

# Environmental Services

Capital Markets Day

March 9, 2011

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## L&T Environmental Services – Presentation overview

- L&T's service portfolio
- Strategy & targets
- Markets of Environmental Services
  - Long-term drivers
  - Changes in legislation
  - Future trends
- Recycling plant network

## L&T's divisions

Renewable Energy  
Sources

9%

Environmental  
Services

48%

Property  
Maintenance

20%

Cleaning and Office  
Support Services

23%





## Strategy and targets

### Strategy 2011–2015



## Environmental Services

### – Market leader with steady cash flow

- Market leader in Finland and Latvia and certain geographical areas in Russia
- Over 200,000 customers ensuring a steady cash flow
- Net sales come mostly from long-term (2-5 years) service contracts
- Environmental permits, special expertise and large customer interface of L&T are barriers to enter the business



## Environmental Services

### – Solid long-term drivers boosting the business

#### **Stricter environmental regulations**

- EU directives: implemented through national legislation

#### **Growing material and energy efficiency requirements**

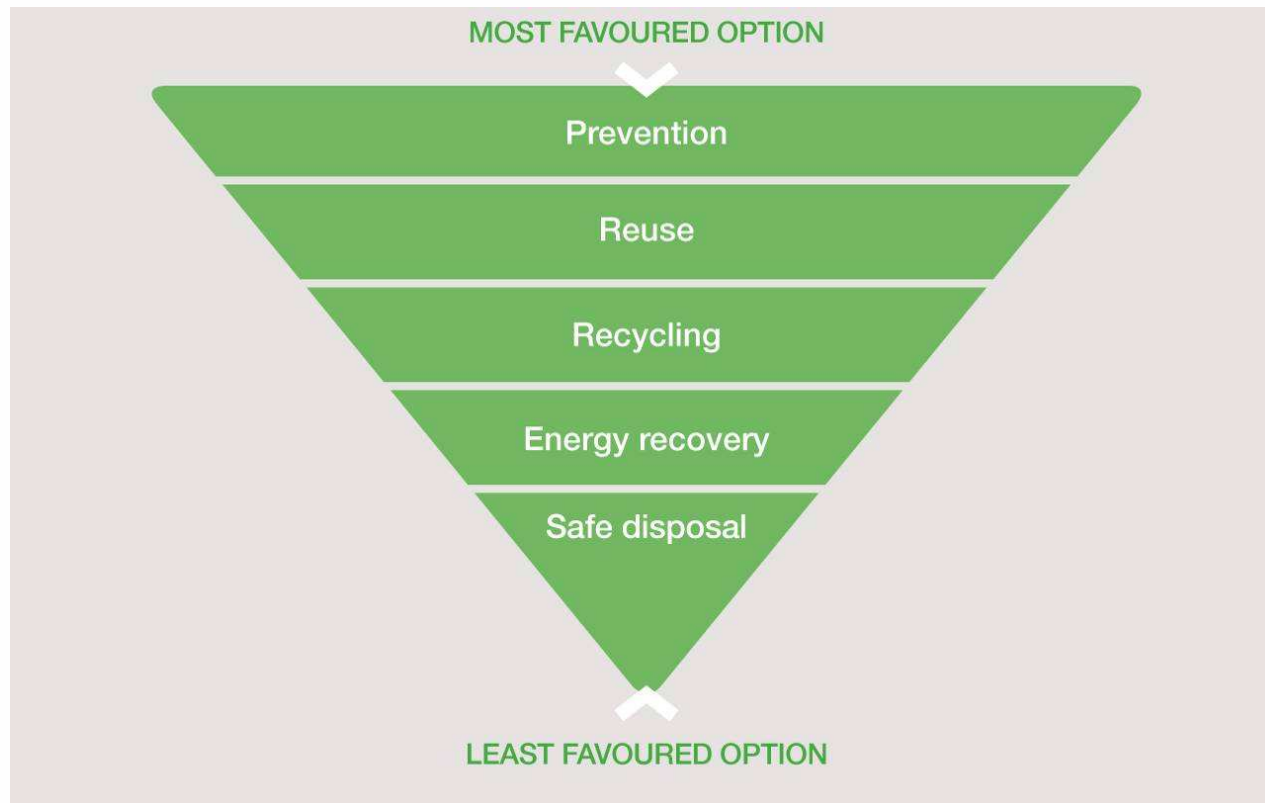
- Producer liability: Producers organise the collection, transport and recycling of certain products, e.g. electric and electronic scrap and tyres

#### **Environmental awareness**

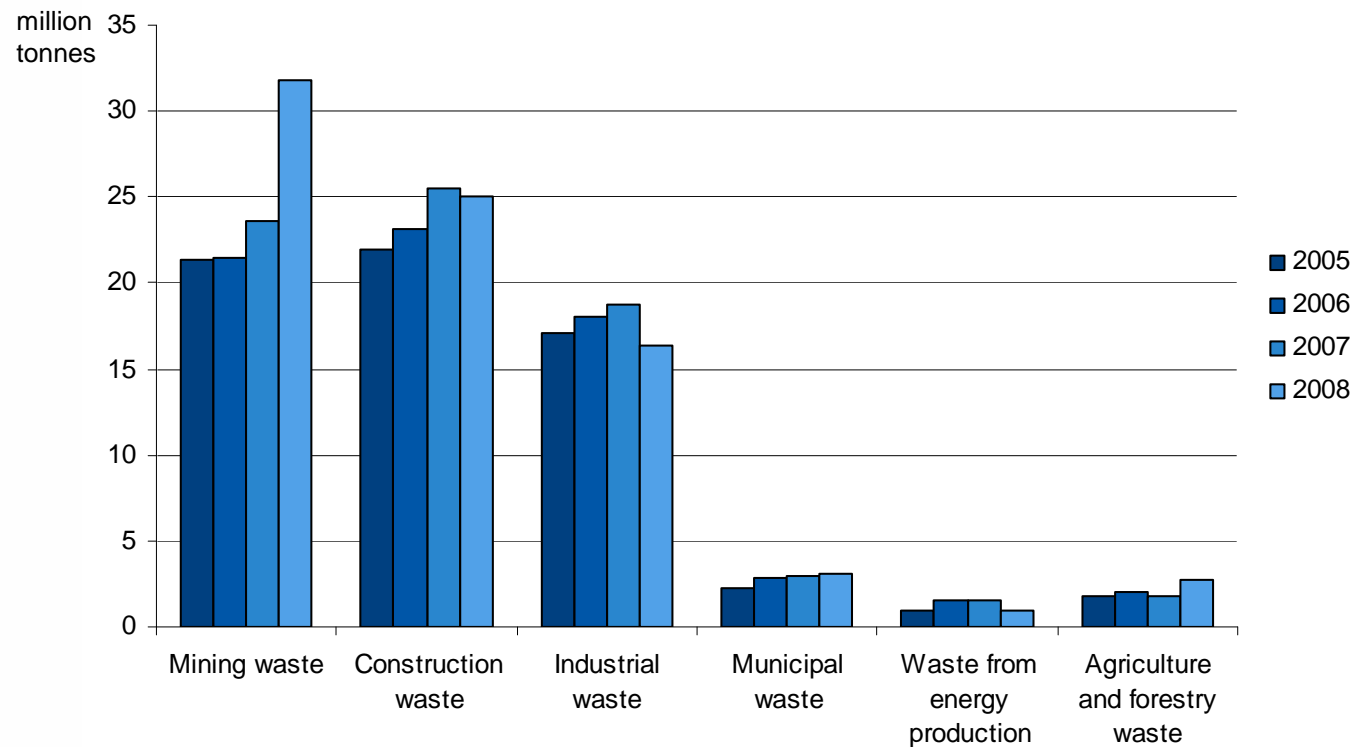
- Voluntary efforts to eliminate landfill waste.



## Waste hierarchy



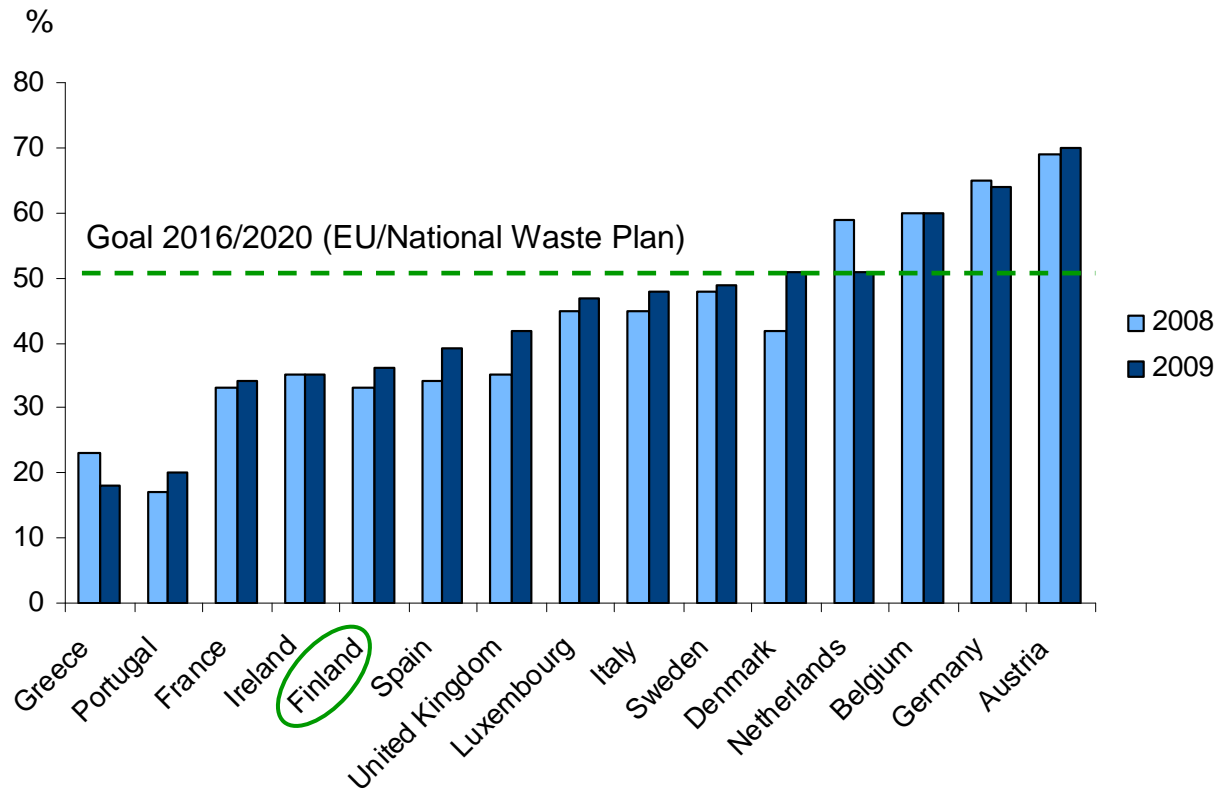
## Waste volumes in Finland 2005-2008



source: Statistics Finland



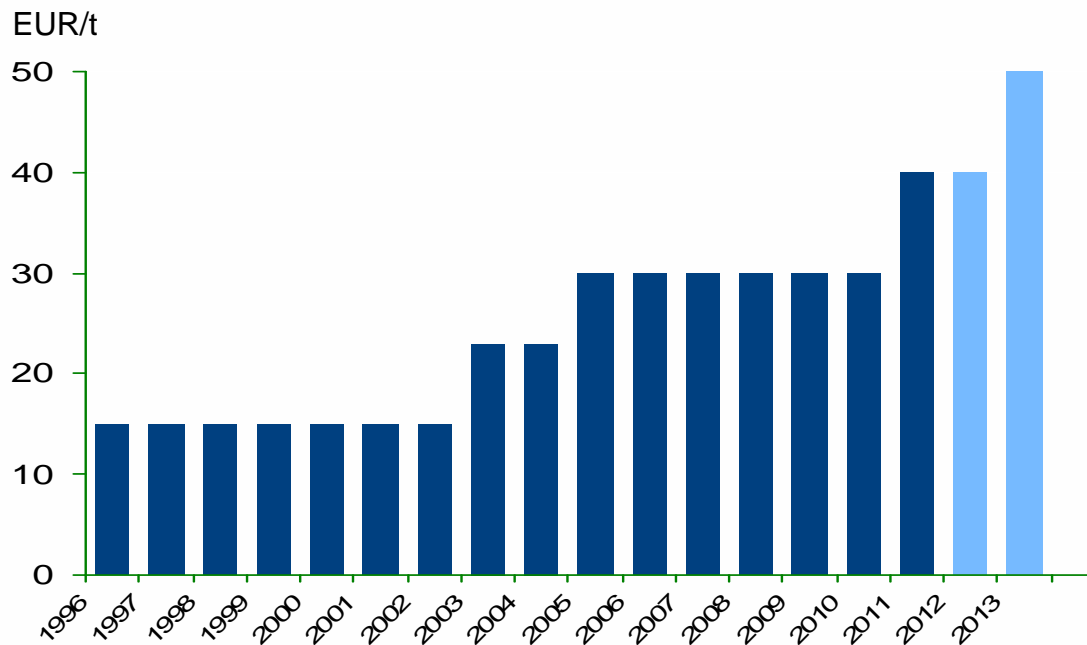
## Recycling and composting rate of municipal waste in EU countries



source: Eurostat

## Changes in Waste Tax Act

### Development of waste tax in Finland in 1996-2011 and in 2012-2013



- Increase in waste tax effective from Jan 1st 2011 (30 EUR/t → 40 EUR/t)
- Tax base was broadened also to industrial landfills

## Waste act reform

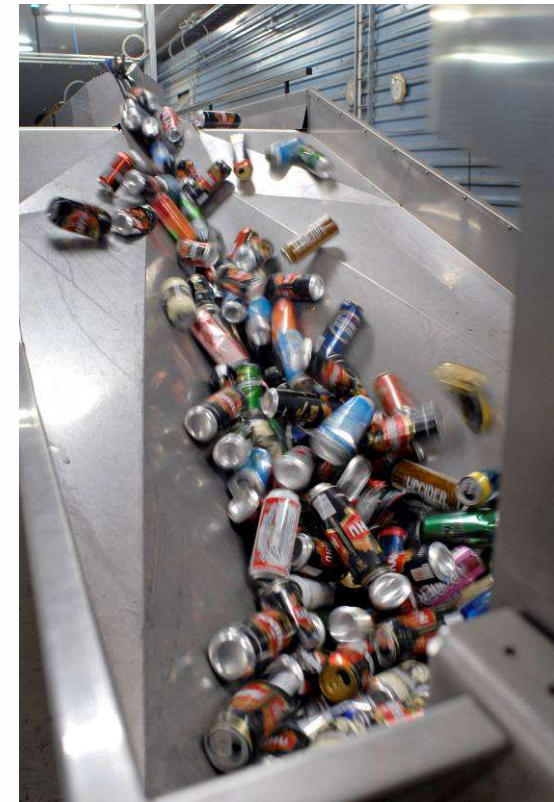
- The waste act reform
  - conserves the contractual waste transport system
  - clarifies producer liability of packaging materials
- The new act will become effective mainly after one year of its confirmation, approximately in the summer of 2012

## Producer liability for waste management

Producer liability refers to the obligation of manufacturers and importers to arrange waste management at their cost when their products are discarded.

Producer liability regulations are applied to:

- board
- packaging materials (expanding)
- tyres
- paper
- automotive batteries
- batteries used in small equipment
- lubricating oils
- vehicles
- refundable bottles
- electric and electronic scrap





## Prohibition on landfilling of biodegradable waste

- According to landfill directive (1999/31/EY) the amount of biodegradable waste in landfills must be decreased gradually
- At the moment the requirement is 50% (compared to 1995 level);
  - the requirement has been implemented into the Finnish legislation and the target has been achieved
- Next step is to reduce the amount of biodegradable waste that is landfilled to 35% by 2016
- Details of the directive are not known yet; the draft will circulate for comments this year

## ...what will happen after 2016?

- Closed-loop cycle recovers more and more material to be reused as raw material
- Cradle to cradle principle (McDonough and Braungart)
  - all processes must be designed to be non-waste producing – new industrial revolution
  - material to be returned to the technical or biological cycle
  - used products to become technical nutrients
  - producers have the ownership onto the waste
  - need for virgin raw materials decreasing
  - enormous environmental benefits



## Material efficiency

### – Recycling saves natural resources



#### Saving of natural resources (per tonne of secondary raw material)

<b>Paper</b>	17 trees, 27 000 l water
<b>Glass</b>	650 kg sand, 205 kg bicarbonate of soda, 190 kg chalkstone, 80 kg feldspar
<b>Plastics</b>	1800 kg crude oil
<b>Scrap (metal)</b>	1500 kg iron ore, 500 kg coal
<b>Aluminium</b>	4000-6000 kg bauxite, 4000 kg other chemicals (recycling of aluminium requires 3-5% of the energy needed for using primary aluminium)

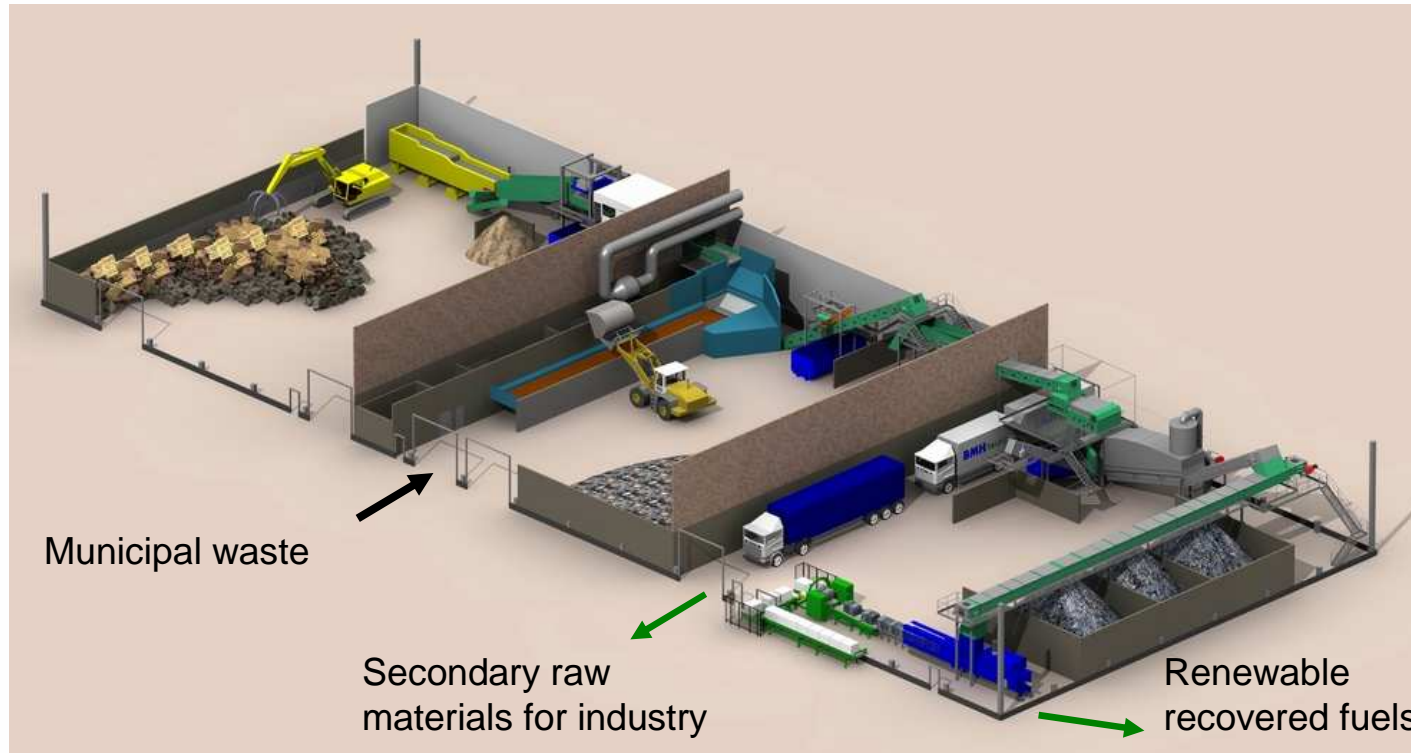
## L&T's recycling plants

-  Multi-plant
-  Fibres
-  Recovered fuel
-  Plastic
-  Metal
-  Recycled packaging
-  REF
-  Plastic
-  Wood fibres
-  Wood chips
-  Oil re-refining
-  Hazardous waste
-  Landfill



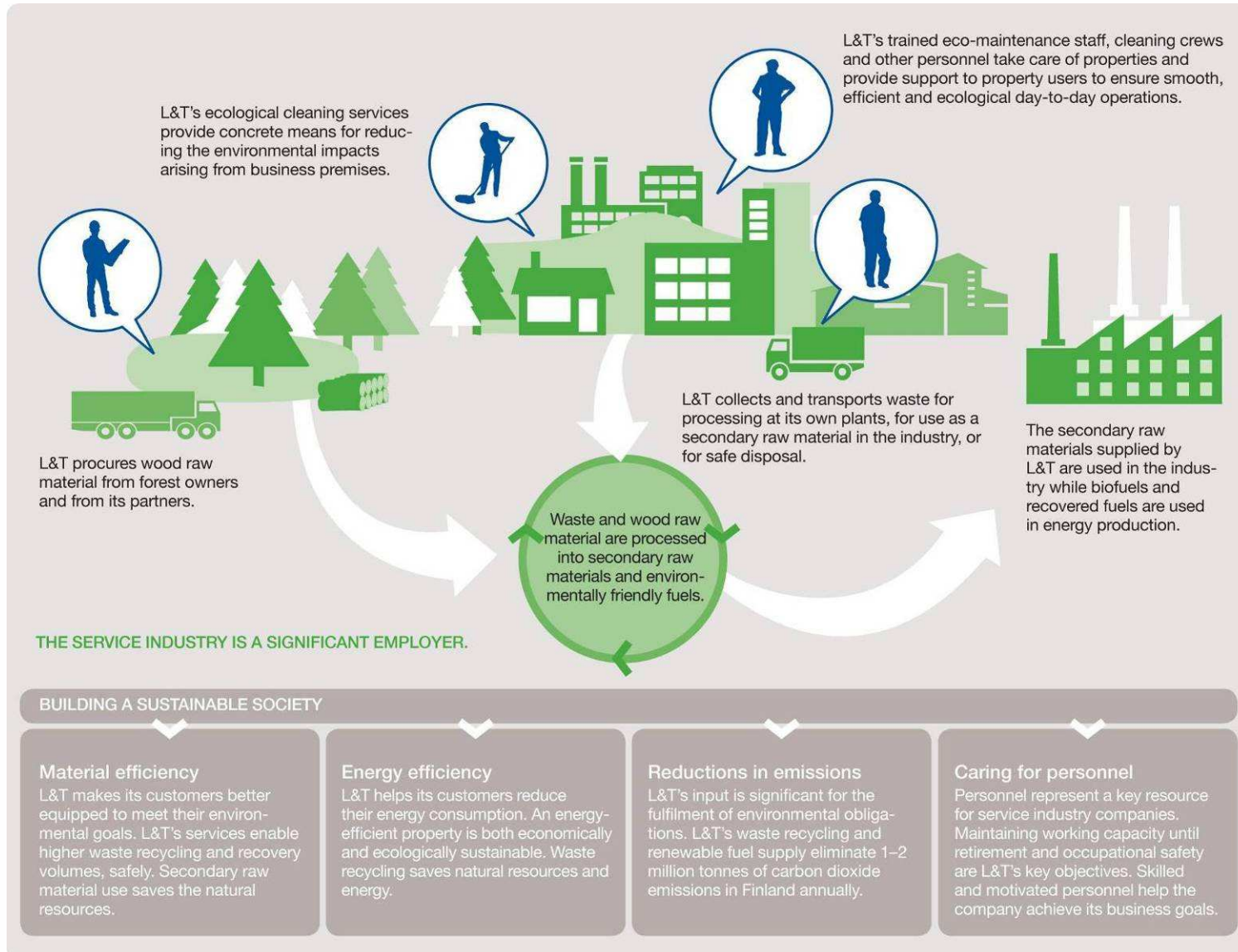


## Recovery of municipal waste



- 90-100% of the municipal waste can be recovered
  - 50-70% to be used as secondary raw materials
  - the rest helps industry to reduce the use of fossil fuels
  - the avenue of contemporary landfills has been exhausted

## L&T – a responsible corporate citizen







# Renewable Energy Sources

Capital Markets Day  
March 9, 2011  
Ville Rantala





## Renewable Energy Sources – L&T Biowatti

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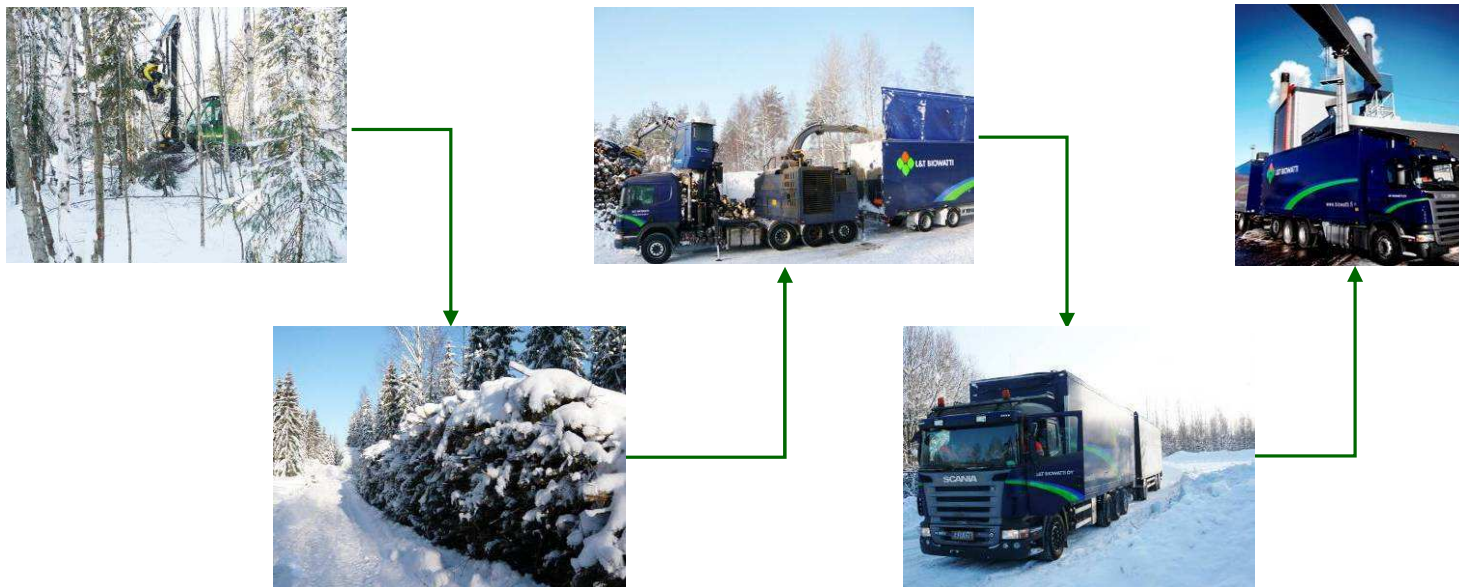
- Renewable Energy Sources: Services
- Competitive advantages
- Markets
- Drivers
- Policy instruments and legislation

## Renewable Energy Sources – Services

- L&T's Renewable Energy Sources is Finland's leading supplier of wood-based biofuels and recovered fuels
- Produces wood-based fuels and raw materials for wood-processing
- Raw material for the processing of wood-based fuels and for wood-processing industry is procured through services related to the forest management
- Offers comprehensive solutions and customised services to energy producers, wood-processing industry, forest owners, environmental construction and property heating

## From raw material procurement to fuel supply

- The whole chain from raw material procurement to fuel supply
- Nation-wide terminal and service network
- Raw material from private and public forest owners through forestry services and from by-product flows of industry



## Competitive advantages

- **Delivery reliability**
  - nation-wide terminal network, around 200 partners and subcontractors
  - own chipping machinery and transportation equipment
  - raw material volumes mainly independent of fluctuations in wood processing
  - own raw material procurement
- **Cost-efficiency**
  - cost-efficient logistics utilising the group's material flows and infrastructure
  - efficient ICT systems in production management
- **Flexibility**
  - quick adaptation to customer needs and changes in activity
- **Large service offering**
  - ability to form value-adding entities by integrating L&T's other services to the service solution
- **Independence**
  - neutral competitive position in relation to the customers – not engaged in energy production or wood processing
- **Synergies with other divisions of L&T**
  - logistics management
  - sales of recovered fuel jointly with Environmental Services

## Markets

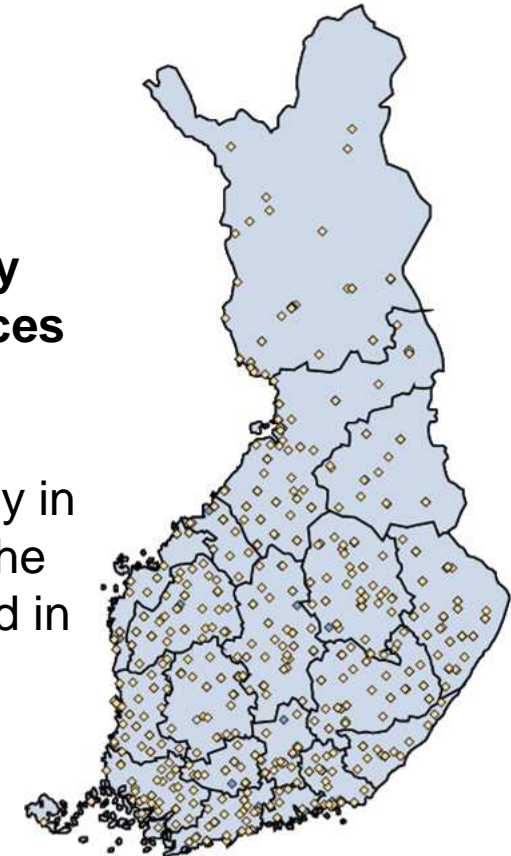
Commercial markets in Finland	
Forest industry by-products	100 M€
Wood energy	200 M€
<b>Total</b>	<b>300 M€</b>

- L&T's Renewable Energy Sources is a leading player in the wood energy markets
- Other operators: Metsäliitto, Vapo, UPM, numerous SME's

## Growth drivers

Increasing the use of bioenergy and reducing carbon dioxide emissions:

- In Finland, target is to **raise the proportion of energy consumption provided by renewable energy sources to 38% by 2020 (currently 28%)**
- Finland's climate and energy strategy: **the use of bioenergy to be considerably increased**, particularly in heat and power co-generation and property heating; the use of forest processed chips to be more than doubled in the future
- **Growing number of power plants** using renewable energy sources



Power and heating plants utilising wood-based biofuels in 2012  
(Source: Pöyry)



## Various factors affect the RES markets

- Development of the base of power plants
- Use of energy wood in the forest industry
- Prices of competing fuels, emission rights and wholesale electricity
- Political decisions: support for wood and strains on fossil fuels
- Availability of peat
- Operating rates of industry
- Structural change of forest industry
- Length and temperature of the heating season
- Global climate targets



## Policy instruments and legislation: RES directive

### Improving competitiveness of renewable fuels

- **Feed-in Tariff**
  - approved in Parliament of Finland – European Commission approval pending
  - effective from 1 July 2011?
  - alternatives: power plant utilising wood-based fuel, power plant utilising wood chips, fixed support for electricity production
- **Enlarged support for coal plants**
  - in preparation; reading in the next Parliament
- **Energy taxation**
  - effective from 1 January 2011
  - new energy tax on peat in 2011, increase in the tax on coal and on natural gas
- **Emissions trading**
  - current period ends on 31 December 2012
  - no "free of charge" emission rights for electricity production in the future
- **Investment support for new plants**

### Improving competitiveness of energy wood from young forests

- **Act on the Financing of Sustainable Forestry**
  - surface area, harvest and chipping support
  - will be replaced by support to harvesting of small sized thinning wood in young forest and first thinning
- **Support to harvesting of small sized thinning wood in young forest and first thinning**
  - approved in Parliament of Finland – European Commission approval pending
  - the support will decrease compared to the Act on the Financing of Sustainable Forestry





An aerial photograph of a large industrial recycling plant. The facility includes several large, light-colored buildings, numerous circular and rectangular tanks, and extensive areas of land covered with piles of waste or processed materials. The plant is situated in a landscape with a mix of green and yellow trees, suggesting an autumn setting. In the background, a city skyline is visible under a clear sky. A multi-lane highway runs along the left side of the plant.

**L&T's recycling plant in Kerava  
Capital Markets Day, March 9, 2011  
Lassi Hietanen**

## L&T's recycling plant in Kerava

- Operations at the recycling plant started in 1994
- Processes construction, trade and industrial waste
- Environmental permit for 460,000 tonnes
- 60 employees
- Location next to the Kerava Cargo Center (Kerca)



## Investment programme 2005-2010

- New recycled timber unit was brought on line in June 2009
- Combined recycling plant for construction waste and trade and industrial waste was introduced at the start of the year 2011

### Goals:

- To improve recovery rates (~90%)
- To produce high quality secondary raw materials
- Production indoors
- To minimise the environmental effects of production
- Integration to Kerca logistics centre





## Operation of recycling plants

Waste generated by

Trade

Business premises  
Offices

Industry

Construction



Process

- Receiving, weighing and qualitative determination
- Sorting
- Processing
- Stocking



End-products

**Material recycling**

- Paper and board
- Plastic
- Metal
- Glass

**Energy recovery**

- Wood
- Recovered fuel

**Services**

- WEEE
- PALPA

**Safe disposal**

**Hazardous waste to be processed**

