Linking incentives to science: action for bioenergy in Europe – EU level and country model replication

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Partnership for Policy Integrity
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EU “solid biofuels” mostly wood; large increase since 1990

- Wood burning increased 260% from 1990 to 2017
- Wood constitutes 78% of total solid biofuels in 2017 and
  ~35% of total renewable energy inputs in EU

Eurostat “solid biofuels” data

“Residues”: 40 MMT to 230 MMT
Residential wood-burning increasing dramatically in some member states

Population Germany 83 million
Population Italy 61 million
Biomass units burning green chips emit more CO₂ than fossil-fired units (lb CO₂/MWh)

Data from modeling, various air permits.
Burning wood pellets emits more CO$_2$ per MWh than coal
{Data from Drax power station in UK}

<table>
<thead>
<tr>
<th>CO$_2$ emissions rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coal: 862 kg/MWh</td>
</tr>
<tr>
<td>Biomass: 965 kg/MWh</td>
</tr>
</tbody>
</table>
Despite emissions, burning biomass treated as instantaneously carbon neutral – why?

Background: IPCC accounting protocol “counts” forest carbon loss in land-sector, thus counts combustion emissions as zero to avoid double-counting. The biomass industry acts as if this is literally true!

1. Myth: “Sustainable” forestry means there is still positive net growth, thus emissions instantly offset (“trees are growing somewhere else”)

2. Myth: “It’s only residues that would decompose anyway” (often with a side-helping of the “methane myth”)
Reality: The IPCC does not treat bioenergy as carbon neutral

IPCC counts harvesting emissions in the land use category, not the energy category. They warn:

“The IPCC approach of not including bioenergy emissions in the Energy Sector total should not be interpreted as a conclusion about the sustainability or carbon neutrality of bioenergy.” (http://www.ipcc-nggip.iges.or.jp/faq/faq.html)

“If bioenergy production is to generate a net reduction in emissions, it must do so by offsetting those emissions through increased net carbon uptake of biota and soils”.

IPCC AR5 WG III 11.13.4 GHG emission estimates of bioenergy production systems, 2014
Burning “forestry residues” is not carbon neutral

60 – 70% of cumulative stack emissions at Year 10 represent additional CO$_2$ to atmosphere

Achieving net emissions parity with fossil fuels takes decades

Wood biomass: Time to parity with fossil fuels

<table>
<thead>
<tr>
<th>Harvest scenario</th>
<th>Oil (≠6), thermal</th>
<th>Coal, electric</th>
<th>Gas, thermal</th>
<th>Gas, electric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mixed wood</td>
<td>15–30</td>
<td>45–75</td>
<td>60–90</td>
<td>&gt;90</td>
</tr>
<tr>
<td>Logging residues only</td>
<td>&lt;5</td>
<td>10</td>
<td>10</td>
<td>30</td>
</tr>
</tbody>
</table>

Optimistic because assumes forests are allowed to regrow fully

“Sustainable harvesting” does not produce net zero emissions

<table>
<thead>
<tr>
<th>Bioenergy emissions to atm</th>
<th>Forest carbon uptake from atm</th>
<th>Net impact on atmosphere (forest uptake plus biomass emissions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>-10</td>
<td>-9</td>
</tr>
<tr>
<td>2</td>
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<td>-8</td>
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</table>

“Sustainable” biomass

“UN-sustainable” biomass
Carbon sequestration by forests is already credited as offsetting a portion of emissions.
International sustainability schemes cede the forest carbon sink to the biomass industry

• **UK**: “Management of the forest must ensure that productivity of the forest is maintained”; “harvest levels that do not exceed the long-term production capacity of the forest based on adequate inventory and growth and yield data.” Does not define “long-term production capacity.” Does not prohibit clearcutting forests.

• **Denmark**: “The forests' productivity and ability to contribute to the global carbon cycle must be maintained. Management of forests must ensure the least negative impact on the forest's productivity and carbon sequestration through maintaining the forest's ability to produce wood for future generations; Balancing logging and growth rates”

• **Netherlands**: “the use of biomass does not result in long-term carbon debt”; “The forest management unit where the wood is sourced is managed with the aim of retaining or increasing carbon stocks in the medium or long term.” Enforcement not specified; nor is “medium to long term” defined.

• **Sustainable Biomass Partnership**: “regional carbon stocks are maintained or increased over the medium to long term”; “Analysis demonstrates that feedstock harvesting does not diminish the capability of the forest to act as an effective sink or store of carbon over the long term.”
Faulty carbon accounting...

THE FOREST MANAGER

STAFF'S BEEN CUT, SO WE NEED YOU TO ABSORB THE CO2 OF THE REST OF THE DEPARTMENT.
EU spent more than 6.7 billion Euro subsidizing biomass in 2017

Large proportion of subsidies to electricity-only plants

Pellet production is increasing rapidly
Harvesting for wood pellets in Estonia
Wood pellet feedstock, Estonia
North Carolina USA: wetland forest harvested for wood pellet feedstock

Photo courtesy Dogwood Alliance
“We take sawdust that’s left over from sawmills, they’re cutting the big trees into wood that goes into house building; the sawdust is collected; it’s made into a pellet”
Enviva pellet plant, Ahoskie, North Carolina

Photo: Dogwood Alliance (www.dogwoodalliance.org)
But still common: “no trees are cut for bioenergy”

Wrong. No trees are cut down to be burnt in Danish biomass plants. Only waste-wood from milling industries and wood chips are burned.

Wrong again. Coal is calculated as 820 gCO2eq/kWh whereas biomass is 230 gCO2eq/kWh.

I should have phrased clearer: No USABLE trees are cut down. What is used is sawdust, low quality/waste-wood, twigs, branches, which otherwise would have been left to rot.

Majority of DK biomass comes from DK, biomass not only covers wood but also straw from grain production. --->
How Europe’s climate policies led to more U.S. trees being cut down

By Joby Warrick  June 2, 2015

The Dirty Secret Behind Europe's Renewable Energy Industry

The EU has decided that burning US wood to make biofuel will solve global warming. What?

—By Ben Adler  Wed Aug. 27, 2014 2:40 PM EDT

The UK's £1 billion carbon-belcher raping US forests...that YOU pay for: How world's biggest green power plant is actually INCREASING greenhouse gas emissions and Britain's energy bill

By DAVID ROSE FOR THE MAIL ON SUNDAY
PUBLISHED: 00:35, 7 June 2015 | UPDATED: 12:42, 7 June 2015

What's Replacing Coal In Europe?
Imported Wood

By Mary Beth Griggs
SMITHSONIAN.COM
AUGUST 27, 2014

Louisiana forests being sacrificed to fuel Europe's biomass boom

January 15, 2014 7:00AM ET
by Peter Moskowitz - @ptrmsk

'Wood-pellet fuel emits more carbon than coal': U.S. watchdog to probe shock claims on power giant Drax's 'green' supplier

By DAVID ROSE FOR THE MAIL ON SUNDAY
www.eubiomasscase.org
EU Biomass Lawsuit

The suit asks the Court to remove “forest biomass” from eligibility in the EU’s Renewable Energy Directive (RED II) as a fuel for subsidized renewable energy meeting the EU’s RE targets.

**Plaintiffs: Groups and individuals from**

- Estonia
- France
- Ireland
- Romania
- Slovakia
- United States
Suit criticizes RED II Sustainability, GHG, and Land Use Criteria as not protecting forests and the climate

**Sustainability Criteria** – Country/region of origin has rules in place regarding
- Legality of harvesting
- Forest regeneration
- Harvesting maintains or improves long-term production capacity of forest

**GHG Criteria**
- “Emissions” to not to exceed certain carbon intensity (grams CO2 per unit energy). But doesn’t include emissions from actually burning the fuel.

**Land Use Criteria** - Country of origin
- Is a party to the Paris Agreement,
- Has submitted an NDC, or,
- Has laws in place about conserving C stocks/sinks and providing evidence that land sector emissions do not exceed sinks.

**Misleading claim:** that sustainability and GHG criteria “ensure” that forest biomass will deliver carbon savings relative to fossil fuels.
Every EU member state should adopt the Slovakian solution: **STOP SUBSIDIZING BURNING FOREST BIOMASS**

**WOLF Forest Protection Movement and allies**

- Documenting damage from logging for biomass, advocacy for new law – **no forest wood for biomass fuel**, only mill residues and energy crops
- Advocacy for setting aside 10% of Slovakian forests as true wilderness
- Land purchases, conservation
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