

# Feasibility or Case Study for gas supply expansion for South Sweden, SWEDEN

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<b>Dissemination level</b>	Public
<b>Partner name</b>	SEA and ESS
<b>Work Package</b>	WP 4: Supply and distribution infrastructure for gas fuels
<b>Country</b>	Sweden
<b>Region</b>	South Sweden
<b>Are there existing filling stations and natural gas and biogas driven cars already in the region?</b>	yes
<b>Status (F:Final, D:Draft)</b>	F – 8 <sup>th</sup> June 2009

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This case study will look at the successful installation of at least one new gas filling station and one new biogas plant (where appropriate) in your area, and analyse the reasons why this has been successfully installed. Please copy this whole form for each Feasibility Study you undertake

## A. Gas filling station

### A1. Case Study or Feasibility Study

A1.1. How many feasibility studies or case studies have you undertaken for new gas filling stations from 1 Sep 2007 to 20 Aug 2009

Number of case studies:	1
Number of feasibility studies:	0

A1.2 This is Case Study number 1 Reporting date 090917

A1.3 This is Feasibility Study number - Reporting date -

A1.4 Title of this Case Study: Introduction of a new gas filling station in Västervik

A1.5 How was the Case study/Feasibility study selected. According to what criteria?

One of three newly opened gas filling stations in the region. Opened without support of established operators. Based on public use.

A1.6 Would this Case Study have taken place without the input from Madegascar

Yes or No No

The Case study is initiated by Bengt Nordström, ESS, Madegascar
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A1.7 Did you carry out the Study for a particular company or as a marketing tool?

As a marketing tool

### A2. The Study

A2.2 List partners in your study

#### For whom did you carry out the Study

Company name: Biogas Sydost (Energy Agency Southeast Sweden)

Public/private: Public

Business/role: Energy advisors

Address: Framtidsvägen 10A, 351 96 Växjö

Contact person: Bengt Nordström

Tel: +46 734 38 91 21

Fax : +46 479 71 33 73

E-mail: bengt.nordstrom@energikontorsydost.se

Website: www.energikontorsydost.se

**Gas supplier, See owner of filling station**

Company name: Västervik Biogas AB

Public/private: Public

Address:

Contact person:

Tel:

Fax :

E-mail:

Website:

**Filling station construction company**

Company name Bauer Kompressoren

Public/private: Private

Address: Germany

Contact person:

Tel:

Fax:

E-mail:

Website:

**Owner of new filling station**

Company name: Västervik Biogas AB

Public/private: Public

Address: Brunnsgatan 9, 593 80 Västervik

Contact person: Bruno Nilsson

Tel: +46 490 25 40 67

Fax: +46 490 25 70 51

E-mail: bruno.nilsson@vastervik.se

Website:

<http://www.vastervik.se/sites/biogas/templates/startpage.aspx?id=12129>

**Principal users of new filling station: Public**

Company name:

Public/private:

Address:

Contact person:

Tel:

Fax:

E-mail:

Website:

**Other relevant partners (please copy this section as many times as is required)**

Company name:

Public/private:

Address:

Contact person:

Tel:

Fax:

E-mail:
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Website:
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### A2.3 Description of the new filling station:

#### NEW GAS FILLING STATION

Name of filling station and address	Västervik Biogas, Rullstensvägen
Type of location, eg. urban, motorway, industrial estate,	Urban
Type of filling station eg stand-alone, within petrol/diesel filling station	Stand-alone
Number of fast filling points	2
Number of slow filling points	0
Number and make of compressors	2, Bauer Kompressoren
Storage pressure (bar)	300 bar
Storage capacity (water litres)	900 water litres
Ownership of station	Västervik Biogas
Method of financing station	-
Main user of station	Public
Number of vehicle fills per week	Max 700' Nm <sup>3</sup> per year
Total weekly supply of gas to vehicles	Kg or m <sup>3</sup>
Types of vehicles already using the filling station eg HGV, bus, van, taxi, car	Taxi cars, Garbage trucks
What proportion of the gas is biomethane	97%
Name of gas supplier	Västervik Biogas
Price of gas to vehicle owner	10,95 sek per Nm <sup>3</sup>
Price of gas to station owner	€ - per kg
Opening hours	0 - 24
Method of payment, eg. credit card, special card, number plate recognition and account	Credit cards and special cards
Profitable or not, with figures if possible	Not profitable

### A2.4 What was MADEGASCAR's major contribution to the Study

The study is conducted by Bengt Nordström, ESS, for the Madegascar project.
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### A2.5 Were there any incentives to help establish the new filling station?

Governmental founding programme. The establishment was founded with 1.1 MSEK.
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### A2.6 Barriers to establishing new gas filling station:

The main barrier is to overcome the initial investment and to achieve profitability within a reasonable time.
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A2.7 How did MADEGASCAR help to overcome these barriers

N.A.

A2.8 How did others help to overcome these barriers

Political support and municipality decisions.

A2.9 Was a new gas filling station built as a result of your Study

N.A.

A2.10 Total capital cost of new filling station

5.5 MSEK

A2.11 How long did it take to execute the Case Study

24 hours

A2.12 What is the current status (e.g. finished, work in progress)

The filling station was inaugurated on August 31<sup>st</sup>, 2009

A2.13 When did the Case Study start

Initiated in august 2009

A2.14 When did/will the Case Study end

16th september 2009

A2.15 How long did you spend working on this Case Study

24 hours

A2.16 How did this Case Study/Feasibility Study cost

24 hours

A2.17 General conclusions and recommendations

Get political support. The start up should be based on some frequent users such as public buses or other municipality supported transports e.g. garbage trucks.

A2.18 Comments

In this case the production plant was connected to the filling station with a physical pipe line.



**Supplier of waste**

**Company name:** The Municipality of Hässleholm or the municipal waste company Hässleholms Energi och Miljö (organic wastes from households, restaurants etc.) There are also a lot of farmers (many cattle farms etc.) with large quantities of manure within the municipality.

**Plant construction company**

**Company name:** Plant construction companies have not been contacted at this stage in the study.

**Purchaser of biogas**

**Company name:** Not yet studied. But the local gas supplier, who owns the filling station in the city of Hässleholm, will be the most probable purchaser of the produced gas.

**B2.3 Describe new biogas plant:** Because the study did not include the actual biogas plant, all of the questions below cannot be answered

**NEW Biogas PLANTS**

Name of biogas plant and address	
Type of location, eg. farm, municipal, industrial estate,	Municipal
Make of biogas plant e.g.	
Principal feedstocks e.g. municipal waste, cattle slurry	Municipal waste, food industry and cattle slurry
Tonnes per annum of waste treated	Somewhere between 10.000 - 100.000 tpa
Cubic metres of biogas produced	Somewhere around 1230 - 3540 kNm <sup>3</sup> per annum
Proportion of biogas upgraded to biomethane	100 %
Method of upgrading the biogas to biomethane	
Whether biomethane is fed into the gas grid	No gas grid available
Name of gas filling station where biomethane is used	
Method by which biomethane reaches a gas filling station e.g. gas grid, pipeline, trailer, etc	probably pipeline
Price paid for gas to biogas plant owner	€ per m <sup>3</sup>

**B2.4 What was MADEGASCAR's major contribution to the Study**

The major input from the MADEGASCAR partner in the study was a guidance about which substrates that can be used for biogas production. We made a template that was later on used to collect information about the potentials for producing biogas in the municipality.

**B2.5 Were there any incentives to help establish the new ~~filling station~~ biogas plant?**

By producing biogas from wastes and manure within the municipality the amount of imported oil for transportation can be decreased. This leads to less CO<sub>2</sub> emissions and other emissions and is a way to fulfilling the municipality's environmental goals.

**B2.6 Barriers to establishing new ~~gas filling station~~ biogas plant:**

There are a number of barriers. The largest barrier is to get the infrastructure around the biogas plant working without getting to high costs for the entire biogas system. The study that was made shows that there are enough of substrates to produce enough biogas to be able to build an upgrading plant as well (there are scale benefits). The next step is another study that will investigate the local conditions for biogas production; where in the municipality can we find the largest volumes of the different substrates and can the transports of substrates be solved without building to high costs?

**B2.7 How did MADEGASCAR help to overcome these barriers**

The barriers are not yet solved

**B2.8 How did others help to overcome these barriers**

The municipality are about to make a deepened study within the area.

**B2.9 Was a new ~~gas filling station~~ biogas plant built as a result of your Study**

No

**B2.10 Total capital cost of new ~~filling station~~ biogas plant**

Yet to be studied

**B2.11 How long did it take to execute the Feasibility Study**

hours

**B2.12 What is the current status (e.g. finished, work in progress)**

The work is in progress. The municipality will go further and make a feasibility study for an actual biogas production plant and also a upgrading facility based on the study made.

**B2.13 When did the Feasibility Study start**

2008-05-06

**B2.14 When did/will the Feasibility Study end**

2008-11-05

**B2.15 How long did you spend working on this Feasibility Study**

estimated number  
of spent hours: 30

**B2.16 How much did this Feasibility Study cost**

hours

**B2.17 General conclusions and recommendations**

Before doing a detailed feasibility study for a biogas plant based on mainly municipal waste within the close surroundings, make sure that you make an overview study of all available substrates within this area. This recommendation applies to at least smaller municipalities where it is not certain that only the municipal waste is enough to support a biogas plant with substrates.

**B2.18 Comments**