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Cookstoves:
a comprehensive
environmental issue



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ON THE COVER: Plagued by the ongoing drought in the arid lands throughout the Horn of Africa, a lack of firewood makes life difficult for Kenya's nomadic tribes who've made the desert their home for generations. A Gabra tribal woman endures the smoke from a traditional wood fire to cook for her family. This issue's Feature article highlights how health, climate and economy are intertwined with the use of solid fuels for cooking and heating. (Image Credit: 2013@RodneyRascona/UNF-GACC)

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Keystone XL: Pipeline to Nowhere
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Cleaner Cooking Solutions to Achieve Health, Climate, and Economic Cobenefits
Susan C. Anenberg,* Kalpana Balakrishnan, James Jetter, Omar Maseru, Sumi Mehta, Jacob Moss, and Veerabhadran Ramanathan

Nearly half the world's population must rely on solid fuels such as biomass (wood, charcoal, agricultural residues, and animal dung) and coal for household energy, burning them in inefficient open fires and stoves with inadequate ventilation. Household solid fuel combustion is associated with four million premature deaths annually; contributes to forest degradation, loss of habitat and biodiversity, and climate change; and hinders social and economic progress as women and children spend hours every day collecting fuel. Several recent studies, as well as key emerging national and international efforts, are making progress toward enabling wide-scale household adoption of cleaner and more efficient stoves and fuels. While significant challenges remain, these efforts offer considerable promise to save lives, improve forest sustainability, slow climate change, and empower women around the world. Nearly half the world's population must rely on solid fuels such as biomass (wood, charcoal, agricultural residues, and animal dung) and coal for household energy, burning them in inefficient open fires and stoves with inadequate ventilation. Household solid fuel combustion is associated with four million premature deaths annually; contributes to forest degradation, loss of habitat and biodiversity, and climate change; and hinders social and economic progress as women and children spend hours every day collecting fuel. Several recent studies, as well as key emerging national and international efforts, are making progress toward enabling wide-scale household adoption of cleaner and more efficient stoves and fuels. While significant challenges remain, these efforts offer considerable promise to save lives, improve forest sustainability, slow climate change, and empower women around the world.

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4653  [dx.doi.org/10.1021/es3043559](https://doi.org/10.1021/es3043559)
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TiO₂ Nanoparticle Exposure and Illumination during Zebrafish Development: Mortality at Parts per Billion Concentrations
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Benzotriazole, Benzothiazole, and Benzophenone Compounds in Indoor Dust from the United States and East Asian Countries
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4822  [dx.doi.org/10.1021/es400436y](https://doi.org/10.1021/es400436y)
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4829  [dx.doi.org/10.1021/es303774a](https://doi.org/10.1021/es303774a)
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4840  [dx.doi.org/10.1021/es304135b](https://doi.org/10.1021/es304135b)
A GIS Cost Model to Assess the Availability of Freshwater, Seawater, and Saline Groundwater for Algal Biofuel Production in the United States
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4850  [dx.doi.org/10.1021/es304492j](https://doi.org/10.1021/es304492j)
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4859  [dx.doi.org/10.1021/es304791b](https://doi.org/10.1021/es304791b)
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4866  [dx.doi.org/10.1021/es304895z](https://doi.org/10.1021/es304895z)
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4875 [dx.doi.org/10.1021/es304912d](https://doi.org/10.1021/es304912d)
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4882  [dx.doi.org/10.1021/es305108p](https://doi.org/10.1021/es305108p)
Centennial Evolution of Aluminum In-Use Stocks on Our Aluminized Planet
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4889  [dx.doi.org/10.1021/es3051197](https://doi.org/10.1021/es3051197)
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4896  [dx.doi.org/10.1021/es305162w](https://doi.org/10.1021/es305162w)
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4904 [dx.doi.org/10.1021/es3053202](https://doi.org/10.1021/es3053202)
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4911  [dx.doi.org/10.1021/es400045s](https://doi.org/10.1021/es400045s)
In Situ Investigation of Cathode and Local Biofilm Microenvironments Reveals Important Roles of OH⁻ and Oxygen Transport in Microbial Fuel Cells
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4918  [dx.doi.org/10.1021/es4000593](https://doi.org/10.1021/es4000593)
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4926  [dx.doi.org/10.1021/es4001642](https://doi.org/10.1021/es4001642)
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4934  [dx.doi.org/10.1021/es400321c](https://doi.org/10.1021/es400321c)
Kinetic, Electrochemical, and Microscopic Characterization of the Thermophilic, Anode-Respiring Bacterium *Thermincola ferriacetica*
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4941  [dx.doi.org/10.1021/es400631r](https://doi.org/10.1021/es400631r)
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Fei Zhang, Zheng Ge, Julien Grimaud, Jim Hurst, and Zhen He*

Correspondence

4949 [dx.doi.org/10.1021/es400601t](https://doi.org/10.1021/es400601t)
Comment on "Geochemical Implications of Gas Leakage associated with Geologic CO₂ Storage—A Qualitative Review"
Carla E. Wiegiers,* Dirk Schäfer, Frank Dethlefsen, and Andreas Dahmke

4951 [dx.doi.org/10.1021/es401090n](https://doi.org/10.1021/es401090n)
Response to Comment on “Geochemical Implications of Gas Leakage associated with Geologic CO₂ Storage—A Qualitative Review”

Omar R. Harvey,* Nikolla P. Qafoku, Kirk J. Cantrell, Giehyeon Lee, James E. Amonette, and Christopher F. Brown

4953 [dx.doi.org/10.1021/es4009344](https://doi.org/10.1021/es4009344)
Comment on “Atmospheric Degradation of Perfluoro-2-methyl-3-pentanone: Photolysis, Hydrolysis, and Hydration”

Sierra Rayne*

4954 [dx.doi.org/10.1021/es4012965](https://doi.org/10.1021/es4012965)
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Derek A. Jackson, Cora J. Young, Michael D. Hurley, Timothy J. Wallington, and Scott A. Mabury*

Additions and Corrections

4956  [dx.doi.org/10.1021/es401438q](https://doi.org/10.1021/es401438q)
Correction to An Improved Screening Tool for Predicting Volatilization of Pesticides Applied to Soils

Cleo L. Davie-Martin, Kimberly J. Hageman,* and Yu-Ping Chin

4958  [dx.doi.org/10.1021/es401561c](https://doi.org/10.1021/es401561c)
Correction to Spatial and Temporal Trends in Lake Erie Hypoxia, 1987–2007

Yuntao Zhou,* Daniel R. Obenour, Donald Scavia, Thomas H. Johengen, and Anna M. Michalak

4959 [dx.doi.org/10.1021/es401587y](https://doi.org/10.1021/es401587y)
Correction to Electrochemical Mineralization of Perfluorocarboxylic Acids (PFCAs) by Ce-doped Modified Porous Nanocrystalline PbO₂ Film Electrode

Junfeng Niu,* Hui Lin, Jiale Xu, Hao Wu, and Yangyang Li
