professional OPTIONS. *Duke University's Graduate School Professional Development Blog*. [Link](#)

#### **b. Submitted or in preparation**

- [DS4]. [Virgüez, E.](#), Grubert, E., & Jenkins, J. The importance of paid parental leaves for researchers. (*In preparation*)
- [DS3]. [Virgüez, E.](#) The value of peer-to-peer mentoring for early-career researchers. (*In preparation*)
- [DS2]. [Virgüez, E.](#) & Echeverri, A. Succeeding in a competition-oriented environment: The paradigm of collaboration for emergent scholars trained in the South. (*In preparation*)
- [DS1]. [Virgüez, E.](#) Preparing the next-generation climate leaders: Training young leaders beyond academia. (*In preparation*)

#### **Selected Oral Presentations, Conference Sessions, and By-invitation-only Workshops**

- [O56]. [Virgüez, E.](#) (2025). Towards decarbonized net-zero emissions energy systems: A just transition for the Global South (**session chair**). *2025 American Association of Geographers Annual Meeting*. Detroit, Michigan, United States. March.
- [O55]. [Virgüez, E.](#) (2025). The JEDI (Justice, Equity, Diversity, & Inclusion) components in the decarbonization of net-zero emissions energy systems (**session chair**). *2025 American Association of Geographers Annual Meeting*. Detroit, Michigan, United States. March.
- [O54]. [Virgüez, E.](#), Wongel, A., Carlino, A., Duan, L., Lewis, N., Davis, S., & Caldeira, K. (2025). Economic development as a facilitator for addressing climate goals. *2025 American Association of Geographers Annual Meeting*. Detroit, Michigan, United States. March.
- [O53]. Loyd, J., RaQuelle, R., & [Virgüez, E.](#) (2025). Putting care to work for equity and inclusion (**panelist**). *2025 American Association of Geographers Annual Meeting*. Detroit, Michigan, United States. March.

- [O52]. Li, A., Virguez, E., Dowling, J., Ruggles, T., Wongel, A., Reich, N., Lewis, N., & Caldeira, K. (2024). The influence of regional geophysical resource variability on the value of single- and multi-storage technology portfolios. *American Geophysical Union (AGU) Fall Meeting 2024*. Washington, DC. December.
- [O51]. Virguez, E., Dioha, M., Duan, L., Wongel, A., Lewis, N., & Caldeira, K. (2024) Disparities in per capita energy consumption within and between countries. *2024 Institute for Operations Research and the Management Sciences (INFORMS) Annual Meeting*. Seattle, Washington. October.
- [O50]. Virguez, E., & Grochowicz, A. (2024). Net-zero emissions energy systems: Equitable transitions **(session chair)**. *2024 Institute for Operations Research and the Management Sciences (INFORMS) Annual Meeting*. Seattle, Washington. October.
- [O49]. Virguez, E., & Lau, M. (2024). Net-zero emissions energy systems: Optimization methods **(session chair)**. *2024 Institute for Operations Research and the Management Sciences (INFORMS) Annual Meeting*. Seattle, Washington. October.
- [O48]. Jenkins, J. & Virguez, E. (2024). Decision support for the path to net-zero emissions **(session chair)**. *2024 Institute for Operations Research and the Management Sciences (INFORMS) Annual Meeting*. Seattle, Washington. October.
- [O47]. Li, A., Virguez, E., Dowling, J., Ruggles, T., Wongel, A., Reich, N., Lewis, N., & Caldeira, K. (2024). The influence of regional geophysical resource variability on the value of single- and multi-storage technology portfolios. *2024 Institute for Operations Research and the Management Sciences (INFORMS) Annual Meeting*. Seattle, Washington. October.
- [O46]. Dowling, J., Ruggles, T., Virguez, E., Reich, N., Ifkovitz, Z., Davis, S., Li, A., Kennedy, K., Rinaldi, K., Duan, L., S., Caldeira, K., & Lewis, N (2024). Opportunities and constraints of hydrogen energy storage systems. *2024 Institute for Operations Research and the Management Sciences (INFORMS) Annual Meeting*. Seattle, Washington. October.
- [O45]. Chen, S., Lu, X., Hao, J., Virguez, E., Caldeira, K., & Davis, S. (2024). Land costs impact solar technology choices and carbon mitigation in China. *2024 Institute for Operations Research and the Management Sciences (INFORMS) Annual Meeting*. Seattle, Washington. October.
- [O44]. Virguez, E. (2024). Corporate government in higher education: Tackling the 21<sup>st</sup> century challenges. *International Forum of Corporate Government: Exponential Challenges*. Bogota, Colombia. September.
- [O43]. Virguez, E., Dioha, M., Duan, L., Wongel, A., Lewis, N., & Caldeira, K. (2024). Disparities in per capita energy consumption within and between countries. *2024 American Association of Geographers Annual Meeting*. Honolulu, Hawaii, United States. April.
- [O42]. Virguez, E. (2024). Symposium on geospatial data science for sustainability: The geospatial component in the decarbonization of net-zero emissions energy systems **(session chair)**. *2024 American Association of Geographers Annual Meeting*. Honolulu, Hawaii, United States. April.
- [O41]. Virguez, E. (2024). Towards decarbonized net-zero emissions energy systems: A just transition for the Global South **(session chair)**. *2024 American Association of Geographers Annual Meeting*. Honolulu, Hawaii, United States. April.



- [O40]. Virguez, E. (2024). The JEDI (Justice, Equity, Diversity, & Inclusion) components in the decarbonization of net-zero emissions energy systems (**session chair**). *2024 American Association of Geographers 2024 Annual Meeting*. Honolulu, Hawaii, United States. April.
- [O39]. Virguez, E. (2023). Fostering diversity, equity, and inclusion through community building and knowledge sharing (**panelist**). *American Geophysical Union (AGU) Fall Meeting 2023*. San Francisco, California, United States. December.
- [O38]. Reich, N., Ruggles, T., Virguez, E., Caldeira, K. & Lewis, N. (2023). Improving system reliability in wind- and solar-dominated electricity systems via capacity investments. *American Geophysical Union (AGU) Fall Meeting 2023*. San Francisco, United States. December.
- [O37]. Suresh, M., Wagon, J., Hall, T., Virguez, E. & Sperling, J. (2023). Reframing international students' success: Emphasizing institutional responsibility for international student well-being and belongingness. *Association for the Study of Higher Education (ASHE) 48<sup>th</sup> Annual Conference*. Minneapolis, Minnesota. November.
- [O36]. Virguez, E., Dioha, M., Wongel, A., Lewis, N., Davis, S., & Caldeira, K. (2023). Energy use disparities among and within countries. *2023 Society for the Advancement of Chicanos/Hispanics and Native Americans in Science (SACNAS) National Diversity in STEM Conference*. Portland, Oregon, United States. October.
- [O35]. Virguez, E., Wang, X., Fay, J., Johnson, T., & Patiño-Echeverri, D. (2023). Revealing the effect of zoning ordinances and state-level land-use restrictions on renewable resources' potential. *2023 Institute for Operations Research and the Management Sciences (INFORMS) Annual Meeting*. Phoenix, Arizona. October.
- [O34]. Dowling, J., Ruggles, T., Reich, N., Virguez, E., Davis, Ifkovitz, Z., Davis, S., Li, A., Rinaldi, K., Kennedy, K., Duan, L., S., Caldeira, K., & Lewis, N. (2023). Improving system reliability in wind- and solar-dominated electricity systems via capacity investments. *2023 Institute for Operations Research and the Management Sciences (INFORMS) Annual Meeting*. Phoenix, Arizona. October.
- [O33]. Reich, N., Ruggles, T., Virguez, E., Caldeira, K. & Lewis, N. (2023). Techno-economic analysis of hydrogen storage in wind and solar electricity systems. *2023 Institute for Operations Research and the Management Sciences (INFORMS) Annual Meeting*. Phoenix, Arizona. October.
- [O32]. Antonini, E., Virguez, E., Ashfaq, S., Duan, L., Ruggles, T., & Caldeira, K. (2023). Historical analysis of global distribution of and trends in wind droughts. *European Geosciences Union (EGU) General Assembly 2023*. Vienna, Austria. April.
- [O31]. Virguez, E., Lewis, N., Davis, S., & Caldeira, K. (2023). Renewable energy is Republican energy. *2023 American Association of Geographers Annual Meeting*. Denver, Colorado, United States. March.
- [O30]. Virguez, E. (2023). Looking forward while examining the past: Energy access disparities, Energy and Environment Specialty Group 3<sup>rd</sup> annual futures and directions panel (**panelist**). *American Association of Geographers Annual Meeting*. Denver, Colorado, United States. March.
- [O29]. Virguez, E., & Kennedy, S. (2023). Navigating the academic and non-academic job markets (**session co-lead**). *Energy Geography Conference, Energy and Environment Specialty Group, American Association of Geographers*. Virtual. January.

- [O28]. Virguez, E., Lewis, N., Davis, S., & Caldeira, K. (2023). Renewable energy is Republican energy. *Energy Geography Conference, Energy and Environment Specialty Group, American Association of Geographers*. Virtual. January.
- [O27]. Virguez, E. (2023). Taking doctoral mentorship seriously: Institutional design for equity and inclusive excellence (**by-invitation-only workshop**). *National Academy of Sciences, Engineering, and Medicine (NAEM) and American Association of Universities (AAU)*. Washington, DC, United States. January.
- [O26]. Virguez, E., Antonini, E., Ashfaq, S., & Davis, S. (2022). Net-zero emissions energy systems: Geophysical constraints, consequences, and opportunities (**session convener and in-person chair**). *American Geophysical Union (AGU) Annual Meeting*. Chicago, Illinois, United States. December.
- [O25]. Virguez, E. (2022). Energy Insights 2022 (**by-invitation-only workshop**). *Sloan Foundation and Resources for the Future*. Washington, DC, United States. December.
- [O24]. Malinowski, H, Shapiro-Garza, E., Valnes, S., & Virguez, E. (2022). Perspectives on decolonizing research (**panelist**). *Duke at Home in the World, Office of Global Affairs, Duke University*. Durham, North Carolina, United States. November.
- [O23]. Virguez, E. (2022). Advancing your academic goals while contributing to a more diverse and inclusive higher education sector. *Future Leaders Society, American Association of Colleges & Universities (AAC&U)*. Washington, DC, United States. November.
- [O22]. Virguez, E. (2022). Debunking myths about the energy transition: The linchpin of the energy transition. *Nicholas School of the Environment*. Durham, North Carolina, United States. November.
- [O21]. Virguez, E. (2022). How to invite students into meaningful learning? *Teaching on Purpose Program, Kenan Institute for Ethics, Duke University*. Durham, North Carolina, United States. November.
- [O20]. Henry, C., Renshaw, J., & Virguez, E. (2022). Careers in energy data analytics (**panelist**). *Energy Data Analytics Program, Duke University & Sloan Foundation, Duke University*. Durham, North Carolina, United States. October.
- [O19]. Dioha, M., Ashfaq, S., Virguez, E., & Caldeira, K. (2022). Lifting all humanity to the world's energy use per capita: a stylized analysis. *39th United States Association for Energy Economics (USAEE) & International Association for Energy Economics (IAEE) North American Conference*. Houston, Texas, United States. October.
- [O18]. Virguez, E., & Patino-Echeverri, D. (2022). Assessing the effect of incorporating land-use parcel-level data and local zoning ordinances when quantifying renewable energy resources potential. *2022 American Association of Geographers Annual Meeting*. New York, New York, United States. February.  
**\*Recognized with the Best Student Paper Award by the American Association of Geographers' Energy and Environment Specialty Group.**
- [O17]. Valnes, S., Liu, Y., Reisinger, D., & Virguez, E. (2021). Language and culture for sustainability: Voices in the Environment. *American Council on the Teaching of Foreign Languages (ACTFL) Annual Convention*. San Diego, California, United States. November.

- [O16]. Virgüez, E. (2021). Who pays the price for our actions? The toll of the environmental problems for members of developing countries. *Duke Environmental Justice Symposium*. Durham, North Carolina, United States. March.
- [O15]. Virgüez, E. (2020). Utility-scale photovoltaics and storage: Decarbonizing and reducing greenhouse gases abatement costs. *Energy Data Analytics Symposium: Transforming Energy Systems with Data Science Techniques*. Durham, North Carolina, United States. December.
- [O14]. Virgüez, E. & Patiño-Echeverri, D. (2020). Enabling utility-scale photovoltaics integration via storage to abate carbon dioxide emissions. *Electric Power Conference*. Denver, Colorado, United States. April ( *canceled because of COVID-19 pandemic*).
- [O13]. Virgüez, E., Castillo, J., & Patiño-Echeverri, D. (2020). Estimating health and economic benefits of Bogota's air quality management plan, *North Carolina Conference on Latin American Studies (NC-CLAS)*. Charlotte, North Carolina, United States. March ( *canceled because of COVID-19 pandemic*).
- [O12]. Abelson, S., Alcivar, M., Christian, C., Nachman, D., Valentine, E., & Virgüez, E. (2020). Voices of changemakers: how commitments to learning, community, and equity shape future faculty (**panelist**). *2020 Annual Meeting of the Association of American Colleges & Universities (AAC&U)*. Washington, D.C., United States. January.
- [O11]. Virgüez, E. & Patiño-Echeverri, D. (2019). Abating carbon emissions by means of utility-scale photovoltaics and storage: The Duke Energy Progress/Carolinas case study. *FISE IEEE CIGRE Conference*. Medellin, Colombia. December.
- [O10]. Virgüez, E. & Patiño-Echeverri, D. (2019). Utility-scale photovoltaics and storage: Economic and environmental trade-offs. *Institute for Operations Research and the Management Sciences (INFORMS) Annual Meeting*. Seattle, United States. October.
- [O09]. Virgüez, E. & Patiño-Echeverri, D. (2019). Utility-scale photovoltaics plus storage: a cost-effective alternative for decarbonization? *Carnegie Mellon University Center for Climate and Energy Decision Making (CEDM) 2019 Annual Meeting*. Pittsburgh, Pennsylvania, United States. May.
- [O08]. Virgüez, E. (2019). Supporting utility-scale photovoltaics with storage: The Duke Energy Carolina and Duke Energy Progress case study. *Nicholas School of the Environment Annual Ph.D. Symposium*. Durham, North Carolina, United States. April.
- [O07]. Valenzuela, M., Espinosa, M., Virgüez, E. & Behrentz, E. (2016). Uncertainty of greenhouse gas emission models: Colombian transportation sector as a case of study. *14<sup>th</sup> World Conference on Transport Research*. Shanghai, China. July.
- [O06]. Amaya, R., Gutierrez, A., Muñoz, F. & Virgüez, E. (2014). Experience of Universidad de los Andes teaching process safety. *6<sup>th</sup> CCPS Latin American Conference on Process Safety*. Buenos Aires, Argentina. September.
- [O05]. Virgüez, E., Olaya, L. & Behrentz, E. (2013). Convenience of updating the emission standards for heavy-duty vehicles., *IV Colombian Congress & International Conference on Air Quality & Public Health*. Bogotá, Colombia. August.
- [O04]. Faber, M.H. & Virgüez-Rodríguez, E. (2012). Supporting decisions on global health and life safety investments. *Life Quality Index (LQI) Symposium, Denmark Technical University*. Lyngby, Denmark. August.

- [O3]. Faber, M.H. & Virguez-Rodríguez, E. (2011). Supporting decisions on global health and life safety investments. *11<sup>th</sup> International Conference on Applications of Statistics and Probability in Civil Engineering*. Zurich, Switzerland. August.
- [O2]. Fischer, K., Virguez-Rodríguez, E., Sánchez-Silva, M. & Faber, M.H. (2011). Defining guidelines for the application of the marginal life-saving costs principle for risk regulation. *11<sup>th</sup> International Conference on Applications of Statistics and Probability in Civil Engineering*. Zurich, Switzerland. August.
- [O1]. Behrentz, E. & Virguez, E. (2011). Compressed natural gas on Colombia: study case for public transport vehicles. *XIV Congress of the Colombian Association of Natural Gas (Naturgas)*. Cartagena, Colombia. April.

### **Selected Posters Participations**

- [PO18]. Virguez, E., Dioha, M., Duan, L., Wongel, A., Lewis, N., & Caldeira, K. (2024). Disparities in per capita energy consumption within and between countries. *American Geophysical Union (AGU) Fall Meeting 2024*. Washington, DC. December.
- [PO17]. Freese, L., Virguez, E., Davis, S., & Caldeira, K. (2024). Country-to-country imposition of climate damage from current emissions. *American Geophysical Union (AGU) Fall Meeting 2024*. Washington DC, United States. December.
- [PO16]. Chen, S., Lu, X., Hao, J., Virguez, E., Caldeira, K., & Davis, S. (2024). Multi-sector sustainability trade-offs of solar PV tracking technologies. *American Geophysical Union (AGU) Fall Meeting 2024*. Washington DC, United States. December.
- [PO15]. Virguez, E., Ruggles, T., & Caldeira, K. (2024). Planning reliable wind- and solar-based electricity systems. *Next Generation Challenges in Energy-Climate Modelling Workshop 2024*. Online. September.
- [PO14]. Virguez, E., Dioha, M., Wongel, A., Duan, L., Lewis, N., & Caldeira, K. (2023). Disparities in per capita energy consumption within and between countries. *American Geophysical Union (AGU) Fall Meeting 2023*. San Francisco, United States. December.
- [PO13]. Carlino, A., Wongel, A., Virguez, E., Edwards, M., & Caldeira, K (2023). The predictive skill of Wright's law for energy and climate policy support. *American Geophysical Union (AGU) Fall Meeting 2023*. San Francisco, United States. December.
- [PO12]. Covelli, D., Virguez, E., Caldeira, K., & Lewis, N. (2023). Assessing the feasibility of a 100% renewable electricity system in Oahu. *American Geophysical Union (AGU) Fall Meeting 2023*. San Francisco, United States. December.
- [PO11]. Virguez, E. (2022). Building bridges over the ocean: Enabling sustainability education for marginalized communities in Latin America. *American Geophysical Union (AGU) Annual Meeting*. Chicago, Illinois, United States. December.
- [PO10]. Caldeira, K., Li, A., Virguez, E., Antonini, E., Dowling, J., Duan, L., Dioha, M., Reich, N., Lewis, N., Davis, S. & Ruggles, T. (2022). A macro energy model framework for transparent analysis of implications of energy systems assumptions. *American Geophysical Union (AGU) Fall Meeting 2022*. Chicago, United States. December.

- [PO9]. Li, A., Dowling, J., Virguez, E., Ruggles, T., Lewis, N., & Caldeira, K. (2022). Is there space for a third storage technology in variable renewable electricity systems with short- and long-duration storage? *American Geophysical Union (AGU) Fall Meeting 2022*. Chicago, United States. December 12 – 16.
- [PO8]. Antonini, E., Virguez, E., Ashfaq, S., Duan, L., & Caldeira, K. (2022). Geophysical limits to wind power reliability. *American Geophysical Union (AGU) Fall Meeting 2022*. Chicago, United States. December.
- [PO7]. Ashfaq, S., Enrico, A., Virguez, E., Duan, L., Dioha, M., Ruggles, T., Davis, S., & Caldeira, K. (2022). The value of additional hydroelectric and pumped hydroelectric storage for a deeply decarbonized power system. *American Geophysical Union (AGU) Fall Meeting 2022*. Chicago, United States. December.
- [PO6]. Virguez, E. (2022). Informing the sustainability of the Earth system: Insights from an early-career researcher at the Department of Global Ecology. *Carnegie Institution for Science, Board of Trustees Annual Meeting*. Pasadena, California, United States. November.  
**\*Selected as the early-career researcher representing the Department of Global Ecology at the annual meeting of the Board of Trustees.**
- [PO5]. Li, A., Dowling, J., Virguez, E., Ruggles, T., Lewis, N., & Caldeira, K. (2022). Relative value of short-, mid-, and long-duration storage technologies in reliable wind and solar electricity systems. *Institute for Operations Research and the Management Sciences (INFORMS) Annual Meeting*. Indianapolis, Indiana, United States. October.  
**\*Selected as one of the nine finalists for the 2022 INFORMS Best Poster Award from >200 poster participants**
- [PO4]. Valenzuela, M., Espinosa, M., Virguez, E., & Behrentz, E. (2015). Uncertainty of greenhouse gas emission models: Colombian transportation sector as a case study. *V International Congress of Air Quality and Public Health*. Bucaramanga, Colombia. August.
- [PO3]. Espinosa, M., Márquez, J.C.F., Orjuela, J.P., Virguez, E., Sefair, J.A., Medaglia, A.L. & Behrentz, E. (2011). An optimization model for selecting and programming projects for Bogota's Air Quality Decennial Decontamination Plan. *III International Congress of Air Quality and Public Health*. Medellin, Colombia. December.
- [PO2]. Virguez, E. & Behrentz, E. (2011). Compressed natural gas in Colombia: study case for public transport vehicles. *III International Congress of Air Quality and Public Health*. Medellin, Colombia. December.
- [PO1]. Virguez, E., Obando, D.C., Muñoz, F., Sánchez, E.M. & Behrentz, E. (2009). Risk assessment of air pollution exposure using the Life Quality Index (LQI). *II International Congress of Air Quality and Public Health*. Cartagena, Colombia. July.