Clean Energy Ministerial Biofuture Platform Initiative
Workstream on Biomass Quantification and Sustainability Governance

Good Practices for Sustainable Biomass

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Background

The Clean Energy Ministerial (CEM) Biofuture Platform Initiative's (https://biofutureplatform.org/) Workstream on Biomass Quantification and Sustainability Governance (hereafter, Sustainability Workstream) promotes an evidence-based understanding of sustainable biomass production and use. This brief offers a synthesis of recommendations for sustainable biomass production.

Defining Sustainability

Regulatory frameworks often define "sustainable biomass" based on compliance with an applicable standard. However, documentation of compliance can be a burden for many small producers, and in practice, sustainability depends on place-based conditions including feedstocks, opportunities, and the priorities of affected communities. Thus, criteria for what represents sustainable biomass feedstocks should be developed with local stakeholders.

A risk-based approach is recommended when considering options for production and use of biomass. This means that in each specific case, the costs, benefits, and risks associated with current management should be compared with proposed alternatives to improve net social, economic and environmental benefits to society.

Practices to Accelerate Sustainable Biomass Production & Use

The recommendations below were developed by the Biofuture Platform Initiative with input from a broad group of stakeholders, including a Technical Advisory Group.[1] They are meant to guide governments and project developers as options to build social support for expanding sustainable biomass production and use to help meet climate and other development goals.

1. Ensure that sustainability analyses are transparent and based on clear terms, definitions, and verifiable data.
2. Document real conditions, in specific contexts and at local scales; that is, specific cases rather than reliance on generalized models, and compare the opportunity costs of practical alternatives including business as usual and any proposed interventions for increasing biomass production.
3. Document compliance with regulatory frameworks that support sustainability to expand market opportunities.
4. Harmonize sustainability governance across biobased production systems.

[1] For more information on the Sustainability Workstream and the role and composition of the Technical Advisory Group, see https://biofutureplatform.org/sustainability-workstreams/.

    a. Establish frameworks that treat all resource management and production systems equally to avoid market distortions.
    b. Provide incentives for more sustainable land and water management and penalties for harmful practices.
    c. Consider end-of-life consequences for chemicals, plastics, and other materials.
5. Provide public access to timely and transparent reporting and verification systems that build trust with stakeholders.
    a. Cite data from reliable sources that can be verified.
    b. Ensure case studies and briefs provide a balanced analysis of costs, benefits, risks, and opportunities for each proposed use of biomass.
6. Monitor and address priority stakeholder concerns through adjustments in operations and steps to improve transparency and governance.
7. Document risks and net costs and benefits to capture effects on environment, jobs, health, rural development, investments, and other factors that are important to local stakeholders. A multi-disciplinary approach is important to assess impacts because effects of sustainable biomass production and use go beyond reducing net greenhouse gas emissions. For example, effects can include forest and soil regeneration, resilient rural development, and other social, economic, and environmental impacts.
8. Take advantage of independent monitoring resources and data to help track effects of operations (e.g., on soils, forests, water, biodiversity, disadvantaged communities).
9. Monitor and report on the role of biomass participation in energy and material systems in a manner that helps illustrate any linkages with other food, feed, and fiber prices to help document how biomass production responds to market signals and relationships with food security.
10. Align biomass production and use with the principles for a circular economy through efficient integration of food, energy and material provision from sustainably sourced biomass while minimizing waste and losses from the system.
11. Apply a risk-based approach to available options when confronting uncertainties.
12. Capitalize on win-win opportunities. Development of sustainable biomass resources offers an opportunity for sustainable employment in natural resource management while generating multiple ecological services, natural climate solutions, local resilience, and biomass that can be used to meet multiple societal needs for food, feed, chemicals, and energy.
13. Use systematic, contextualized, science-based assessments to illustrate the “pros and cons” of proposed investments relative to other realistic options.
14. Support public policies that are agnostic towards feedstocks and technology and focus instead on performance goals.
15. Provide requirements for sustainable biomass that are clear, practical, and adaptable to local conditions to permit inclusive participation of small land holders in a circular bioeconomy.

Summary

Assessing sustainability is a challenge owing to complex interactions of many variables and nearly infinite possibilities for alternative fates of biomass, coproducts, and displacement or substitution effects associated with materials, fuels, and multiple markets across diverse supply chains. Engaging stakeholders early and continually in project design and implementation can build trust and support for sustainable biomass production and use that are aligned with a community's goals for sustainable development and desired future conditions.

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