



The Hill Times (Ottawa, ON)

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Certificate issued on April 25, 2024 to English Account NG C3 for personal and temporary display.

news-20210616-HHB-a0001937304

Source name

The Hill Times (Ottawa, ON)

Source type

Press • Newspapers

Periodicity

Bi-Weekly or Tri-weekly

Geographical coverage

National

Origin

Ottawa, Ontario, Canada

Wednesday, June 16, 2021

The Hill Times (Ottawa, ON)

• p. 22

• 902 words



Page 22

Opinion

Some inconvenient truths in the race to a renewable energy transition

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Mining is big business for Canada. With this influence, provincial and federal governments have a unique opportunity to create supply chain regulations that protect everyone in the new clean energy economy.

Last month, the traditionally conservative International Energy Agency dropped a bomb-shell on the international fossil fuel community by calling for a “net-zero” energy system by the year 2050. The report is but the latest in a series of court decisions, shareholder movements, and investment trends that point to a serious shift away from fossil fuels.

But how will the world meet its (still growing) energy needs without fossil fuels? Switching to renewables is considered one of the most effective ways of getting to net-zero emissions by 2050. But producing the solar panels, wind turbines, and long-life lithiumion batteries that are so critical to renewable energy is driving a commensurate surge in demand for raw materials like copper,

cobalt, zinc, lithium, and rare earth metals. Prices for these and other energy transition materials have been soaring, but the processes by which they are extracted, processed, transported, and discarded entail severe social, economic, and environmental harms.

To better understand these “inconvenient truths,” we outline a typology of displacements that in our view needs to be incorporated and addressed in any discussion about net-zero energy transitions. Specifically, we identify three forms of displacement that are generated by the shift to renewable energy: 1. Displacement by dispossession. Lacking strong and effective land rights, local and Indigenous communities are often displaced from their land and sources of livelihoods by mining concessions, investor protection agreements, and state regulations that favour multinational mining firms, solar panel producers, and wind turbine manufacturers. In India, for instance, sand that is extracted and exported for the production of wind turbines has displaced numerous local communities.

Shifting to renewable energy is a critical component of curbing global greenhouse gas emissions, however academics and policy makers are focusing too narrowly on the technical and cost-benefit dimensions of managing global supply chains, write Teresa Kramarz, Susan Park, and Craig Johnson. Photograph courtesy of Unsplash

2. Displacement by degradation. Beyond the process of losing one’s land, another form of displacement occurs when ecosystems are polluted and degraded as a result of extracting minerals, dumping pollutants from production, transportation, and disposing renewable energy waste products. Taking the case of lithium extraction required for batteries, national regulations for closing and managing brine and tailings ponds are generally ineffective or non-existent. Lithium extraction has been shown to deplete land and water sources, exposing human populations to a wide range of health problems, including damage to the nervous system, thyroid and kidneys for future generations.

3. Displacement through dependent development. Arguably the most insidious

form of displacement occurs when powerful states and multinational corporations are able to establish trade and investment agreements that effectively lock raw material exporting economies in the global South into long-term patterns of unequal environmental exchange. Global supply chains for copper, lithium, cobalt, and other transition minerals are changing rapidly, but the pattern that is beginning to emerge in China, North America, and Europe is growing consolidation and control within the sector. If the history of mining can teach us anything about the future of the new economy, the current surge in demand for transition metals will create new cycles of boom and bust that lock poor countries like the Democratic Republic of Congo, where many minerals for renewables are located into destructive development dependencies comprised of primary extraction for export, land expropriation, elite capture, and the unsafe disposal of toxic and hazardous waste.

Shifting to renewable energy is a critical component of curbing global greenhouse gas emissions, however academics and policy makers are focusing too narrowly on the technical and cost-benefit dimensions of managing global supply chains. The socio-economic and environmental effects of onshore wind, solar photovoltaics, and lithium-ion batteries on communities that are already vulnerable are notoriously underexamined in the global conversation. To be clear, we are not diminishing or rejecting the laudable aims of the decarbonization agenda. On the contrary, we are offering a framework that can be used to ensure a more just and sustainable energy future for everyone.

Mining is big business for Cana-

da—both at home and abroad. With this influence, provincial and federal governments have a unique opportunity to create—mandatory—supply chain regulations that protect everyone in the new clean energy economy. While Canada lags in this respect, the EU's sustainability rules are already creating some pressure on businesses to carry out due diligence checks. We argue for a fuller accounting of the harms involved in the shift to renewable energy and a reappraisal of the governance gaps that need to be urgently addressed in this energy transition.

Teresa Kramarz is associate professor and co-director of the Environmental Governance Lab at the Munk School of Global Affairs and Public Policy in the University of Toronto. Her work focuses on environmental accountability and extractivism. Craig Johnson is professor of political science and director of the Guelph Institute of Development Studies at the University of Guelph. His work focuses on the politics of transitioning to a just and sustainable future. Susan Park is a professor of global governance in the Department of Government and International Relations at the University of Sydney working on how to make global governance greener and more accountable.

The Hill Times