



**IEA Bioenergy**

*Technology Collaboration Programme*



## Strategies to increase the mobilization and deployment of local low value heterogeneous solid biomass resources for a Circular Bioeconomy

### Task 40 Regional Transitions Project Activity 2

Fabian Schipfer, Alexandra Pfeiffer, Ric Hoefnagels

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# Local, low value and heterogenous biomass resources

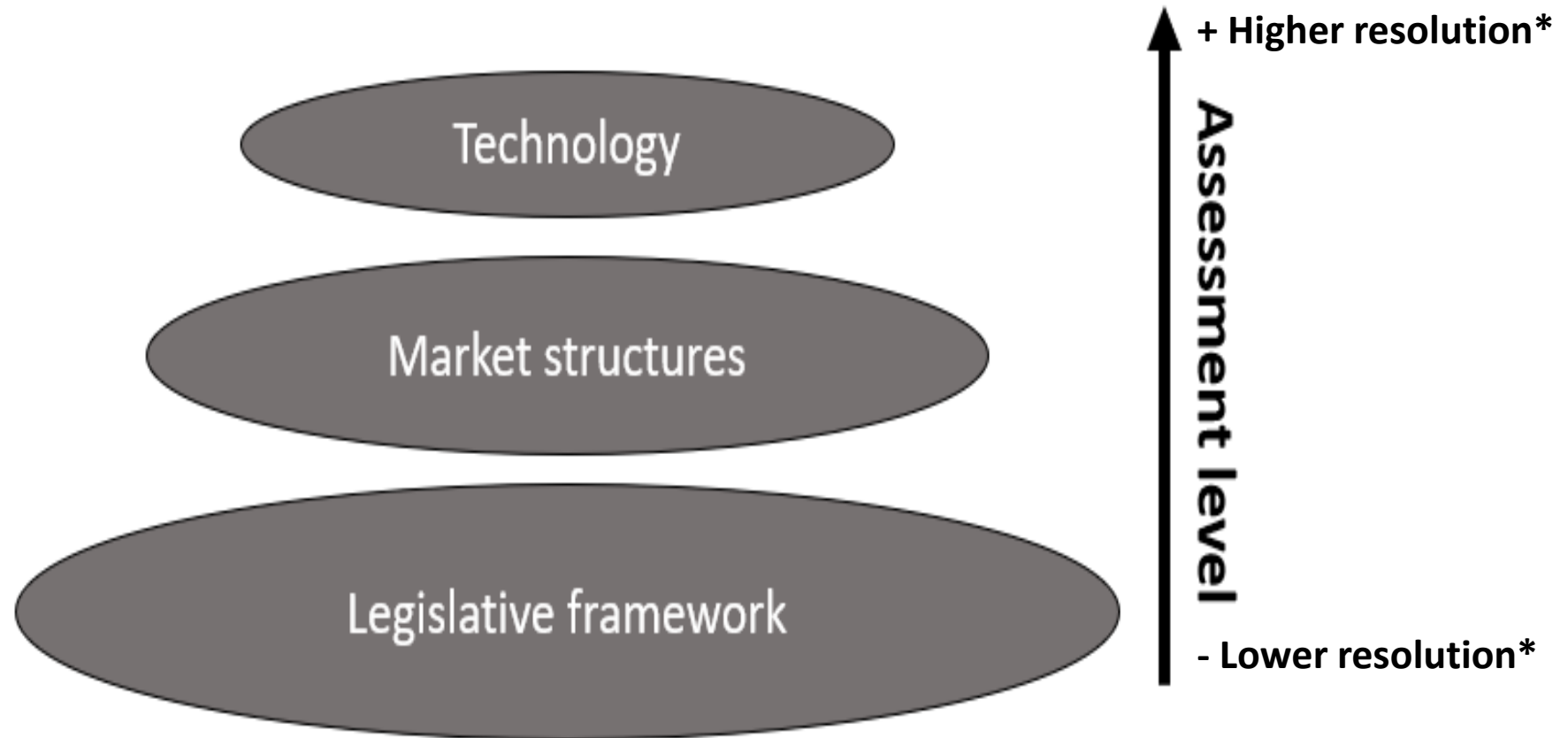
## **Broaden feedstock portfolio**

- Forestry residues
- Energy crops
- Agricultural residues
- Waste categories
- from Aquaculture

## **Feedstock diversity**

- physical properties (energy density, moisture content, ash content but also contamination such as sand/plastic),
- origin (landscape management, residential garden/kitchen waste)
- legal status (waste vs. resource/material).

# Mobilization strategies selection & categorization



# Technology level - Pre-treatment

## Decentralized pre-treatment:

- chipping, pelletisation, briquetting, bailing, torrefaction, liquefaction, gasification ....  
improve transportability BUT especially also storability (flexibility!)

## Mobile/portable pre-treatment:

- What's the smallest functional unit for decentralization? Can it go mobile? Techno-economics, business cases, LCAs, modelling, GIS- and big-data (weather) support?
  - mobileflip.eu
  - Renewable Oil International LCC
  - PelletBox by Prodesa
  - Krone Premos 5000
  - Schaider Groups Pelletec
  - Gmco mobile pellet plant
  - Proxipel concept

# Legislative framework - status quo

EU policies to watch	Regional Action plans to multiply
European Green Deal, Climate Target plan, REDIII	Intelligent Energy Europe (IEE) REGBIE+ 2007 – 2009
EU bioeconomy strategy	ERDF 4Biomass.eu 2007 – 2009
Strategic Deployment Agenda (SDA)	Interreg Bio-En-Area 2011 - 2015
Common Agricultural Policy (CAP)	IEE Bioregions.eu 2010 - 2013
Agricultural Fund for Rural Development (EAFRD)	IEE Biomass Policies 2013 - 2016
European Structural and Investment Funds (ESIF)	(FP7) S2Biom 2013 - 2016
Agricultural European Innovation Partnership (EIP-AGRI)	IEE Basis 2013 - 2016
Urban Circular Bioeconomy Strategy funding	Horizon2020 BioVill 2016 - 2019
European Bioeconomy Forum	Interreg Bio4Eco project 2016 - 2020
Just Transition Fund (JTF)	“Nordic Bioeconomy Programme” 2018 - 2022
CBE JU, former BBI JU	BIOEASTup initiative 2019 - 2022
EU Long-term Vision for Rural Areas	
Forest Strategy for 2030 , Farm to Fork Strategy	
Biodiversity Strategy for 2030	

# Legislative framework - barriers & opportunities

## Reduce barriers for & harness opportunities of Multi-level governance (MLG):

- Coherence between EU <-> national <-> regions <-> provinces <-> municipalities <-> districts <-> neighbourhoods
- How to establish coherence? How to integrate with national energy transition policy?
- Social acceptance (“nimby”) versus participatory processes
  - → enormous “decentralization-potential” of regional supply chains
  - → Resource democratization
  - → Needs to be addressed by European Economic and Social Committee (EESC)
- Willingness of municipalities to contribute & regional initiatives exist
  - e5 – Energy-efficient municipalities,
  - KEM – Klima- und Energiemodellregionen,
  - CoM – Covenant of Mayors

# Market catalysts for wastes, residues, post-consumer products & secondary raw materials:

## Physical bio-hubs:

- Regional biomass processing depots (e.g. Tschiggerl Agrar GmbH)  
Biorefinery concept & pre-treatment technologies = market & trade facilitator  
→ storage (flexibility), nutrient recovery & sustainable landscape mngmt !!

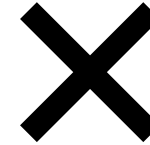
## Virtual bio-hubs:

- b2bbioenergy.eu and promobio.eu, pellet-zone.com and bioexchange.com  
offline! Why did they fail?
- + Biomass Commodity Exchange (BCEX), Euronext wood pellets futures, German Nabisy and other gas-registries, Baltpool, Denmark electronic Reverse Auction (eRA) system to source straw

# Market creation - commoditization debate



Improves security of supply & demand,  
competitive markets reduce societal costs,  
create system flexibility  
(e.g. Task40 on wood pellets, Task44 on flex)



Commoditization and international supply chains  
“reduce the stakeholder role of local agricultural  
biomass producers”  
(e.g., McGovern and Klenke, 2018)

- 
- Sustainability certification: ensures environmental standards for imported- equal to regional commodities
  - Socio-economic certification: should ensure minimum stakeholder diversity



# Biogenic residues mobilization strategies for a circular bioeconomy and regional development

1. The circular bioeconomy will provide energy-, material- and nutrient products and services. Based on low-value and heterogenous biomass resource → dedicated mobilization strategies are required
2. Readily deployable niche-innovations and policy frameworks and inter-regional activities for biomass mobilization exist (in the EU) → market creation strategies remain the bottleneck
3. Mobilization can support structurally weak regions through resource democratization and foster market diffusion of sustainable and equitable practices in forestry, agriculture and the blue economy. → BUT quantification of potentials and impacts highly underdeveloped

Thank you for your attention

Fabian Schipfer

[schipfer@eeg.tuwien.ac.at](mailto:schipfer@eeg.tuwien.ac.at)

[fschipfer@lbl.gov](mailto:fschipfer@lbl.gov)



[www.ieabioenergy.com](http://www.ieabioenergy.com)