



Trajectory of Wood Energy Policies in the US: Sustainability and Governance in Global Markets

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Drivers of Wood Energy in the US



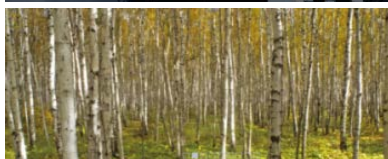
Restore forests—reduce risk of wildfire



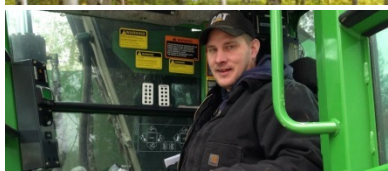
Maintain and enhance biological diversity



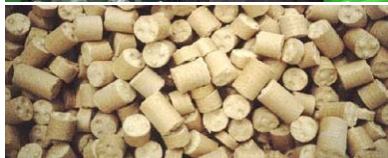
Mitigate GHG impacts



Enhance forest productivity

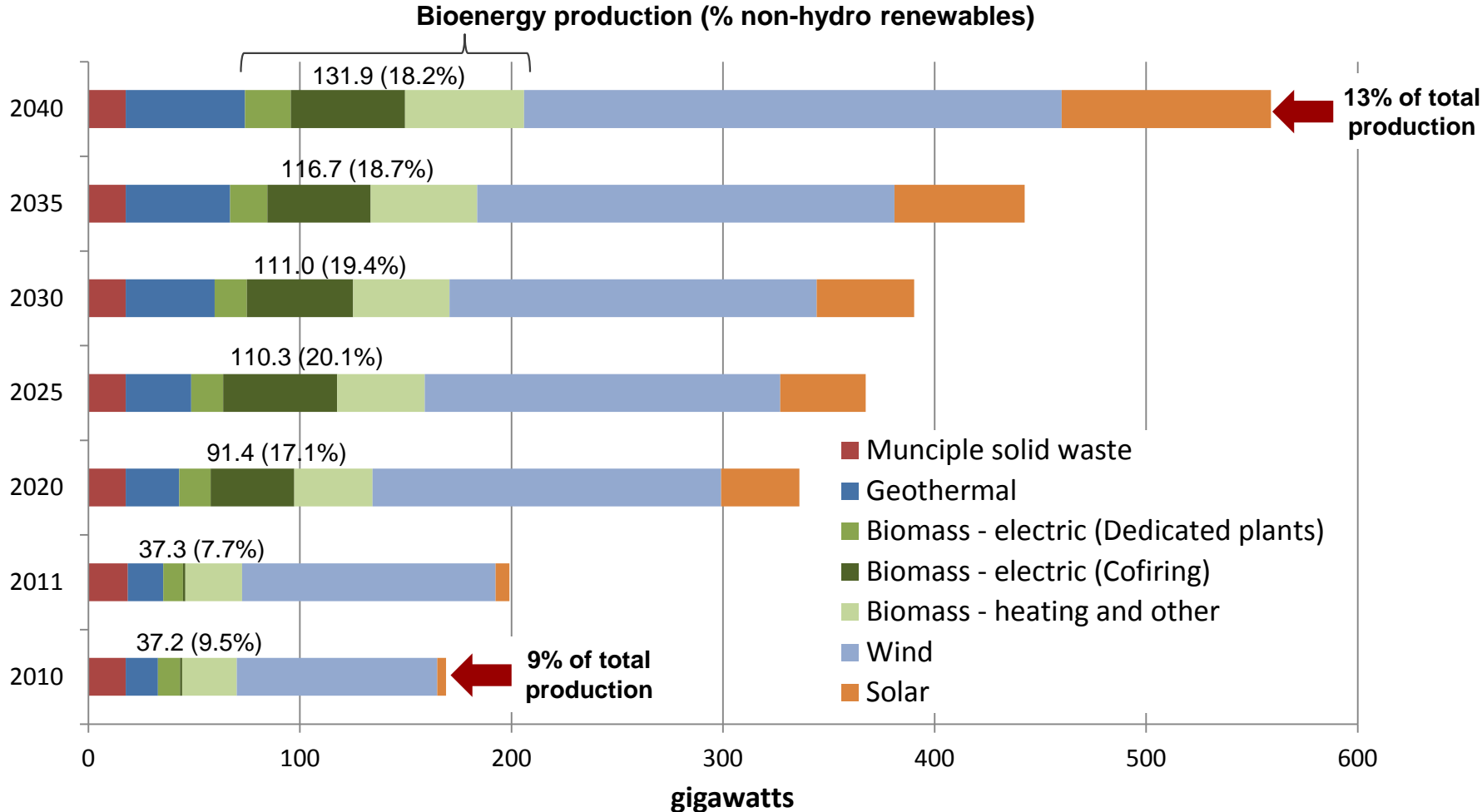


Increase economic development



Transition to renewable energy economy

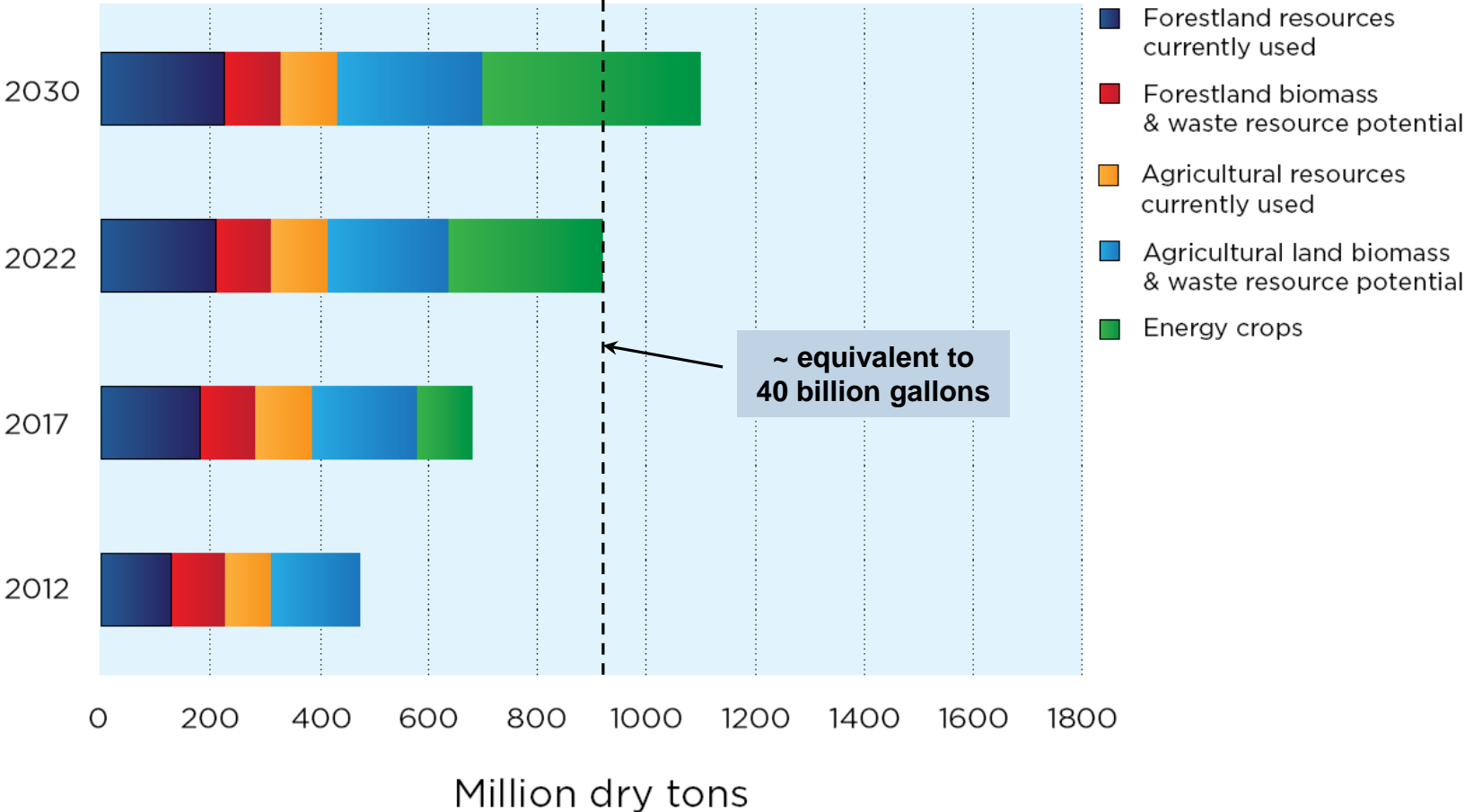
Projected Renewable Energy



Source: EIA, Annual Energy Outlook 2013 (Table A16)

Projected Biomass Feedstock

Currently used and potential @ \$60/dry ton
(assumes average productivity)



Source: US DOE, Updated Billion Ton Study (2011)

Euphoria or Fear??



Forest Management

- **Federal Policy:**
 - Clean Water Act, Endangered Species ...
- **State Policy:**
 - Best Management Practices (nearly all forested states)
 - Supplemental biomass harvest guidelines (15 states)
 - Agriculture biomass harvest guidelines in development
 - California AB32: forestry offsets; land conversion rules
- **Governance:**
 - FSC/SFI/PEFC third-party forest certified (49.4 million ha)
- **Gaps:**
 - Inconsistent state practices, and BMP monitoring
 - Market recognition



Best Management Practices

□ Three levels of BMPs:

- Required by law or regulation
- Necessary to comply with law or regulation
- Recommended practices

□ Guidelines for:

- Streamside management zones
- Forest road construction
- Site preparation
- Reforestation
- Prescribed burning
- Minor drainage
- Wildlife management
- Stream crossings
- Timber harvesting
- Reforestation
- Prescribed burning
- Pesticides and fertilization
- Endangered species management



Feedstock Source

□ **Federal Policy:**

- Farm Bill Energy Title – BCAP (certified energy crops)
- Federal Production and Investment Tax Credits
looped: 1.1¢/kWh; closed-looped (2.2¢/kWh)



□ **State Policy:**

- Massachusetts RPS procurement standards to protect ecological functions (residuals vs. roundwood)
- Oregon Producer Tax Credit for biomass (\$10/green ton)



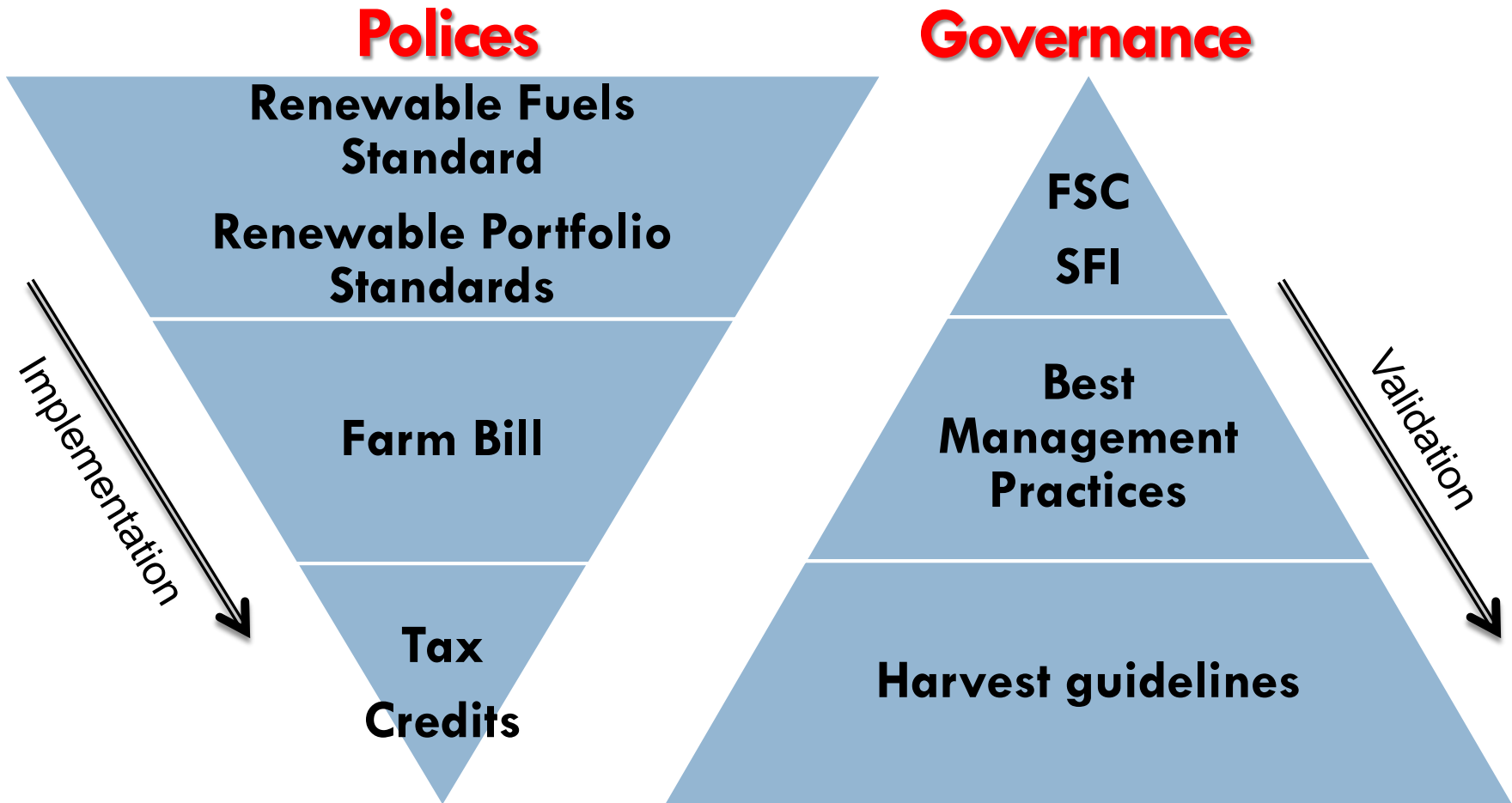
□ **Governance:**

- Pending EPA rules for biogenic carbon (“tailoring rule”); residuals/roundwood

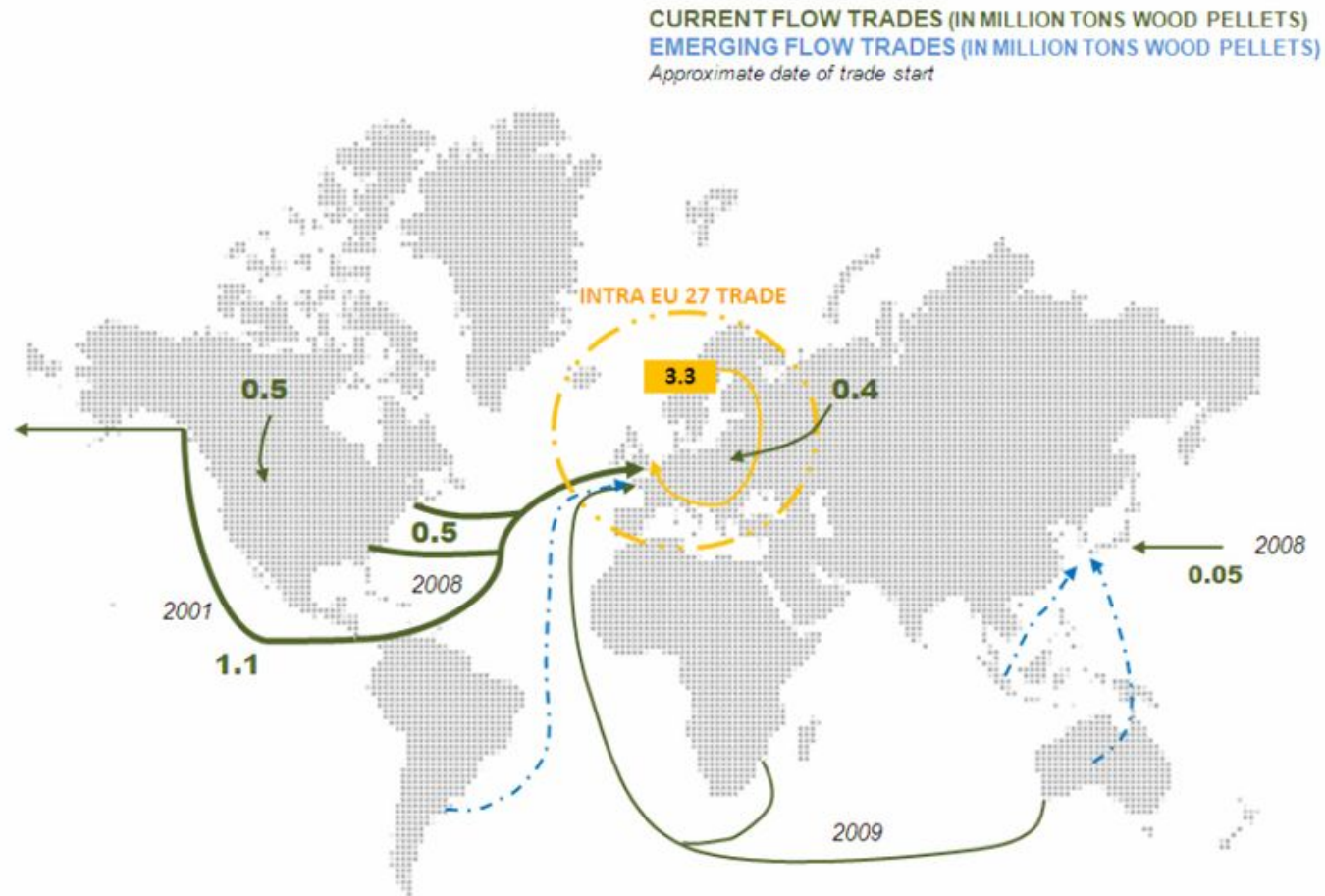
□ **Gaps:**

- Inconsistent policy definitions of biomass
- Non-durable policies

Tiered System



Global Governance—Local Standards



Adapted from Pöyry 2011, Sikkema 2009

Map of wood pellets trade flows worldwide (2010 status).

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<http://enrpolicy.forestry.umn.edu/Research/index.htm>