



European Week of  
Regions and Cities

Brussels  
10-13 October 2016

## S3 Energy Partnerships: Energy priorities and enhancing interregional cooperation

### **Bio-energy in Lapland**

Ilari Havukainen

Project Manager

Regional Council of Lapland

[ilari.havukainen@lapinliitto.fi](mailto:ilari.havukainen@lapinliitto.fi)



## Energy in Lapland

- One of the seven regions of East & North Finland
- Most sparsely populated region in EU (1,8 inhabitants / km<sup>2</sup>)
- Large scale hydro power since 1950s (1 172 MW)
- Raw materials and supply chains for forest bioenergy (1,7 TWh, 6 % wood chips)
- Pressure for small scale renewables and decentralised systems
  - Capital outflow from the communities
- Pilot of farm scale biogas plant
- Two investment plans, 900 m€ and 800 m€
  - Kaidi and Boreal Bioref (2-3 million m<sup>3</sup> each)
- Big industrial concentration around pulp/paper and metallurgy



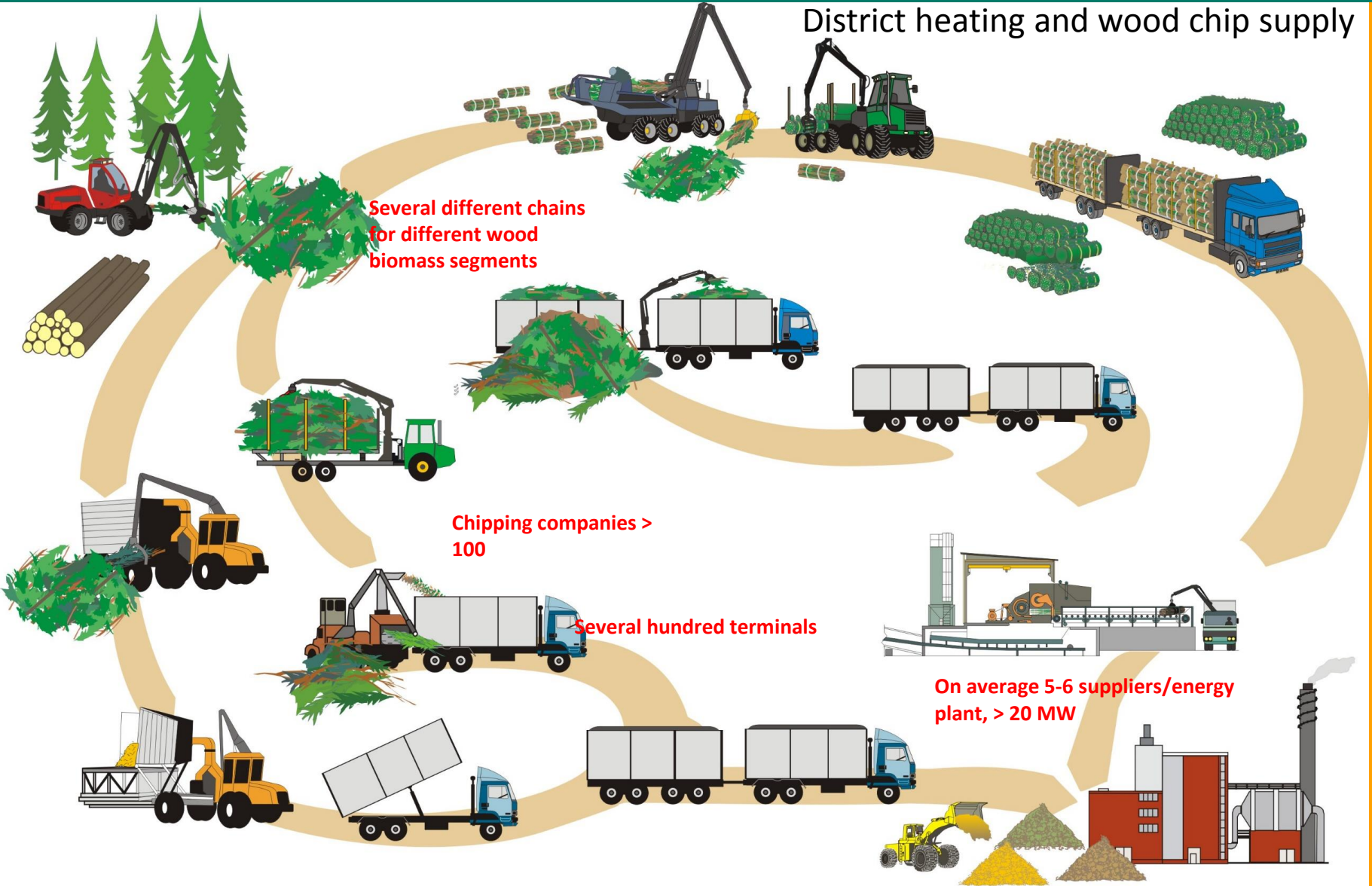
European Week of  
Regions and Cities

Brussels  
10-13 October 2016



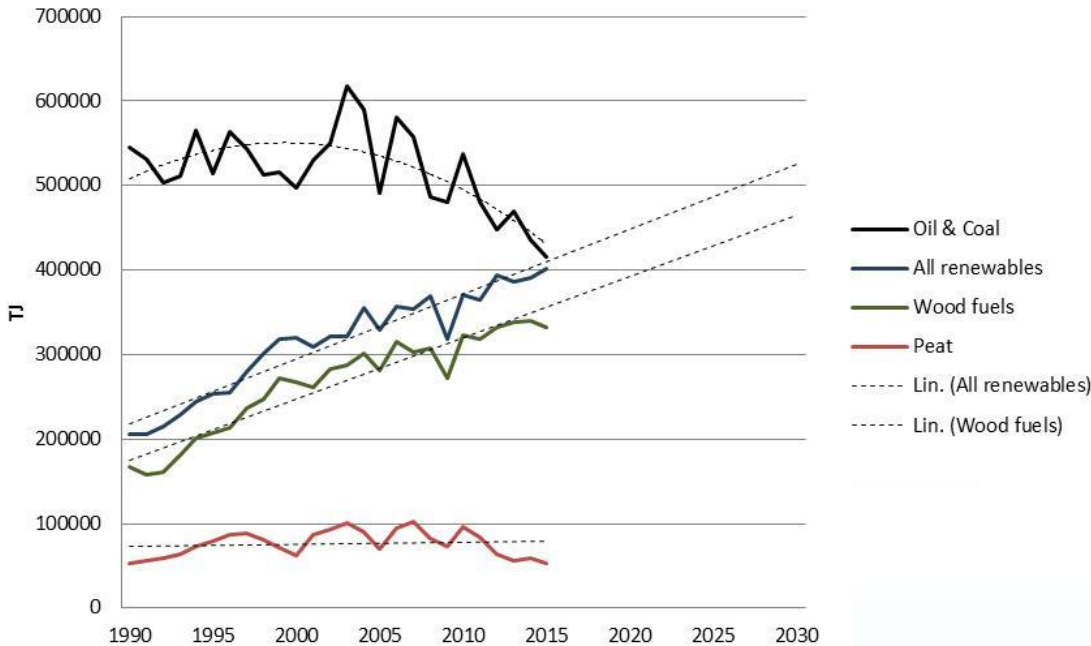
Bioenergia

## District heating and wood chip supply





### Energy Consumption by Source



## Forest in Lapland

- 98 % of total land area
- Annual increment of growing stock 13.3Mm<sup>3</sup>/year
- Harvesting 3.9 Mm<sup>3</sup>/year

### The Bioenergy Association of Finland & Statistics Finland 2016





# The foundation of the Lapland's S3

## PILLAR INDUSTRIES OF THE REGIONAL ECONOMY

Mining and metal  
industries

Bioeconomy

Tourism and related  
industries

EMERGING INDUSTRIES ARISING FROM THE NEEDS OF THE  
BASIC INDUSTRIES

INDEPENDENT OR NEW INDUSTRIES

STIMULATION AND NURTURING NEXT GENERATION'S INDUSTRIES

Potentials for the d  
ifferentiations

Discovery and div  
ersification



European Week of  
Regions and Cities

Brussels  
10-13 October 2016

# ARCTIC Smartness

**ARCTIC  
INDUSTRY  
AND CIRCULAR  
ECONOMY**

CLUSTER

**ARCTIC  
SMART RURAL  
COMMUNITY**

CLUSTER

**ARCTIC  
DEVELOPMENT  
ENVIRONMENTS**

CLUSTER

**ARCTIC  
SAFETY**

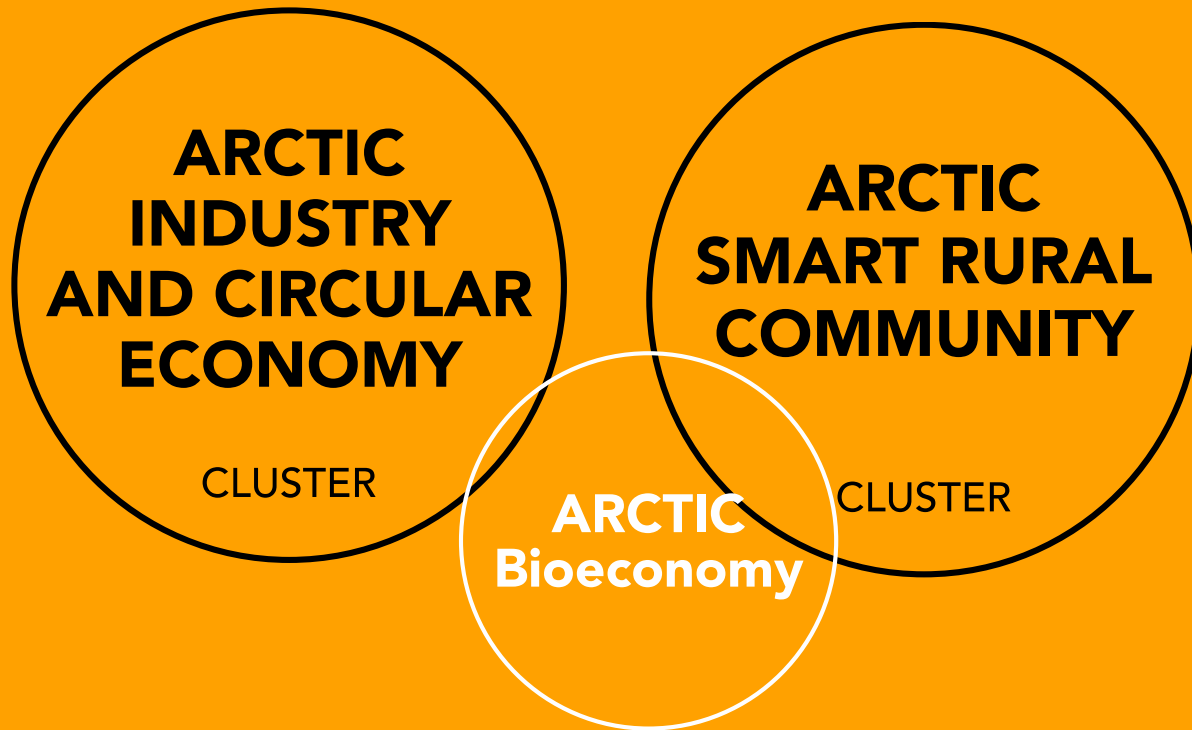
CLUSTER

**ARCTIC  
DESIGN**

CLUSTER



# ARCTIC Smartness





- Developing forest-based and non-food agriculture-based bioenergy for sustainable regional growth
- EU-goals and principles of circular economy, bioenergy production in regions should be based on decentralised renewable solutions
- MCC, C5 & C6 sugars, pine oil ... --> second generation biofuels, produced mainly from lignocellulosic biomass, residues or waste
- Forest or non-food agricultural origin
- Wood chip, pellet or biogas CHP plants





## Smart Regions Conference on 1-2 June 2016

- The seven regions of East and North Finland, Western Macedonia (GR), eight regions of Eastern Norway and Extremadura (ES), Castilla y Leon (ES), North East Romania, North Sweden ...

- ERRIN bioeconomy Working Group and its bioeconomy regions
- JRC bioeconomy observatory;
- Vanguard initiative on bioeconomy;
- EU-funded projects such as Bioregions;
- National bioenergy region initiatives such as the German Bioenergie Regionen.
- Several FP7 and H2020 networks