

# Policy Design for Biomass Heating

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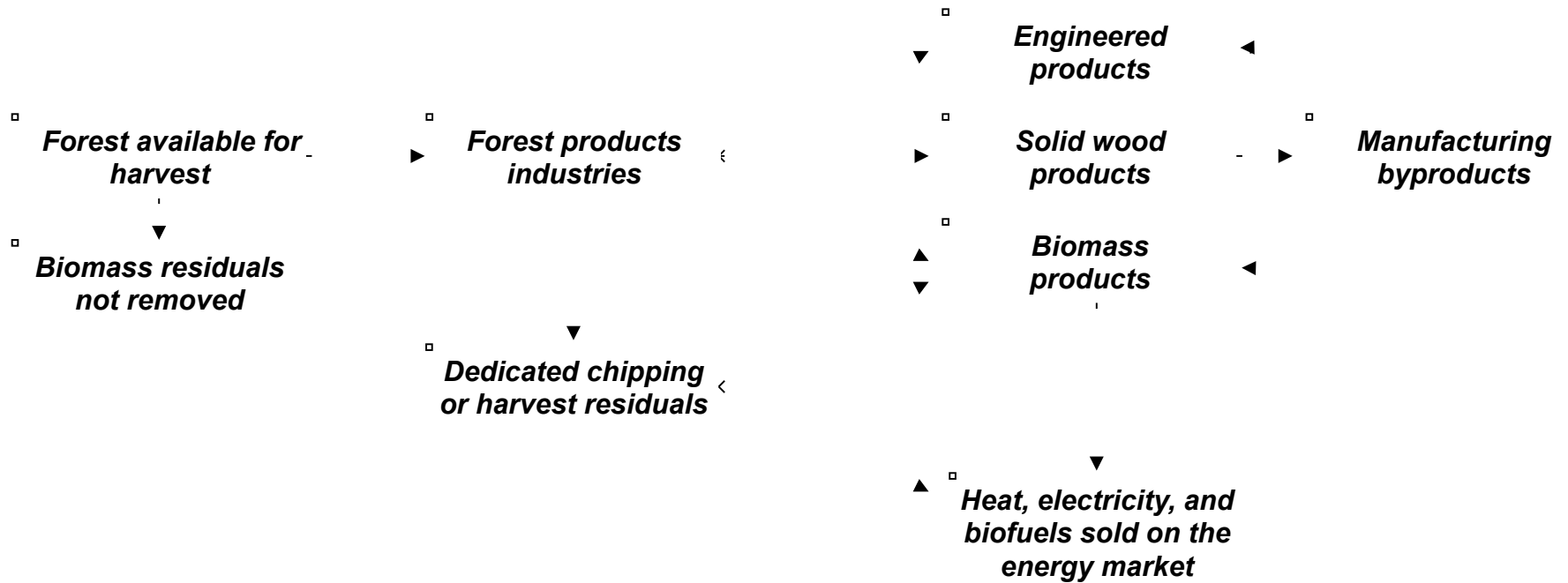


# Motivations for Biomass Utilization

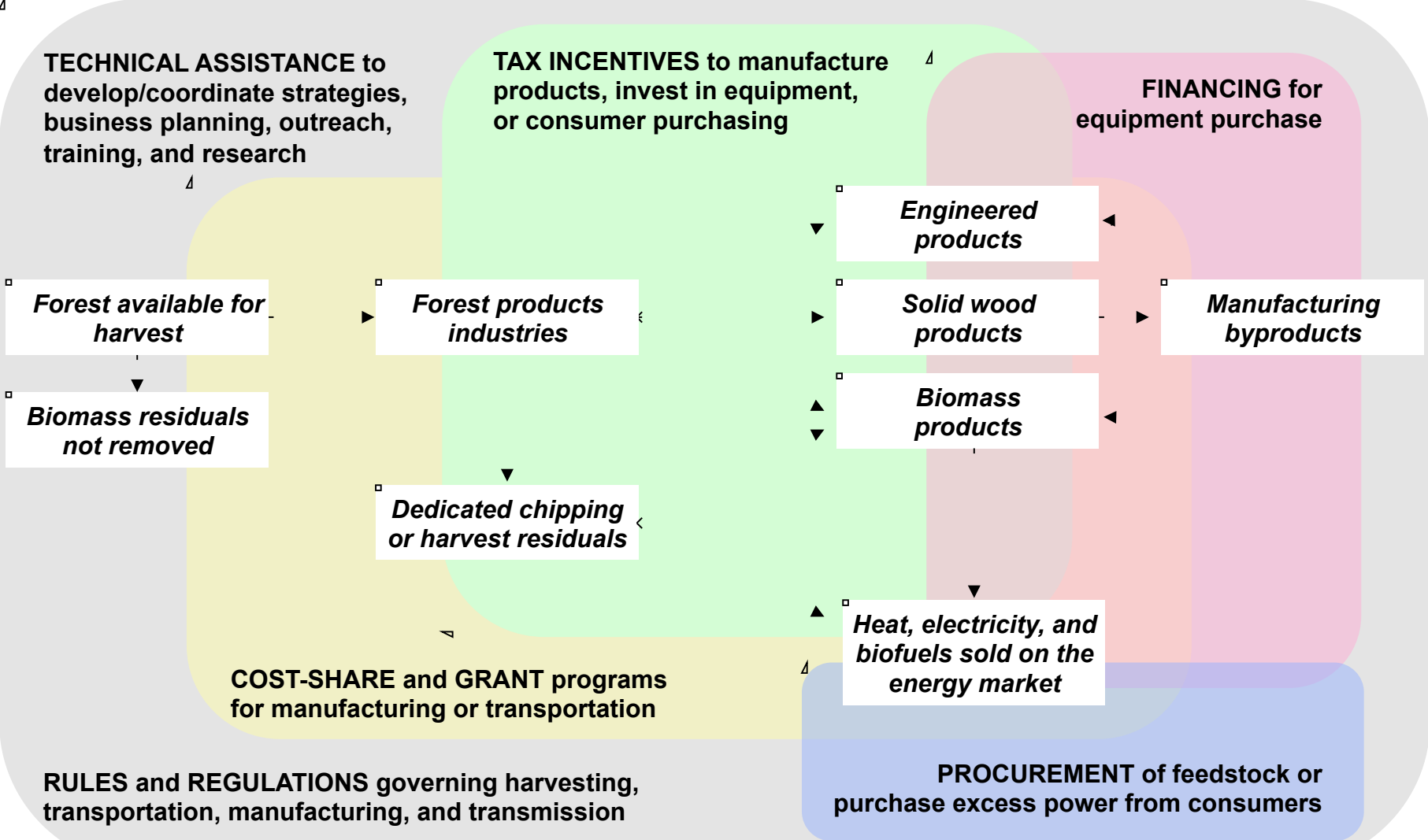
- Enhance forest productivity
- Restore unhealthy forests
- Reduce the incidence of wildfire
- Mitigate greenhouse gas impacts
- Facilitate transition to renewable energy economy
- Increase economic development



# Bioenergy Supply Chain

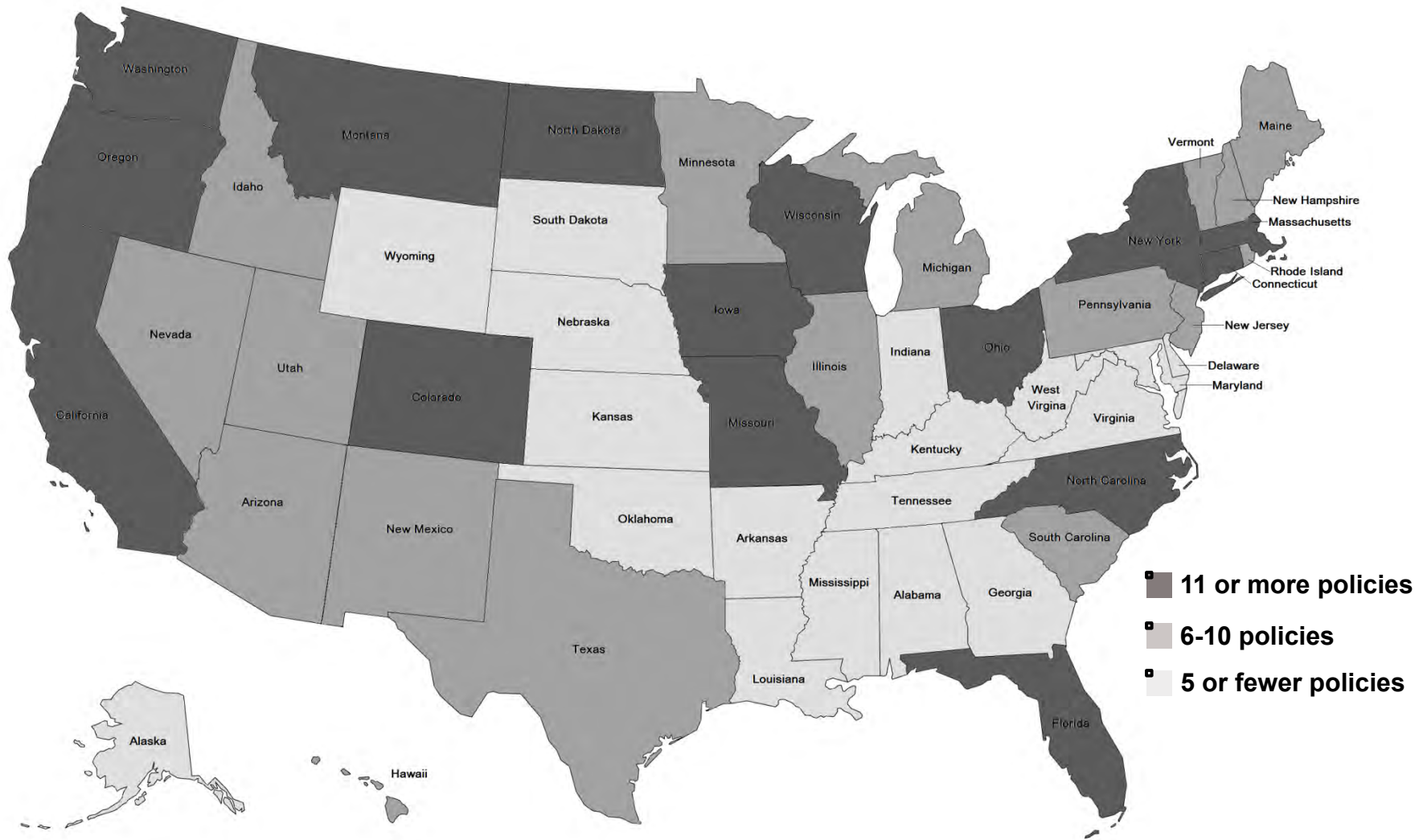


# Bioenergy Supply Chain



# State Legislative Landscape

370 policies directly related to biomass utilization as of December 2008



Source: Becker, D.R.; Moseley, C.; Lee, C. 2011. A supply chain analysis framework for assessing state-level forest biomass utilization policies in the United States. *Biomass and Bioenergy*, 35(4):1429-1439.

# State Legislative Landscape

State	Cost-share and grants	Technical assistance	Financing	Procurement	Rules and regulations	Tax incentives	TOTAL	Harvesting	Transportation	Manufacturing	Consumer markets	TOTAL
	----- Policy instrument -----							-- Supply chain --				
Michigan	2	1	0	1	0	2	6	0	0	3	3	6
Minnesota	2	1	1	1	3	1	9	2	0	6	1	9
Ohio	2	4	0	2	3	1	12	0	0	10	2	12
Wisconsin	6	3	0	2	3	0	14	2	0	6	6	14
<b>TOTAL</b>	<b>12</b>	<b>9</b>	<b>1</b>	<b>6</b>	<b>9</b>	<b>4</b>	<b>41</b>	<b>4</b>	<b>0</b>	<b>35</b>	<b>12</b>	<b>41</b>

# Policy Considerations

- Broad range of policy instruments (tax incentives, regulations, technical assistance, etc) to address multiple and sometimes competing objectives.
- Policy instruments that invoke motivational and informative structures versus interventions that are highly coercive.
- Policy can influence behavior of some actors some of the time but not all of them all the time; policy needs to be responsive and adaptive to changing situations over time.



# Policy Considerations

- Create win-win scenarios to encourage actors to exceed policy goals or requirements
- Performance depends upon optimal pairing of instruments with appropriate state, local and federal institutions
  - sequencing policy instruments across the supply chain
  - synchronizing policies to create opportunities for synergy and innovation





# Research Findings in Minnesota

## Questions organized around five principles of effective institutional design

**ARCHITECTURE:** Focus is on institutional design and measuring the efficacy of the governance systems in place to affect bioenergy production. Core questions include: *What is the relative performance of state policies and policy instruments? How well are policies and programs coordinated along the bioenergy supply chain?*

**ALLOCATION:** Assesses how state policies and programs affecting the distribution and access to resources (raw materials, financial and technical assistance) affect bioenergy development. Core questions include: *How is access and distribution of resources controlled? How does it affect enterprise development and environmental sustainability?*

**AGENCY:** The collective ability to make progress is dependent upon the capacity of the various stakeholders involved. Core questions include: *What is the influence, roles and responsibilities of key stakeholders in the supply chain (i.e., landowners, businesses, regulators, and financial institutions)? How is authority granted, and how is it exercised?*

**ACCOUNTABILITY:** Is concerned with the authority granted to individuals and entities (public and private) involved in the governance of bioenergy systems. Core questions include: *Who or which entity is responsible for ensuring progress? How are they accountable for performance?*

**ADAPTATION:** A sustainable bioenergy system must respond to the uncertainties of human and natural systems. Core questions include: *How are policies and programs designed to ensure long-term stability while being able to react to market developments or new scientific findings? How is innovation and adaptation encouraged?*

# Research Findings in Minnesota

Problem	Key Issues / Symptoms	Interviewee Solutions
<b>#1: Existing energy policy gives preference to traditional energy sources, putting bioenergy at a competitive disadvantage</b>	<ul style="list-style-type: none"><li>• Federal – fossil fuels receive greater support in the form of subsidies</li><li>• State – bioenergy receives lower preference than other alternatives in state Renewable Portfolio Standards</li></ul>	<ul style="list-style-type: none"><li>• Eliminate or reduce federal subsidies for fossil fuels</li><li>• Promote parity among renewable-energy sources</li><li>• Promote efficient energy production (e.g., CHP)</li></ul>
<b>#2: Bioenergy incentives can create unanticipated competition for raw material that is mutually counterproductive</b>	<ul style="list-style-type: none"><li>• Increasing competition for resources between traditional forest-products industries and the bioenergy industry</li><li>• Policies like BCAP can create market imbalances</li></ul>	<ul style="list-style-type: none"><li>• Create policies that mutually support all forest-products industries</li><li>• Promote policies that foster synergy between traditional forest-products industries and the biomass industry</li></ul>
<b>#3: A complicated structure of relevant policies contributes to a sense of a lack of policy coordination</b>	<ul style="list-style-type: none"><li>• Mix of federal, state and county forest management results in uncoordinated biomass efforts and potential loss of ecological and economic benefits</li><li>• The involvement of multiple agencies across the supply chain results in disjointed actions (environmental permitting)</li></ul>	<ul style="list-style-type: none"><li>• Improve coordination of forest management across jurisdictions</li><li>• Enhance coordination of state agencies to promote bioenergy development and governance</li><li>• Encourage community-level leadership and responsibility</li></ul>

# Research Findings in Minnesota

Problem	Key Issues / Symptoms	Interviewee Solutions
<b>#4: Multiple initiatives and state authorities are uncoordinated and lack a unified strategy</b>	<ul style="list-style-type: none"><li>• Lacking a single entity in charge of or spearheading a state or region-wide bioenergy strategy creates inefficiency, lack of organization, and slow progress</li></ul>	<ul style="list-style-type: none"><li>• Implement a new institutional structure, with the DNR taking a lead role to create a unified vision and direction</li><li>• Employ sister agencies to assist with implementation and governance</li></ul>
<b>#5: Lack of public awareness about the benefits of bioenergy reduces support and potential impact</b>	<ul style="list-style-type: none"><li>• Lack of public awareness results in a lack of community support for biomass removal and subsequent heat and electricity production</li></ul>	<ul style="list-style-type: none"><li>• Increase opportunities for communities to learn about the ecological and financial impacts of bioenergy at each step in the supply chain</li></ul>
<b>#6: Existing policies and agency procedures fail to adequately integrate bioenergy and traditional forest-products markets and harvest practices</b>	<ul style="list-style-type: none"><li>• Current logging policies do not provide adequate financial incentivize for loggers to engage in biomass harvesting</li><li>• Limited regional experience with appropriate biomass harvesting systems</li></ul>	<ul style="list-style-type: none"><li>• Provide educational support to assist loggers in incorporating biomass-harvest practices into their systems</li><li>• Promote policies that financially support loggers to efficiently biomass removal and handling</li></ul>
<b>#7: Existing bioenergy policy gives preference to large-scale applications</b>	<ul style="list-style-type: none"><li>• Existing biomass policy is often not designed to be applied at smaller scales (community-level)</li></ul>	<ul style="list-style-type: none"><li>• Create policies designed to be applicable at multiple scales, thus enabling the maximum number of users to take advantage of incentives</li></ul>

# HMW Draft Working Group

## State and national energy policy must include thermal energy

- Develop residential wood heat change-out programs.
- Remove barriers restricting the use of biomass heating in the Low Income Heating Assistance Program. Require energy auditors to provide the same safety, energy and cost savings audit of biomass appliances as for fossil fuel appliances.
- Support Energy Title programs created in the 2008 Farm Bill, and in particular maintain funding for (Renewable Energy for America Program (REAP).
- Set clear standards for biomass thermal in building certification standards (e.g., LEED, Green Building Standard).
- Integrate efficiency standards in energy policy where appropriate (e.g. investment and production tax credits, RPSs, and utility green pricing programs.) Configure state energy efficiency programs to ensure that awardees/ customers can use the efficiency upgrades to leverage EPC funding.

## Use biomass strategically and responsibly

- **Develop and disseminate statewide databases of household, business and public facility energy use by fuel type (propane, natural gas, coal, and heating oil) and location.**
- Provide greater access to investment capital and technical assistance
- **Partner with state agencies to develop strategic biomass energy education and outreach programs for households and businesses to assess the economic opportunities of conversion to biomass fuel.**
- **Promote the combination of renewable energy technologies to maximize system efficiency**

# HMW Draft Working Group

## Bioenergy facilities must be appropriately scaled to be sustainable

- Develop statewide sustainable harvesting guidelines for woody and agricultural feedstocks. Develop landowner and industry outreach around the deployment of guidelines.
- **Conduct technical assistance and market development toward community scale users in addition to large-scale users.**
- Create a “check-off” program to support biomass thermal market promotion and research. Check-off fees could be levied on a per-unit of feedstock production or consumption.

## Provide economic development opportunities through distributed energy generation

- **Conduct and/or update CHP site potential studies for Midwest States.**
- Promote partnerships for utilities to co-locate thermal and CHP production with existing manufacturing.
- Establish thermal energy standards for public facilities. Include biomass fuel specifications and qualifying heating technologies in state procurement protocols and contracts.
- Reform applicable policies to remove barriers to distributed energy generation, and creating state and federal platforms for small industrial and community-scale heating and CHP applications.

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