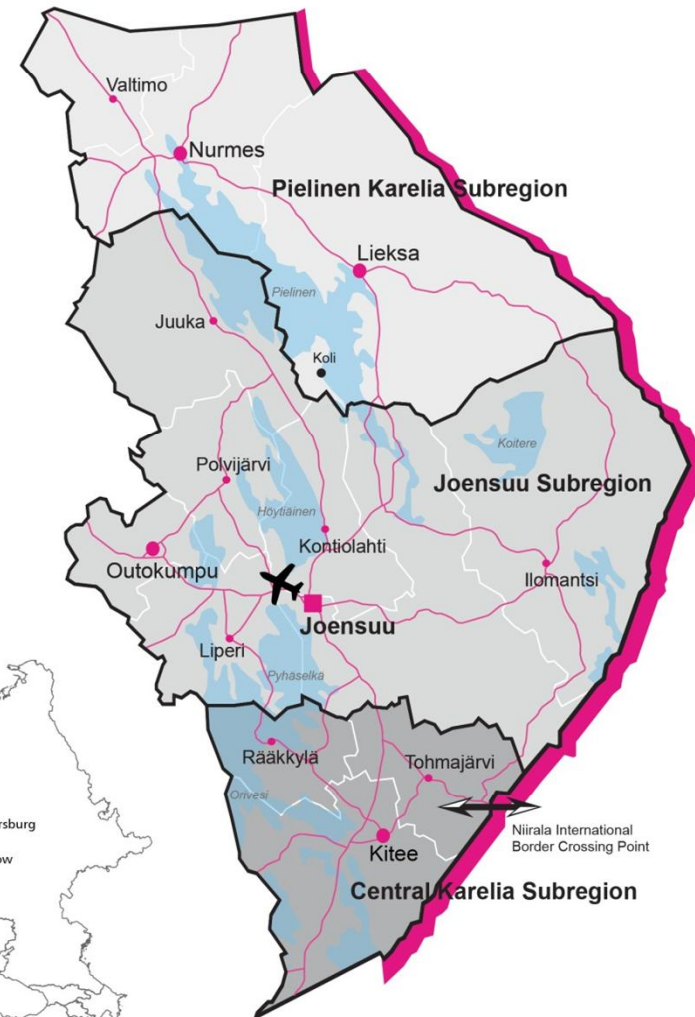


North Karelia facts

- ❖ 166 000 inhabitants (< 8 inhabitants / km²)
- ❖ 13 municipalities
- ❖ Regional capital: City of Joensuu (74 000)
 - ◆ Distance to Petrozavodsk 368 km
 - ◆ Flight-time to Helsinki or Tallinn: 1 hour
- ❖ Size of the region 21 585 km² (lakes 3 803 km²)
- ❖ The easternmost region of the continental EU
- ❖ 300 km border with Russia
- ❖ North to south 240 km
- ❖ East to west 153 km
- ❖ Temperatures from +37C to -42C



CLIMATE AND ENERGY PROGRAMME OF NORTH KARELIA 2020

Locally – Renewably – Efficiently



Europe 2020 strategy



1) Smart growth

improving the EU's performance in education, research & innovation and digital society

2) Sustainable growth

building a competitive low-carbon economy that makes efficient and sustainable use of resources

3) Inclusive growth

raising employment rate – more and better jobs

→ What is our contribution?

North Karelians have a small carbon footprint

Greenhouse gas inventory in North Karelia:

- ❖ Total 1,7 million tonnes CO₂ equivalent in 1990
- ❖ Total 1,6 million tonnes CO₂ equivalent in 2007

Emissions per capita in 2007:

- ❖ North Karelia: 9,5 tonnes CO₂ equivalent per capita
- ❖ Finland: 14,8 tonnes CO₂ equivalent per capita



We count on knowledge based development in forestry and wood sector

- ❖ European Forest Institute, EFI
- ❖ Finnish Forest Research Institute, Metla
- ❖ University of Eastern Finland
- ❖ Karelia University of Applied Sciences
- ❖ Carelian Science Park
- ❖ North Karelia Collages (Joensuu, Valtimo ...)
- ❖ etc...





REGIONAL COUNCIL OF
North Karelia

... as well as on technology driven development



 **OUTOKUMMUN METALLIOY**



 **JOHN DEERE**



 **MANTSINEN**



arbonaut



 **Pentin Paja Oy**



REGIONAL COUNCIL OF
North Karelia

Sustainable large-scale industries – back-bone of the regional economy Bio Economy in the future?



Strategic path for success

In the past:

More with less

- productivity
- cost efficiency

In the future:

Different things, in a different way

- ideas
- innovation



We need new innovations

Products

- to use forests and trees for new purposes & products

Processes

- to develop the existing ways to use forests and trees

Social innovations

- e.g. new models for cooperation networks



CENTRE OF FOREST BIO ECONOMY / NORTH KARELIA

EXPERTISE &
KNOWLEDGE

FOCUS

TARGET

Forest Energy &
Wood Energy

Districted biorefining
and material
technology

Forest technology,
supply chain and
logistics

Forest data invention
& mapping, remote
sensing

- Research and Development
- Transfer of Technology
and Knowledge
- Capitalization
and Business

Forest Bioenergy

Centre of
Forest
Bio Economy

Biobased Products

Wood-based
Material
Technology

New Business
Opportunities

Capitalization of
Research Results

Spin-off
Enterprises

North Karelia Forest Bio Economy: 6000 workplaces, 600 forest experts (research, education, administration), about 1,7 billion turnover, over 500 companies



REGIONAL COUNCIL OF
North Karelia

We aim at increasing the use of wood in construction



Metla Building



Joensuu Arena



REGIONAL COUNCIL OF
North Karelia

... as well as the use of wood for energy



North Karelia is a forerunner in the use of renewables

❖ Renewables cover 64 % of all energy consumption

(including heat, power, private households and traffic)

- compared to about 31 % in Finland, and about 10 % in the EU

❖ The renewable energy cluster employs about 1200 people

❖ More than 300 companies working on this sector

❖ Turnover about 200 M€ / year



VISION:

Fossil Oil Free Heating 2020 and Fossil Oil Free Region 2030

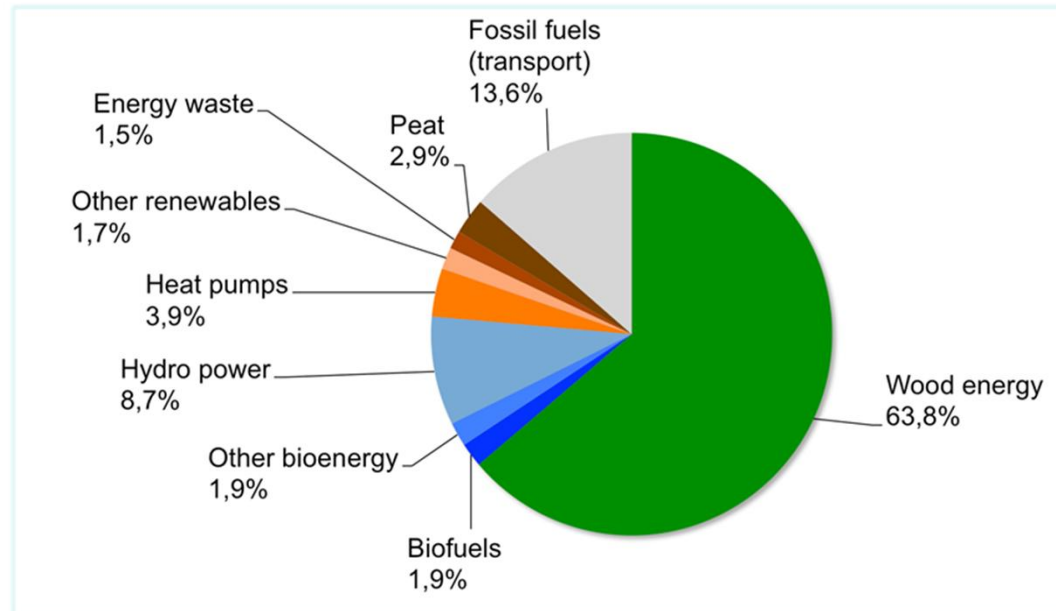
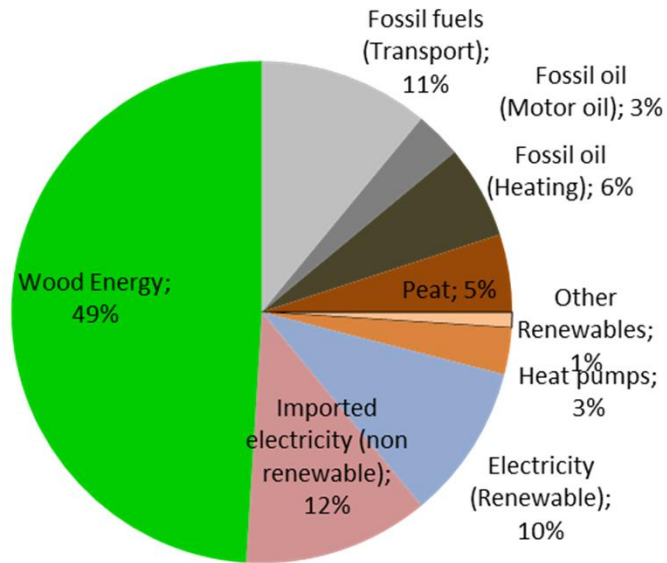


ENERGY CONSUMPTION IN NORTH KARELIA

2010

2020

63% SHARE OF RENEWABLE ENERGY → 82 % SHARE OF RENEWABLE ENERGY



Fossil Oil Free Region in 2030

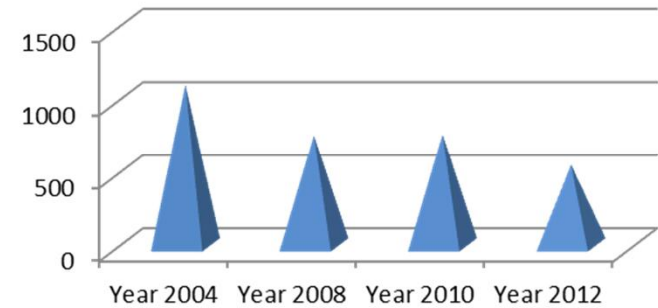
It means more

- + Wood energy (woodchips, pellets, pyrolyse oil)
- + Solar energy
- + Wind energy
- + Other renewables

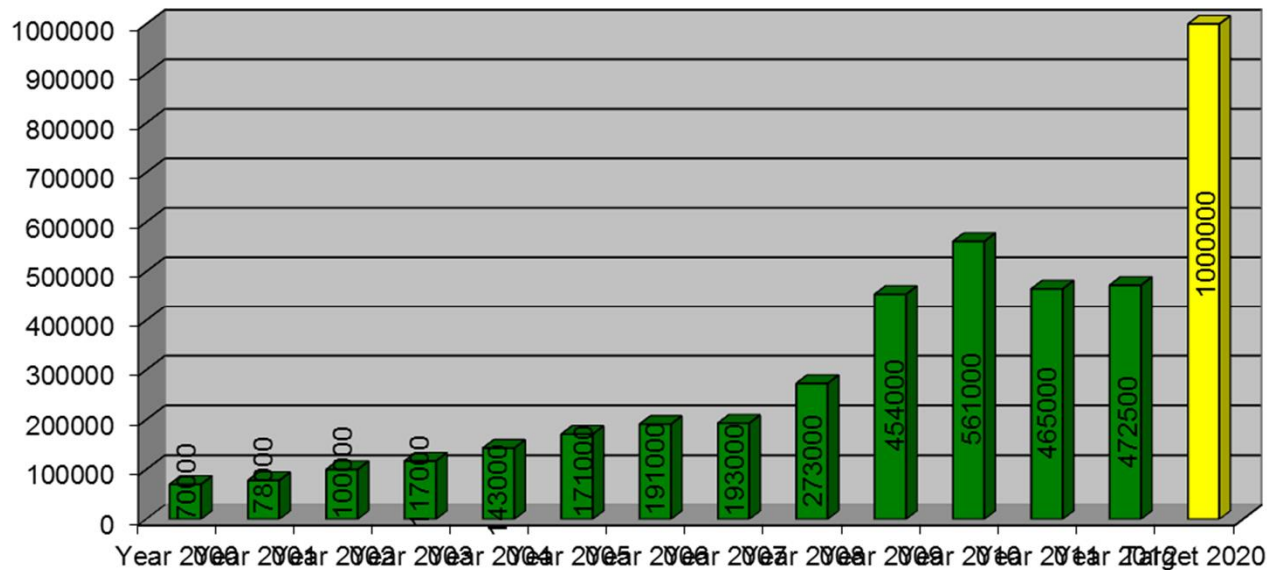
And less or nothing

- Fossil Oil (heating, transportation)
- Imported electricity

Use of Oil in North Karelia (GWh)



The Use of Woodchips in North Karelia 2000-2012 (MetInfo)



Fossil Oil Free Region in 2030

Invests to bio-oil production (wood energy based bio-oil)

Fortum pyrolysis oil plant
in Joensuu: production to be
started in September 2013

A model example of an
investment (30 M€) needed
on the way towards fossil oil
free region!

Capacity 50 M litres / year
about 250 000 m³ wood chips



Fossil Oil Free Region in 2030:

Nurmes Biochar & Biocoal factory (plan)

- Nurmes -unit is going to be the first industrial scale unit in Finland, representing 3. generation in development (plans to be built during the year 2013)
- The first demo unit is scheduled to produce about 5000 tons' biochar and ca. 4700 ton's wood oil's
- The planning process of the larger unit has also started. The expected start of this 100 000 ton's biochar and 94 000 ton's oil factory is scheduled for later part of 2015, max about 550 000 m3 of round wood
- A huge demand increase for biochar is expected in Finland and in Europe.
- The quality and energy content of the **FSO-biochar** tested so far have turned out to be high, giving a competitive edge and bringing a large variety of potential customers.

Fossil Oil Free Region in 2030

Invests to bio-oil production (wood energy based bio-oil)

Green Fuel Nordic Ltd
INVESTMENT PLAN in Lieksa
"Kevätniemi Bio-Oil Factory"
Pyrolysis oil factory

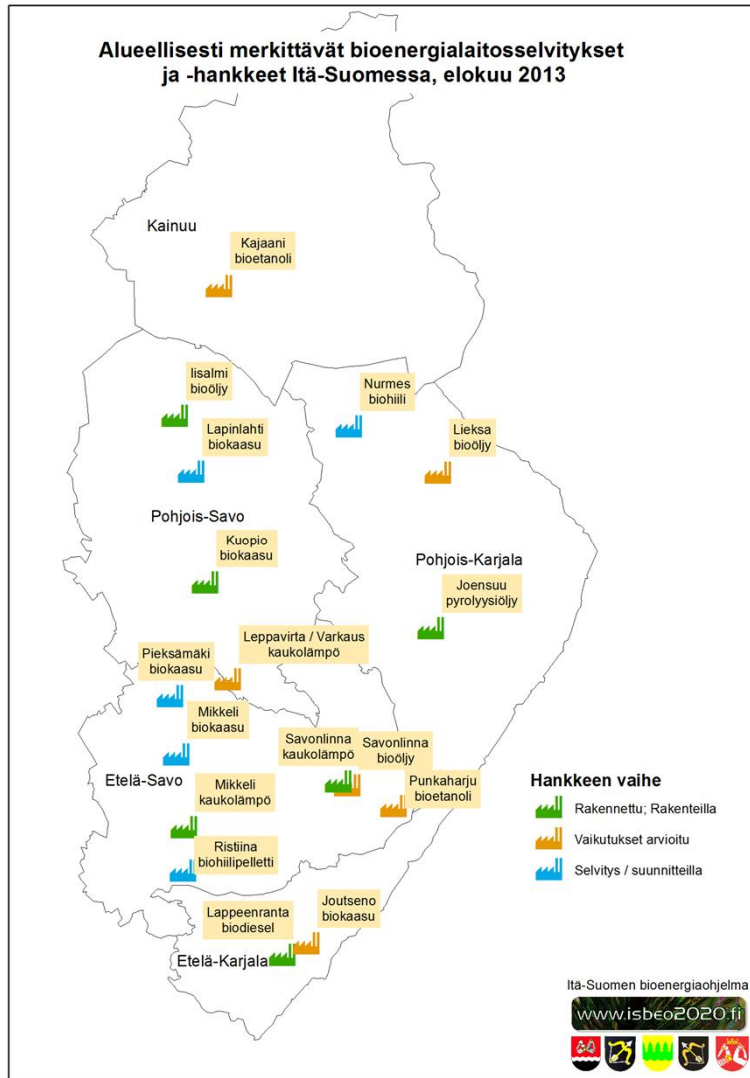
A model example of an
investment (50 -100 M€) needed
on the way towards fossil oil
free region!

Capacity 90 – 180 M litres / year
Need of 350 000 – 700 000 m³ of wood biomass

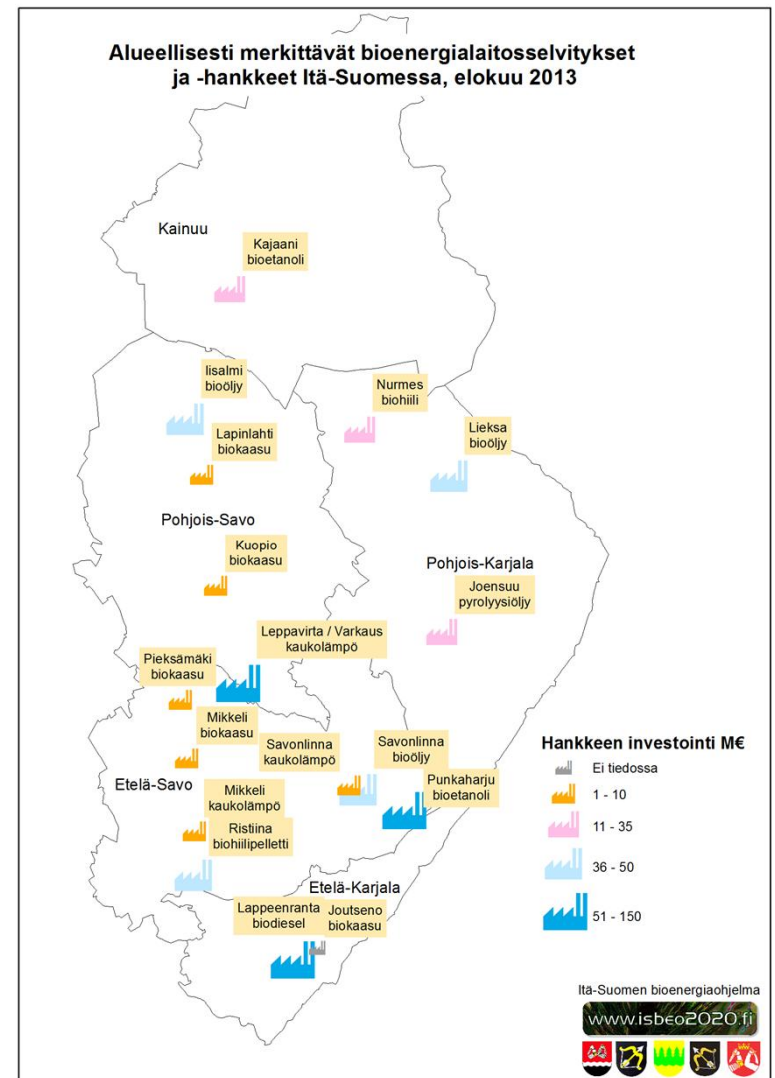


Fossil Oil Free Region in 2030

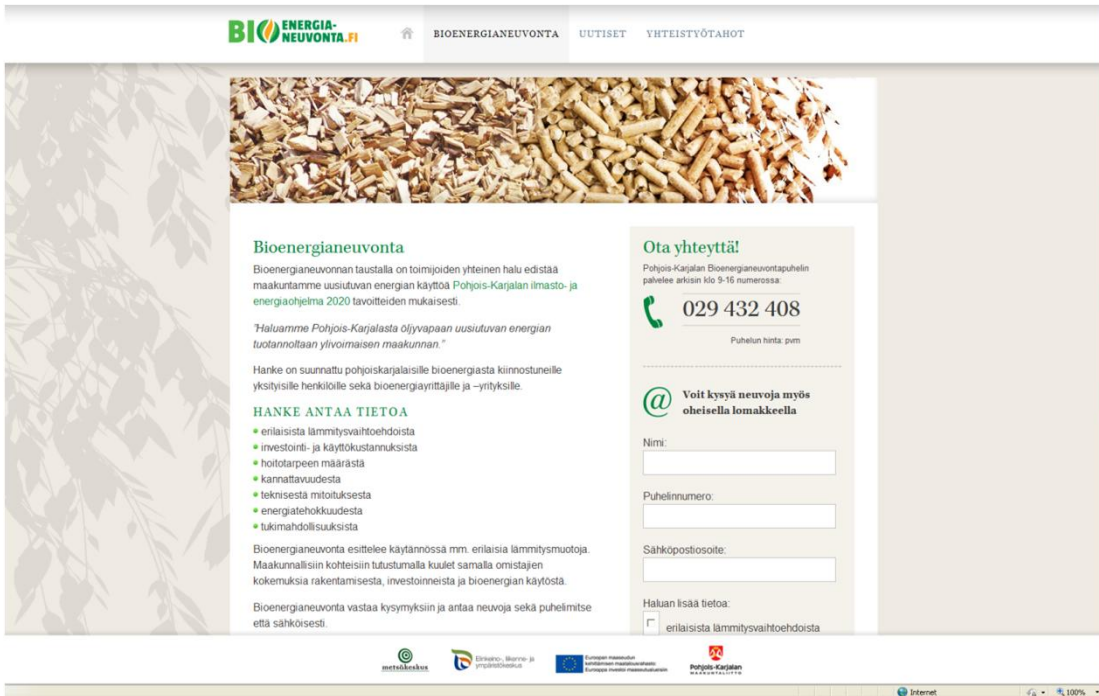
Stage of the Project



Investment level M€



Fossil Oil Free Region in 2013: Bioenergy advice service for consumers!



BIOENERGIA-NEUVONTA.FI BIOENERGIANEUVONTA UUTISET YHTEISTYÖTAHOT

Bioenergianeuvonta

Bioenergianeuvontan taustalla on toimijoiden yhteinen halu edistää maakuntamme uusiutuvan energian käyttöä Pohjois-Karjalassa ilmasto- ja energiaohjelman 2020 tavoitteiden mukaisesti.

"Haluamme Pohjois-Karjalasta ollyvapaan uusiutuvan energian tuotannoltaan ylivoimaisen maakunnan."

Hanke on suunnattu pohjoiskarjalaisille bioenergiasta kiinnostuneille yksityisille henkilöille sekä bioenergiayrittäjille ja -yrityksille.

HANKE ANTAA TIETOA


- erilaisista lämmitysvaihtoehdoista
- investointi- ja käyttökustannuksista
- hoitotarpeen määrästä
- kannattavuudesta
- teknisestä mitoituksesta
- energiatehokkuudesta
- tukimahdollisuuksista


Bioenergianeuvonta esittelee käytännössä mm. erilaisia lämmitysmuotoja. Maakunnallisiin kohteisiin tutustumalla kuulet samalla omistajien kokemuksia rakentamisesta, investoinneista ja bioenergian käytöstä.

Bioenergianeuvonta vastaa kysymyksiin ja antaa neuvoja sekä puhelimitse että sähköisesti.

Ota yhteyttä!

Pohjois-Karjalan Bioenergianeuvontapuhelin palvelee arkisin klo 9-16 numerossa.

 **029 432 408**
Puhelun hinta: pvm





 **Voit kysyä neuvoja myös oheisella lomakkeella**

Nimi:

Puhelinnumero:

Sähköpostiosoite:

Haluun lisää tietoa: erilaisista lämmitysvaihtoehdoista



Miettkö kiinteistösi energiatkaisuja?
Ota yhteyttä!
Pohjois-Karjalan energianeuvontapuhelin palvelee arkisin klo 9-16 numerossa:

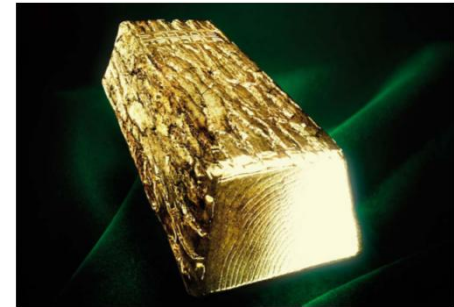
 **029 432 408**
Puhelun hinta: pvm

BIOENERGIA-NEUVONTA.FI  **Kuluttajien energianeuvonta**

Free Regional BioEnergy Advice Service for Consumers via Internet and telephone (target to replace fossil oil boilers by renewable energy solutions)
Organised by the Finnish Forest Centre - North Karelia, Regional Council of North Karelia and Centre for Economic Development, Transport and the Environment

Conclusion: **The role of forest is essential in aiming at smart, sustainable and inclusive growth**

- Forests have increasing and diversified value in meeting the objectives stated in the international commitments.
- Forests provide **solutions** for the challenges caused by climate change and increasing demand of energy.
- At the same, forests provide **opportunities** for new entrepreneurship and economic development.





Pohjois-Karjalan
MAAKUNTALIITTO



Kiitoksia!
Thank you!

Pasi Pitkänen
Regional Council of North Karelia

Joensuu 29th of October 2013