



Project no.: 019809

### Project acronym: NextGenBioWaste

Project title:

## Innovative demonstrations for the next generation of biomass and waste combustion plants for energy recovery and renewable electricity production

Instrument : Integrated project Thematic priority : SUSTEV-1.1.1 - Cost effective supply of renewable energies

> Start date of project: 2006-02-24 Duration: 4 years

### D 4.1.4 Project presentation

**Revision: Final** 

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Dissemination Level				
PU	Public	Х		
PP	Restricted to other programme participants (including the Commission Services)			
RE	Restricted to a group specified by the consortium (including the Commission Services)			
СО	Confidential, only for members of the consortium (including the Commission Services)			





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### Abstract

A brochure for the NextGenBioWaste project is made. In the brochure information about the project like objectives, activities, expected results and partners is given. The NextGenBioWaste brochure will be distributed as printed copies, and it will be available for download from the project website.







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# 1 INTRODUCTION

The NextGenBioWaste project presentation is a brochure that is made to give information about the project to the public.

The deliverables in NextGenBioWaste are classified with nature report, prototype, demonstrator or other. This deliverable has nature "other", and this document serves as documentation that the D4.1.4 Project presentation is delivered.

In Annex 1, in the WP 4.1 work package description, task 4.1.3 Publications a list of planned publications is given (section 8.6). The D4.1.4 Project presentation is described as follows: "A fully equipped 4-colour project presentation about NextGenBioWaste and its partners, expected results etc."



### 2 **PROJECT PRESENTATION**

As a part of the running dissemination activities a project brochure for the NextGenBioWaste project is made. In the brochure information about the project like objectives, activities, expected results and partners is given. The NextGenBioWaste brochure will be distributed as printed copies, and it will be available for download from the project website. The brochure is shown in Figure 2.1 and Figure 2.2.



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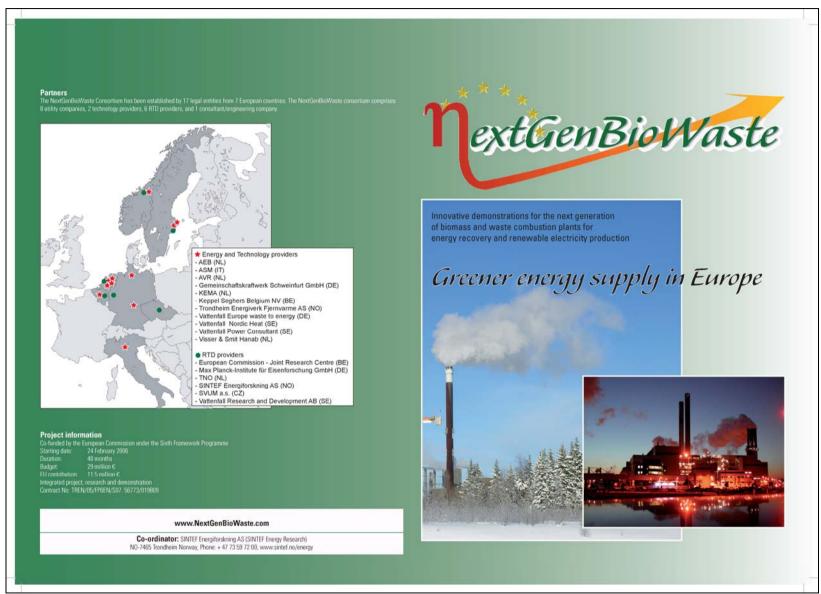


Figure 2.1: The NextGenBioWaste project brochure



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#### Project Objective

The objective of NextGenBioWaste is to demonstrate innovative ways of improving the energy conversion and the renewable electricity production using municipal solid waste materials and biomass for large-scale supply of renewable electricity and heating/cooling to end-users - at a more competitive cost and with improved environmental parameters

The project consists of integrated demonstration actions with a research component of approximately 20% as a support for planning, understanding and further improvement of the demonstrated technologies.

#### Targets:

- 1. Increase the electrical efficiency for waste to energy plants from 22 to 30% (gross generated)
- 2. Double the lifetime of heat exchange components at existing steam temperatures
- 3. Increase the electrical efficiency for biomass combustion plants from 33 to 35%, while making the systems more cost-effective by the use of more low-grade fuels
- 4. Lower the fuel cost at least 1 mill. E/year for a 100 MW, biomass combustion plant while maintaining the two former targets 5. Enable technologies for upgrading of bottom ash, thus, enabling the
- utility companies to valorise from 70% of their bottom ashes for civil engineering purposes

### SP 1 Innovative fuel preparation and mixing

There are many problems associated with waste and biomass combustion which increase the cost of the electricity or heat produced. Corrosion and fouling result in high maintenance costs, and in unplanned outages, which reduces the availability. The steam temperature is limited to reduce corrosion, but this limits the electrical efficiency. In order to make the next generation of combustion systems for biomass and waste more cost effective it will be necessary to be able to burn cheaper and potentially more problematic fuels more efficiently. The feedstock quality, preparation and mixing have a great influence not only on the corrosion and fouling tendencies, but also on the combustion process, and the qualities of the flue gas, fly ash and bottom ash.

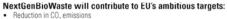
#### Objectives

To demonstrate innovative fuel preparation and mixing in order to obtain fuels or fuel mixtures which:

- · reduce maintenance costs and/or increase efficiency
- reduce operational costs
- reduce the environmental impact

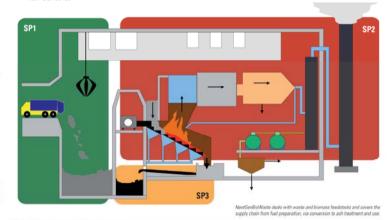


Figure 2.2: The NextGenBioWaste project brochure



· Security of energy supply

- Increasing the share of renewable energy sources from 6 to 12% by 2010
- Increasing the share of green electricity from 14 to 21% of gross electricity consumption by 2010
- Enhancing the competitiveness of European industry
- New standards



SP 2 Conversion technology

nossible to further develop new concepts

in combustion, boiler design and process

control

In order to improve the efficiency and the environmental compliance of waste-and-biomass-to-energy plants a good knowledge of the key operational parameters is essential. The operational parameters in turn depend on the quality and the composition of the input fuel and thus the combustion process. Further the control system used for the process





concept · Gathering data with new advanced sensors for model validiation and understanding of fouling and corrosion

In this project novel designs of reconstructions of existing boilers will

be demonstrated; in addition to novel concepts to boiler systems of

completely new generation High Efficiency Waste-to-Energy plants.

All these demonstrations are aimed at getting a much better energy

· Improving electrical efficiency and energy recovery by novel designs and reducing 0.- level

Visual control of combustion

#### SP 4 Dissemination SP-leader: SINTEF Energiforskning AS

#### Objectives

The dissemination of results and experience from NextGenBioWaste aims to promote innovative approaches to the use of improvements to energy recovery and renewable electricity production using waste and other commonly available biomass feedstocks, and also to encourage the sharing of policies and knowledge among the participation partners.

The dissemination activities will promote project results and approaches, and encourage duplication in other countries, thereby contributing to EU objectives of CO, reduction and security of energy supply, and to the target of increasing the share of renewable energy sources from 6 to 12% as well as increasing the share of green electricity from 14 to 21% of gross electricity consumption by 2010

### SP 3 Residue handling and use

After suitable upgrading ashes from solid waste incineration plants are for a large part fit for utilization. Practices in some of the European countries confirm the technical possibilities to utilize the bottom ashes as an embankment material in road construction. In other European countries utilization is negligible. Helping to increase the share of bottom ash utilization is one of the targets of the project.

#### Objectives

- This subproject concentrates on the following aspects:
- · Assessing ash management practices
- · Marketing approaches and restraints for MSWI bottom ashes with the purpose to increase market penetration Develop and demonstrate innovative ash management practices
- which will upgrade the ashes to regular construction materials. thereby reducing the quantity of ashes that has to be landfilled



Utilization of MSWI bottom ashes as a road embankment material (test: timning Atabetrives I we from incineration Power KTAM, N

D 4.1.4 Project presentation