

END USERS' CHALLENGES IN THE LOCAL VALUE CHAIN

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BioFuel Region

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BioFuel RegionTM

– fuelling the bioeconomy and sustainable transports



BioFuel Region is a member owned non-profit organization working for a well-developed bioeconomy and a low carbon vehicle fleet by initiating, coordinating, and collaborating on project.

Area: 7*Belgium (221 800 km²) 70 % Forest land

The aim is to further develop the region!

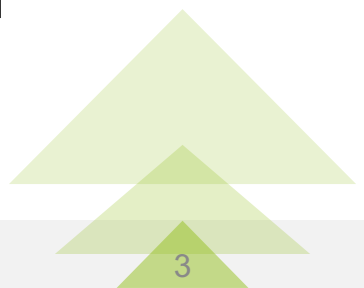
END USERS' CHALLENGES

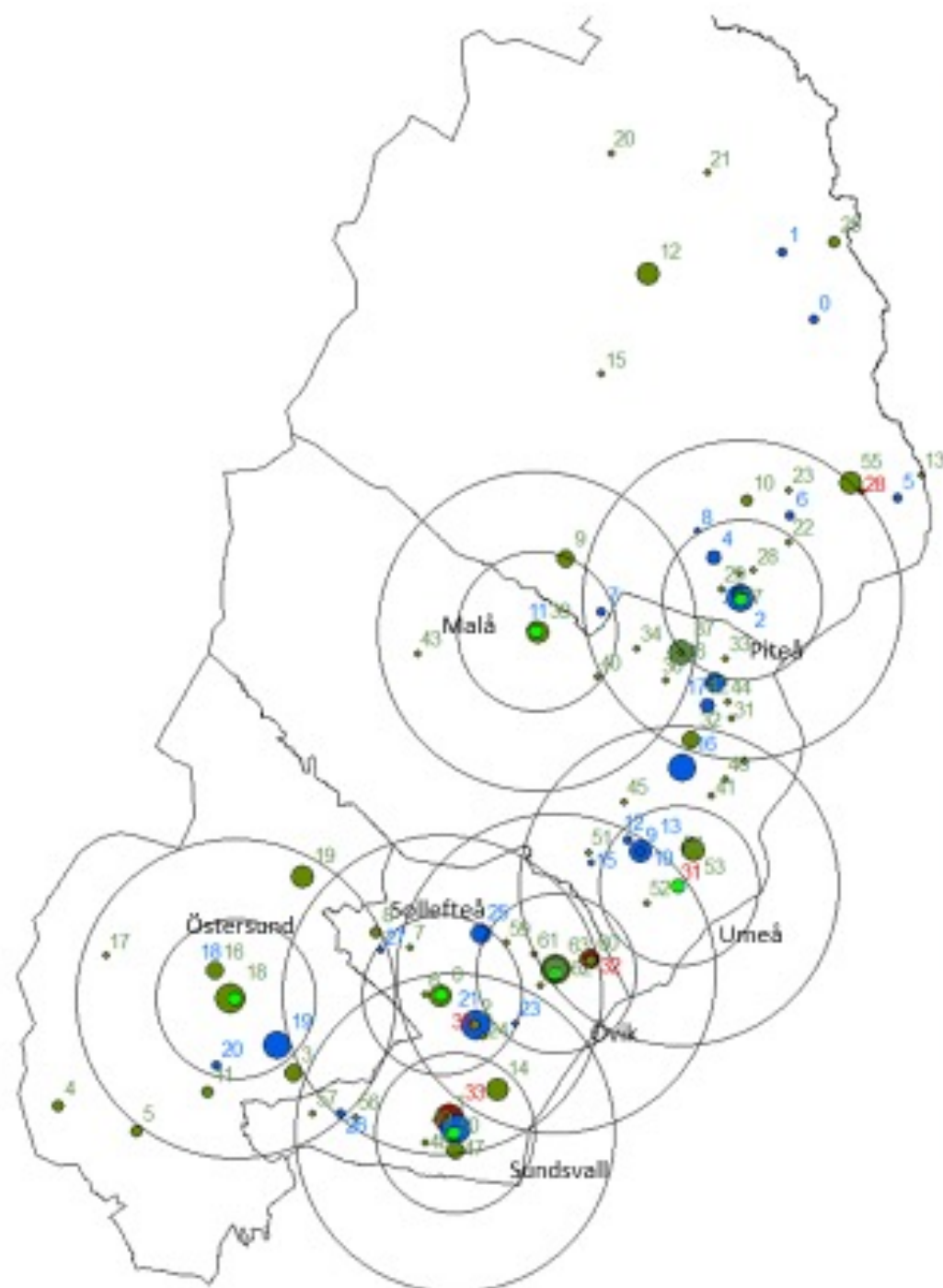
- Raw material supply cost often represents >50% of the overall cost for refining
- Continuous infeed of biomass 24/7 all the year around

Just in time deliveries is often not possible all the year around

Biomass must be stored, at end users' facility, in a bio hub or close to primary producers

- Long term (5-10 years) delivery contracts with biomass suppliers
- Joint venture or business partnership with biomass supplier





Heating plants

0	Adven Energiöningar AB	Sollefteå
1	Adven Energiöningar AB	Tinå
2	Adven Värme AB	Boltonbruk
3	Adven Värme AB	Bräcke, Enyon
4	Adven Värme AB	Funkstalen
5	Adven Värme AB	Hede
6	Adven Värme AB	Långsala
7	Adven Värme AB	Hälsjöer
8	Adven Värme AB	Ramsjö
9	Arvidsjaur Energi AB	Arvidsjaur
10	Boden Energi AB	Boden
11	BTCA Energi AB	Berg
12	Gällivare Energi AB	Gällivare-Väimberget
13	Haparanta Värmeverk AB	Haparanta Residual
14	Härjedalen Energi & Värme AB	Härjedalen
15	Jokimäki Värmeverk AB	Jokimäki
16	Jämtkraft AB	Krokom
17	Jämtkraft AB	Åre
18	Jämtkraft AB	Årestrand
19	Jämtkraft Värme AB	Grönsund
20	Kiruna Kraft AB	Kiruna C
21	Kiruna Kraft AB	Vittangi
22	Luleå Energi AB	Luleå
23	Luleå Energi AB	Eländ
24	Nevsi AB	Kramfors
25	Pajala Värmeverk AB	Pajala
26	Piteå Energi AB	Hornfjärden
27	Piteå Energi AB	Piteå
28	Piteå Energi AB	Nosvik
29	Piteå Energi AB	Sjöfåla
30	Skellefteå Kraft AB	Bolmen
31	Skellefteå Kraft AB	Burså
32	Skellefteå Kraft AB	Burträsk
33	Skellefteå Kraft AB	Bycke
34	Skellefteå Kraft AB	Jön
35	Skellefteå Kraft AB	Kåge
36	Skellefteå Kraft AB	Litbacken
37	Skellefteå Kraft AB	Lykköle
38	Skellefteå Kraft AB	Lövånger
39	Skellefteå Kraft AB	Malå
40	Skellefteå Kraft AB	Honjö
41	Skellefteå Kraft AB	Nobersfors
42	Skellefteå Kraft AB	Skellefteå
43	Skellefteå Kraft AB	Storuman
44	Skellefteå Kraft AB	Urviken-Skelleftehamn
45	Skellefteå Kraft AB	Vindén
46	Skellefteå Kraft AB	Äreboet
47	Sundsvall Energi AB	Kivikölet
48	Sundsvall Energi AB	Marfors
49	Sundsvall Energi AB	Sundsvall
50	Sundsvall Energi AB	Tunadal
51	Sundsvall Energi AB	Årholm
52	Umeå Energi AB	Hömafors
53	Umeå Energi AB	Sävar
54	Umeå Energi AB	Umeå
55	Umeå Energi AB	Kalu
56	Vasa Värme Holding AB	Frånsta
57	Ångö Energi AB	Ångö
58	Övik Energi AB	Blåts
59	Övik Energi AB	Åredbyn
60	Övik Energi AB	Husum
61	Övik Energi AB	Holsten
62	Övik Energi AB	Proccolings
63	Övik Energi AB	Örnkäddavik

Sawmills

0	Åsax Timber	Korpilampi
1	Erskola & Lauri	Tärendö
2	SCA Wood	Piteå, Munkund
3	Stavvalla Trä	Piteå, Lövholmen
4	Stavvalla Trä	Sickfors
5	Stavvalla Trä	Seskarö
6	Stavvalla Trä	Luleå, Öarna
7	Glimmer Timber	Glimmerträsk
8	Älvbyhus	Älvbyn
9	Brattbyråpverk	Brattby
10	SCA Wood	Kundvik
11	Setra Trävarer AB	Malå
12	NK Lundsbröns	Värmlö
13	Noma Skog	Sävar
14	Noma Skog	Kåge
15	Noma Skog	Ågnäs
16	Mattsson/Holmen	Bygdilum
17	Mattsson/Holmen	Kocksjön, Skellefteå
18	Noma Skog	Hömfors
19	SCA Wood/Henson Invest	Malå
20	Röda Trä AB	Svenstavik
21	SCA Wood	Sollita
22	SCA Wood	Tunedal
23	Värmlandskylor AB	Lövånger
24	Högländ	Örnkäddavik
25	Högländ	Ånäsjö, Åredbyn
26	Gallens Trä AB	Frånsta
27	Scania Skog AB	Åsala

Pulp and paper industries

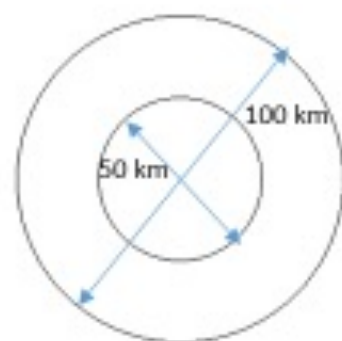
28	Bilvend Korona	Production raw tonnes
29	snufft skapa	0 - 20000
30	SCA Munkund	20000 - 30000
31	SCA Örebro	30000 - 40000
32	Metall Board	
33	SCA Östans	
34	SCA Östiken	
35	Wald Östrik	
36	Aditya Birla	

Consumption raw tonnes

0 - 1000
1000 - 6000
6000 - 15000
15000 - 50000
50000 - 100000
100000 - 150000

Production raw tonnes

0 - 10000
10000 - 20000
20000 - 40000
40000 - 60000
60000 - 80000
80000 - 100000
100000 - 130000





PAYMENT OF DELIVERIES

Payment by volume m³ loose

Payment in raw (wet) tonnes

Payment in dry tonnes

OTHER (MWh)



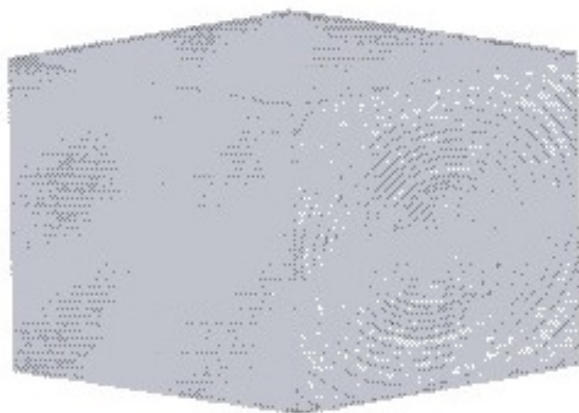
Payment in bulk - m³ loose

Pros - Easy to administrate

Cons - Large variations in bulk density

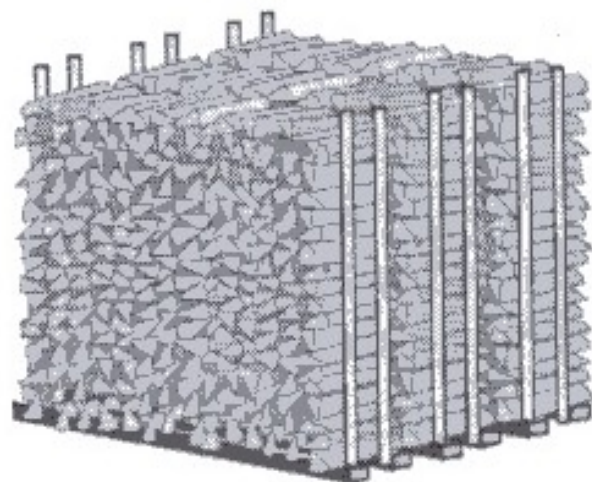
No driver for improved quality





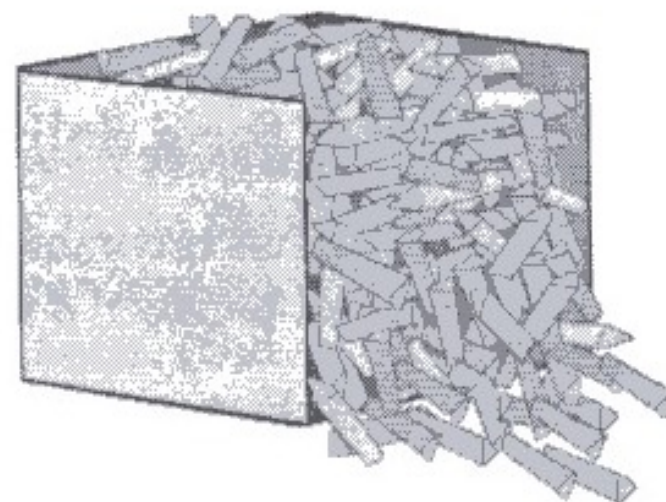
1 solid m³

=



1.49 x stacked m³

=



2.5 x bulk m³



Payment in raw (wet) tonnes

Pros – Easy to administrate
weighing bridge in and out

Cons - You may pay for water not dry
substance

No driver to deliver dry biomass or
improved quality

Payment in dry tonnes or MWh

Pros – You pay only for what you want
weighing bridge in and out

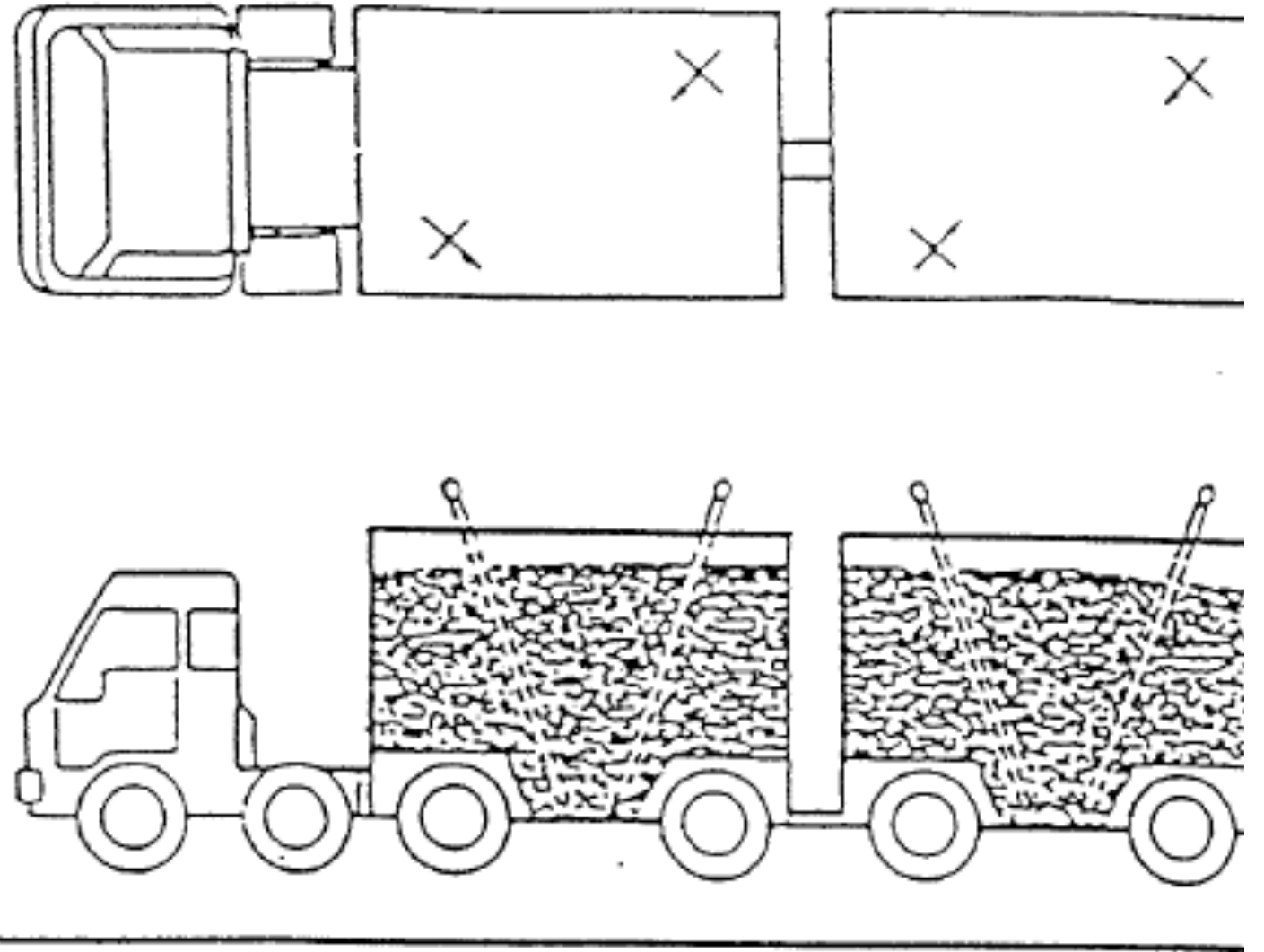
Driver to deliver dry biomass and improved quality

Cons – Sampling for moisture content (and other quality
parameters) required



WELL DEFINED QUALITY REQUIRES QUALITY CONTROL

- Biomass is often delivered inhomogeneous
- Problematic to take representative samples
- Not enough to sample from the surface



What is biomass quality and how to measure it ?

Moisture content – Effects transport cost and storability. Long term storage of biomass with a moisture content above 15-20 % is problematic as it promotes biological activity that can cause dry matter losses, fire and health problems.

Calorific value – If used as a fuel

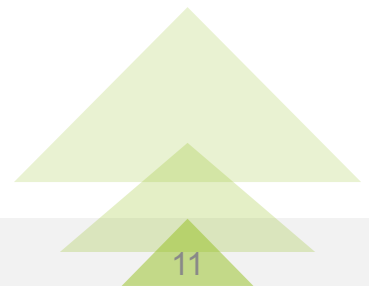
Contaminations – Contamination in the form of stones and soil is common and often causes problems for end-user's processes and the feeding of the biomass into a biorefinery.

Content of specific compounds (e.g. sulphur alkali) Process disturbing

Ash content - Process disturbing

Particle size distribution – Feeding of the biomass and processing

Freshness – Some chemicals are volatile and can be lost during handling and storage. Chipping/Crushing accelerates volatility.



Authorized sampling of pellets from a warehouse – Basis for payment



BIOMASS IS OFTEN TRADED OVERSEAS

ISO 17225-1:2021(en)

Solid biofuels — Fuel
specifications and classes

- Woody biomass
- Herbaceous biomass
- Fruit biomass
- Aquatic biomass
- Biomass blends and mixtures





Sampling drill (Igelsta)

CAMERA MEASUREMENT



Online measurement



END USERS CHALLENGE

End users' quality demand	Biomass properties
Cheap and continuous infeed 24/7 all the year around	Outspread (expensive to harvest and transport) seasonality
Dry and densified	Wet and bulky
Well defined quality	Complex and varied quality
Low ash and alkali	Variations in ash and alkali
Even particle size (sawdust)	Varied particle size distribution

BREAKOUT ROOMS – DISCUSSIONS

End users' challenges in your region and how can they be addressed ?

- Long term (+10 years) and continuous infeed of biomass 24/7 all the year around
- Payment of biomass - Suitable solution for your region
- Quality control of biomass supply- Suitable solution for your region



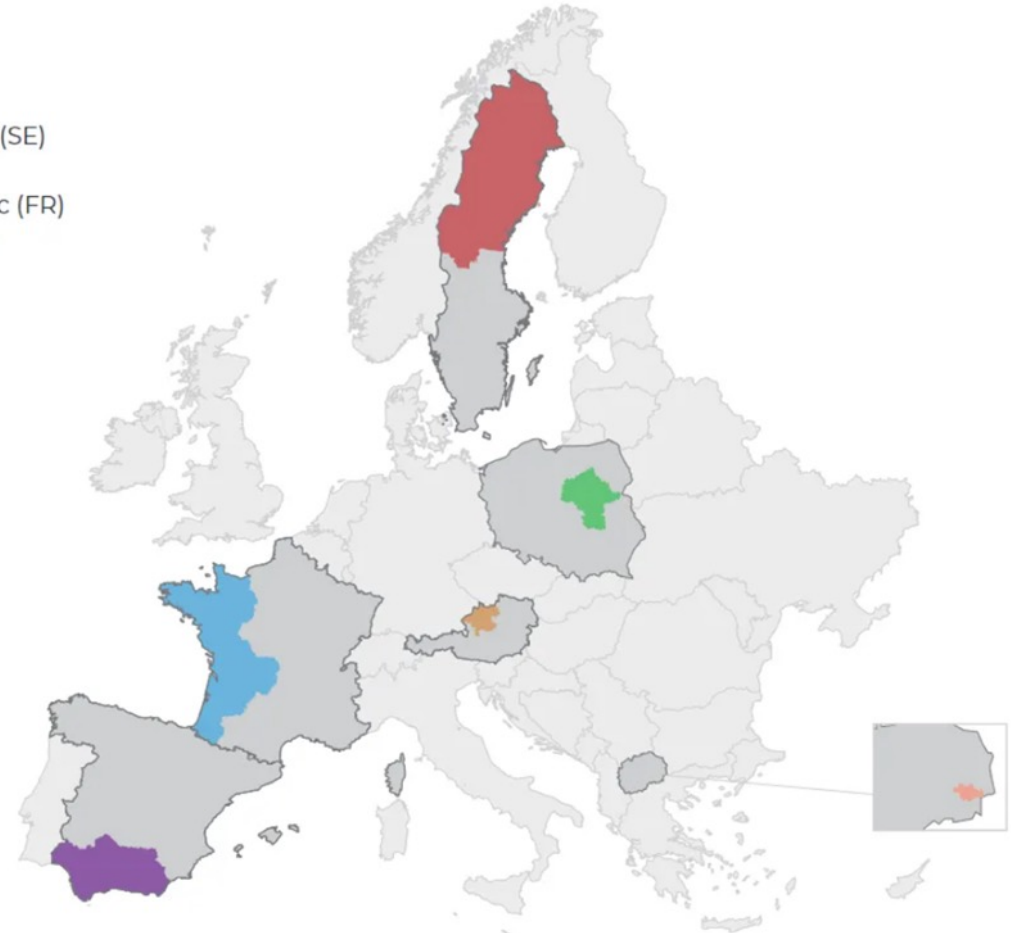
End users' challenges in your region and how can they be addressed ?

Other topics discussed

Can the SCALE UP platform and multi actor partnerships contribute to solutions ?

SCALE-UP regions

- Northern Sweden (SE)
- Mazovia (PL)
- French Atlantic Arc (FR)
- Upper Austria (AT)
- Strumica (MK)
- Andalusia (ES)



SCALE-UP
TRAINING
SESSION 2 –
SURVEY
QR CODE

SESSION #2

26 September 2023

from 9 am to 12 pm CEST

End-users' challenges in the local value chain: Further building on the insights

SESSION #3

19 October 2023

from 9 am to 12 pm CEST

Sustainability and policy drivers for a regional bioeconomy: How to move forward