How Can Researchers Prove Their Work has Positive Environmental Impacts?

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Sector CO₂ Emissions

Emissions Targets Renewable Research Funding

Verification

CO₂ Reduction

Ethical Materials Sourcing

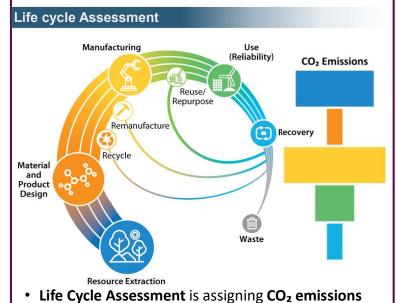
Recommended Improvements

Current Practice

- If regulations focus on net CO2 emission reduction
- Research should quantify net environmental impacts

Current Practice

- Because regulations don't consider localized impacts
- Research may not consider ethical resource extraction



to different steps in the production process

Downstream Impacts



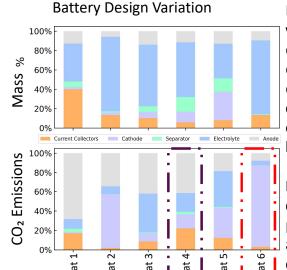
- Most climate regulations don't emphasize ethical sourcing
- Lithium
 mining in
 Latin America
 overlaps with
 areas of high
 biodiversity
 and
 indigenous
 communities
- Most researchers don't ensure sustainable technology can be recycled



Novel Battery Research

Novel battery material emissions can range from 14 to 70,000 kg CO₂ /kg material

 Materials selection processes don't consider CO₂ emissions



High CO₂
variation in
experimental
design casts
doubt on
commercialized
environmental
benefits

Novel battery designs should publish associated CO₂ emissions



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